



Oregon Law Institute
of Lewis & Clark Law School

A Flood of Questions: Integrating Floodplain Management and Salmon Conservation

Friday, November 7, 2014

Columbia River Inter-Tribal Fish Commission
700 NE Multnomah St., Room 502
Portland, Oregon

A Flood of Questions: Integrating Floodplain Management and Salmon Conservation

Course Materials from the
November 7, 2014 Program in Portland

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Schedule

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11:15	Levee Certification/Re-Certification	Hong N. Huynh Sunny Simpkins
12:00	LUNCH (on your own)	
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2:45	Floodplains and Local Land Use Regulation	Amanda Punton Gordon Howard Kaitlin Lovell Bryan W. Pohl
3:45	Columbia River Treaty	Brian C. Gruber John Shurts, Ph.D.
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Planners

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CHAPTER 1

Legal Landscape: Managing Floodplains and Restoring Salmon

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Chapter 1

**LEGAL LANDSCAPE: MANAGING FLOODPLAINS
AND RESTORING SALMON**

Excerpts from:

**MISSISSIPPI RIVER TRAGEDIES
A CENTURY OF UNNATURAL DISASTER**

**Christine A. Klein
Sandra B. Zellmer**

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Chapter 1

Excerpts from:

MISSISSIPPI RIVER TRAGEDIES A CENTURY OF UNNATURAL DISASTER¹

**Christine A. Klein
Sandra B. Zellmer**

Chapter 6. Hurricane Betsy of 1965

pp. 111-114: The National Flood Insurance Program and Disaster Relief

Three years after Hurricane Betsy struck Florida and Louisiana, Congress passed the National Flood Insurance Act of 1968. The notion of a flood insurance program had been introduced over a decade before, in the wake of the 1951 and 1952 floods, when President Truman proposed to set aside up to \$50 million for a federally subsidized insurance program. Truman's initial proposal was killed, in part, by the private insurance industry's lobbyists. In 1952, President Truman tried again, this time asking for \$1.5 billion for flood insurance to be administered by private industry. It took more than a decade, however, for Congress to provide a meaningful response.

In the interim, in 1956, President Eisenhower floated a proposal for a \$3 billion flood insurance program. Eisenhower introduced a new approach by requiring a state-federal partnership to subsidize 40 percent of the premiums. Congress was persuaded to pass the Flood Insurance Act of 1956, but funds were never appropriated for its implementation, in large part due to fears that, rather than limiting losses, the availability of subsidized insurance would cause further development in the floodplains and lead to even greater flood damage. Interest in flood insurance and other risk management tools continued through the late 1950s and 1960s, however, and Hurricane Betsy provided the necessary impetus for the passage of the National Flood Insurance Act of 1968.

The 1968 act established a joint private-government flood insurance program, known as the National Flood Insurance Program (NFIP). In establishing the NFIP, Congress had dual purposes in mind. It hoped that local governments would be motivated to adopt land-use control measures to promote what Congress described as "rational use of the floodplain." In addition, Congress wanted to defray the expense of after-the-fact disaster relief by encouraging floodplain occupants to pay premiums before disaster struck. These goals were to be accomplished through a type of quid pro quo arrangement: the federal government would offer insurance to residents (through private insurers) at below-cost rates, but only if their communities adopted certain land-use regulations and other restrictions. Clearly, Congress intended that the adoption of state and local land-use ordinances prompted by the legislation would serve to reduce flood damage over time.

For an area's residents to qualify for NFIP coverage, the entire community must adopt ordinances to regulate future development in so-called *special flood hazard areas* (SFHAs), which are those areas determined to be within the 100-year floodplain—defined as an area that has a 1 percent chance of flooding in any given year. The ordinances must meet minimum criteria established by the Federal Emergency Management Administration (FEMA), including zoning

¹ New York University Press: New York and London 2014
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restrictions, building requirements, flood-proofing, and emergency preparedness plans. Communities are to develop a series of responses, including the adoption of building codes in the floodplain and construction bans in the immediate floodway. Notably, the NFIP contains an important exemption for properties that already existed at the time the area was identified as a “special flood hazard area,” allowing certain older properties to obtain federally subsidized insurance even if the surrounding community failed to regulate future development in the hazard area.

Only five years after the program was enacted, Congress found that flood losses were continuing to increase due to the accelerating development of floodplains. To address the problem, Congress passed the Flood Disaster Protection Act of 1973, which made federal assistance for construction in flood hazard areas—including mortgages and other types of loans from federally insured banks—contingent on the purchase of flood insurance, which is made available only to participating communities. Due to the prevalence of mortgages held by federally insured banks, this amendment remains one of the main hooks that pull participants into the NFIP.

Congress attempted to strengthen the NFIP again in 1988 through the adoption of the Stafford Disaster Relief and Emergency Assistance Amendments. The Stafford Amendments authorize federal funding to acquire destroyed or damaged properties in flood hazard areas, to support rebuilding in non-hazardous areas, and to reduce exposure to flood risk through the imposition of reconstruction standards. Adding another layer of authority to the Disaster Relief Act of 1950, the amendments also allow the president of the United States to deploy federal troops to assist in evacuation efforts and to distribute aid in response to national disasters. But even as Congress adopted laws to encourage communities to adopt land-use regulations that would prohibit new building in flood-prone areas and that would require strengthening of existing structures, the U.S. Supreme Court would decide a series of . . . [regulatory takings cases, beginning with *First English Evangelical Lutheran Church v. County of Los Angeles*, 482 U.S. 304 (1987)] at cross-purposes with those congressional goals. . . .

Chapter 7. The Flood of 1993

pp. 122-24, 127-39: Revealing the Moral Hazard of Subsidized Flood Insurance

When Congress authorized the creation of the National Flood Insurance Program (NFIP) in 1968, it did so with trepidation. It worried that subsidizing flood insurance—even with strings attached—might encourage development of risky areas, luring even more people into harm’s way. Back in the 1920s, President Coolidge had worried that such federal subsidies would encourage waste unless citizens had a direct financial interest at stake. Later, in 1956, Congress established a flood insurance program but declined to fund it because Congress feared that federal subsidies would lead to more floodplain development and increased flood damage. A decade later, renowned geographer Gilbert White, known as the “father of floodplain management,” expressed similar concerns. White chaired a federal task force commissioned to reexamine the nation’s flood control policies. Its 1966 report supported the concept of federal flood insurance, but with an admonition reminiscent of the concerns voiced by Congress back in 1956: “A flood insurance program is a tool that should be used expertly or not at all. Correctly applied, it could promote wise use of flood plains. Incorrectly applied, it could exacerbate the whole problem of flood losses.”

As author Ted Steinberg observes, many may have little choice but to make the floodplain their home, “compelled to live there by economic exigencies, by the simple fact that cheap, flood-prone land can be a magnet for the poverty stricken who are forced to live in the shadow of disaster.” But what about other people and businesses that voluntarily choose to occupy (or remain in) the floodplain?

As the private insurance industry knows well, policyholders must be given a financial stake in minimizing their own flood risk to avoid what the industry calls a moral hazard. Otherwise, the availability of insurance can prompt people to take risks that they would not otherwise consider, such as occupying river bottomlands highly susceptible to periodic flooding. In 1968, the National Flood Insurance Act finally became law, but generally failed to create sufficient incentives to produce the desired results. Gilbert White's warning would prove to be remarkably accurate in the next great flood.

The Midwest, Submerged

The spring and summer of 1993 brought torrential rains to the Midwest, along with record-breaking river crests. Throughout the region, the skies dumped a year's worth of precipitation in only three months. The deluge was even more intense in some counties, where twenty inches of rain washed down in a single month. By August, the upper Mississippi and its tributaries, including the Missouri River, flooded seventeen thousand square miles in nine states (an area almost twice the size of New Jersey). According to the National Weather Service, the 1993 flood broke records for both intensity and duration throughout Missouri, Minnesota, Iowa, and Illinois.

The effects of the flood reached far and wide. Levees failed, one after another. The rivers gushed over—or punched through—40 of 226 federal levees. Non-federal levees fared even worse: the torrent over-topped or breached 1,043 out of 1,347 structures. In Missouri, floodwaters sloshed over the steps of the St. Louis Gateway Arch. In Des Moines, Iowa, the city's water treatment plant was overcome, leaving 250,000 residents without drinking water or sanitation. Throughout the region, submerged Superfund sites, hundreds of discarded barrels, and dislodged propane tanks released their hazardous contents, spreading toxins throughout the floodplain. The U.S. Geological Survey and the Army Corps of Engineers estimated that the flood caused forty-eight deaths and up to \$20 billion in property damage. It also displaced about seventy-four thousand people. At the time, the USGS described it as the “costliest flood in the history of the United States.”

Many of the victims were uninsured. Although the National Flood Insurance Program had been in place for a quarter century, up to 80 percent of eligible property owners had not taken advantage of the opportunity to protect themselves. . . .

Chesterfield, Missouri: Building and Rebuilding in a Floodplain

Chesterfield sprawls along the Missouri River, just west of its confluence with the Mississippi. A suburb of St. Louis, Chesterfield depended on the 11.5 mile Monarch levee to protect its low-lying incursion into the Missouri River floodplain. The privately built levee sheltered 4,240 acres (about 20 percent of Chesterfield's area) from the level of flooding that has a 1 percent chance of occurring each year (the 100-year flood). But the century old levee finally gave way on July 30, 1993, after it had been pummeled by extraordinary spring and summer rains. The Missouri raged out of its bed and submerged much of the Chesterfield Valley beneath eight feet of muddy water. Chesterfield was one of the hardest-hit communities during the disaster, suffering more than \$200 million in property damage and sustaining flood depths of up to fifteen feet. In fact, the flood damage was so extensive that Chesterfield property owners, alone, collected almost 5 percent of the total federal insurance payouts awarded throughout the entire nine-state area affected by the flood.

Chesterfield had begun as a collection of little communities, all shaped by the Missouri River. Originally known as Hog Hollow, the town was founded about 1850. Although no longer known by that name, the initial designation is now honored by the two-lane, hair-pin Hog Hollow Drive that snakes its way down from high land into the flat bottomland of the Missouri floodplain. Another of the original communities, Gumbo, was named for the sticky, oozy, rich river muck that makes the floodplain so fertile for agriculture. A third settlement, historic Monarch, was the namesake of the levee that failed in 1993.

Beginning in the late 1960s, sleepy Chesterfield began to grow. Where it spread into the Missouri River floodplain, it became known as Chesterfield Valley. By the early 1990s, about 240 businesses had sprouted in the floodplain, replacing cornfields and woodland. Chesterfield had become a thriving, affluent suburb of St. Louis. After the 1993 flood, it would become nationally known for its residents' and business owners' bold exploitation of loopholes in the National Flood Insurance Program. . . .

Back in 1937, the store, tavern, and gas station of the Chesterfield Mercantile Company lay at the end of a dirt road. Just to the north, the half-mile wide Missouri River makes a languorous curve in the final leg of its twenty-five-hundred-mile journey to the Mississippi River. Nourished by the Missouri's historic overflow, the rich floodplain sustained the cornfields that surrounded the Mercantile. After a succession of shopkeepers, Thom and Jane Sehnert took over the property in 1979. The Sehnerts took pride in the agricultural heritage of the valley, and touted the network of local family farms that supplied them with just-picked produce. In fact, the restaurant adopted the motto, "inspired by the richness of country life." Remnants of that richness appear everywhere, from the surviving cornfields to the nearby street names—River Valley Drive, Greens Bottom Road, Chesterfield Farms Drive. The Monarch-Chesterfield levee system separates Annie Gunn's from the Missouri River. Six lanes of Interstate 64 also lie between the restaurant and the river. But all that paving and engineering cannot change one essential fact: Annie Gunn's lies in the floodplain.

When the Monarch levee failed during the 1993 flood, both Annie Gunn's and the Smokehouse Market were destroyed. The Sehnerts had to be rescued from the rooftop rafters of their business. Otherwise astute business people, the Sehnerts were uninsured until the flood was at their doorstep. According to one newspaper report, the Sehnerts realized on the eve of the flood that their property insurance did not cover flood damage. Just days before the levee crumbled, like many of their Chesterfield neighbors, they bought into the federal flood insurance program. After the flood, with Midwestern gumption, the Sehnerts picked themselves up and began again. The moment was "bittersweet," they explain. It was bitter for obvious reasons. But the flood was also sweet, according to the Sehnerts, because it provided them with an "opportunity"—the chance to rebuild their already-popular restaurant and store into something even better. Seven months and \$3 million later, they reopened their business at the same location.

The Sehnerts are celebrities, both nationally and locally. In 2004, the National Association for the Specialty Food Trade named them as one of seven "outstanding retailers" of the year. They also enjoyed recognition from *Gourmet* and *Wine Spectator* magazines. But they are most beloved at home. As the *St. Louis Post-Dispatch* reported, Annie Gunn's "has woven itself into the hearts of the people who live and work around Chesterfield Valley. Once the most dismal example of the flood's devastation, the restaurant . . . now stands as a symbol of the valley's booming prosperity." This Midwestern impulse to rebuild, to push on in the face of adversity, is undeniably admirable. But is it wise to build, and rebuild, in the floodplain of a major river and in an area that was under many feet of water not too long ago? One can't help but recall the concerns of President Coolidge,

the 1968 Congress, and Gilbert White that federally subsidized insurance might create a “moral hazard” that prompts people to take risks they would never consider in the absence of federal subsidies, if only their own money were at stake. . . .

Not even the great Midwestern flood of 1993 could dampen Chesterfield’s thirst for growth. In defiance of the Missouri River, Chesterfield, like the Sehnerts, continued to dream big. By 1994, the Army Corps of Engineers had repaired the 100-year-flood Monarch levee. Soon afterward, Chesterfield began a two-front campaign to subdue the river: It lobbied Congress for federal assistance to raise the Monarch levee to the “500-year flood” standard; at the same time, Chesterfield planned to construct its own private 500-year levee if the federal government did not come through. Under a provision of Missouri law related to “tax increment financing,” the city designated the floodplain “blighted” and subject to a “redevelopment plan.” As a result, Chesterfield acquired legal authority to issue bonds for the proposed levee project, to be repaid with certain sales and property tax revenues. Ultimately, the lobbying paid off. In 2000, Congress authorized the levee improvements as a federal project, paving the way for an estimated \$38 million federal contribution to Chesterfield’s dream of continued development in the floodplain. . . . By 2009, Chesterfield Valley supported over 830 businesses—more than triple the pre-flood tally. Most notable is Chesterfield Commons, a 380-acre strip mall that supports such giants as Home Depot, Lowe’s, Sam’s Club, Target, and Wal-Mart. The developer, THF Realty, touts the mile-long development as “possibly the largest, most exciting outdoor shopping center in America.” Others simply call it the country’s longest strip mall. Just fifteen years earlier, the entire area had been submerged beneath eight feet of water. In the aftermath of the flood, developers spent more than \$2 billion on new real estate development. . . .

Accepting Responsibility

Earlier in the century, after the flood of 1927, the nation cried out for federal leadership to control flooding and to help pay for its devastating consequences. In response, Congress developed a three-pronged approach: 1) authorizing construction of more flood control structures, beginning with the Flood Control Act of 1928; 2) providing systematic payment of federal disaster relief, beginning with the Disaster Relief Act of 1950, and 3) providing subsidized federal flood insurance, beginning with the National Flood Insurance Act of 1968. The latter two measures received their first major challenge during the 1993 Midwest flood. Taken together, these reforms proved to be at best incomplete, and at worst utterly wrong-headed. In some cases, they even promoted—rather than relieved—flood damage.

After the 1993 flood, the Clinton administration charged a blue-ribbon committee with the task of studying existing flood control programs and making recommendations for change. The so-called Interagency Floodplain Management Review Committee released its final report in June 1994. Although formally titled *Sharing the Challenge: Floodplain Management into the 21st Century*, the report is perhaps better known as the Galloway Report, named after the committee’s executive director, Gerald E. Galloway, brigadier general of the U.S. Army.

Throughout its highly detailed, nearly three-hundred-page report, the committee called repeatedly for shared responsibility and accountability: “All of those who support risky behavior . . . must share . . . in the costs of reducing that risk. . . . Individual citizens must adjust their actions to the risk they face and bear a greater share of the economic costs.” The report demonstrated that some of the “lessons” from the 1927 flood had been misinterpreted, resulting in policies that produced unintended adverse consequences. The committee called for several new approaches,

including strategic retreat from floodplains, reformation of the NFIP, cutting back on repetitive insurance payments to particularly risky properties, and rethinking disaster subsidies.

The first suggestion of the Galloway Report—retreating strategically from some flood-prone areas—was rejected by Chesterfield, Missouri, which came roaring back after the 1993 flood. It rebuilt and raised levees, which paved the way for extensive new development in the floodplain. Although lucrative—at least in the short term—such continued reliance on levees may prove to be a risky course of action. The Galloway Report treaded carefully on the topic of levees. Overall, the report concluded that levees “did not cause the 1993 flood” and that “[f]ederally constructed levees, in concert with upstream flood-storage reservoirs, protect many large urban areas from potentially significant damage.” However, the report asserted that levees may have adverse “significant localized effects.” In addition, the report emphasized the *residual risk* that remains behind levees, as illustrated by the failure of levees designed to protect against the “100-year” flood in Chesterfield, Missouri, and in several other areas. The Galloway Report singled out the Monarch levee as “an example of a levee that induced floodplain development and of the residual risks that result from depending on a levee for flood protection.”

Overall, the report recognized that levees encourage a “false sense of security that develops among floodplain occupants.” This creates a potentially dangerous cycle. As the report explained, “Reservoirs, like levees, reduce the flood threat to many downstream communities, but the reduction in flood flows simultaneously creates incentives for many people to settle riverbanks and become subject to the impacts of the next major flood. The promise of post-flood support from government and private agencies may encourage people to continue occupying land at frequent risk of flooding.”

The committee recognized that communities cannot always build their way out of flood danger with levees, dams, and floodwalls. As a viable alternative, it endorsed floodplain evacuation as a tool to limit unwise development in some cases. According to the committee, using government funds to buy out properties from willing sellers, focusing on those parcels most vulnerable to flooding, would be a viable means of making a strategic retreat from the floodplain.

The buyout approach was not new. In the two previous decades, the government had purchased at least six hundred buildings in the Mississippi’s upper basin and moved them out of harm’s way. In 1988, Congress had supplemented state and local efforts with \$6 million in federal funds for floodplain buyouts by the Federal Emergency Management Agency.

The 1993 flood stimulated renewed interest in buyouts, and prompted FEMA to make them a key component of its strategy to mitigate flood losses. By year’s end, Congress passed the Hazard Mitigation and Relocation Assistance Act of 1993, which made available \$130 million to Midwestern communities for disaster relief and hazard mitigation. Recipients were allowed to use funds to elevate buildings, improve drainage, build floodwalls, or take other actions to provide flood protection. Buy-outs became the most popular option, taking nearly 90 percent of the available funds. Although previous buy-out programs applied only in cases where property was repeatedly flooded or where damage exceeded half of the property’s market value, the 1993 hazard mitigation program allowed any building in the 100-year floodplain to be bought out. Over two hundred local governments competed for federal funds to acquire buildings in flood-prone areas. As a result, more than ten thousand buildings were removed. Missouri’s Community Buyout Program, for example, dedicated more than \$30 million in federal money to the acquisition of residential properties. Homeowners received pre-flood value for their homes plus federal loans to find new housing outside flood-prone areas.

Federal funds were also provided for the acquisition of over one million acres of marginal farmlands. Throughout the Midwest, many of those properties were converted to open space, wetlands, and forests. For instance, the Missouri Department of Conservation, the U.S. Fish and Wildlife Service, and the Corps of Engineers acquired tens of thousands of agricultural acres within Missouri's floodplains and converted much of it to wetlands. Likewise, Minnesota spent millions of dollars on conservation easements to prevent development in flood-prone agricultural areas.

Elsewhere, communities adopted ordinances to severely limit new floodplain construction, but stopped short of removing existing structures and farms. For example, Calhoun County, Illinois—located about forty miles north of St. Louis—made extensive post-flood revisions to its zoning code. The revised code prohibited all new residential construction in the 100-year floodplain and required that damaged residences be elevated before they could be replaced. It also limited new commercial development to river-oriented industries, such as marinas, resorts, and ferry landings, and required developers of river-oriented businesses to supply a development application that assured adequate flood-proofing either by elevating structures or building a 500-year private flood levee.

The second suggestion of the Galloway Report called for reform of several critical flaws in the National Flood Insurance Program. It determined that FEMA's floodplain maps were incomplete or inadequate. Some counties had not been mapped, particularly in rural areas with low population densities. Moreover, FEMA policy allowed land to be removed from floodplain maps if it had been filled with dirt or other materials to elevate it to a point above the 100-year flood line. The report's authors feared that such policy "may encourage the filling of floodplains by developers to avoid community floodplain management requirements and to assist in marketing flood prone properties. It may also result in individuals making decisions to purchase a property without full knowledge of the residual risk of flooding, the advisability of obtaining flood insurance coverage, or access problems during floods." Owners of parcels thus excluded from FEMA floodplain maps could avoid purchasing insurance under the NFIP. Overall, FEMA had failed to map 108 counties that had been declared disaster areas during the 1993 flood.

Another set of NFIP problems uncovered by the Galloway Report concerned the timing of insurance coverage. When the 1993 flood struck, NFIP required only a five-day waiting period between the date of insurance purchase and insurance coverage, which created an incentive for property owners to wait until flooding appeared imminent before buying insurance. Annie Gunn's Restaurant was not alone in acquiring coverage just days before disaster struck. More than one-third of the successful insurance claims after the 1993 flood were filed by landowners who had paid into the insurance pool for less than two months. The report estimated that these last-minute insurance policies obtained within sixty days of the flood drained federal insurance coffers by about \$105 million. Even more striking, 137 new policy holders waited until just fifteen days before the flood to purchase federal insurance. The majority of these claimants were clustered in Missouri—including Chesterfield—where insurance payouts approached \$30 million.

Timing issues also plagued the NFIP program from the opposite direction: Even as some policyholders purchased insurance as late as possible, others terminated their policies as early as possible. That is, although the NFIP directed federally insured lenders to require flood insurance for mortgages attached to floodplain properties, some buyers who had purchased NFIP policies when they first obtained their mortgages dropped coverage when it came time for renewal the next year. As a result of these flaws and other factors, participation in the federal flood insurance program was well below the optimal level to ensure its financial sustainability. At the time of the 1993 flood, a scant 20 percent of insurable structures in the floodplain were covered by federal insurance.

Overall, the report writers worried that the existing NFIP structure subsidized behavior that constitutes a “moral hazard”—a phrase borrowed from the private insurance industry to describe “the situation when an insured party has a lowered incentive to avoid risk because an enhanced level of protection is available.” As the report noted, private insurers seek to prevent moral hazards by giving insured parties a financial stake in minimizing the risk against which they are insured. Such measures create financial exposure for policyholders, as through the payment of deductibles, the raising of premiums following the filing of claims, and/or the coverage of only a portion of the policyholder’s loss. The federal program of flood insurance, in contrast, generally lacked such incentives for floodplain occupants to reduce their own exposure to danger.

In 1994, Congress enacted the National Flood Insurance Reform Act to address some of these problems. The amendments took aim at the Chesterfield phenomenon by increasing the waiting period from five to thirty days before newly purchased insurance could take effect. In addition, the 1994 law ratcheted up the pressure on lenders and subjected them to monetary penalties if they failed to enforce the requirement that property owners maintain insurance coverage throughout the loan period. The 1994 law also extended the insurance requirement to all federally *regulated* banks, not just federally insured banks.

The Galloway Report’s third suggestion called for a comprehensive strategy to address the *repetitive loss* problem—when an NFIP-insured property floods multiple times, and the owner receives multiple NFIP payments. In the nine Midwestern states that flooded in 1993, the NFIP covered a total of 5,723 buildings that had sustained repetitive losses. In the fifteen years before the flood, NFIP had paid 16,978 claims on those buildings—an average of almost three claims per building. Nationwide, repetitive loss properties constituted only about 1 percent of NFIP policies. And yet, this small segment of properties received over 40 percent of all claims payments. The report concluded that such repetitive loss buildings represent a “significant liability” for the NFIP program.

The National Flood Insurance Reform Act of 1994 included some measures to address repetitive losses, including the creation of a Flood Mitigation Assistance (FMA) program of federal grants to assist policyholders in elevating, flood-proofing, demolishing, or relocating structures subject to substantial or repetitive loss. Ten years later, Congress granted FEMA additional authority to strengthen the FMA grant program by providing for penalties against those who declined FMA grants.

For its final recommendation, the Galloway Report focused on federal disaster assistance, which it described as a program “funding disaster.” In the five years preceding the 1993 flood, the federal government had spent more than \$27.6 billion on such assistance. In many cases, disaster relief was authorized through emergency appropriations that contribute to the federal deficit without the careful planning, fiscal offsets, and continuing oversight that are typically required for non-emergency spending.

As the Galloway Report observed, disaster subsidies can undermine the federal insurance program because some property owners have the false impression that disaster relief provides after-the-fact “free” (or remarkably low cost) compensation comparable to that provided by flood insurance. As a result, such landowners may decline to participate in the NFIP, reasoning that it makes no sense to pay for insurance that might not be needed, if those landowners can count on receiving disaster relief for free if their property floods.

The Galloway Report suggested that disaster relief is not an adequate substitute for insurance, at least from a systemic perspective. The report found that flood insurance is preferable to disaster assistance because the former “internalizes” risk by requiring property owners to pay insurance premiums, albeit at subsidized rates. As a result, the insured landowners may be far more likely to take preventative measures to minimize their flood risk. The Galloway Report acknowledged the deep emotional urge to pay the victims of disaster. After all, it noted, compassion is an understandable (and politically expedient) response to live media coverage of levees bursting and houses swept away by torrents of raging flood waters. But, the report argued, emotion may lead the nation to ask the wrong questions. Instead of wondering how devastating flood damage could happen, it suggested, the better question might be “why the house was there in the first place.”

The Galloway Report advocated tough reforms. Most striking was its call to deny full disaster assistance to floodplain occupants who declined to purchase federal flood insurance. According to the report, “If federal response to disaster relief is driven by the immediacy of an event, rather than by rational decision-making, the effort to put everything back to the way it was may increase future risk rather than promote long-term solutions to risk reduction.” Instead of indiscriminate disaster relief, which can subsidize bad decisions, the report concluded, the country would be better served by learning from each flood and using it as an opportunity for change.

Conclusion

pp. 185-201: Looking Back: How Law Has Hurt

The problem is not that we fail to learn from our mistakes. Sometimes we do learn a thing or two, and sometimes we even take tentative steps to avoid the same mistakes in the future. Instead, the problem is that we have short attention spans, lapse into complacency, or run off to address the next pressing issue in the calm period between the storms. We have learned much during our experiment with intensive federal flood management, which began in earnest with the passage of the Federal Flood Control Act of 1928. Three lessons stand out: 1) Rivers *will* flood; 2) levees *will* fail; and 3) unwise floodplain development *will* happen if we let it.

First, rivers *will* flood. The Mississippi continues to rise above its banks, despite the corset of levees designed to prevent it from spilling into its floodplain. As the U.S. Geological Survey reported, during the twentieth century floods topped the list of “natural disasters” in terms of death and property damage. We pour billions of dollars into control structures: The Army Corps of Engineers has spent in excess of \$120 billion on flood projects since 1925. But despite our best efforts, flood damages continue to rise.

As the Association of State Floodplain Managers warns, “Building in a floodplain is like pitching your tent on a highway when there are no cars coming.” We flirted with—in fact, we married ourselves to—the disastrous “levees-only” policy. But we learned from the flood of 1927 and rejected that policy, in the words of one official, as “the most colossal blunder in engineering history.” To replace the natural floodplains that had been walled off behind levees, the Corps designed artificial “floodways.” In a poor imitation of natural processes, we now direct overflow to these engineered floodways through gaps (*fuse plugs*) where the levee height is lower than in surrounding areas. In a pinch, we use dynamite to blast out an emergency exit for the river. In effect, we’re still putting our faith in levees, but we’ve added a few more tools to the box.

We’ve also learned that flooding is not such a bad thing after all, ecologically speaking. They enrich floodplain soils and deliver sediments to build up river deltas. Just as we devised engineered

substitutes for natural floodplains, we also use technology to mimic natural floods and to produce at least some of their benefits. To restore levee-starved riverine habitats, at times we deliberately manipulate dams and reservoirs to create “managed” floods.

Levees, floodways, spillways, fuse plugs, dynamite, managed floods. In many cases, wouldn’t it have been easier-and smarter-just to let the river reclaim its floodplain and to settle out of harm’s way?

Second, levees *will* fail. As one engineer explains, there are two kinds of levees: “Those that have failed and those that will fail!” In fact, levees are *designed* to fail under some circumstances. In engineer-speak, this is dubbed *residual risk*. The typical “100-year levee” is engineered to hold back the level of flooding that has at least a 1 percent chance of occurring each year (which translates into a 26 percent chance of flooding over the life of a thirty-year mortgage). Beyond that, all bets are off. The American Society of Civil Engineers (ASCE) warns, as an “essential levee fact,” that no levee is flood-proof. In the ASCE’s words,

Levees *reduce* the risk of flooding. But no levee system can *eliminate* all flood risk. A levee is generally designed to control a certain amount of floodwater. If a larger flood occurs, floodwaters will flow over the levee. Flooding also can damage levees, allowing floodwaters to flow through an opening, or breach.

Third, unwise floodplain development *will* happen if we let it. And we let it happen by providing subsidized flood insurance. Congress created the National Flood Insurance Program (NFIP) in 1968, but it did so with trepidation. Our legislators worried that rather than limiting losses, the availability of subsidized insurance policies would cause further development in the floodplains and lead to even greater flood damage. (After all, the private market refused to provide flood insurance for good reason—such policies were far too risky.) Just two years earlier, a national task force had warned, “A flood insurance program is a tool that should be used *expertly or not at all*. Correctly applied, it could promote wise use of flood plains. Incorrectly applied, it could exacerbate the whole problem of flood losses.” The task force’s warning proved apt. Attempting to wield the NFIP tool “expertly,” Congress adopted significant amendments to the program’s legislation in 1973, 1994, and 2004.

The 1993 floods and the 2005 hurricane season illustrated critical flaws of the NFIP: People had in fact built their homes and businesses in floodplains; not enough of them bought into the insurance pool (even though they may have been legally required to do so); and insurance premiums were not high enough overall to make the program financially sustainable in the long term. For the three and a half decades leading up to Hurricane Katrina, the NFIP was able to support itself with premiums and fees generated by insurance policies, despite satisfying claims for flood after flood, including paying out almost \$300 million after the Midwest flood of 1993. But after Hurricane Katrina, over \$16 billion worth of claims swamped the NFIP’s ability to remain financially self-supporting. To make up the shortfall, the NFIP obtained an interest-accruing loan from the U.S. Treasury. By January 2011, the program owed the treasury almost \$18 billion.¹²

Congress designed the NFIP to steer development away from high-risk areas. But over time, it became apparent that this goal had not been realized. The case of so-called *repetitive loss* properties illustrates this phenomenon. During the NFIP’s first four decades, 50,644 insured properties sustained flood damage on more than one occasion. Of these, 11,706 had sustained four or more losses, or had sustained two or more losses, the cumulative payments for which exceeded the value of the property. Rather than move out of the floodplain or take measures to flood-proof

their properties (such as elevating them), these landowners collected insurance benefits and stayed put. Although repetitive loss properties held only 1 percent of all NFIP policies, they sucked up an annual average of 30 percent of all claims payments. From 1978 to 2004, these determined floodplain dwellers pocketed at least \$2.7 billion in benefits, with estimates reaching as high as \$4.6 billion.

These repetitive loss properties are damning evidence that the NFIP has failed to reduce flood damage or to dissuade people from occupying hazardous areas. Instead, it has enabled a small (but expensive) group of people to remain stubbornly in harm's way.

Congress attempted to address some of the NFIP's shortfalls when it passed reauthorization legislation known as the Flood Insurance Reform Act of 2012. The law was aimed at making the NFIP fiscally stable and sustainable by, among other things, gradually phasing out below-market subsidized insurance rates and raising the cap on permissible annual rate increases. No sooner than the legislation passed, however, Hurricane Sandy ravaged portions of the Atlantic coastline, destroying or damaging some 385,000 homes in New Jersey and New York. When it became apparent that the strict new law would have a severe financial impact on already-devastated homeowners—in some cases requiring annual insurance premiums of up to \$20,000—Congress blinked. Just one year after Congress passed the reform legislation, it began debating potential measures to delay or preclude implementation of the new provisions. . . .

Moving Forward: How Law Can Help

Legal reforms are needed to hold accountable those who endanger themselves or others, both physically and financially. Unlike some of the measures adopted by the Corps, these reforms are institutional, not structural. We propose the following: (1) Eliminate federal immunity for flood damage; (2) reform the decision-making metrics for the construction of flood control projects; (3) reform the Fifth Amendment takings doctrine; and (4) reform the National Flood Insurance Program both to keep people out of harm's way and to force those who engage in risky behavior to assume the risk (and the cost). . . .

(4) Reform the National Flood Insurance Program to move people out of harm's way and to force those who engage in risky behavior to assume the risk (and the cost).

This recommendation involves a number of related reform proposals.

a) Eliminate the levee loophole: Before purchasing property, buyers (or their lenders) can measure the property's location against flood hazard maps prepared by the Federal Emergency Management Agency. The maps give would-be purchasers information about the potential flood risks they will face, and about whether or not they will be required to purchase federal flood insurance. Currently, if an otherwise flood-prone area lies behind a levee certified to protect from the 1 percent annual chance flood (the so-called *100-year flood*), the area can be removed from FEMA flood maps. As a consequence, landowners may have a false sense of security and not realize the risks they face if/when the levee fails. Congress should eliminate this levee loophole, which excludes certain flood-prone properties from the requirement to purchase insurance if the area lies behind a certified 100-year levee. At a minimum, Congress should limit the exclusion to properties behind 500-year levees. Even better, levees should not be an excuse for the failure to purchase flood insurance, if the area would otherwise be considered a floodplain. After all, we've learned there are only two kinds of levees: "Those that have failed and those that will fail!"

b) Require realistic federal maps and state disclosure forms: Even if Congress does not repeal the levee loophole, states can take measures to improve landowners' understanding of risk. For example, state law could require sellers to disclose to potential purchasers the flood status of the property and the relevance of levees (if any) to that status. FEMA could require states that participate in the NFIP to adopt disclosure requirements. To assist sellers in satisfying their disclosure obligation, FEMA maps should make clear whether an area is outside the 100-year floodplain because of natural topography or, conversely, because of the presence of constructed levees.

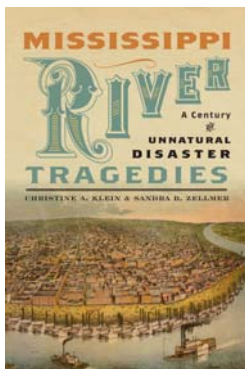
c) Increase participation in the NFIP: To make the program financially sustainable, more floodplain occupants must purchase and maintain insurance. First, officials must enforce existing purchase requirements. A 2006 study estimated that fewer than 50 percent of those living in hazardous areas had purchased mandatory flood insurance, and many who purchased insurance when they first got their mortgages subsequently dropped it. Second, Congress should expand the insurance requirement from 100-year floodplain occupants to 500-year floodplain occupants.

d) Adjust insurance premiums and eliminate subsidies: Insurance premiums should not be subsidized at artificially low rates. This can be accomplished through four approaches:

- 1) Those who live behind levees should pay premiums that recognize the "residual risk" of levee failure.
- 2) Congress should adopt a "one strike and you're out" policy for repetitive risk properties. That is, floodplain residents would be compensated one time only. The payment should be sufficient to assist the resident in relocating to higher ground or in elevating the structure. If a second flood occurs, the resident will not be entitled to NFIP benefits.
- 3) Where older properties (generally less sturdy and less able to withstand flooding) have been "grandfathered" into the NFIP program at below-market rates, Congress should phase out these subsidies over time to ensure that the premiums reflect the risks.
- 4) Congress should exclude voluntary risk-takers by making ineligible for NFIP coverage vacation homes and non-water dependent businesses, and by strengthening the exclusion of barrier island properties from NFIP.

Reformers must take care to ensure that the financial burdens imposed by reforms are imposed fairly and manageably.

e) End federal insurance altogether? Bold reformers suggest eliminating the federal insurance program and allowing private insurers to step into the void (if they dare). This would likely either result in higher insurance premiums that more closely approximate the true cost of risky behavior, or eradicate coverage for flooding altogether. This proposal should be studied carefully to insure that it would discourage floodplain settlement without leaving stranded those with little choice. As with the previous suggestion, reformers must take care with this measure. In particular, they must ensure that one federal program (after-the-fact disaster relief) does not substitute for another (the NFIP). . . .



Unnatural Disasters:
How Law Hurts,
How Law Can Help

Sandra Zellmer
Univ. of Nebraska Law
Nov. 7, 2014

"We are playing defense
against an opponent that is
infinitely patient, needing only
to find the right time and place
to overcome our efforts and
knock us flat."

Dan Farber, Legal Planet











Major Floods and Hurricanes
Provoking Congressional Responses

- 1907-13
- 1927
- 1951-52
- 1993
- 2005
- 2011

Early 20th Century: “Let Main Street Save Main Street”



Ransdell-Humphreys Flood Control Act of 1917 - To control floods on the Mississippi, the Ohio, and Sacramento Rivers, not to exceed \$45,000,000 total. New levees to meet federal construction standards, and existing levees to be fortified and raised 3' above the high water mark of 1912.



Train carrying Secretary of Commerce Herbert Hoover wrecked near Heads, Miss., 1927

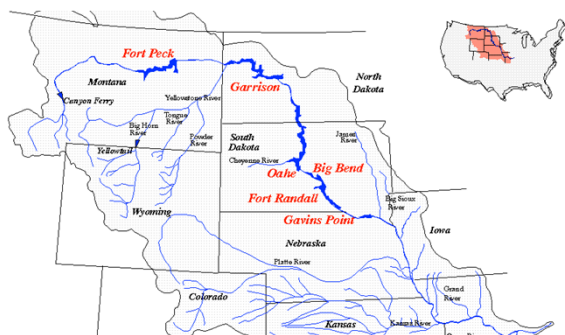


Flood refugees in Mississippi, May 1927
Mississippi Department of Archives

More Structures
(1928 Flood
Control Act)

**20th
Century
Flood
Control
Policy**

Dams authorized by the 1944 Flood Control Act





Garrison Dam in the midst of construction; Missouri River bottomlands, ca. 1948. NIH.

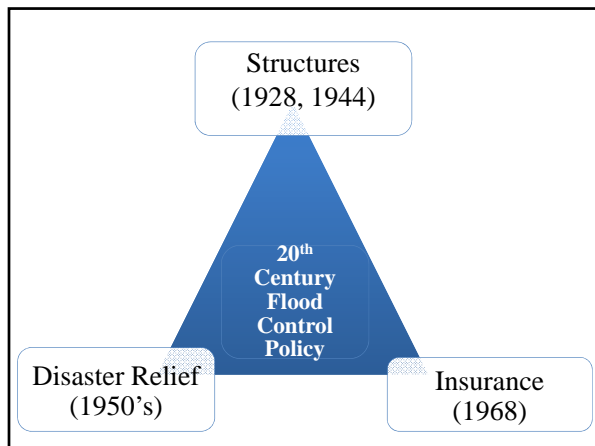


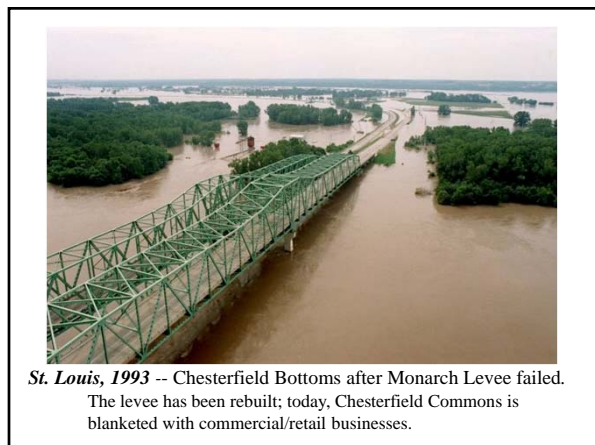
Secretary of Interior A. J. Krug approves the condemnation of 155,000 acres of Fort Berthold reservation for Garrison Dam, as Councilman George Gillette weeps. W. Chaplin 1948.

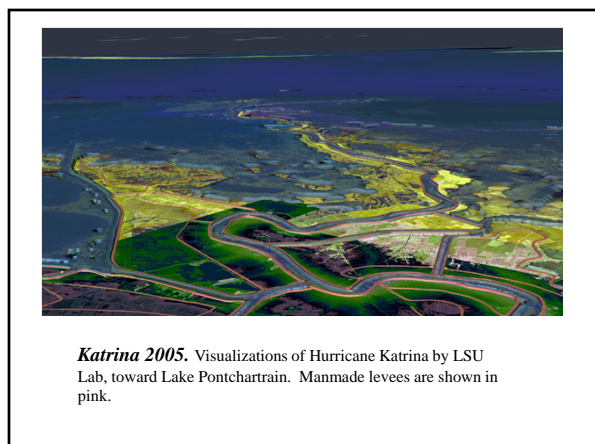


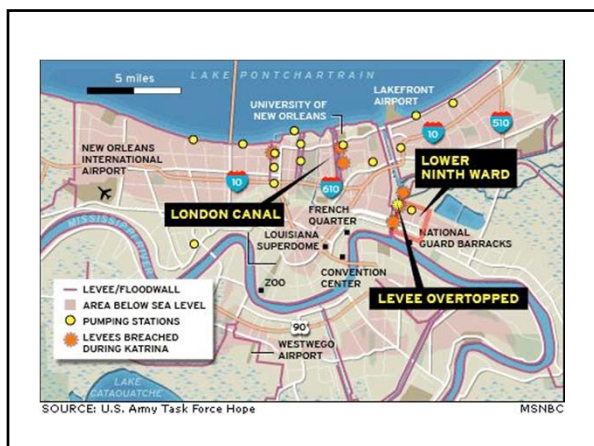
The new city auditorium is surrounded by water which reaches beyond into the industrial and stockyard sections of the city - Apr. 13, 1952
Photo © Bettmann CORBIS

Sioux City, IA, 1952













Dakota Dunes Aug. 1, 2011



Temporary levees protect Dakota Dunes homes from flooding in June 2011.
Some 460 Landowners have filed a lawsuit against the Army Corps of Engineers, alleging takings due to floodplain management.
Tim Hynds, Sioux City Journal

Structures
(1928)

21st C.
Flood
Control
Policy?

Disaster Relief
(1950)

Insurance
(1968)



The continuing
quest for a
floodless
floodplain. . .

- **Rivers will flood**
- **Levees will fail**

Part of a proposed 8-mile series of coastal defenses -- the Big U -- that would wrap Manhattan with 10-foot-tall berms. *NYT 10/24/14.*



Trying
something
new

Reform #1- Revise FCA to Supplement *Engineering* with *Ecology*
The largest floodplain restoration effort in the Basin removes 17 miles of levee & reconnects floodplain forest to the Ouachita River.

REFORM #2:

- **Unwise floodplain development *will* happen if we let it**

And we let it in part with subsidies.

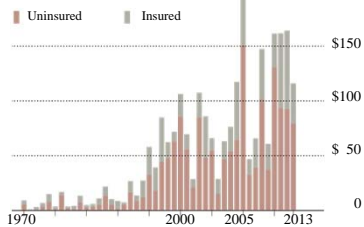
Over the past 30 years annual losses from natural catastrophes have continued to increase . . . while the insured portion has declined.

Property and casualty insurers face huge potential costs in the future: over 6.5 million homes in the U.S. are at risk of storm surge damage, to the tune of \$1.5 trillion -- about 1/10 of the annual output of the entire American economy.

Ceres, Insurer Climate Risk Disclosure Survey Report, Oct. 23, 2014

The “moral hazard”

Estimated annual losses worldwide from weather-related natural disasters, *NYT 10/21/14*



In 2013, less than 1/3 of the \$116 billion in worldwide losses from weather-related disasters were covered by insurance.

The National Flood Insurance Act & NFIP

Dual purposes:

- Local governments are motivated to adopt land-use measures to promote “rational use of the floodplain.”
- Congress defrays the expense of after-the-fact disaster relief by encouraging floodplain occupants to pay premiums *before* disaster strikes.

Method:

- A *quid pro quo*: The federal government offers insurance to residents (through private insurers) at below-cost rates, but only if their communities adopt land-use restrictions in the floodplain.

Reform NFIP

1. Maps are outdated, inaccurate, and rely too heavily on levees.
 - a) *Eliminate the levee loophole.*
 - b) *Require realistic federal maps and state disclosure forms.*
2. Homeowners & businesses are motivated to game the system.
 - a) *Floodplain occupants must purchase & maintain insurance.*
 - b) *Repetitive losses shouldn't be covered.*
 - c) *Phase out excessive subsidies, ala 2012 Biggert-Waters Act.*



At the River Clarion

*While we sit here in a house
Filled with books, ideas, doubts,
hesitations. . . .*

*The River keeps coming,
Touching me,
Passing by on its long journey,*

Its pale, infallible voice singing.

Mary Oliver

CHAPTER 2

Understanding and Restoring Floodplain Function for Salmon Restoration and Other Benefits

GARY JAMES

Confederated Tribes of the Umatilla Indian Reservation, Pendleton

MATT WYNNE

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Chapter 2

UNDERSTANDING AND RESTORING FLOODPLAIN FUNCTION FOR SALMON RESTORATION AND OTHER BENEFITS

UNDERSTANDING AND RESTORING NATURAL FLOODPLAIN FUNCTION

Gary James

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NOTES

Chapter 2

UNDERSTANDING AND RESTORING NATURAL FLOODPLAIN FUNCTION

Gary James

I. FLOODPLAIN BASICS

A. Definition

The area bordering a stream or river that is naturally subject to flooding and composed of sediment deposited during flooding. A floodplain is usually a flat low-lying area with areas of higher elevation on both sides.

B. Function

Floodplains are part of natural river systems which are dynamic, with complex channel networks that access the floodplain, creating diverse habitat for fish production in surface waters and full recharge of interconnected groundwater. Healthy floodplains can improve water quality and quantity, reduce flood damage, and support cultural and recreational opportunities for human communities.

C. Tribal Importance

The First Foods are considered by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) to constitute the minimum ecological products necessary to sustain CTUIR culture. Floodplain health is critical to accomplishment of CTUIR Mission statements:

1. Department of Natural Resources: *To protect, restore, and enhance the First Foods – water, salmon, deer, cous, and huckleberry – for the perpetual cultural, economic, and sovereign benefit of the CTUIR. We will accomplish this utilizing traditional ecological and cultural knowledge and science to inform: 1) population and habitat management goals and actions; and 2) natural resource policies and regulatory mechanisms.*
2. Fisheries Program: *To provide sustainable harvest opportunities for aquatic species of the first food order by protecting, conserving, and restoring native populations and their habitats.*

II. CHARACTERISTICS AND BENEFITS OF A HEALTHY FLOODPLAIN

A. CTUIR River Vision Statement

“The Umatilla basin includes a healthy river capable of providing First Foods that sustain the continuity of the Tribe’s culture. This vision requires a river that is dynamic, and shaped not only by physical and biological processes, but the interactions and interconnections between those processes.” Key floodplain characteristics (River Vision Touchstones) that determine floodplain health include:

1. Hydrology: Water quantity, timing and quality are critical.
2. Geomorphology: Floodplain must be topographically diverse and accessible by the river.
3. Connectivity: Longitudinal, lateral and vertical connectivity are all critical.
4. Riparian: A healthy plant community in the floodplain is another key attribute.
5. Aquatic Biota: Addressing physical touchstones will provide biological productivity.

B. Benefits of a Healthy Floodplain

1. Watershed Resources
 - a. Natural Flood and Erosion Control
 - i. Flood storage and conveyance, reducing flood peaks and velocities
 - ii. Reduce erosion impacts and sediment loading
 - iii. Replenish soils, enhancing riparian vegetation
 - b. Surface Water Quality Maintenance
 - i. Filter nutrients and improve water quality
 - ii. Enhance surface-to-groundwater exchange and temperature reduction
 - c. Groundwater Recharge
 - i. Promote stream access to floodplain for infiltration and aquifer recharge
 - ii. Reduce frequency and duration of low surface flows (enhance base flow)
2. Biologic Resources
 - a. Biological Productivity
 - i. Increase habitat complexity, maintain biodiversity of plants and animals, abundance of food – integrity of ecosystem
 - ii. Increase spawning and rearing habitat through access to side channels
3. Societal Resources
 - a. Harvest of Wild and Cultivated Products
 - i. Increase abundance and harvest of native foods associated with floodplain
 - ii. Enhance agricultural productivity by increasing/maintaining groundwater levels
 - iii. Enhance and limit loss of agricultural lands by decreasing scour and erosion
 - b. Provide cultural, aesthetic and recreational use values

- i. Contain cultural resources (historic and archeological sites)
- ii. Increase recreational opportunities and aesthetic pleasure

III. CURRENT CONDITION AND PROBLEMS IN FLOODPLAINS

A. Current Floodplain Health

1. Prior to 1850 more than 163,000 square miles of habitat were available to salmon and steelhead in the Columbia River Basin representing 14,666 stream miles. By 1976, the Pacific Northwest Regional Commission estimated that only 72, 800 square miles of the basin, or about 10,073 miles of stream, remained available to salmonid and steelhead, about a 31% decrease.
2. As part of a process to identify floodplain problems and project actions, an analysis of limiting factors such as in-channel characteristics, riparian/floodplain, sediment, water quantity, and water quality revealed that current “watershed function” for subbasins in NE Oregon and SE Washington is typically at a level of 25-50% due to watershed health and floodplain development.
3. Umatilla River Subbasin floodplains have been impacted historically:
 - a. Riparian wetland habitat declined 86-99% (68,980-78,863 acres) from agricultural and municipal development, exotic weed invasion, timber harvest, transportation corridors, and recreational activities. The remainder of riparian wetland habitat is degraded and fragmented due to channelization separating the floodplain from the stream.
 - b. Herbaceous wetland habitat declined 75% (-13,616 acres) from habitat conversion and draining, lowering of ground water level, separation of floodplain from the stream channel due to dikes and levees, exotic plant and animal invasion, and livestock grazing.

B. Current Floodplain Problems

1. Wrong Management Emphasis
 - a. Floodplain management has focused on a goal of flood loss reduction.
 - b. Broad floodplains and the natural process of flooding have been viewed as a secondary compared to other “higher priority” floodplain uses.
 - c. Development-centered uses such as agriculture, urbanization and roads have often been a priority over protection of natural and beneficial uses of floodplains.
2. Physical Changes
 - a. Modification of floodplains for flood loss reduction often results in a reduction of floodplain area and formation of a channelized and/or armored floodway.
 - b. Former stream access to the entire floodplain is often reduced to below 50% or even as low as 10%.

- c. Channelization results in reduction of stream length, an increase in gradient and water velocity and a loss of instream habitat diversity (predominately riffle habitat over a large cobble substrate).
- d. Geomorphic processes such as channel migration, formation of side channels and islands, and transport and sorting processes of sediments are disrupted.
- e. Over-appropriation of surface flows for out-of-stream use has often resulted in summer dewatering and paper water rights that far exceed available water instream.
- f. Over-appropriation of shallow groundwater also impacts surface flows.
- g. Construction of dams has drastically altered floodplains and impacted geomorphic processes, fish passage, spawning and rearing habitat, etc.

IV. FLOODPLAIN LAND AND WATER MANAGEMENT RECOMMENDATIONS—A CALL FOR RENEWED DIRECTION

A. Floodplain Land Management Recommendations

- 1. Reconnect Streams with Floodplains
 - a. Identify and prioritize locations where opportunities exist to reclaim natural floodplain habitat and function.
 - b. Promote removal or set back of dikes and levees (require less “local sponsorship” funding and more from the “responsible agency” that created the problem).
 - c. Increase area of riparian easements.
 - d. Consider condemnation/relocation of “critical value” floodplain developments.
 - e. Promote relocation of flood-damaged development rather than redevelopment in floodplain.
 - f. Implementation of above floodplain restoration actions may be the best preventative action for minimizing anticipated effects of climate change.
- 2. Halt or Minimize New Development in Floodplains and Wetlands
 - a. Strengthen land use regulations to prohibit further floodplain, wetlands and historic stream channel development.
 - b. Strengthen land use regulations to prohibit development of natural springs and wetlands.

B. Floodplain Water Management Recommendations

- 1. Change Water Regulatory Statutes to Better Protect and Restore Instream Flows
 - a. Strengthen ability to identify, quantify and protect increased instream flows resulting from water conservation efforts such as shallow aquifer recharge, irrigation efficiency, and restoration of natural floodplains.



- b. Encourage and develop legal mechanism for irrigators to access groundwater supplies, enhanced through recharge efforts, in exchange for protected surface flows; however, limit increase usage of shallow groundwater use where recharge efforts are designed to increase instream flows.
 - c. Strengthen stewardship and protection of instream water rights through development of conservation projects such as irrigation efficiency or from water transaction projects.
 - d. Quantify and protect ecological flows from further appropriation (particularly spring/winter flows which are often considered “available”).
 - e. Modify water law to elevate the importance and ability to protect instream flows resulting from restoration efforts (new project water available only for instream flows and can be protected against all other diversions).
- 2. Acknowledge and Limit Groundwater Impacts to Surface Flows
 - a. Strengthen the legal connection and co-management linkage between surface water rights and groundwater rights and begin regulating groundwater usage impacting surface flows.
 - b. Identify areas where groundwater use impacts surface flow and promote aquifer recharge to lessen impacts.
- 3. Ensure Enhanced Instream Flows are Identified and Protected with Monitoring and Enforcement
 - a. Strengthen state and local monitoring and protection of quantified instream water rights – particularly “new conservation project flows” that would otherwise be absorbed by junior water right holders.
 - b. Shift water management focus and funding priorities from developing new agriculture water supplies to monitoring and enforcement of existing agricultural rights and protecting new instream water rights.

C. Dual Land and Water Management Recommendations

- 1. Integrate Land and Water Management Functions
 - a. Entities that manage both floodplain lands and surface/groundwater must acknowledge the inseparable interrelationships and closely integrate the management of all these to fully realize and protect the benefits of a healthy functioning floodplain.
 - b. There must be close coordination and integration within and between groundwater and surface water management entities that acknowledges and limits the impacts that groundwater withdrawals have on surface flows.
 - c. Floodplain land or water management entities that have similar responsibilities in neighboring jurisdictional boundaries must acknowledge these inseparable interrelationships and have closely integrated and compatible regulatory provisions to fully realize and protect the benefits of a healthy functioning floodplain.

BONNEVILLE POWER ADMINISTRATION

Understanding and Restoring Natural Floodplain Function





Gary James
CTUIR Fisheries
Program Manager

Integrating Floodplain Management and Salmon Conservation
Portland, OR - November 7, 2014


Floodplain Basic Facts

Definition: Valley bottom land adjacent to a naturally subject to flooding and lateral and vertical connectivity biological diversity.



Function:

- Floodplains are part of natural river systems which are dynamic, with complex channel networks that access the floodplain, creating diverse habitat for fish production in surface waters and full recharge of interconnected groundwater.
- Healthy floodplains can improve water quality and quantity, reduce flood damage, and support cultural and recreational opportunities for human communities.




Floodplain Management CTUIR 2

Tribal Importance

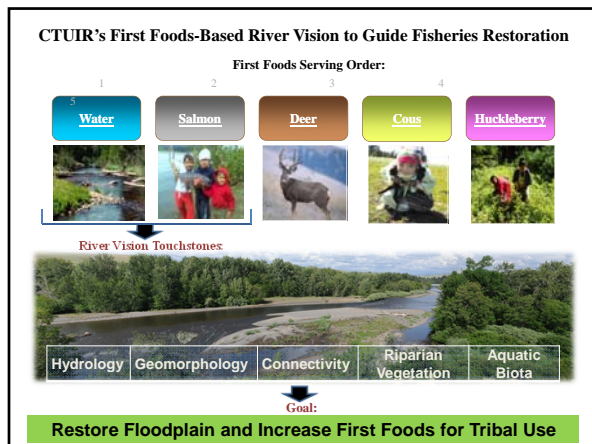
Floodplain Health is critical to accomplishment of mission statements: CTUIR

CTUIR Department of Natural Resources:
To protect, restore, and enhance the First Foods - water, salmon, deer, cous, and huckleberry - for the perpetual cultural, economic, and sovereign benefit of the CTUIR. We will accomplish this utilizing traditional ecological and cultural knowledge and science to inform: 1) population and habitat management goals and actions; and 2) natural resource policies and regulatory mechanisms.

CTUIR Fisheries Program:
Provide sustainable harvest opportunities for aquatic species of the first food order by protecting, conserving and restoring native aquatic populations and their habitats.



Floodplain Management CTUIR 3



River Vision Statement

"The Umatilla basin includes a healthy river capable of providing First Foods that sustain the continuity of the Tribe's culture. This vision requires a river that is dynamic, and shaped not only by physical and biological processes, but the interactions and interconnections between those processes."

Floodplain Management CTUIR 5

River Vision Touchstones

Aquatic Biota

Healthy Native Species

Floodplain Management CTUIR 6

Healthy Floodplain Benefits (Watershed Resources)

Natural Flood and Erosion Control


- Flood storage and conveyance, reducing flood velocities
- Reduce erosion impacts and sediment loading
- Replenish soils, enhancing riparian vegetation

Surface Water Quality Maintenance

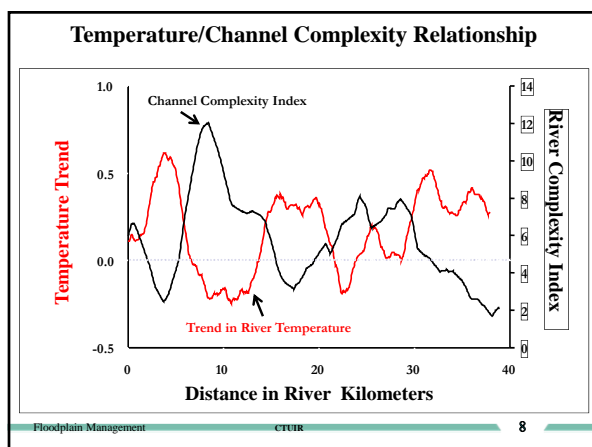
- Filter nutrients and improve water quality
- Enhance surface-to-groundwater exchange and temperature reduction

Groundwater Recharge


- Promote stream access to floodplain for infiltration & aquifer recharge
- Reduce frequency & duration of low surface flows (enhance base flow)





Floodplain Management
CTUR
7

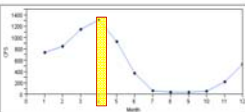


River Vision Application



April 3, 2011


Floodplain Management
CTUR


Healthy Floodplain Benefits


(Biologic Resources)

Biological Productivity

- Increase habitat complexity
- Maintain biodiversity of plants and animals, food - integrity of ecosystem
- Increase spawning and rearing habitat by stream length and access to side channels



maintaining



Floodplain Management

CTUR

10

Healthy Floodplain Benefits

(Societal Resources)

Harvest of Wild and Cultivated Products

- Increase abundance and harvest of native foods associated with floodplain
- Enhance agricultural productivity by increasing/maintaining groundwater levels
- Enhance and limit loss of agricultural lands by decreasing scour and erosion

Provide Cultural, Aesthetic and Recreational Use Values

- Contain cultural resources (historic and archeological sites)
- Increase recreational opportunities and aesthetic pleasure

Floodplain Management

CTUR

11

Current Condition of Floodplains

Floodplain Health

- About one-third of the once-accessible streams in the Columbia River Basin (about 4,500 miles) is no longer available to salmon.
- Endangered Species Act (ESA) recovery planning efforts determined that “watershed function” for subbasins in NE Oregon and SE Washington ranged from 25-50% due to poor watershed health and floodplain development.
- In the Umatilla Subbasin, riparian wetland habitat has declined about 90% due to floodplain development over the last century.

Floodplain Management

CTUR

12

Changing Eras and Changing Attitudes

Pre-development Era

- Abundant Water: Walla Walla name = land of many waters
- Abundant Fish: Lewis and Clark journals - Indian encampments

Development Era

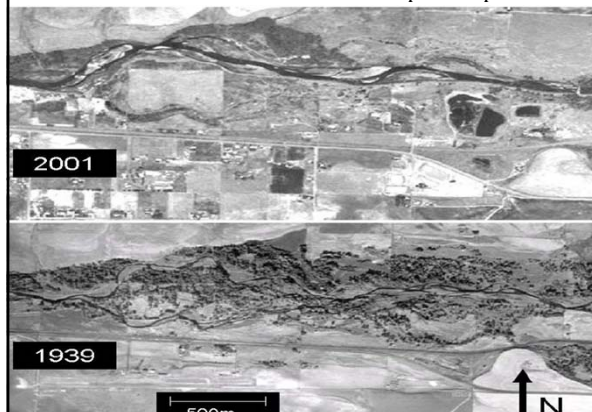
- Local town named Freewater – settlement ploy
- Floodplain development - stream channelization
- Granted water rights exceeded instream flows
- Instream flows and salmon went extinct

Partnership Era

- Model partnerships for water and fish restoration
- Cooperative solutions creating enough water to fisheries and agricultural interests whole

keep both

Umatilla River near Pendleton – loss of meanders due to floodplain development



Mouth of Walla Walla River – loss of meanders due to channelization



Grande Ronde River State Ditch construction cut off 45 stream miles



Problems in Floodplains

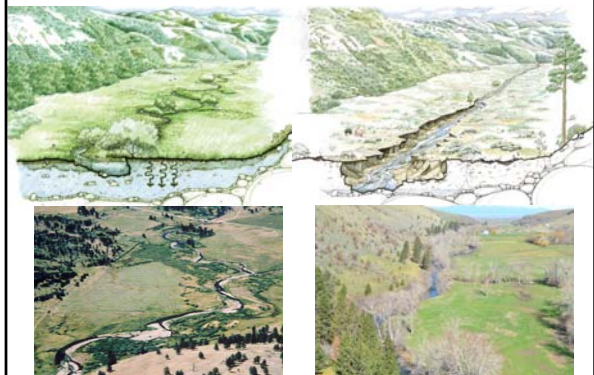
Wrong Management Emphasis


- Goal of flood loss reduction
- Natural processes in broad floodplains has been second priority
- Development-centered uses such as agricultural, municipal and roads have taken precedence over protection of floodplain function

Physical Changes

- Reduced floodplain area and formation of channelized floodway
- Armoring of banks with rip-rap to control erosion
- Reduced stream length, increase in gradient & water velocity
- Loss of instream and substrate habitat diversity
- Disrupted geomorphic processes (channel migration, side channels, islands, sediment transport and sorting and large wood transport)
- Over-appropriation of surface flows and shallow groundwater
- Construction of dams – disrupt fish passage and habitat diversity

Typical Floodplain Development





6-mile ditch-type reach is constrained by levees and is deeply incised



Figure 11—Walla Walla River in the 1964 flood showing meanders in a channelized section near Milton-Freewater. (Source: OSU Archives)

Floodplain Management CTUR 19

Concrete Lining and Channelization-Weirs in Urban Area






Floodplain Management CTUR 20

Stream Channelized and Surrounded by Urban Development



Floodplain Management CTUR 21

Floodplain Land Management Recommendations

1. Halt or Minimize New Development in Floodplains and Wetlands

- Strengthen land use regulations to prohibit further development in floodplains, springs & wetlands and historic stream channels.



Floodplain Management

CTUR

22



Feedlot near stream



Concrete backyard stream



Highway and levee encroachment



Ditch runoff erosion



Residential and agricultural development



Channelization with weirs and summer cesspools

Floodplain Management

CTUR

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Floodplain Land Management Recommendations

2. Reconnect Streams with Floodplains

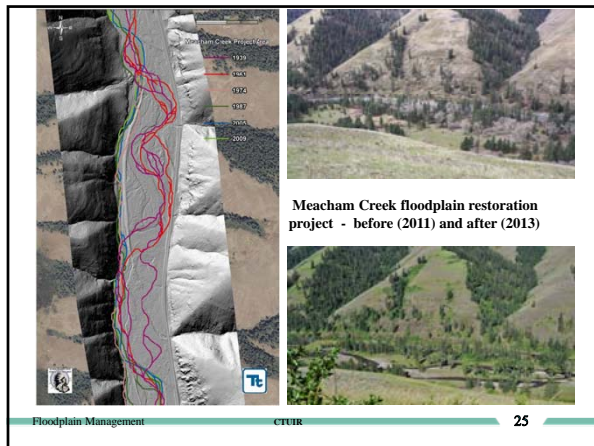
- Identify locations to reclaim natural floodplain habitat and function.
- Promote removal or set back of dikes and levees.
- Increase area of riparian conservation easements.
- Consider condemnation of "critical value" floodplain developments.
- Promote relocation of flood-damaged development rather than redevelopment in floodplain.
- Implementation of above floodplain restoration actions may be the best preventative action for minimizing anticipated effects of climate change.

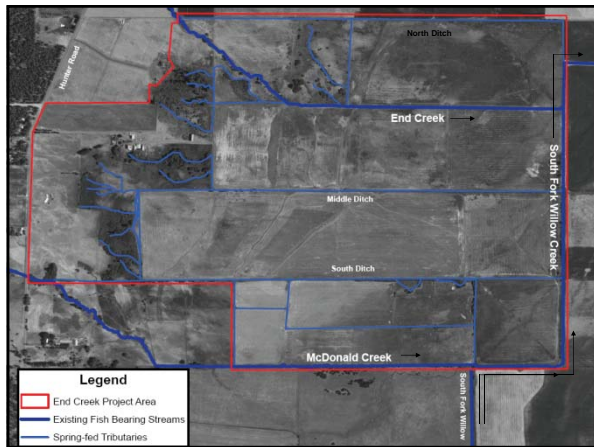


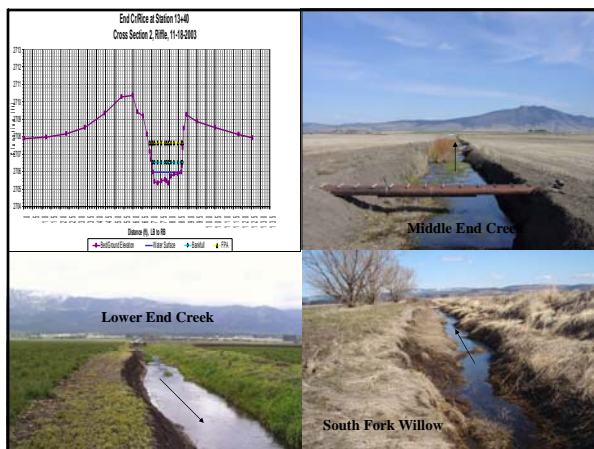
Floodplain Management

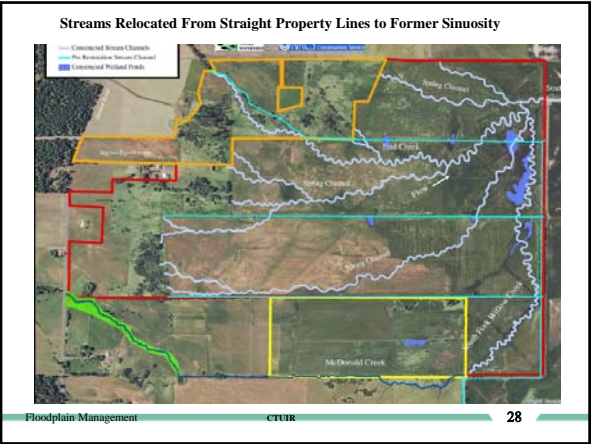
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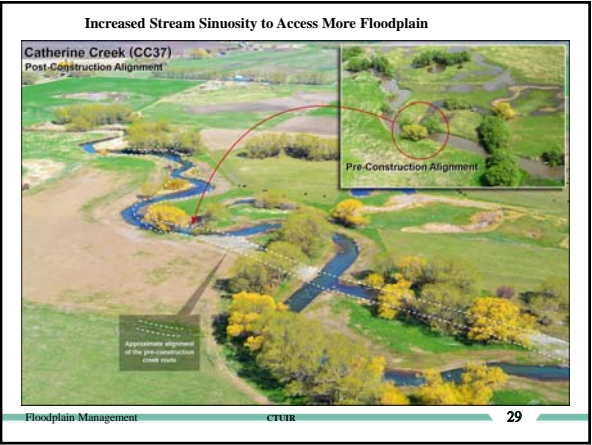
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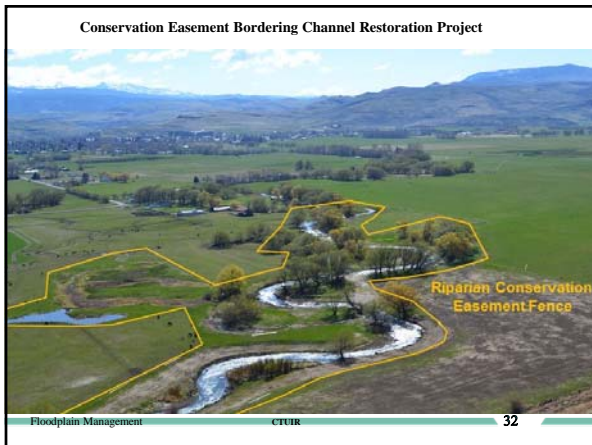












Conservation Easement Bordering Channel Restoration Project

Riparian Conservation Easement Fence

Floodplain Water Management Recommendations

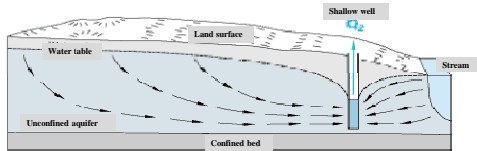
1. Surface Water Regulatory Statutes

- Increase opportunities or incentives for development of conservation projects such as irrigation efficiency, water transaction projects, shallow aquifer recharge (SAR) and restoration of natural floodplains.
- Strengthen water law to identify, quantify and protect increased instream flows resulting from water conservation efforts.
- Encourage and develop legal mechanism for irrigators to access groundwater supplies, enhanced through recharge efforts (ASR), in exchange for protected surface flows.
- Quantify and protect ecological flows from further appropriation (particularly spring/winter flows which are often considered "available").

Floodplain Water Management Recommendations

2. Groundwater Withdrawal Impacts to Surface Flows

- Strengthen the legal connection and co-management linkage between surface water rights and groundwater rights and begin regulating groundwater usage impacting surface flows.
- Identify areas where floodplain groundwater use impacts surface flow and promote aquifer recharge to lessen impacts.



Floodplain Water Management Recommendations

3. Monitor, Protect and Enforce Instream Flows

- Strengthen state and local monitoring and protection of quantified instream water rights -- particularly "new conservation project flows" that would otherwise be absorbed by junior water right holders.
- Shift water management focus and funding priorities from developing new agriculture water supplies to monitoring and enforcement of existing agricultural rights and protecting new instream water rights



Stream dewatering from surface diversions

Same reach - increased flow

Dual Land and Water Floodplain Management Recommendations

Integrate Land and Water Management Functions

- Entities that manage both floodplain lands and surface/groundwater must acknowledge the inseparable interrelationships and closely integrate the management of all these to fully realize and protect the benefits of a healthy functioning floodplain.
- There must be close coordination and integration between groundwater and surface water management entities that acknowledges and limits the impacts that groundwater withdrawals have on surface flows.
- Floodplain land or water management entities that have similar responsibilities in neighboring jurisdictional boundaries must have closely integrated and compatible regulatory provisions to fully realize and protect the benefits of a healthy functioning floodplain.



CHAPTER 3

Administering Floodplain Protection: Agency Roles and Views

JAMES D. BARTON

U.S. Army Corps of Engineers, Northwestern Division, Portland

MARK CAREY

FEMA Region X, Bothell

KIM W. KRATZ

NOAA Fisheries, West Coast Region, Portland

Chapter 3

**ADMINISTERING FLOODPLAIN PROTECTION:
AGENCY ROLES AND VIEWS**

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James Barton

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**PART C
CONSULTATION ON FEMA’S IMPLEMENTATION OF THE
NATIONAL FLOOD INSURANCE PROGRAM IN OREGON**


Kim W. Kratz

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PART A
INTEGRATING THE ESA INTO THE NATIONAL
FLOOD INSURANCE PROGRAM
Mark Carey

Integrating the ESA into the
National Flood Insurance Program


 FEMA


ESA and the NFIP

November 7, 2014

What Do Floodplains Do for Us?

- Naturally store and convey floodwaters.
- Maintain water quality.
- Recharge groundwater aquifers and naturally regulate flows into rivers and lakes.
- Support large and diverse populations of plants and animals.
- Provide historical, scientific, recreational, and economic benefits to communities.



 FEMA


ESA and the NFIP


November 7, 2014

1.

Altering Natural Floodplains

- Damages or destroys fish and wildlife breeding, nursery, and feeding grounds.
- Robs downstream habitats of nutrients.
- Threatens a significant percentage of endangered species.
- Only 20-30% of U.S. floodplains remain undisturbed.

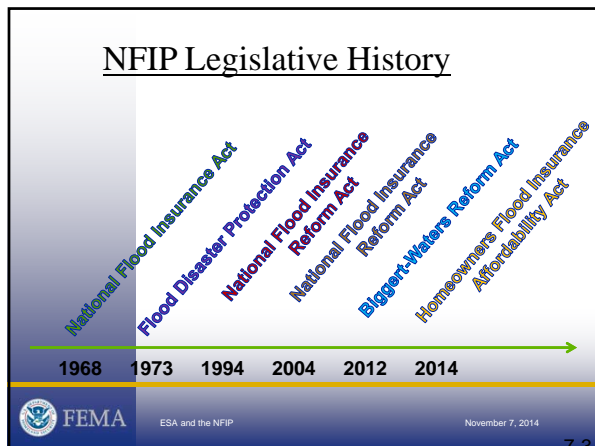


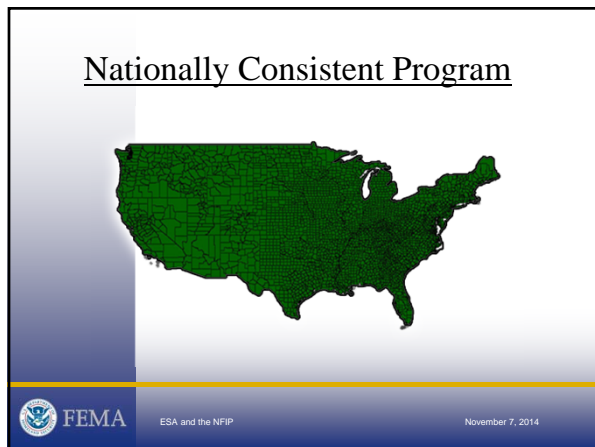
 FEMA

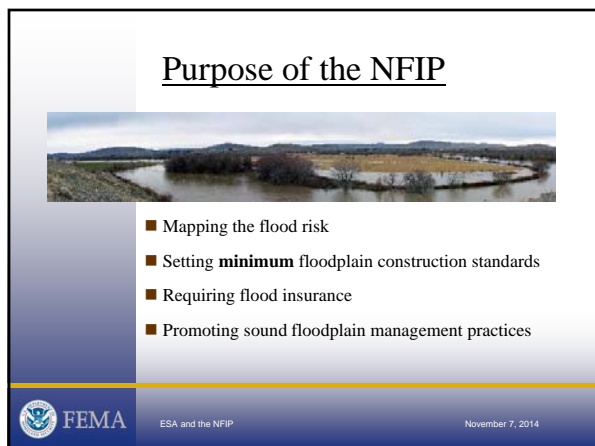
ESA and the NFIP

November 7, 2014

1.








NFIP: A Quid Pro Quo Program

FEMA agrees to make flood insurance available within a community when that community agrees to adopt and enforce floodplain management regulations.



FEMA


ESA and the NFIP


November 7, 2014

1.6

NFIP Role: Local

- Adopt/enforce local floodplain management ordinances that comply with Federal/State laws.
- Issue or deny development/building permits.
- Inspect development and maintain records.
- Development oversight is local.





FEMA

ESA and the NFIP


November 7, 2014

1.7

NFIP- ESA History

Background

- ▶ 1994 - NWF vs. FEMA- Florida Key Deer
- ▶ 2001 - Wild earth Guardians vs. FEMA - various New Mexico Species
- ▶ 2003 - NWF vs. FEMA- Puget Sound Salmon
- ▶ 2009 - NWF vs. FEMA - Sea Turtles (FL)
- ▶ 2009 - Audubon Society vs. FEMA- Oregon Salmon
- ▶ 2009- Coalition for a Sustainable Delta vs. FEMA- California Salmon



FEMA

ESA and the NFIP


November 7, 2014

NFIP- ESA Nationally

What is FEMA doing to address this issue?

- Changes to the LOMR/ CLOMR process
- Consideration of species in mapping decisions
- Technical Mapping Advisory Committee to consider how to incorporate climate change in the mapping process
- Initiation of a new Environmental Impact Statement (EIS) for the NFIP
- National consultation with the services is part of the EIS

In the meantime we continue to implement the Biological Opinions we have been handed



FEMA

ESA and the NFIP

November 7, 2014



PART B
COLUMBIA RIVER SYSTEM AND FLOOD
RISK MANAGEMENT OVERVIEW
James Barton

**Columbia River System and Flood
Risk Management Overview**

November 7, 2014



Agenda

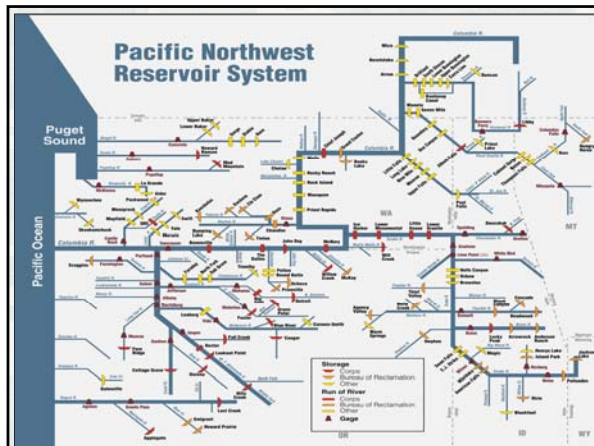
- Columbia System Overview
- Flood Risk Management Overview
- Questions



The Columbia River



- Originates in Canada
- Flows over 1,240 miles through 2 countries
- 259,000 square mile drainage area (size of France)
- 15% of basin area in Canada with 38% of average annual flow from Canada.
- Numerous large dams and reservoirs owned and operated by many different entities for multiple purposes.



System operated for multiple uses

- Flood risk management
- Hydropower
- Fish and wildlife
- Navigation
- Water supply
- Recreation

Flood Risk Management (FRM): Overview

- Flooding in Columbia River has major economic and life safety consequences
- Large and complex river basin with highly variable streamflows and weather patterns
- Very limited reservoir storage to manage floods compared to other major U.S. river basins
- FRM operations integrate, but do not preclude, other reservoir purposes such as hydropower, navigation, recreation, ecosystem, water supply, etc.

Storage vs. Runoff


Peak runoff: 192 MAF

River Basin	Average Annual Runoff (MAF)	Reservoir Storage (MAF)
Columbia	~192	~1.5
Mississippi	~10	~10


FRM: Considerations - Two types of flooding


- Melting snowpack in spring from Rocky Mountains
- Rainfall in U.S. (spring or winter)

1894

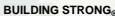


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10/23/2014



FRM Responsibility

- The Corps of Engineers is responsible for system and local FRM for all federal, non-federal and Canadian reservoirs for which there is authorized FRM space.
- Half of available storage for system FRM is in Canada.






Predecisional and Deliberative International Treaty Materials for U.S. Entity Use Only. Do Not Distribute Without Prior Approval.




Annual Flood Risk Operations

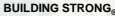
- Reservoir FRM operating rules based on seasonal runoff forecasts

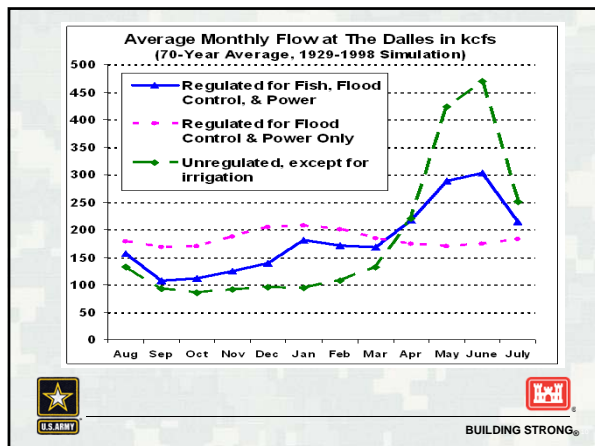
Lower Reservoir Elevation

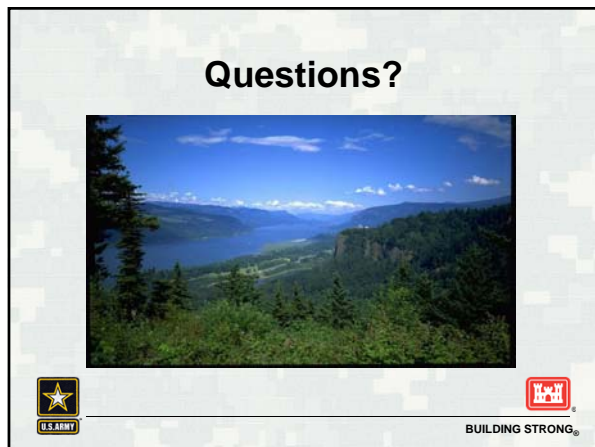





10/23/2014







PART C
CONSULTATION ON FEMA'S IMPLEMENTATION OF THE
NATIONAL FLOOD INSURANCE PROGRAM IN OREGON
Kim W. Kratz




Consultation on FEMA's Implementation of the National Flood Insurance Program in Oregon

In 1973, Congress declared that various species had been rendered extinct "as a consequence of economic growth and development, untempered by adequate concern and conservation."
ESA Sec 2(a)(1)



Developments Leading up to Now

- In 2004, the Western District Court in Washington ruled that FEMA retains discretion over certain aspects of the NFIP and must consult under ESA section 7(a)(2)
- In 2008, we issued a jeopardy opinion for implementation of NFIP in Puget Sound
- As part of a settlement agreement, FEMA initiated consultation on implementation of NFIP in Oregon
- In September 2013, we issued a draft jeopardy opinion to FEMA NFIP in Oregon
- In April 2014, we received FEMA's comments on our draft opinion and RPA
- Currently, we are revising our RPA based on input from FEMA and the state



Policy of the ESA

“[A]ll Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act”

ESA Sec 2(c)(1)



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ESA Mandate to Avoid Jeopardy

“Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency hereinafter in this section referred to as an “agency action”) is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section.”



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Information Requirements of 7(a)(2)

“In fulfilling the requirements of this paragraph each agency shall use the best scientific and commercial data available.”



U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 6

FEMA's Role

As a Federal action agency, FEMA ensure that implementation of certain aspects of the NFIP does not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat.



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Our Biological Opinion on NFIP in OR

- Inexpensive flood insurance may encourage floodplain development which reduces the quality of salmon habitat
- Floodplain development is a major threat to endangered and threatened salmon and steelhead across Oregon
- There needs to be improved oversight at the program-level



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Our Conclusion

The implementation of NFIP in OR will jeopardize the continued existence of 17 listed species and adversely modify their critical habitat



U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 9

Draft Reasonable and Prudent Alternative

- Strives for no-net loss of floodplain function across the range of salmon and steelhead in Oregon
- Allows for certain activities in the floodplain-water dependent development, maintenance of existing structures, development in highly degraded areas
- Adverse effects can be mitigated in some circumstances
- Requires more oversight of the program by FEMA



U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 10

Next Steps

- We are refining the RPA in consideration of input from FEMA and the State



U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 11

CHAPTER 4

Levee Certification/ Re-Certification

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SUNNY SIMPKINS

Multnomah County Drainage District, Portland

Chapter 4

LEVEE CERTIFICATION AND RECERTIFICATION

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NOTES

Chapter 4

LEVEE CERTIFICATION AND RECERTIFICATION

PART A Sunny Simpkins

I. WHAT'S PROTECTED

The Columbia Corridor stretches along the south shore of the Columbia River in the Portland Metropolitan area, and includes over 12,000 acres of land across four cities. Twenty seven miles of levee, which are maintained and operated as separate systems by four local drainage entities, protect the majority of this area from flooding. Collectively, these levees protect the Portland International Airport, a regional Exposition Center, thousands of homes, and three major interstates. The area is also home to hundreds of businesses, and ten percent of Multnomah County's employment base. In a region that promotes wise use of land (as mandated by State law), the activity in the Columbia Corridor has a significant impact on regional and statewide economic vitality.

The four local drainage entities that protect these assets are Peninsula Drainage District #1, Peninsula Drainage District #2, Multnomah County Drainage District, and Sandy Drainage Improvement Company.

II. ACCREDITATION PROCESS AND STATUS

Like many jurisdictions, the Cities in the Columbia Corridor participate in the Federal Emergency Management Agency's (FEMA's) National Flood Insurance Program (NFIP). Under this program, FEMA accredits levee systems that have been certified by a professional engineer as providing adequate flood protection to an area. Accredited levee systems allow for the protected area to obtain a lower risk status on Flood Insurance Rate Maps (FIRMs). This lower risk rating provides for low cost flood insurance to the area, allows those in the area to access certain federal funding assistance and federally-backed loans, and removes land use restrictions that are applied to high-risk flooding areas.

The Columbia Corridor levee system has been certified in the past and is currently accredited. However, professional certification of two levee systems expired in August of 2013 after policy changes were adopted by the U.S. Army Corps of Engineers. This situation puts these levees systems at risk of losing their accreditation designation when FEMA issues new FIRMs for the area. The two other levee systems in the Columbia Corridor have certifications that will expire in 2017, which will create a similar vulnerability.

III. WORK TO DATE

Many of the communities within the Columbia Corridor are working together to secure professional certification and uninterrupted accreditation for all of the levee systems in the area. This effort does not come without challenges. The cost of the professional certification process itself is substantial, and the cost of levee system repairs which may be required to meet accreditation standards could be even greater.

In 2013, efforts to certify the two levee systems with expired certifications began with investigation work. The total cost of this initial work is expected to reach \$3 million by the end of the 2014-15 fiscal year, and does not include any cost of system repairs that might be required to achieve certification. The drainage entities that manage these levees historically have combined annual budgets of less than \$800,000 dollars, requiring them to work collaboratively with other local and State governments to raise the needed funds.

IV. CURRENT CHALLENGES

The Districts face a lot of challenges today that include: maintaining an aging system, to keep the levees and the lives and property behind it safe; our unique funding and governance system, which creates challenges in implementing our mission; and maintaining our status in federal programs, with evolving policies, is a challenge today and will continue to be into the foreseeable future.

The ASCE 2013 report card on America's infrastructure gives levees a D-, which is the lowest ranking given to any category of infrastructure. In our area, major improvements have come as a result of major events. After the Vanport Flood, USACE spent around \$4 million (around \$30 million in 2013 dollars) and minor remediation efforts were completed after the 1996 high water event.

This is not uncommon. Post Hurricane Katrina, the federal government has invested around \$14.5 billion in flood protection infrastructure after Hurricane Katrina. This investment was tested when Hurricane Isaac hit the city. FEMA estimates that those investments had a 125% return rate when tested during Tropical Storm Isaac. Basically, without the new infrastructure the claims that would have been paid out would have been larger than the cost of the repairs. So we know investment pays off, but it often doesn't happen until after disaster has struck.

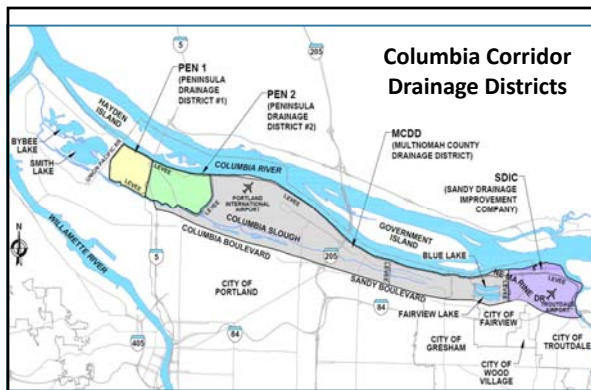


Columbia River Levees

Protecting Public Safety and Economic Prosperity Along the Columbia River



2



3

The levees' protection and impact

40% of Port of Portland facilities
12 Million tons of goods move through Facilities

\$5.3 billion in assessed property value
Across four cities

Residential neighborhoods
Thousands of Oregonians flood safety

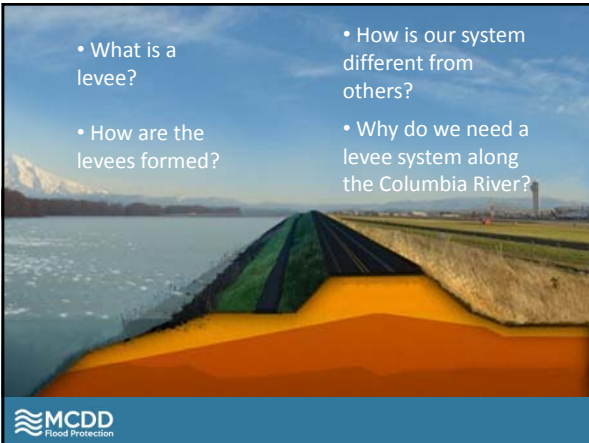
10% of jobs in Multnomah County
Majority in industrial, manufacturing, and transport.

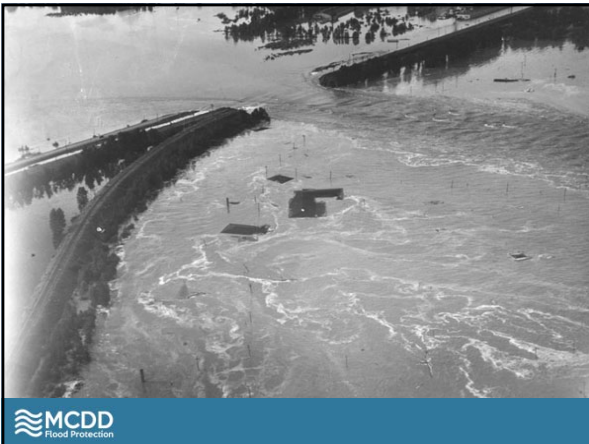


4

- What is a levee?
- How are the levees formed?

- How is our system different from others?
- Why do we need a levee system along the Columbia River?







Current Challenges

Preserving public safety

Funding and governance

Maintaining status in federal programs



8

Flood Protection Infrastructure

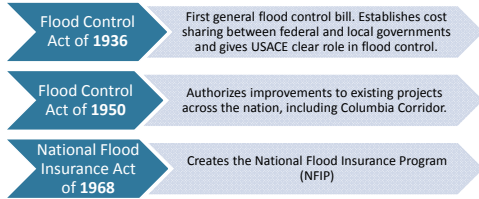
- ASCE Report Card gives levees D- nationally
- Historically, improvements have been reactionary
- Cities are learning that investment pays dividends



9

US government Role

We are the local sponsor for the Columbia River levees, which were built and are maintained according to national standards.



10

Federal Levee Oversight



Federal Emergency Management Agency National Flood Insurance Program

Cities voluntarily participate in the program.

P1 & P2 Status:
Accredited,
not certified

MCDD & SDIC Status:
Accredited,
Certification expires
in 2017

US Army Corps of Engineers plays a limited and defined role.



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Why Accredite a Levee?

- Accreditation confirms the levees were constructed and are being maintained to protect against flooding.
- Any issues that prevent accreditation pose public safety risks to the people and property protected by the levees.



Project Status

PHASE 1
Investigate Current Condition of Levees

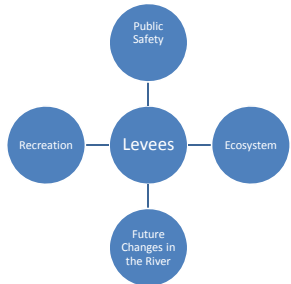


PHASE 2
Design and Finance Repairs

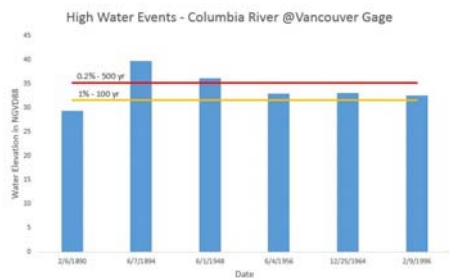
PHASE 3
Implement Repairs

PHASE 4
Certify & Submit Documentation

Balancing Priorities



High Water Events in Portland



Results and Decisions



Columbia River Treaty





We don't have a flooding problem, we have a land use problem.

Floods are acts of god but flood losses are acts of man.





Additional Resources:

www.floodsmart.gov

<http://www.mcd.org/levee-accreditation/>

www.orsolutions.org/osproject/MCDD

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Contact me directly with questions at:

Sunny Simpkins

ssimpkins@mcd.org



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PART B
Hong N. Huynh

I. INTRODUCTION

- A. One of the most significant impacts of climate change is the increase of water levels in the ocean and in freshwater bodies from storm events. While drought is a significant concern, flooding has been highly publicized.
- B. Flooding events have devastated many urban areas where significant economic assets are located. The Great Flood in Mississippi, Hurricane Katrina, and Hurricane Sandy occurred in the recent past. Also, flooding in the Southwest—Arizona and Nevada—occurred this past fall.
- C. The legal risks are real. Most floodplain regulations are adopted at the local level where review and approval of development that impacts flooding risks are made. Special units of governments operate drainage and flood control projects.
- D. The Farmers Insurance Lawsuit:
 - 1. April 2014 was a wake-up call for local government. Farmers Insurance filed class-action lawsuits arguing that local governments in the Chicago area were aware that climate change was causing heavier rainfall, but that they had failed to prepare accordingly.
 - 2. The suits alleged that the localities had not done enough to prepare sewers and stormwater drains for a two-day downpour in April 2013. They based their arguments on three theories:
 - a. Negligent maintenance of the stormwater system by failing to utilize temporary stormwater protection systems;
 - b. Failure to remedy a known dangerous condition (where stormwater invasions had occurred before); and
 - c. An unlawful “taking” in that the governments had (it is alleged) appropriated the property of others for diversion and retention of basins, etc.
 - 3. Farmers sought reimbursement of claim amounts it had paid to homeowners whose property was damaged by the stormwater.
 - 4. In June 2014, Farmers dropped the lawsuits. Farmers issued a statement saying that company officials had hoped the suit would encourage cities and counties to do more to reduce the risks of future flooding.
 - 5. In reality, the suits had a low likelihood of success because:
 - a. State laws generally protect government agencies from lawsuits under tort immunity.
 - b. The suit was an extreme example of subrogation in which an insurance company pays out claims and then goes after a third party, seeking reimbursement of those claims.

II. FEDERAL FLOOD CONTROL ACT (“FCA”)

- A. The 1936 FCA, which established a program in which the federal government, acting through the U.S. Army Corps of Engineers (“USACE”), may engage in cooperative flood control projects with states and local governments. 1936 FCA §§ 1, 3 (33 USC §§ 701a, 701c). The 1936 FCA authorizes an inaugural group of flood control projects, including:
1. Multnomah County—Multnomah Drainage District No. 1; Peninsula Drainage District Nos. 1 and 2; Sandy Drainage District; Sauvie Island;
 2. Columbia County—Scappoose Drainage District; Rainier Drainage District; Beaver Drainage District; McGruder Drainage District; Midland Drainage District; Marshland Drainage District; Webb Drainage District; Woodson Drainage District; Deer Island area; Prescott area; Westland area;
 3. Clatsop County—Westport District; Tenashillahe Island; Blind Slough; Drainage District No. 1; Knappa area; Karlson Island; John Day River dikes; Walluskia River dikes; Youngs River dikes; Diking District Nos. 2, 3, 5; Lewis and Clark River dikes; Warrenton Diking District; Warrenton Diking District Nos. 2 and 3; and
 4. Flood control works in Pendleton.
- B. In return for a federal contribution, Section 3 of the 1936 FCA imposes three “local cooperation requirements” on the Districts, the most relevant of which is the requirement to “maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of [Army].” 1936 FCA § 3 (33 USC § 701c).
- C. Also, section 201 of the 1950 FCA obligates the Districts to comply with the local cooperation requirements of the 1936 FCA—including ongoing operation and maintenance—and conditions the federal contribution on the compliance with such requirements within five years of the 1950 FCA. 1950 FCA § 201. Under the 1936, 1948, and 1950 FCAs, local sponsors are obligated to operate and maintain the federally-authorized flood control projects in accordance with federal flood control regulations.
1. Local projects that are subject to local cooperation requirements are subject to federal performance standards at 33 CFR § 208.10. 33; CFR § 209.220. These include the requirements to operate and maintain the projects to achieve “maximum benefits” and be subject to inspections by USACE.
 2. By rule, at 33 CFR § 208.10, USACE establishes standards for “structures and facilities constructed by the United States for local flood protection,” including the following:

“No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the

District Engineer of the Department of the Army or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities.” 33 CFR § 208.10(a)(5) (“Rule 208”).

D. Section 14 of the Rivers and Harbors Act, codified at 33 USC § 408 (“Section 408”), also governs permitting of activities that impact federally-authorized projects.

1. Under this authority, USACE’s approval is required for modification to a federally-built flood control works:

“It shall not be lawful for any person or persons to * * * build upon [or] alter * * * any sea wall, * * * dike, levee, * * * or other work built by the United States , * * * to prevent floods * * * : *Provided further*, that the Secretary may, on the recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation or use of any of the aforementioned public works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work.” (Italics added.)

2. The violations can give rise to civil criminal liability. 33 USC § 411 (knowing violations can result in “a misdemeanor, and on conviction thereof shall be punished by a fine of up to \$25,000 per day, or by imprisonment (in the case of a natural person) for not less than thirty days nor more than one year, or by both such fine and imprisonment”).

E. Rehabilitation and Inspection Program (“RIP”) under Public Law 84-99.

1. It authorizes USACE to regulate flood management through emergency management programs—disaster preparedness, advance measures, emergency operations (disaster response and post-flood response), rehabilitation of flood control works threatened or destroyed by floods, protection or repair of federally authorized shore protection works threatened or destroyed by coastal storms, emergency dredging, and flood-related rescue operations. More significantly, USACE can repair damage caused by a natural event at a levee that participates in RIP.

2. Levee Safety Program:

a. Maintains National inventory of levee systems and makes the information available in the **National Levee Database**. The levees included in the USACE Levee Safety Program represent only about 10 percent of the nation’s levees.

b. Inspects and assesses about 2,500 levee systems nationwide, and use the data to prioritize action.

i. Routine Inspection is a visual inspection to verify and rate levee system operation and maintenance. It is typically conducted each year for all levees in the USACE Levee Safety Program.

ii. Periodic Inspection is a comprehensive inspection conducted by a USACE multidisciplinary team that includes the levee sponsor and is led by a professional engineer. USACE typically conducts this

inspection every five years on the federally-authorized levees in the USACE Levee Safety Program. Periodic Inspections include three key steps: data collection, field inspection, and a final report.


- iii. Each levee segment receives an overall segment inspection rating of Acceptable, Minimally Acceptable, or Unacceptable. If a levee system comprises one or more levee segments (if there are different levee sponsors for different parts of the levee), then the overall levee system rating is the lowest of the segment ratings.
- c. Communicates risk-related issues and concerns, holding life safety as paramount, and supports USACE and local decisions aimed at reducing risk.
- d. Works closely with federal, state, local, and international partners to share information and develop solutions.

III. NATIONAL FLOOD INSURANCE PROGRAM (“NFIP”)

- A. The NFIP is implemented by the U.S. Federal Emergency Management Agency (“FEMA”) as a unified floodplain-management strategy to reduce property losses and public spending to compensate disaster victims from flood events.
- B. The NFIP applies to a “community” that is defined as a state or a political subdivision that has “zoning and building code jurisdiction over a particular area having special flood hazards” and, specifically, “authority to adopt and enforce floodplain-management regulations in the areas within its jurisdiction.”
- C. To address flood-risk concerns, FEMA maps flood-prone communities to identify SFHAs on the Flood Insurance Rate Map (“FIRM”). 42 USC § 4105; 44 CFR pt 65.
- D. Participating communities avail themselves of the benefits of NFIP: 42 USC § 4002(b)(3) (one of the purposes of the NFIP is to “require States or local communities, as a condition of future federal financial assistance, to participate in the flood insurance program and to adopt adequate floodplain ordinances with effective enforcement provisions consistent with Federal standards to reduce or avoid future flood losses”); 44 USC § 4106(a).
 - 1. Such federal financial assistance includes those for the acquisition, construction, reconstruction, repair, or improvement of any publicly-owned or privately-owned building or mobile home, and for any machinery, equipment, fixtures, and furnishings, and shall include the purchase or subsidization of mortgages or mortgage loans. 44 USC § 4003(a)(4).
 - 2. This includes the vast majority of home loans backed by Fannie Mae and Freddie Mac, and other loans that are guaranteed by the FDIC, the Federal Housing Administration, Small Business Administration, and Department of Veterans Affairs, and grants by federal agencies. 42 USC § 4012a; 44 CFR § 59.2; Mandatory Purchase of Flood Insurance; Guidelines, 54 Fed Reg 29,666 (July 13, 1989).
 - 3. Specifically, lending institutions are prohibited from providing such federally-backed loans for properties located or to be located in an SFHA in which federal flood insurance has been made available through the NFIP, unless the property securing such loans is covered by flood insurance. 42 USC § 4012a(b).

4. Insurance policies from NFIP are offered at rates lower than the market rates. 42 USC § 4001(d); 42 USC § 4014. The NFIP insurance is only offered to participating Communities. 44 CFR § 59.21-.22; 44 CFR § 64.1.
 5. NFIP Obligations. A participating community must adopt and enforce floodplain management measures to regulate new construction and by making substantial improvements within its SFHAs to eliminate or minimize future flood damage. 42 USC § 4022(a)(1); 44 CFR pt 60.
- E. Accreditation of the Levee
1. With respect to levees, FEMA recognizes them as one of many tools a community uses to manage flood risks.
 2. When FEMA “accredits” the levee as providing adequate flood protection, FEMA will identify the areas behind the levee as having minimal risk and not give it a SFHA designation. 42 USC § 4014(e); 44 CFR § 65.10.
 - a. Such a status relieves the participating community from complying with NFIP land use requirements for regulation of floodplain activity and mandatory purchase of flood insurance. 42 USC § 4014(e); 44 CFR § 60.3; 44 CFR § 65.10.
 3. Accreditation Process
 - a. Certification must be completed for the levee to be eligible for accreditation by FEMA.
 - b. Certification consists of documentation, signed and sealed by a registered Professional Engineer (“PE”), as defined in 44 CFR 65.2. The PE can be USACE or a private consultant firm.
 4. 44 CFR § 65.10 Criteria
 - a. Design Criterion requires evidence that the levee is adequately designed and operated to provide reasonable assurance of protection from the base flood (freeboard, closure device, embankment protection and foundation, settlement).
 - b. Operation Plans to include operation of closure structures and interior drainage systems.
 - c. Maintenance Plan that must include formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained and specification of the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.
 - d. Certification package includes a PE’s certification that the data supports the levee system compliance with the structural requirements and contain certified as-built plans of the levee.

5. FEMA does not own, operate, maintain, inspect, or certify levees. FEMA's role is limited to identifying and mapping the level of flood risk associated with levees and only accredits them where data shows compliance with 44 CFR § 65.10.
6. A community or levee owner's failure to provide full documentation of the status of a levee does not mean the levee doesn't provide the designated level of risk reduction—it merely ensures the levee will be mapped on a FIRM because it will be de-accredited, and the impacted area will be mapped as an SFHA.



MILLER NASH
ATTORNEYS AT LAW

Levee Certification and Accreditation

OLI & CRITFC CLE: A Flood of Questions
November 7, 2014
Presented by
Hong N. Huynh, Miller Nash LLP

The Big Picture

- Keeping up with the change
- Increased water levels; frequent flooding
- Public safety
- Urban areas with economic assets affected



PORTLAND
CENTRAL OREGON
SEASIDE
WASCO/CLATSOP

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The Big Picture

The “Great Flood” (Mississippi 1993) = \$15 - \$20 billion



Hurricane Katrina = Over 1,800 deaths; \$200 billion

Super Storm Sandy = 268 deaths; \$70 - \$100 billion

PORTLAND
CENTRAL OREGON
SEASIDE
WASCO/CLATSOP

MILLER NASH

The Big Picture



1996 Willamette Valley = 8 deaths; \$500 million

PORTLAND CENTRAL OREGON SEASIDE WASHCOAST



Farmers Insurance Lawsuit

- Legal risks are real
- April 2014—Farmers Insurance filed class-action lawsuits against local governments in the Chicago area for failing to prepare sewers and stormwater drains for the April 2013 storm



PHOTO: NANCY STONE/CHICAGO TRIBUNE
<http://www.chicagomag.com/Chicago-Magazine/The-312/April-2013/Chicagos-Torrential-Rains-Fill-Deep-Tunnel-Burst-Water-Mains/>

PORTLAND CENTRAL OREGON SEASIDE WASHCOAST



Farmers Insurance Lawsuit

- Theories: negligent maintenance, failure to remedy known dangerous condition, unlawful taking
- Damages: reimbursement of claim paid to homeowners
- June 2014, Farmers dropped the lawsuits
- Low likelihood of success
 - Tort immunity
 - Extreme example of subrogation

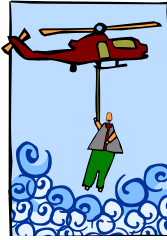


PORTLAND CENTRAL OREGON SEASIDE WASHCOAST



Federal Flood Control (USACE)

1936 Flood Control Act



- Federal government's foray into local flood control
- Federal funding and construction
- Locally O&M

Federal Flood Control

1936 Federally-Authorized Projects

Multnomah County—Multnomah Drainage District No. 1; Peninsula Drainage District Nos. 1 and 2; Sandy Drainage District; Sauvie Island

Columbia County—Scappoose Drainage District; Rainier Drainage District; Beaver Drainage District; McGruder Drainage District; Midland Drainage District; Marshland Drainage District; Webb Drainage District; Woodson Drainage District; Deer Island area; Prescott area; Westland area

Federal Flood Control

1936 Federally-Authorized Projects

Clatsop County—Westport District; Tenashillahe Island; Blind Slough; Drainage District No. 1; Knappa area; Karlson Island; John Day River dikes; Walluskia River dikes; Youngs River dikes; Diking District Nos. 2, 3, 5; Lewis and Clark River dikes; Warrenton Diking District; Warrenton Diking District Nos. 2 and 3

Flood control works in Pendleton

Federal Flood Control

1936/1950 FCAs

Local sponsors must O&M to federal flood control standards

- Achieve “maximum benefits”
- Be subject to inspections by USACE
- No unauthorized encroachment

33 CFR § 208.10, 209.220

Federal Flood Control

Section 408 Permitting

“It shall not be lawful for any person or persons to *** build upon [or] alter *** injure, *** or in any manner whatever impair the usefulness of *** dike, levee, *** or other work built by the United States ***; [USACE] may grant permission [where] such occupation or use will not be injurious to the public interest and will not impair the usefulness such work ” (33 USC § 408)



Civil & criminal liability (33 USC § 411)


Federal Flood Control

USACE Rehabilitation and Inspection and Levee Safety Programs

- Regulate flood management through emergency management programs—disaster preparedness, advance measures, emergency operations, emergency dredging, and flood-related rescue operations
- USACE repairs damages to participating flood control structures


National Flood Insurance Program

- Federal control (FEMA) over state issue—local land use
- Insurance program—provides coverage of property damage caused by flood events



- Voluntary participation by the “community” = land use and zoning authority

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DESIGN
ARCHITECTS
P.L.L.C.

 MILLER NASH

- Voluntary participation by the “community” = land use and zoning authority




PORTLAND	CENTRAL OREGON	CLATSOP	VANCOUVER
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NFIP

The Flood Insurance Rating Map (“FIRM”) identifies flood risks with floodplains (SFHA designation)



http://www.oregonriskmap.com/index.php?option=com_content&view=article&id=139-portland&catid=11:county-profiles&Itemid=12

PORTLAND CENTRAL OREGON SEATTLE SPOKANE

MILLER NASH




The Flood Insurance Rating Map (“FIRM”) identifies flood risks with floodplains (SFHA designation)

http://www.oregonriskmap.com/index.php?option=com_content&view=article&id=139:portland&catid=11:county-profiles&Itemid=12

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NFIP

- No federal aid and no federally-backed loans w/o flood insurance (FDIC; Fannie Mae; Freddie Mac)
- Subsidized premium
- Some federal \$ to help flood mitigation projects




NFIP “benefits” available to participating communities

PORTLAND

CENTRAL
MASSACHUSETTS

SEATTLE

MINNEAPOLIS

 **MILLER NASH**

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HORTLAND	CENTRAL INDUSTRIES	CLAYTON	WARRICK
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NFIP

Participating Community Obligations



- Adopt certain land use requirements to reduce risk of damage from flooding in SFHAs
- Restrict development in SFHAs
- Adopt building standards

PORTLAND CENTRAL OREGON SEATTLE WASHINGTON



NFIP—Levee

An “Accredited” Levee

- A tool to reduce flooding risk
- Land behind an “accredited” levee is NOT mapped as an SFHA
- Avoids NFIP land use requirements

PORTLAND CENTRAL OREGON SEATTLE WASHINGTON



NFIP—Levee

New floodplain mapping

Revision of current floodplain map

FEMA requests levee accreditation documentation (certification package)

PORTLAND CENTRAL OREGON SEATTLE WASHINGTON



NFIP—Levee

Levee Accreditation Criteria (44 CFR 65.10)

- Design (reasonable assurance of protection from the base flood)



- Operations Plan
- Interior Drainage
- Maintenance Plan

“Certification” by PE
based on data gathered

PORTLAND CENTRAL OREGON SEATTLE WASHINGTON



NFIP—Levee

- PE can be USACE or private consultant
 - Resources of USACE
 - Community timing
 - Financial resources
- Some accreditation criteria overlap with USACE RIP criteria



PORTLAND CENTRAL OREGON SEATTLE WASHINGTON



NFIP—Levee

FEMA accreditation based on certification information

Failure to provide full documentation to accredit the status of a levee does not mean the levee doesn't provide the designated level of risk reduction—it merely affects how the levee will be mapped on a FIRM because it will be de-accredited, and the impacted area will be mapped as an SFHA



PORTLAND CENTRAL OREGON SEATTLE WASHINGTON



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CHAPTER 5

NFIP Consultation and Litigation

DANIEL J. ROHLF
Lewis & Clark Law School, Portland

Chapter 5

NFIP CONSULTATION AND LITIGATION

Daniel J. Rohlf

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Chapter 5

NFIP CONSULTATION AND LITIGATION

Daniel J. Rohlfs



OREGON

INSIDER

September 2011

PREVIEW OF FEMA RIPARIAN REGULATIONS IN OREGON¹

by Joseph Schaefer and Steve Morasch, Schwabe, Williamson & Wyatt

INTRODUCTION

Every spring threatened and endangered juvenile salmon and steelhead gradually swim from spawning grounds in the upper reaches of streams and rivers down to the ocean. During floods juvenile fish seek refuge from turbulent waters in floodplains. Since the floodplains provide temporary habitat for the listed fish, floodplains are thus subject to the Endangered Species Act (ESA). Floodplains are managed at the federal level by the Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program (NFIP), which was geared toward protection against flood damage. To implement NFIP, local governments follow FEMA's direction in order to qualify for federal disaster relief so that members of the community may receive discounted flood insurance.

FEMA traditionally allowed filling and construction in the floodplain, as well as lower-impact development such as the construction of sports fields, sewer plants, industrial yards and roads, which alter the land but do not have major effects on flooding. Regulatory attention at the permitting stage focuses on determining where the 100-year flood elevation and the boundary between the floodway and floodplain are on the site. Flood habitat issues have not traditionally been part of FEMA mapping and regulation since other federal agencies regulate in-water work and riparian habitat is regulated at the state and local level in most states, including Oregon and Washington.

In 2004 several conservation groups sued FEMA in federal district court in Washington State, alleging the NFIP facilitates the adverse modification of floodplain habitat around Puget Sound, in violation of Section 7 of the ESA, which says federal agencies may not jeopardize listed species or adversely modify their habitat. The court held that FEMA needed to formally consult with the National Marine Fisheries Service (NMFS), obtain a biological opinion (BiOp), and then (by implication) implement revised NFIP regulations consistent with the BiOp. *NWF v. FEMA*, 345 F. Supp. 2d 1151 (W.D. Wash. 2004). The consultation began in January 2007 and the BiOp was published in September 2008.

In the BiOp, NMFS concludes the NFIP adversely modifies critical habitat for two species of salmon and that it jeopardizes the continued existence of two other species of salmon, one species of steelhead and one species of killer whales. The BiOp requires extensive changes to the NFIP. The NFIP, in turn, will require changes in local regulations, and new regulations are being introduced in Washington. Because some Oregon fish species are similarly endangered, the plaintiff conservation groups filed a federal suit against FEMA in Oregon in June 2009, which settled in July 2010, and requires FEMA to formally consult with NMFS by July 2011, which has now begun. *Audubon Society of Portland v. FEMA*, No. 3:09-CV- 729(HA) (D. Or. July 12, 2010).

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The Oregon BiOp is getting started four and a half years later than the Washington BiOp, but FEMA and NMFS have let it be known they will essentially adopt the Puget Sound BiOp and NFIP changes in Oregon.

These BiOps will create a new layer of federal land use regulations governing riparian habitat in the upland area where there is interplay between the aquatic and terrestrial environments. Federal agencies routinely regulate “in-water” projects, including impacts to wetlands under the Clean Water Act; but in Oregon, the state regulates riparian areas through Goal 5 and OAR 660-023-0090, while local governments do so through their zoning and land use regulations.

FEMA’s new foray into riparian habitat regulation is premised upon the ESA and the Oregon and Washington BiOps. Section 4 of the ESA authorizes federal regulation of local land use only through a designation of critical habitat, and only after a federal agency analyzes the economic impact of the designation. Previously, NMFS designated the stream bed and banks as critical habitat but did not designate any areas upland of the ordinary high water line. In order to designate riparian upland areas as critical habitat, Section 4 requires a new analysis of the economic impacts of designating the buffers as critical habitat. Neither FEMA nor NMFS have followed the rulemaking procedures in Section 4 or undertaken the required economic analysis to expand the lateral extent of the critical habitat to include the buffer areas designated in the BiOp. As noted in the Model Ordinance Commentary, the setback dimensions were set by the Biological Opinion and came from the Washington Department of Fish and Wildlife.

In other words, the areas subject to the setback requirements in the BiOp and the Model Ordinance (Ordinance) have never been designated as critical habitat pursuant to the ESA. FEMA acknowledges that it lacks authority to modify critical habitat designations, which can only occur through formal rulemaking as proscribed in Section 4. However, it feels compelled to comply with the BiOp and start regulating these areas and indicates it “alerted” NMFS about the concern that it may lack authority to do so.

THE PUGET SOUND BIOP

The BiOp analyzed three components of the NFIP, which the district court found were discretionary: floodplain mapping; minimum floodplain management criteria; and the Community Rating System (CRS).

Mapping

FEMA maps the floodplain based on expected water levels, but does not account for fish habitat within floodplains. The BiOp determined the maps are sometimes outdated and inaccurate, and underestimate flood hazards and risks - in part because they do not account for the cumulative effect of development over long time periods or for climate change.

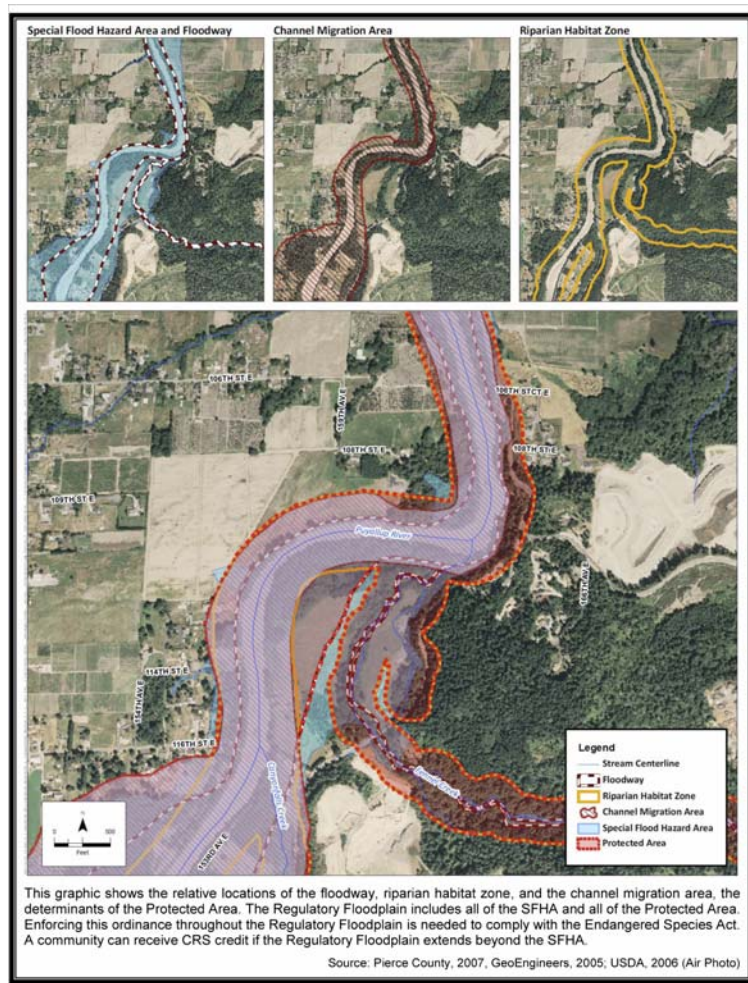
The BiOp noted how map revisions contribute to alteration of the floodplain when a property is filled or protected by a levee; and FEMA remaps it from being within the 100-year floodplain to being outside of it, reducing habitat area. It found the mapping program fails to protect the natural features in riparian areas or the Channel Migration Zone (“CMZ”) that provide important habitat functions. In short, FEMA’s mapping program ignores habitat values and functions, which results in a loss of both.

Minimum Floodplain Management Criteria

The BiOp examined habitat elements commonly found in floodplains that are essential to the species, such as spawning gravels, accessible side channels and food availability – because those elements are essential for species survival and recovery. It found that placement of fill in the floodplain displaces fish habitat and development in the filled areas drives the placement of additional fill for supportive infrastructure. Increased pollution, stormwater runoff and vegetation removal are other adverse effects.

The NFIP influences the way flood control structures are built, operated and maintained. Levees diminish floodplain storage and confine the river so water no longer flows into off-channel habitat areas. FEMA will remove the areas protected by the levee from the floodplain. Confinement also increases gravel scour and displaces juvenile fish. The U.S. Army Corps of Engineers (COE) prefers that levees not be covered with vegetation, especially trees. FEMA relies on the COE vegetation standards, which lead to the

removal of riparian vegetation that would remain in place if allowed by the NFIP; so the BiOp attributes adverse effects of removing levee vegetation to the NFIP. The overall effect is reduction of habitat and a conversion of habitat to channels that are only suitable for migration.



Community Rating System (CRS)

The CRS provides local governments a number of regulatory programs to reduce flood risks; and the more programs implemented by a local jurisdiction the higher the CRS score. For higher scores, FEMA offers lower flood insurance rates. For example, the CRS awards points based on the number of insurable buildings that have been upgraded for flood protection. The BiOp notes that flood protection methods – including (among many others) levees, floodwalls and channel modifications FEMA Example Map – that are presently encouraged by FEMA are, in fact, federal agency actions which harm or eliminate fish habitat.

To summarize, the BiOp concludes that both the mapping and minimum floodplain criteria elements provide incentives, technical guidance and recognition that encourage the placement of fill in floodplains. This adversely affects floodplain habitat and listed species. It concludes that the CRS likewise creates fiscal incentives for activities, such as fill

and diking, which harm or displace habitat. The BiOp asserts the NFIP will continue to reduce the amount of habitat, further degrade remaining habitat, and limit species' recovery, and that cumulative effects not accounted for in the NFIP will compound habitat loss.

The NMFS Reasonable and Prudent Alternatives

Given the adverse affect on listed species, in accordance with Section 7 of the ESA the BiOp proposes seven Reasonable and Prudent Alternatives (RPA) to allow the NFIP to carry out its purpose without jeopardizing the listed species. Section 7 requires the alternatives to be consistent with the purpose of the NFIP's and FEMA's authority, and also be economically and technically feasible.

Element 1 – Notification

FEMA is to notify NFIP-participating communities that development consistent with the NFIP jeopardizes listed species. The notices are to suggest methods for protecting species, including a voluntary temporary moratorium on floodplain development that adversely impacts species or their habitat, and also to explain that when jurisdictions adopt the Ordinance in RPA Element 3 (discussed below), they will be ESA compliant.

Element 2 – Mapping

FEMA must ensure that Letters of Map Change caused by manmade alterations are only approved when the alteration either avoids habitat functional changes or is mitigated. Map changes based on prior, unauthorized fill are not to be approved.

Each year FEMA selects a limited number of watershed flood maps for updating. The selection process is based on criteria that include factors such as anticipated flood risk. FEMA's criteria for selecting maps to update must now include the presence of listed species.

FEMA must revise flood modeling to account for future, cumulative effects from anticipated land-use changes and United States Geological Survey (USGS) climate study information. Local communities are also encouraged to evaluate the risk of flooding behind existing levees given anticipated future cumulative effects.

Element 3 – Floodplain Management Criteria

This element of the BiOp calls for the adoption of a Model Ordinance (Ordinance). It requires FEMA to tighten the NFIP minimum criteria to prevent or minimize the degradation of channel and floodplain habitat, including the following measures, among many others:

1. Allow no development in the floodway, the CMZ plus 50 feet, and the Riparian Buffer Zone (RBZ); or
2. Demonstrate that proposed development in the floodway, the CMZ plus 50 feet, and the RBZ does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate and/or floodplain refugia for listed fish.
3. In addition to either 1 or 2 above, either:
 - a. Prohibit development in the 100-year floodplain; or
 - b. For proposed development within the 100-year floodplain but outside the RBZ, any loss of floodplain storage must be prohibited or mitigated (presumably through a balanced cut and fill) in a manner that provides habitat and prevents fish stranding. Indirect adverse effects to stormwater, riparian vegetation, bank stability, channel migration, hyporheic zones, wetlands, etc. must also be mitigated.
4. Expansions of existing structures may not increase the footprint more than 10 percent, which is calculated cumulatively, and must mitigate for any adverse effects. New structures must be set back 15 feet from the RBZ.

Element 4 – Community Rating System

The BiOp compels FEMA to reduce CRS points for structural changes, and award points for moving levees as far away from the channel as possible and restoring riparian and floodplain function. Points will be awarded for dismantling preexisting levees, in part or whole, to restore floodplain. In conjunction with NMFS, FEMA must encourage levee vegetation. Local governments will also win CRS points for implementing an active buyout program to remove buildings from the floodplain, or acquire property rights to preserve open floodplain.

Element 5 – Maintenance and Certain Types of Construction in the Floodplain

FEMA must not sanction levees that are certified by the COE utilizing COE vegetation standards unless no adverse effect on species and habitat is shown. It may acknowledge new levees and floodwalls only if they leave the natural channel migration pattern intact (or allow expansion), use bioengineering methods to stabilize the banks, place large wood in the levee setback area, install riparian vegetation, and do not increase flood level, volume or velocity.

Element 6 – Floodplain Mitigation Activities

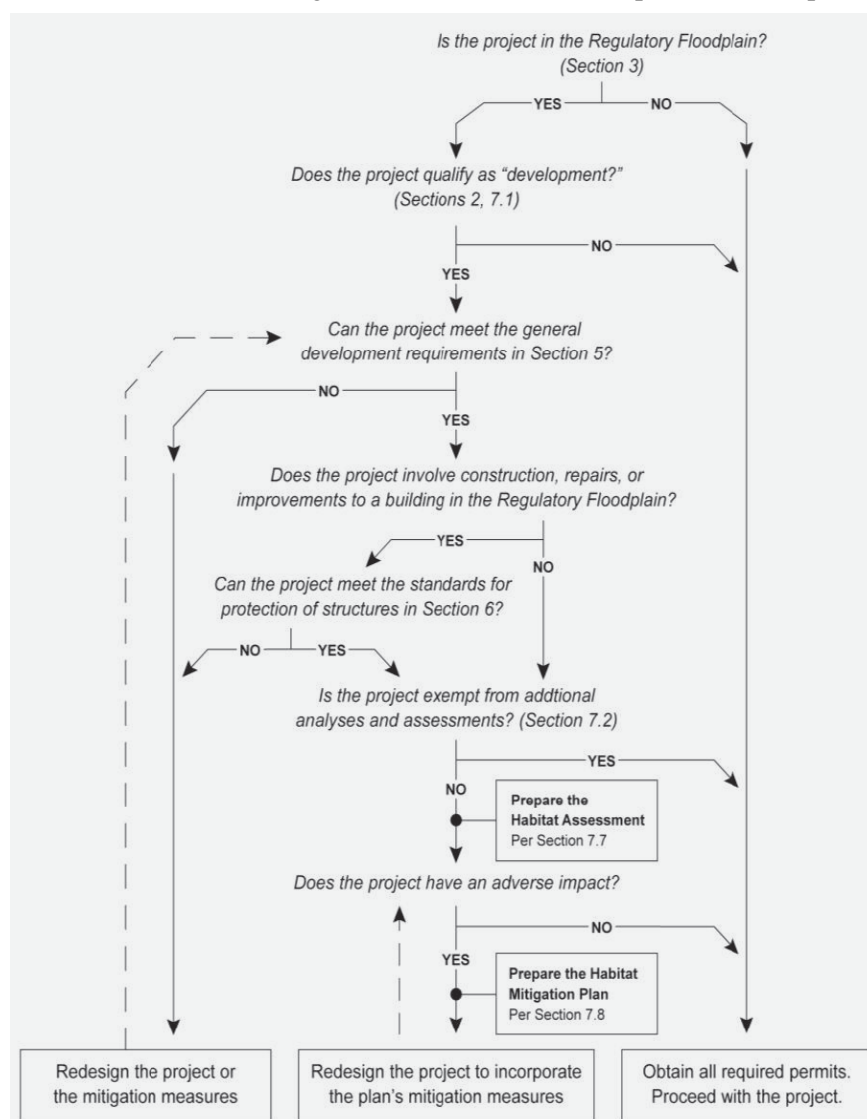
For development in floodplains that occurs subsequent to publication of the BiOp but prior to its full implementation, appropriate mitigation is necessary.

RPA Element 7 – Monitoring and Adaptive Management

The BiOp requires FEMA to report to NMFS annually. NMFS will then decide if changes in RPA elements are needed to avoid an adverse modification of critical habitat. If NMFS determines that adverse effects were not avoided, FEMA must mitigate. The BiOp urges FEMA to require flood insurance in 100- and 500-year floodplains and not waive flood insurance requirements after issuance of flood map revisions and behind levees.

THE MODEL ORDINANCE

The seven RPAs were incorporated by FEMA into an Ordinance for local jurisdictions to use as a safe harbor. The Washington Model Ordinance was published in April 2011 and includes both instructions



to delineate and classify areas on a new type of floodplain map and text to explain what is allowed and prohibited within the delineated areas. The Ordinance lists what requirements proceed from the BiOp, and FEMA assures local governments that implementing them assures ESA compliance. The Ordinance also includes voluntary provisions that provide extra credit in the CRS, such as open space preservation and FEMA Flowchart higher regulatory standards. As an alternative to adopting the Ordinance whole, local communities can ensure that all of its material provisions are included within their local ordinance with the aid of a checklist provided by FEMA.

New mapping protocol

The area subject to FEMA regulations is being expanded well beyond the floodway and the 100-year floodplain (aka the Special Flood Hazard Area). Maps will now include the Riparian Habitat Zone (RHZ) (the name is changed from Riparian Buffer Zone in the BiOp) and the CMZ, which

together are called the Protected Area. The Protected Area will often extend beyond the 100-year floodplain, especially in areas of moderate to steep banks. The Protected Area, the 100-year floodplain and the floodway will together comprise a new Regulatory Floodplain.

The RHZ and the CMZ must be delineated. The Ordinance requires that applications for subdivisions or floodplain development permits for development within 300 feet of any stream or shoreline include a site plan that delineates the RHZ. The RHZ is defined in the Ordinance as “the water body and adjacent land areas that are likely to support aquatic and riparian habitat.” More specifically, the Ordinance requires setbacks from ordinary high water that range from 150 feet for nonsalmonid-bearing perennial and seasonal streams and lakes, to 250 feet for the largest rivers. These setbacks were based on a Washington State Department of Fish and Wildlife study, so it is unclear whether there may be different setbacks in Oregon. In many cases, the RHZ setback could extend well beyond the 100-year floodplain and well beyond the top of the bank.

The BiOp defines the CMZ as the “lateral extent of likely movement along a stream reach during the next one hundred years with evidence of active stream channel movement over the past one hundred years.” One hundred years was considered practical for historic research. It takes 100 years to grow trees large enough to provide large woody debris. Areas protected by legally existing levees and other “artificial channel constraints” will not be considered within the CMZ unless a tributary, stream or other hydraulic connection allows fish passage. In other words, a grandfather clause ensures that areas protected by existing dikes, riprap, and seawalls, such as downtown Portland, may be excluded from the CMZ. The Ordinance requires that the CMZ be defined as the actual migration area plus 50 feet.

The Ordinance establishes a procedure for revising the boundaries of the CMZ or RHZ after the maps are adopted. It involves submittal of a technical study consistent with the FEMA Guidance Document entitled *Regional Guidance for Hydrologic and Hydraulic Studies in support of the Model Ordinance for Floodplain Management under the National Flood Insurance Program and the Endangered Species Act*. That document is presently in draft form, and describes methodology for delineating the floodway, floodplain and CMZ, although it does not discuss the RHZ. Because the ESA is implicated in any changes to the RHZ or CMZ, map revisions will almost certainly require consultation with NMFS.

In discussing the implementation of RPA 2, FEMA explains that it changes flood maps one of two general ways. The first is a Letter of Map Amendment used when no physical changes are made to the floodplain, but a topographic survey shows that the affected area is actually above the 100-year floodplain. Because there are no physical changes in the floodplain, FEMA is not required to ensure ESA compliance. The second is a Letter of Map Revision which is used when physical changes are made to the floodplain. If the changes are caused by fill, it is called Letter of Map Revision – Fill. FEMA now requires documentation of ESA compliance for all Letters of Map Revision, including conditional letters. Conditional letters are issued prior to commencement of construction, and assure that FEMA will revise its maps after the project is complete, subject to conditions specified in the letter. More specifically, applicants must provide a Biological Evaluation so FEMA can determine if a Section 7 consultation is needed.

FEMA uses an algorithm to account for many factors when deciding where to update its maps, which now includes data on endangered species at the watershed level. While ESA issues will influence the priority of studies, FEMA is not going to drop its other criteria to concentrate on mapping for the ESA. The third component of RPA 2 is hydraulic modeling. FEMA is conducting a nationwide analysis of potential changes in precipitation, sea level, and other natural processes affecting river and coastal flooding based on climate change studies. FEMA Region 10 is going to await this analysis before altering its modeling. Preliminarily, FEMA predicts the 100-year floodplain areas in most counties in western Washington and Oregon will increase by more than 100 percent by 2100, but it has not indicated how this prediction will affect flood mapping.

New Regulations

The Ordinance proposes new regulations that will make it very difficult to alter land designated as habitat. It even characterizes the RHZ as a non-disturbance area. For example, clearing additional land for agriculture will require a floodplain development permit application that may be denied. Structures must be set back 15 feet from the mapped boundary of the Regulatory Floodplain. For properties entirely within the Regulatory Floodplain, “all new structures, pavement, and other development must be sited in the location that has the least impact on habitat by locating the structures as far from the water body as possible or placing

the structures on the highest land on the lot, which offers protection to local governments against taking claims.

If more than 10 percent of the lot area within the Regulatory Floodplain will be impervious, stormwater studies and/or stormwater mitigation are required. The new limit on the expansion of existing structures in floodplains is 10 percent of the existing footprint counted cumulatively in order to prevent serial additions. This focus on the structural area is new. Previously, expansions were allowed regardless of the footprint so long as the value of the structure did not increase more than 50 percent.

The Ordinance commentary notes that communities may limit habitat protection to areas where functioning habitats exist, which still means that expansion of existing development will not be allowed in most cases. Other than restoration projects, vegetation within the RHZ must be left undisturbed. For areas outside the RHZ but still within the Regulatory Floodplain, 65 percent of native vegetation must be left undisturbed. If that is not possible, a habitat assessment and “if necessary” mitigation are required. Development of open space and recreation facilities may not include structures, fill, or impervious surfaces.

The Ordinance provides for no net loss of flood storage, which can only be achieved by balanced cut and fill. Other than as required by restoration projects, all applications will need to submit a detailed habitat assessment consistent with federal interagency ESA consultation requirements or the FEMA *Regional Guidance for Floodplain Habitat Assessment and Mitigation*, FEMA Region X, 2010. If the assessment finds an adverse effect on water quality, or habitat, or habitat functions, mitigation is required.

For implementation of RPA 3, FEMA provided the 122 affected communities with two options; the Model Ordinance or the checklist. Of 24 responses thus far, two are adopting the Model Ordinance, 13 are demonstrating compliance through their current regulations, and 9 are handling it on a permit-by-permit basis. Many communities are waiting until NMFS approves these options as ESA compliant before deciding which option to pursue.

CONCLUSION

Mapping the various elements of the new Regulatory Floodplain is certain to be controversial, especially if FEMA insists on raising the 100-year flood elevation (aka the base flood elevation) because of global warming. That will dramatically expand the area classified and regulated as floodplain and fish habitat. Increases in the flood elevation due to cumulative effects of continued population growth and development in a watershed will be less dramatic but still substantial, especially for the many developed properties that are only slightly above the current flood elevation.

The Ordinance does acknowledge that fully developed areas within the floodplain may have very limited habitat value; in which case only flood storage and stormwater discharge may need to be addressed, but only if the local jurisdiction designates such developed areas during its adoption of the Ordinance. That is, local jurisdictions will be given an opportunity to exclude developed areas when adopting the new habitat map and implementing the Ordinance. After that, everything within the Protected Area will be subject to the Ordinance, including expansions of structures in fully developed areas that are still within the floodplain. The Ordinance acknowledges that the CMZ is restricted so that channels are unlikely to move in some reaches, especially in developed urban areas.

It is important for all waterfront users, including ports, moorages, landowners, diking districts and other interested parties to understand that the time to engage in the FEMA mapping process in order to have a reasonable chance to affect the outcome is when the maps are first being made. Those who decline to participate may think that the mapping and delineation can be handled at the time of development, as is commonly done where wetlands are concerned. However, once a property is mapped within the RHZ or CMZ, it will be very difficult, if not impossible, to change the map later. While budget constraints and political considerations may delay the creation of these maps by FEMA or local jurisdictions, the burden will fall on the applicant to delineate the RHZ and CMZ, although an applicant may simply designate the entire 100-year floodplain as the CMZ. Therefore to avoid NMFS consultation for each individual project, public agencies and private property owners expecting to develop or actively operate their properties should strive to ensure that map revisions adopted by local jurisdictions or FEMA accurately reflect development areas, including areas with minimal levels of development such as parks and parking lots, and exclude them from the RHZ and CMZ.

The Ordinance emphasizes that map revision requests cannot be approved when based on illegal activity such as an unpermitted fill. In summary, the Ordinance essentially implements a no net loss of habitat or flood storage policy. Affected parties will need to get involved and work hard to protect their rights to continue using land that is in the floodplain, or land that may be included within an expanded floodplain by new maps based on estimated future flood levels.

In addition, the uses allowed will be much more restricted. For example, the Ordinance Commentary says this about the Riparian Habitat Zone: “Generally it is an area that must be kept as open space.” In many communities throughout the state, flood-prone areas are developed with athletic fields, parking lots, industrial yards, recreational marinas and similar uses, which have historically been allowed because they do not impede flood waters. In the future, new development and redevelopment for these uses may be prohibited, even though they are considered open space uses and have a negligible effect on flooding, unless expensive habitat mitigation is provided nearby.

If local communities do not implement the Ordinance, then NMFS consultation will be required for most development projects in or near floodplains, making all types of development in floodplains and shoreline areas substantially more difficult. Even under the Ordinance, development proposals that involve removal of more than 35 percent of native vegetation in the 100-year floodplain or removal of any native vegetation in the RHZ will require consultation with NMFS. Existing developments will be impacted when permits are needed for any changes or for redevelopment. As for flexibility or potential variances from the stringent new regulations, the Ordinance Commentary encourages communities “to adopt standards equal to or more restrictive than” existing federal regulations.

An earlier draft of the Ordinance received over 160 comments. A common criticism was that FEMA is exceeding its authority by regulating areas outside the 100-year floodplain and outside the critical habitat area previously designated through federal rulemaking. FEMA acknowledged that its authority is limited to the floodplain, but emphasizes that local governments still must comply with the ESA, warning that if a community does not enforce the BiOp’s performance standards outside the 100-year floodplain, it will be exposed to ESA claims. Other comments assert the RPAs did not account for economic feasibility of regulating land use beyond the current critical habitat area as required by Section 4 of the ESA. Both NMFS and FEMA brushed this concern aside without evaluating economic effects, such as the increased cost of locating public water and sewer facilities well away from rivers, or the reduced supply of land for common waterfront uses. NMFS seems unwilling to undertake rulemaking and insists that the RPA “merely refines activities within the existing program to account more specifically for the effects of the minimum criteria on listed salmon and steelhead.” NMFS and FEMA appear indifferent to the possibility that they are exceeding their regulatory authority and in so doing may break the budgets of public agencies and private parties alike.

In response to complaints that for dikes and levees, there is a clear conflict between the BiOp and current COE requirements, FEMA punts this issue back to NMFS and the COE. We can expect that property in or near the floodplain in Oregon will soon be subject to the same level of regulation that is now being implemented in Washington. In order to protect habitat that may be occupied by endangered fish during floods anticipated to occur once a century, the new regulations curtail activities and uses that are now commonplace on the lowlands along rivers and streams, including public utilities, agriculture, transportation infrastructure, parks, recreational and industrial marine docks, ports, and all types of commercial and residential real estate.

For Additional Information: Joseph Schaefer and Steve Morasch, Schwabe, Williamson & Wyatt

JOSEPH SCHAEFER holds a Masters Degree in Urban and Regional Planning from PSU and is now in his 11th year as a Land Use Planner at Schwabe, Williamson & Wyatt, where he assists property owners and developers with land use entitlements and related regulatory issues. He serves in the City of Aurora Planning Commission and was previously a member of the City Council.

STEVE MORASCH represents developers and land owners in the land use permitting process in both Oregon and Washington. Mr. Morasch focuses his court work on entitlement appeal, and constitutional claims affecting property, including First Amendment and Equal Protection rights, as well as Dolan claims and regulatory takings. Mr. Morasch serves as a member of the Clark County Planning Commission, the Industrial Lands Committee of the Columbia River Economic Development Council, and the Government Affairs Committee of the Clark County Association of Realtors.

River Chinook, (6) Snake River Spring/Summer Chinook; (7) Snake River Fall Chinook, (8) Lower Columbia River Coho, (9) Southern Oregon/Northern California Coho, (10) Columbia River Chum, (11) Upper Willamette River steelhead, (12) Lower Columbia River steelhead, (13) Middle Columbia River steelhead, (14) Snake River Basin steelhead, and (15) Upper Columbia River steelhead;

WHEREAS, the parties, through their authorized representatives, and without any admission or final adjudication of the issues of fact or law with respect to Plaintiffs' claims, have reached a settlement that they consider to be a just, fair, adequate, and equitable resolution of the disputes set forth in Plaintiffs' complaint;

WHEREAS, the parties agree that settlement of this action in this manner is in the public interest and is an appropriate way to resolve the dispute between them;

NOW, THEREFORE, the parties hereby stipulate and agree as follows:

1. Within fifteen (15) days of entry of an Order on this Settlement Agreement ("Agreement") FEMA shall provide the Director of the NMFS a written request to initiate informal consultation, pursuant to 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.13, on the impacts to the fifteen ESA-listed species identified in Plaintiffs' complaint of (i) FEMA's implementation of 42 U.S.C. § 4102(c); (ii) the mapping of the floodplains and revisions thereof 42 U.S.C. § 4101(a)(1), (a)(2), and (iii) the implementation of the Community Rating System ("CRS"), a voluntary program through which Congress mandated that FEMA provide discounts on flood insurance premiums to communities that implement flood management regulations that exceed FEMA's minimum criteria, 42 U.S.C. § 4022(b)(1).

2. Within one (1) year of entry of an Order on this Agreement FEMA shall provide the Director of the NMFS a written request to initiate formal consultation, pursuant to 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(c), on the impacts to the fifteen ESA-listed species identified in Plaintiffs' complaint of (i) FEMA's implementation of 42 U.S.C. § 4102(c); (ii) the mapping of the floodplains and revisions thereof 42 U.S.C. § 4101(a)(1), (a)(2), and (iii) the implementation of the CRS, 42 U.S.C. § 4022(b)(1). This written request shall include a document, which may at FEMA's discretion be titled as a biological assessment pursuant to 50 C.F.R. § 402.12, which contains the information specified in 50 C.F.R. § 402.14(c)(1) through 402.14(c)(6). This Agreement does not limit the substantive outcome of consultation. To challenge the biological opinion resulting from the initiated consultation in accordance with this Agreement, Plaintiffs will be required to file a separate action. FEMA will not withdraw its biological assessment or from consultation.

3. Should NMFS request additional information from FEMA pursuant to 40 C.F.R. §§ 402.14(c), (d), and/or (f), FEMA shall provide such information, if available, to NMFS within sixty (60) days, or by such time as NMFS directs.

4. Within thirty (30) days of entry of an Order on this Agreement, FEMA shall begin to notify all participating communities in Oregon in writing by sending them a letter materially similar to that attached hereto as Exhibit 1 and will diligently continue notifying communities by letter materially similar to that

attached hereto as Exhibit 1 until all participating communities have received such notification.

5. During the pendency of FEMA's consultation with NMFS, FEMA shall implement the following changes to the administration of the NFIP in Oregon:

a. Mapping. Upon entry of an Order on this Agreement, FEMA shall immediately institute the following elements:

i. FEMA shall process Conditional Letters of Map Change (CLOMC) caused by manmade alterations only when the proponent has factored in the effects on channel and floodplain habitat function for ESA-listed salmon and steelhead, and has demonstrated that the alteration avoids habitat functional changes, or that the proponent has mitigated for the habitat functional changes resulting from the alteration with appropriate habitat measures, such that the alterations do not cause a net loss of habitat function and value.

ii. FEMA shall ensure that floodplain modeling incorporates on-the-ground data as is readily available to increase the accuracy of maps depicting the floodplain. In addition, FEMA will use a 2-dimensional model in estuarine floodplains and in other areas as applicable.

Any challenge to any determination made by FEMA pursuant to this paragraph shall be reviewed under the standard of review set out in the Administrative Procedure Act, 5 U.S.C. § 706(2)(A).

6. Either party may seek to modify the terms of the Agreement specified in Paragraph 1 for good cause shown, consistent with the Federal Rules of Civil Procedure. In that event, or in the event that either party believes the other party has failed to comply with any term or condition of this Agreement, the parties shall use the dispute resolution procedures specified in Paragraph 7 below.

7. This Agreement may be modified by the Court upon good cause shown, consistent with the Federal Rules of Civil Procedure, by (i) written stipulation between the parties filed with and approved by the Court, or (ii) upon written motion filed by one of the parties and granted by the Court. In the event that either party seeks to modify the terms of this Agreement, including the deadline specified in Paragraph 1, or in the event of a dispute arising out of or relating to this Agreement, or in the event that either party believes that the other party has failed to comply with any term or condition of this Agreement, the party seeking the modification, raising the dispute, or seeking enforcement shall provide the other party with notice of the claim. The parties agree that they will meet and confer (telephonically or in person) at the earliest possible time in a good-faith effort to resolve the claim before seeking relief from the Court. If the parties are unable to resolve the claim themselves, either party may seek relief from the Court. In the event that Plaintiffs believe FEMA has failed to comply with a term of this Agreement and has not sought to modify it, Plaintiffs' first remedy shall be a motion to enforce the terms of this Agreement. This Agreement shall not, in the first instance, be enforceable through a proceeding for contempt of court.

8. No party shall use this Agreement or the terms herein as evidence that FEMA is required to

initiate consultation with NMFS on the impacts of any portion of the NFIP, in any other proceeding involving FEMA's implementation of the NFIP or compliance with the ESA.

9. FEMA agrees that Plaintiffs are the "prevailing parties" in this action, and agrees to pay to Plaintiffs reasonable attorneys' fees and costs, pursuant to Section 11(g) of the ESA, 16 U.S.C. § 1540 (g). The parties agree to attempt to resolve Plaintiffs' claims for fees and costs expeditiously and without the need for Court intervention. The Court shall retain jurisdiction over the case for the purpose of resolving any dispute between the parties regarding Plaintiffs' claims for an award of fees and costs. If the parties are unable to resolve attorneys' fees and costs among themselves, Plaintiffs shall file a motion seeking such award. By this Agreement, FEMA does not waive any right to contest fees claimed by Plaintiffs, including the hourly rate, in any continuation of the present action or any future litigation.

10. The parties agree that Plaintiffs reserve the right to seek additional fees and costs incurred subsequent to this Agreement arising from a need to enforce or defend against efforts to modify terms of this Agreement or for any other continuation of this action. By this Agreement, FEMA does not waive any right to contest fees claimed by Plaintiffs or Plaintiffs' counsel, including the hourly rate, in any future litigation or continuation of the present action. Further, this Agreement as to attorneys' fees and costs has no precedential value and shall not be used as evidence in any other attorneys' fees litigation.

11. No provision of this Agreement shall be interpreted as, or constitute, a commitment or requirement that FEMA take action in contravention of the ESA, the Administrative Procedure Act ("APA"), or any other law or regulation, either substantive or procedural. Nothing in this Agreement shall be construed to limit or modify the discretion accorded to the FEMA by the ESA, the APA, or general principles of administrative law with respect to the procedures to be followed in making any determination required herein, or as to the substance of any final determination.

12. This Agreement is being entered into so as to avoid further litigation of the Plaintiffs' pending lawsuit. Nothing in this Agreement shall be construed to constitute an admission of any issue of fact, law or liability by any of the parties. Except as expressly provided in this Agreement, none of the parties waives or relinquishes any legal rights, claims or defenses it may have.

13. Nothing in this Agreement shall be interpreted as, or shall constitute, a requirement that FEMA is obligated to pay any funds exceeding those available, or take any action in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any other appropriations law.

14. The parties agree that this Agreement was negotiated in good faith and that this Agreement constitutes a settlement of claims that were denied and disputed by the parties. By entering into this Agreement, the parties do not waive any claim or defense.

15. The undersigned representatives of each party certify that they are fully authorized by the party or parties they represent to agree to the Court's entry of the terms and conditions of this Agreement and do hereby agree to the terms herein.

16. The terms of this Agreement shall become effective upon entry of an order by the Court ratifying the Agreement.

17. Upon approval of this Agreement by the Court, Plaintiffs' First Claim for Relief that FEMA has violated the requirements of the ESA and its implementing regulations failing to initiate and/or complete consultation with NMFS shall be dismissed with prejudice. Nothing in this agreement shall prevent Plaintiffs from filing, at the conclusion of formal consultation between FEMA and NMFS, contemplated in this agreement, a separate action challenging FEMA's substantive compliance with 16 U.S.C. §1536(a)(2) to ensure the agency's actions authorized, funded, or carried out pursuant to the NFIP are "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary . . . to be critical . . ." 16 U.S.C. § 1536(a)(2). Upon approval of this Agreement by the Court, Plaintiffs' Second Claim for Relief shall be dismissed without prejudice. Upon approval of this Agreement by the Court Plaintiff shall withdraw any and all pending Freedom of Information Act requests related to this litigation. The parties hereby stipulate and respectfully request that the Court retain jurisdiction to oversee compliance with the terms of this Agreement and to resolve any motions to modify such terms. *See Kokkonen v. Guardian Life Ins. Co. of Am.*, 511 U.S. 375 (1994). This Agreement shall terminate automatically upon conclusion of formal consultation.

Dated: July 9, 2010

Respectfully submitted,

s/ **Daniel J. Rohlf**

Daniel J. Rohlf (OR Bar No. 99006)

PACIFIC ENVIRONMENTAL

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Attorneys for Defendants

**UNITED STATES DISTRICT COURT
DISTRICT OF OREGON**

AUDUBON SOCIETY OF PORTLAND,)
NATIONAL WILDLIFE FEDERATION,)
NORTHWEST ENVIRONMENTAL)
DEFENSE CENTER, ASSOCIATION OF)
NORTHWEST STEELHEADERS,)
)
Plaintiffs,)
v.)
)
FEDERAL EMERGENCY)
MANAGEMENT AGENCY,)
)
Defendant.)

CASE NO. 3:09-cv-729-HA

**CERTIFICATE OF
SERVICE**

I hereby certify that on July 9, 2010, I electronically filed the foregoing with the Clerk of the Court via the CM/ECF system, which will send notification of such to the attorneys of record.

/s/ *Bradley H. Oliphant*
BRADLEY H. OLIPHANT

OF COUNSEL:

Barbara Montoya, Dep. Assoc. Chief Counsel
Litigation Division
Federal Emergency Management Agency
U.S. Department of Homeland Security
409 3rd Street, SW Room 206
Washington, DC 20472-3800

EXHIBIT 1

The Honorable Participant, Mayor
Address

Dear Mayor Participant:

In 2009, Audubon Society of Portland, National Wildlife Federation, Northwest Environmental Defense Center and the Association of Northwest Steelheaders (collectively, Audubon) sued the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for failure to consult under the Endangered Species Act (ESA) with respect to administration of the National Flood Insurance Program (NFIP). On July 9, 2010, FEMA entered into an agreement with Audubon settling this lawsuit. The agreement requires FEMA to request the initiation of formal consultation with the National Marine Fisheries Service (NMFS) on the impacts of certain aspects the NFIP was having on ESA-listed salmon and steelhead. The agreement further provided that communities participating in the NFIP would receive this letter notifying them of the agreement and relevant provisions of the ESA.

Under section 7 of the ESA, Federal Agencies are prohibited from causing jeopardy to a listed ESA species or adversely modifying its critical habitat. Certain portions of the ESA are applicable to everyone, whether a federal agency, state agency, local jurisdiction or individual. We all have a responsibility to ensure our actions do not cause a take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) to ESA-listed threatened and endangered species. Under section 9 of the ESA, actions or decisions enacted by you and your officials are subject to this prohibition regardless of federal involvement. Additionally, any person can be subject to criminal or civil penalties for causing a take.

During the consultation FEMA will process Conditional Letters of Map Change (CLOMC) caused by manmade alterations only when the requestor has demonstrated compliance with the ESA. In addition, FEMA will also ensure that floodplain modeling incorporates on-the-ground data as is readily available to increase the accuracy of maps depicting the floodplain.

FEMA recognizes that many of you have already been implementing measures which protect/mitigate floodplain development actions affecting ESA-listed species and their habitat. For those that may need assistance in designing and implementing such measures, FEMA will work diligently with you, the state resource agencies, and NMFS to provide as much assistance as possible and to facilitate favorable opportunities for complying with the ESA.

Sincerely,

Regional Administrator

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE**

NATIONAL WILDLIFE FEDERATION,

Plaintiff,

v.

FEDERAL EMERGENCY
MANAGEMENT AGENCY,

Defendant,

THE CITIES OF ARLINGTON,
AUBURN, BURLINGTON, EVERETT,
FEDERAL WAY, KENT, LAKE
FOREST PARK, MOUNT VERNON,
NORTH BEND, ORTIN, PORT
ANGELES, PUALLUP, RENTON,
SNOQUALMIE, SULTAN, and
TUKWILA,

Defendant-Intervenors,

PROPERTY OWNERS FOR SENSIBLE
FLOODPLAIN REGULATION,

Defendant-Intervenor.

CASE NO. C11-2044-RSM

ORDER DENYING PLAINTIFF'S
MOTION FOR SUMMARY
JUDGMENT AND GRANTING
DEFENDANT FEDERAL
EMERGENCY MANAGEMENT
AGENCY'S MOTION FOR
SUMMARY JUDGMENT

I. INTRODUCTION

Plaintiff National Wildlife Federation ("NWF") brought suit against the Federal Emergency Management Agency for violations of the Endangered Species Act in its implementation of the National Flood Insurance Program. Before the Court is NWF's Motion for Summary Judgment (Dkt. # 74), and Defendant FEMA's cross Motion for Summary Judgment (Dkt. # 84). Intervenor Defendant Property Owners for Sensible Floodplain Regulation opposed NWF's motion (Dkt. # 90) and Intervenor Defendant Cities filed an opposition and cross motion (Dkt. # 92). Oral argument was held on March 14, 2014 and again on May 12, 2014. For the reasons set forth below, NWF's motion

will be denied and FEMA's motion will be granted. To the extent the Defendant Cities motion joins FEMA's cross motion for summary judgment, it will be granted on the grounds stated below.

II. STATUTORY FRAMEWORK

This case involves the interaction of two congressional mandates: the National Flood Insurance Act of 1968, 42 U.S.C. §§ 4001-4129, and the Endangered Species Act ("ESA") of 1973, 16 U.S.C. §§ 1531-1544.

A. The National Flood Insurance Act

Prior to 1968, there was a growing concern that the private insurance industry was unable to offer reasonably priced flood insurance on a national basis. *See* 42 U.S.C. § 4001(a), (b); *Flick v. Liberty Mut. Fire Ins. Co.*, 205 F.3d 386, 388 (9th Cir. 2000). Congress passed the National Flood Insurance Act ("NFIA") of 1968 to address this concern. The purposes of the NFIA were to provide affordable flood insurance throughout the nation, encourage appropriate land use that would minimize the exposure of property to flood damage and loss, and thereby reduce federal expenditures for flood losses and disaster assistance. 42 U.S.C. § 4001(d)-(f); *Florida Key Deer v. Paulison*, 522 F.3d 1133, 1136 (11th Cir. 2008); *Flick v. Liberty Mut. Fire Ins. Co.*, 205 F.3d 386, 388 (9th Cir. 2000). To that end, the NFIA authorized the Federal Emergency Management Agency ("FEMA") to establish and carry out the National Flood Insurance Program ("NFIP"). 42 U.S.C. § 4011.

There are three basic components of the NFIP: (1) the identification and mapping of flood-prone communities, (2) the requirement that communities adopt and enforce floodplain management regulations that meet minimum eligibility criteria in order to qualify for flood insurance, and (3) the provision of flood insurance. *Nat'l Wildlife Federation v. Federal Emergency Management Agency*, 345 F. Supp. 2d 1151, 1155 (2004). FEMA also implements a Community Rating System ("CRS"), which provides discounts on flood insurance premiums in those communities that establish floodplain management programs that exceed NFIP's minimum eligibility criteria. *Id.* The NFIA encourages community participation in the NFIP by prohibiting federally-regulated banks or lenders, or federal agencies, from providing loans or other financial assistance for acquisition or development within flood hazard areas of non participating communities and by requiring that flood insurance be purchased as a precondition for such financial assistance. Declaration of Jan Hasselman, Ex. 1 (the "BiOP"), p. 2.

1. Mapping

FEMA is tasked with identifying and publishing information regarding “all flood plain areas, including coastal areas located in the United States, which have special flood hazards.” 42 U.S.C. § 4101. A Special Flood Hazard Area or “SFHA” is “the land within the flood plain within a community subject to a 1 percent or greater chance of flooding in a given year.” 44 C.F.R. § 59.1. FEMA puts data regarding the locations of SFHA and regulatory floodways on Flood Insurance Rate Maps (“FIRMs”). The FIRMS, in turn, provide the basis both for the requirement that a developer obtain flood insurance as well as the calculation of the actual flood insurance rate for any new construction.

FEMA is required to assess the need for revisions and updates of FIRMs “based on an analysis of all natural hazards affecting flood risks.” 42 U.S.C. § 4101(e)-(f). However, state and local governments may request map revisions by submitting sufficient technical data to justify the request. *See* 42 U.S.C. § 4101(f)(2). In addition, FEMA has promulgated regulations that allow individual landowners to request map changes, called Letters of Map Change (“LOMC”), de-designating property as within the SFHA. *See* 44 C.F.R. §§ 65.4-65.8, 44 C.F.R. Part 72; 42 U.S.C. § 4104. The letters are issued when a physical structure or the placement of earthen fill has raised the property outside the SFHA so that it is no longer subject to the 1% annual chance of flooding. 44 C.F.R. § 72.2. A LOMC may also be issued when there is an official determination by FEMA that a property has been inadvertently included in the SFHA or regulatory floodway. 44 C.F.R. Part 70. Finally, a community or individual may request FEMA’s comments as to whether a proposed project, if built as proposed, would result in a flood map revision. FEMA’s comments in response to such a request are issued in the form of a Conditional Letter of Map Change (CLOMC”). 44 C.F.R. § 65.8, Part 70, Part 72.

2. Minimum Eligibility Requirements

To qualify for the program, communities must adopt land use controls at least as restrictive as the minimum criteria established by FEMA. *See* 42 U.S.C. § 4102(c). FEMA promulgated regulations setting forth the minimum floodplain management criteria required by the NFIA in 1976. 42 U.S.C. § 4129; 41 Fed. R.eg. 46,975 (Oct. 26, 1976). Under these regulations, in order to qualify for insurance under the NFIP, a participating community must adopt and enforce a floodplain management ordinance that meets or exceeds regulatory criteria. 44 C.F.R. §§59.2(b), 59.22(a)(3), 60.1. The criteria apply to all areas within a community that are mapped as within the SFHA. A

community that fails to adequately enforce its flood plain management ordinance may be put on probation or suspended from the NFIP. 44 C.F.R. §59.24(b)-(c).

3. Provision of Flood Insurance

FEMA must provide flood insurance to communities which have “evidenced a positive interest in securing flood insurance coverage under the flood insurance program” and have “given satisfactory assurance that ... adequate land use and control measures will have been adopted ... which are consistent with the comprehensive criteria for land management and use developed” under 42 U.S.C. § 4102. 42 U.S.C. § 4012(c).

4. Community Rating System

FEMA is authorized “to carry out a community rating system program, under which communities participate voluntarily ... to encourage adoption of more effective measures that protect natural and beneficial floodplain functions,” among other goals. 42 U.S.C. § 4022(b)(1). FEMA’s CRS provides discounts on flood insurance premiums in communities that establish floodplain management programs that go beyond the NFIP’s minimum eligibility criteria.

B. The Endangered Species Act

Section 7(a)(2) of the ESA requires federal agencies to “ensure” that their actions do not cause “jeopardy” to endangered or threatened species. 16 U.S.C. § 1536(a)(2). To cause jeopardy is to “reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild.” 50 C.F.R. § 402.02. The federal agency undertaking such an activity must consult the service having jurisdiction over the relevant endangered species. The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), are jointly responsible for administering the ESA and the scope of their respective jurisdictions is set forth in 50 C.F.R. § 402.01(b) (1987). Here, the service involved is the NMFS.

Under the Act, following consultation, the service must issue a biological opinion that details how the proposed action “affects the species or its critical habitat,” including the impact of “incidental takings” of the species. An incidental taking “refers to takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant.” 50 C.F.R. § 402.02. If a species might be endangered by the agency action, the service suggests a “reasonable and prudent alternative” (“RPA”) to the agency's proposal. 16 U.S.C. at § 1536(b)(3)(A). “The agency is not required to adopt the alternatives suggested in the biological

opinion; however, if the Secretary deviates from them, he does so subject to the risk that he has not satisfied the standard of section 7(a)(2).” *Tribal Village of Akutan v. Hodel*, 869 F.2d 1185, 1193 (9th Cir. 1988) (citing *Village of False Pass v. Watt*, 565 F. Supp. 1123, 1160- 61 (D. Alaska 1983), *aff’d*, 733 F.2d 605 (9th Cir. 1984)). Thus, “section 7(a)(2) imposes two obligations upon federal agencies. The first is procedural and requires that agencies consult with the NMFS or FWS to determine the effects of their actions on endangered or threatened species and their critical habitat. The second is substantive and requires that agencies insure that their actions not jeopardize endangered or threatened species or their critical habitat.” *Florida Key Deer v. Paulison*, 522 F.3d 1133, 1138 (11th Cir. 2008) (citing 16 U.S.C. § 1536(b) & (a)(2)).

III. PROCEDURAL HISTORY

A. The 2003 Litigation

In 2003, Plaintiff National Wildlife Federation (“NWF”) brought suit against FEMA, alleging that FEMA was in violation of the Endangered Species Act for failing to comply with its procedural obligation under 16 U.S.C. § 1536(a)(2) to consult with the NMFS on impacts of the NFIP to the Puget Sound Chinook salmon, a threatened species. *See NWF v. FEMA*, 345 F. Supp. 2d at 1151. Section 7 requires every federal agency to engage in consultation to “insure that any action authorized, funded or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species.” 16 U.S.C.A. § 1536(a)(2).

Although FEMA did not have discretion to deny insurance to a person in an otherwise eligible community, the Court concluded that FEMA did have discretion in its mapping activities, discretion to amend its regulations establishing the minimum eligibility criteria to qualify for flood insurance, and discretion to promote conservation measures through the CRS. *NWF v. FEMA*, 345 F. Supp. 2d at 1168-1174. In addition, the Court found substantial evidence that FEMA’s implementation of NFIP in the Puget Sound region “may affect” Chinook salmon. As a result, FEMA was held in violation of the ESA and was ordered to initiate consultation with NMFS within sixty days.

Pursuant to the Court’s order, FEMA initiated consultation with NMFS in 2004. After four years of scientific review and inter-agency negotiations, on September 22, 2008, NMFS issued a 226-page biological opinion on the impacts of the NFIP on ESA-listed species in the Puget Sound region. *See BiOp*. The BiOp concluded that implementation of the NFIP jeopardized the survival

of not only Puget Sound Chinook salmon, but also Puget Sound steelhead, Hood Canal chum salmon, and Southern Resident killer whales. BiOp at 150. The BiOp also concluded that continued implementation of the NFIP would destroy or adversely modify critical habitat for Puget Sound Chinook salmon, Hood canal chum salmon, and Southern Resident killer whales. *Id.*

B. The 2008 Biological Opinion

Pursuant to its obligations under the ESA, NMFS presented FEMA with a Reasonable and Prudent Alternative to the NFIP to ensure that the action did not cause jeopardy to the listed species or adversely modify their critical habitat. The RPA consists of seven elements, summarized as follows:

1. **Notification.** FEMA was instructed to notify all 122 NFIP communities in the Puget Sound region within 30 days that “development consistent with the NFIP jeopardizes the listed species and adversely modifies their critical habitat.” BiOp at 151. The notification was to suggest measures for avoiding and minimizing take.
2. **Mapping.** This element directed FEMA to make multiple changes to its mapping program. Most significantly, FEMA was instructed to process LOMC only when the proponent demonstrated “that the alteration avoids habitat functional changes, or that the proponent has mitigated” for such changes. BiOp at 152-53. FEMA was also directed to address effects that could occur later in time; to prioritize mapping activities based on the presence of salmon; and to increase the accuracy of maps through use of on-the-ground data and consideration of “future conditions,” including climate change. *Id.*
3. **Floodplain Management Criteria.** This element directed FEMA to revise its floodplain management criteria. BiOp at 154.
4. **Community Rating System.** This element directed FEMA to change the CRS to increase points for salmon-friendly measures and decrease points for measures that reduce flood risk but harm habitat, such as through the use of levees. *Id.* at 158-59.
5. **Levee Vegetation and Construction.** This element called for four specific changes, to be implemented within one year. *Id.* at 160-62. (1) FEMA was prohibited from recognizing levees that are certified by the Army Corps of Engineers unless it is demonstrated that the standard will not adversely affect species or habitat. (2) FEMA

was directed to revise its procedures so that levee owners that opt out of the Corps' funding program and maintain vegetation remain eligible for emergency funding. (3) FEMA was directed to use, and encourage grantees to use, Hazard Mitigation grant funding and the Flood Mitigation Assistance Program for projects that reduce flood risk and also benefit salmon. (4) FEMA was instructed to recognize new levees and floodwalls only if they include certain habitat-protecting features.

6. **Mitigation.** For development in floodplains that degrade habitat during the period prior to full implementation of the RPA, FEMA was instructed to “ensure” that appropriate mitigation occurs. *Id.* at 162.
7. **Monitoring and Adaptive Management.** FEMA was directed to undertake regular monitoring and reporting of progress towards each of the other RPA elements. *Id.* In addition to the seven-element RPA outlined above, the BiOp also includes an Incidental Take Statement, which insulated FEMA and participating communities from liability under Section 9 of the ESA if they complied with the RPA. *Id.* at 168-175.

C. The 2011 Litigation

Before the Court is NWF's second suit against FEMA concerning FEMA's implementation of the BiOp. There is no dispute that FEMA has complied with its procedural obligations under the ESA and the Court's 2004 order to consult with the NMFS. However, more than three years after the NMFS issued the BiOp, the parties dispute whether FEMA properly implemented the 7-element RPA contained in the BiOp such that it is no longer jeopardizing the continued existence of ESA-listed species causing the destruction of their critical habitat.

The court has already considered, and denied, NWF's previous motion for a preliminary injunction on the ground that NWF failed to demonstrate a likelihood of irreparable injury. Dkt. # 69. NWF now moves the Court to issue a declaratory judgment that FEMA's implementation of NFIP violates § 7(a)(2) of the ESA. NWF seeks summary judgment on a single claim for relief: a § 7(a)(2) violation of the ESA, 16 U.S.C. § 1536(a)(2).² It contends that FEMA's current implementation of the NFIP in the Puget Sound Region fails to “ensure against jeopardy” to

² NWF also seeks voluntary dismissal without prejudice of its second and third claims for relief pursuant to Fed. R. Civ. P. 41(a)(2). Dkt. # 74, p. 7 n.2.

protected salmon and orcas. Specifically, NWF challenges FEMA’s implementation of RPA Elements 2, 3, 5, 6, and 7.³ FEMA has cross moved for summary judgment seeking a determination by the Court that it has complied with its substantive obligations under the RPA. The cities of Arlington, Auburn, Burlington, Everett, Federal Way, Kent, Lake Forest Park, Mount Vernon, North Bend, Orting, Puyallup, Renton, Snoqualmie, Sultan, and Tukwila (collectively the “Cities”), as well as the non-profit organization Owners for Sensible Floodplain Regulation (“POSFR”), oppose Plaintiff’s motion as intervenor defendants. Both FEMA and the intervenor Cities have cross-moved for summary judgment and seek dismissal of the Complaint in its entirety.

IV. SUMMARY JUDGMENT STANDARD

Summary judgment is appropriate if there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c). The moving party bears the initial burden of demonstrating the absence of a genuine issue of material fact. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). Once the moving party meets its initial burden, however, the opposing party must then set forth specific facts showing that there is some genuine issue for trial in order to defeat the motion. *Anderson v. Liberty Lobby*, 477 U.S. 242, 250 (1986). Courts have found that since the ESA does not contain an express standard of review, the appropriate standard of review is whether the agency’s actions are arbitrary and capricious, an abuse of discretion, or contrary to law. *See Tribal Village of Akutan v. Hodel*, 869 F.2d 1185, 1193 (9th Cir. 1989).

V. REVIEW UNDER THE APA

The Supreme Court has declared the ESA to be “the most comprehensive legislation for the preservation of endangered species ever enacted by any nation.” *TVA v. Hill*, 437 U.S. 153, 180 (1978) (“Congress intended endangered species to be afforded the highest of priorities.”). “The plain intent of Congress in enacting [the ESA] was to halt and reverse the trend toward species extinction, whatever the cost.” *Id.* at 184. To accomplish this, the ESA includes substantive and procedural requirements that take “priority over the ‘primary missions’ of federal agencies.” *Id.*

As discussed above, section 7 of the ESA establishes a consultation procedure to assist agencies in meeting this requirement whereby the expert wildlife agency issues a biological opinion on whether the agency action will cause jeopardy. 50 C.F.R. §§ 402.14(a), (b), and (g). If the wildlife agency determines that jeopardy will occur, it must provide a “reasonable and prudent

³ During the briefing period, FEMA informed NWF that it had satisfied its obligation under RPA Element 4. FEMA has since acknowledged NWF’s compliance.

alternative” (“RPA”) to the proposed action that will avoid jeopardy. *Id.* §§ 402.14(g), (h). The RPA must be consistent with the intended purpose of the proposed action and be within the action agency’s authority. *Id.* § 402.03. If the agency cannot identify an RPA or if the action agency is unwilling to implement it, the proposed action is prohibited without cabinet-level authorization. 16 U.S.C. § 1536(e).

The RPA outlines one path that will avoid jeopardy and an agency may depart from the terms of the RPA if it takes “alternative, reasonably adequate steps to insure the continued existence of any endangered or threatened species.” *Tribal Village of Akutan*, 869 F.2d at 1193; *Village of False Pass v Watt*, 565 F. Supp. 2d 1123, 1154 (D. Alaska 1983) (“the decision whether or not to proceed with the project rests ultimately with the Secretary. He must insure that agency actions are not likely to jeopardize the continued existence of the species”). When an agency decides to depart from the terms of the RPA, its decision must not be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law.” *Tribal Village of Akutan*, 869 F.2d at 1193. Further, “[t]he biological opinion is accorded substantial weight as evidence of the Secretary’s compliance with the [ESA.]” *Bennett v. Spear*, 520 U.S. 154, 169-70 (1997) (“A federal agency that chooses to deviate from the recommendations contained in a biological opinion bears the burden of ‘articulating in its administrative record its reasons for disagreeing with the conclusions of a biological opinion’” (citing 51 Fed. Reg. 19,926, 19,956 (June 3, 1986))). Importantly, any decision to depart from an RPA must be “well reasoned and supported by the record.” *Tribal Village of Akutan*, 869 F.2d at 1194. The agency need not, however, “justify [its] decisions by clear and convincing evidence.” *Id.* at 1193.

In *Tribal Village of Akutan*, a case cited favorably by all parties, several Alaskan villages and environmental organizations brought suit against the Secretary of the Interior to enjoin a multi-stage oil and gas lease sale for the North Aleutian Basin. The plaintiffs argued, *inter alia*, that the Secretary violated ESA section 7 when he deviated from the RPAs set forth in NMFS’s biological opinion. the biological opinion, NMFS determined that a major oil spill during a peak migration period for gray whales would be likely to jeopardize the continued existence of the species. NMFS’s RPA suggested creating a large offshore buffer zone to reduce the impact of an oil spill on gray whales. The Secretary did not fully adopt the proposal and instead opted to create a smaller offshore buffer zone as well as take additional mitigating actions.

The Ninth Circuit Court of Appeals held that the Secretary's decision to reject some of NMFS's RPA requirements was neither arbitrary nor capricious. The Court explained that the Secretary offered a well reasoned explanation for his decision to not provide the full offshore buffer zone suggested by the biological opinion. The Secretary supported his position by stating that "exploration-stage spills are most unlikely, that deletion of nearshore tracts would only marginally reduce the threat to endangered whales from such spills, and that seasonal or ad hoc drilling restrictions [could] provide adequate protection." *Id.* at 1194. The Court noted that the Secretary also adopted other mitigating measures, which included an agreement to consult informally with NMFS both during and after the lease-sale process, a modification of the Final Notice of Sale that informed lessees that drilling activities could be suspended during whale migration periods, and a requirement that operators and lessees post whale lookouts when conducting seismic tests. Further, the Court cited the district court's observation that the alternative action and mitigating measures adopted by the Secretary appeared to satisfy NMFS's parent agency, NOAA, "for in its final ESA comments on the sale NOAA did not reiterate those recommendations." *Id.* at 1194. In discussing that the Secretary had (1) implemented additional mitigation efforts, (2) demonstrated the improbability of a lease-sale stage oil spill, and (3) left an opening for further action down the road, the Court concluded that the Secretary had "fulfilled his responsibility to 'insure that agency action [was] not likely to jeopardize the continued existence of any endangered species.'" *Id.* at 1195 (quoting 16 U.S.C. § 1536(a)(2)).

NWF has the ultimate burden to show that FEMA's implementation of the RPA is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law." 5 U.S.C. § 706(2)(A). Under this standard, if FEMA has "considered the relevant factors and articulated a rational connection between the facts found and the choices made[.]" then the Court must uphold the agency's action. *City of Sausalito v. O'Neill*, 386 F.3d 1186, 1206 (9th Cir. 2004) (citation omitted). The Court is required to "make a careful and searching inquiry into the facts" but it may not "substitute its judgment for that of the agency." *Center for Marine Conservation v. Brown*, 917 F. Supp. 1128, 1143 (S.D. Texas 1996). An agency only violates the APA if it has "relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

VI. MOTION TO STRIKE

FEMA renews its motion to strike the Wald and Kirkpatrick declarations. It contends that (1) the declarations are improper extra-record evidence under the APA, 5 U.S.C. § 706; (2) Ms. Kirkpatrick's declarations are expert witness material submitted in violation of 18 U.S.C. § 207; and (3) Plaintiff did not qualify Mr. Wald as an expert under Fed. R. Evid. 702.

The Court denied NWF's motion for preliminary injunction on April 12, 2012 (Dkt. # 69). Within the Order, and at issue here, the Court stated that it would permit review of extrarecord evidence because "the evidentiary restrictions under the APA do not apply and the Court may consider evidence outside the administrative record," citing *Western Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 487 (9th Cir. 2010) for support. Dkt. # 69, p. 13.

The *Kraayenbrink* court expressly stated that "under Washington Toxics Coalition we may consider evidence outside the administrative record for the limited purposes of reviewing Plaintiff's ESA claim." *Kraayenbrink*, 632 F.3d at 497. In addition, in *Oregon Natural Desert Ass'n v. Kimbell*, 593 F. Supp. 2d 1217 (D. Or. 2009), the district court upheld the Magistrate Judge's decision to permit extra-record review and fleshed out its reasoning by discussing the burden of proof necessary for plaintiff to prevail on its ESA claims. For example, the court noted that under the plaintiff's ESA § 9 "taking" claim, plaintiff was required to prove by a preponderance of the evidence that the Forest Service's actions resulted in an unlawful take of a protected species, and that the take was reasonably certain to occur under the Forest Service's contested program. *Id.* at 1220. The court noted further that the ESA claim could be distinguished from a claim that challenges a specific administrative decision. *See Id.* at 1220-21 ("Claims challenging the propriety of a consulting agency issuing a biological opinion are governed by the APA. Claims arising directly under the ESA Citizen Suit Provision . . . , on the other hand, based upon events occurring in the aftermath of agency decisions, are not limited by the APA scope of review.") (citations omitted). Because this case concerns FEMA's revised and ongoing implementation of the NFIP in the wake of the 2008 BiOp, extra-record evidence may be admissible. Thus, the Wald and Kirkpatrick declarations will not be stricken on that basis.

However, the Court finds that the Wald and Kirkpatrick declarations are simply not relevant. Federal Rule of Evidence 702 provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an

expert by knowledge, skill, experience, training, or education, may testify thereto if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

The trial court must act as a “gatekeeper” to ensure that proffered expert testimony is both relevant and reliable. *Kumho Tire Co. Ltd. v. Carmichael*, 526 U.S. 137, 147, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999). Relevance means that the evidence will assist the trier of fact to understand or determine a fact in issue. *Cooper v. Brown*, 510 F.3d 870, 942 (9th Cir. 2007); *see* Fed. R. Evid. 702. Where expert testimony is based on “technical” or “other specialized knowledge” rather than science, the Court must ensure that it “rests on a reliable foundation and is relevant to the task at hand.” *United States v. Hermanek*, 289 F.3d 1076, 1093 (9th Cir. 2002) (quoting *Daubert*, 509 U.S. at 597). The gatekeeping function serves to “make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho*, 526 U.S. at 152.

Ms. Kirkpatrick’s declarations contain her opinions about whether FEMA’s implementation of the NFIP complied with the RPA during her tenure at the NMFS, which ended prior to the start of this litigation. As explained below, the Court must measure FEMA’s compliance with the RPA against the language contained in the RPA. Ms. Kirkpatrick’s declarations do not inform this process because the record speaks for itself. NMFS is not a party to this suit, and Ms. Kirkpatrick’s opinions are not formal statements concerning NMFS’s approval or disapproval of FEMA’s implementation of the NFIP.

Mr. Wald’s declarations are primarily directed to assessing individual community compliance with the developments standards contained within the RPA. Thus, Mr. Wald’s declarations do not assist the Court in measuring FEMA’s administration of the NFIP against the plain terms of the RPA. Accordingly, the Court will grant the motion to strike.

VII. ANALYSIS

A. The Contested RPA Elements (2, 3, 5, 6, and 7)

The parties devoted the majority of their briefing and argument to the substantive requirements of RPA Element 3. Thus, the Court begins its analysis there.

1. RPA Element 3: NFIP Minimum Criteria

Element 3 directed FEMA to “modify its implementation of the NFIP minimum criteria in NFIP communities in the Puget Sound Region in order to prevent and/or minimize the degradation of channel and floodplain habitat.” BiOp at 153. The BiOp identified two types of areas within the SFHA floodplain: the Protected Area, and the remainder of the floodplain. Different development standards apply to each area. The Protected Area consists of the outermost boundary within the SFHA of either (1) the floodway, (2) the Channel Migration Zone (“CMZ”) plus 50 feet, or the Riparian Buffer Zone (“RBZ”) as described by Washington State regulations. BiOp 2d Errata (Dkt. # 11-1, p. 245). RPA 3.A created the development standard for each area. NWF takes issue with the how FEMA has revised its NFIP eligibility process to comply with RPA 3.A. NWF contends that FEMA’s “3 Door” compliance pathway does not avoid jeopardy because no door option incorporates all of the RPA’s standards and directives. NWF considers Door 3 compliance option the most problematic.

RPA Element 3.A directs FEMA to revise its implementation of its minimum criteria compliance standards such that community eligibility requires either (1) no development within the Protected Area, **or** (2) that local permitting authorities demonstrate “no adverse effects” of proposed development within the Protected Area. This means that NFIP communities must “demonstrate to FEMA that any proposed development in the [Protected Area] does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids.” BiOp at 154. In addition, there must be either (1) no development in the 100 year floodplain, **or** (2) for permitted development within the floodplain, the adoption of certain mitigation measures and use of Low Impact Development methods. *See id.*

a. *Overview of FEMA’s 3 Door Compliance Pathway*

FEMA argues that it does not have land use authority and cannot prohibit floodplain development. Thus, it cannot implement the BiOp’s “no development” directives. To comply with the BiOp’s alternative directives, it has created the 3 Door compliance pathway that allows NFIP communities to demonstrate compliance with Element 3.A. This compliance program was created in collaboration with a focus group that included NMFS staff and the NFIP communities. Dkt. # 86, Carey SJ Decl., ¶ 76.

Door 1 requires a community to adopt FEMA’s Model Ordinance, which FEMA contends incorporates all of the performance standards required by Element 3.A and Appendix 4 of the BiOp. *See* Dkt. # 17, Carey PI Decl., ¶ 67. If a community chooses this option, it must enact the Model Ordinance through its own lawmaking process.

Because some communities reported that they already had state-mandated ordinances and programs that complied with Element 3.A, FEMA developed a Compliance Checklist for these communities to show FEMA the location of each of the performance standards within their local regulations. *Id.* at ¶ 74. This is referred to as Door 2 compliance.

Door 3 compliance allows a community to demonstrate compliance with Element 3.A on a permit-by-permit basis. *Id.* at ¶ 69. This pathway requires development permit applicants to submit a habitat assessment to their local permitting authority. *Id.* at ¶¶ 80-81. Unless the applicant demonstrates “no adverse effects” of the project, the applicant must either abandon or redesign the project, or undergo an ESA consultation with NMFS before a permit may be granted. *Id.*

For Door 1 and 2 communities, FEMA has requested that NMFS review the communities’ compliance submissions to ensure that they satisfy Element 3.A’s directives. Dkt. # 86, Carey SJ Decl., ¶ 156.

b. FEMA’s implementation of RPA Element 3

RPA Element 3.B states in relevant part that “the FEMA shall implement Element 3.A by ensuring that all participating NFIP communities in the Puget Sound Region implement land-use management measures consistent with the criteria” BiOp at 155. The “Minimum Criteria” are found in Appendix 4 in the BiOp. *Id.* at 221-26. Plaintiff contends that each of FEMA’s 3 Doors for community compliance fail to incorporate Appendix 4’s development standards and directives. Primarily concerned with the permit-by-permit approach to Door 3 compliance, Plaintiff argues that FEMA’s lack of oversight over individual development permits allows NFIP communities to avoid the proscriptive measures of the RPA. FEMA contends that its 3 Door compliance pathway satisfies Element 3 because (1) the BiOp does not require it to police the permit counter of each NFIP community, (2) even if there are problems with the individual communities’ compliance, FEMA’s implementation of the compliance pathways, the guidance it offers, and the monitoring of community compliance it conducts satisfies the RPA, and (3) NMFS has formally stated that FEMA’s current approach is consistent with the intent of RPA Element 3. The Court agrees with FEMA that the measures it has taken are consistent with the language of the BiOp.

To demonstrate that FEMA’s implementation of the NFIP fails to satisfy Element 3, Plaintiff focuses on actions taken by the communities in approving floodplain development permits. Plaintiff points to numerous instances where it believes that individual communities have failed to implement the Minimum Criteria. *See, e.g.*, Dkt. # 75, Auburn City Code, 15.68.160(B) (Hasselman SJ Decl., Ex. 23); *Id.*, Roy City Code, 31-1-5(1)(C) (Hasselman SJ Decl., Ex. 22). But as FEMA notes, it is not a land-use authority and it can only provide guidance, technical assistance, require reporting, and institute enforcement actions, which is what is required of it under the RPA. FEMA believes that it has done, and continues to do, what it can with the authority it has.

The BiOp states that it is the local jurisdiction with permitting authority that must demonstrate to FEMA that any proposed development will not adversely affect protected habitat. *See* BiOp at 154. Further, the BiOp contemplated that RPA compliance would require protracted interactions between FEMA, the NFIP communities, and NMFS. For example, Element 3.D recognized that jurisdictions may grant development permits that allowed development without considering the Minimum Criteria or appropriate mitigation. *See* BiOp at 157. In such instances, the BiOp required FEMA to flag and report the information to NMFS. *Id.* Then, “[i]f NMFS finds that any unmitigated actions affecting listed species have occurred as a result of these permits, FEMA will ensure mitigation for these actions . . .” *Id.* Throughout the RPA, the BiOp mandates ongoing communication between the NFIP jurisdictions, FEMA, and NMFS to ensure that *the communities* adopt floodplain management measures that are consistent with the Minimum Criteria. *See, e.g., Id.* at 157 (“The FEMA must report to NMFS on their [sic] progress . . . [a]lso, communities will provide information to FEMA on a semi-annual basis”). Importantly, the RPA does not identify a specific compliance program for FEMA to implement. It is silent on how FEMA should ensure that communities meet the “no adverse effects” standard for all development going forward. Further, although the BiOp recognizes that there are vastly different floodplain development considerations among the 122 Puget Sound communities, it fails to provide any tailored recommendations or compliance approaches for those individual communities. Indeed, NMFS recognized this to be true. *See* AR 16435, Stelle Sept. 26, 2011 Letter (“The RPA was written as a programmatic consultation that applies to the entire geographic region, and the applicability of each element of the RPA may vary from place to place since differing jurisdictions have differing floodplain conditions and requirements . . . some components of the RPA may not apply to every jurisdiction, because in some jurisdictions the floodplain no longer contains essential habitat features. NMFS believes it is contingent on local governments to determine which functions are present in the floodplain, and how they will maintain and restore floodplain functions.”). Consistent with the letter of the BiOp, NMFS

also believed that communities are responsible for identifying how they can best comply with the general standards outlined in the RPA.

Ultimately, the BiOp lacks any specific Element 3 implementation guidance for FEMA. The Court agrees with Plaintiff “that without clear and objective standards for adverse effects, project proponents can easily prepare ‘assessments’ finding no adverse impact.” Dkt. # 74, p. 32. However, it was the BiOp, not FEMA, that created the undefined “no adverse effects” enforcement obligation. *See, e.g.*, BiOp at 154 (introducing adverse effects language without explaining or defining term). The record shows that FEMA and the communities sought extensive assistance from NMFS to clarify the BiOp’s ambiguous compliance standard. *See, e.g.*, Dkt. # 34-2, p. 2 (“[NMFS] recognize[s] there is a lack of clarity amongst local jurisdictions regarding expected implementation efforts”).

To date, FEMA has issued several guidance documents to help communities understand their compliance obligations under the RPA. These documents include the Door 1 “Model Ordinance” (AR 16524), the Door 2 “checklist” (AR 16610), the “Habitat Assessment Guidance” document (AR 2950), and the “FAQ” memoranda (AR 3220-3250). Contrary to Plaintiff’s argument that FEMA’s permit-by-permit approach requires only “an ‘assessment’ of unspecified content to meet an undefined standard,” FEMA’s guidance documents give meaning and depth to the undefined standard set out in the BiOp. For example, with respect to Door 3 compliance, FEMA issued the “What does it mean to be in ‘Door 3’” FAQ document. AR 3241- 43. Therein, FEMA explained to Door 3 communities that

[i]n order to avoid allowing incremental, systemic loss of essential ecosystem features to occur, the compliance standard for Door 3 must be a high showing that individual projects seeking development in the floodplain will retain the full level of baseline function. The impact of the project on habitat may be difficult to evaluate because there is often little or no information on the baseline conditions of the site’s natural features and habitat functions. The scope, magnitude, and risks associated with possible impacts to populations or their habitats vary greatly by project. A habitat assessment is needed to identify those natural processes and habitat functions that currently exist (i.e. the environmental baseline) and determine how the proposed project will affect them.

AR 3241-42. The FAQ document directs communities to the FEMA Region X Guidance for conducting habitat assessments, and that guidance document provides detailed information for communities about how to demonstrate ESA compliance for proposed development projects. Because the BiOp failed to identify meaningful and community-tailored compliance options, FEMA

was tasked with creating a comprehensive compliance program. It then had to take into account the disparate resources, technical expertise, and baseline environmental conditions of the Puget Sound communities to craft a workable program.

Consistent with its enforcement obligation, FEMA has initiated enforcement actions against communities that were late in submitting annual reports and against communities that failed to demonstrate RPA compliance before issuing floodplain development permits. For the 48 communities that had not, as of February 2012, complied with FEMA's annual reporting requirement, FEMA required them to submit reports and conducted in-person visits. Dkt. # 86, Carey SJ Decl., ¶¶ 221-23. Further, FEMA initiated enforcement actions in four communities after it learned that development projects were allowed to proceed without the required adverse effects analysis. *Id.* at ¶¶ 224-242. For those projects, FEMA sought documentation, explanation, local building code enforcement action, or changes to local permitting procedures. *Id.* FEMA conducted on-site and in-person enforcement visits with NMFS personnel, and it maintains that the unauthorized projects are either undergoing ESA § 7 consultation, or that the problematic structures have been removed, or that local building code enforcement actions are pending. *See Id.*

Plaintiff relies on *Florida Key Deer v. Brown*, 364 F. Supp. 2d 1345 (S.D. Fla. 2005) *aff'd sub nom. Florida Key Deer v. Paulison*, 522 F.3d 1133 (11th Cir. 2008), to support its contention that FEMA's permit-by-permit approach is unlawful because it relies on the communities' voluntary participation, subject only to FEMA's enforcement and oversight, which does not protect against cumulative habitat loss. In *Florida Key Deer*, the court found that both FWS and FEMA abused their discretion by adopting and implementing an arbitrary and capricious RPA that failed to protect threatened species against jeopardy. The court considered the RPA deficient for two reasons. First, the Court determined that the RPA proscribed a voluntary approach that did "nothing to ensure that either the county or the landowners w[ould] comply with the RPA's procedures." *Id.* at 1356. Second, it determined that by allowing development to proceed on a project-by-project basis, the RPA unlawfully failed to consider the cumulative effects to habitat loss. *Id.* at 1357.

NWF raises the same challenges here, but *Florida Key Deer* can be distinguished on both points. As to voluntary participation, FEMA has not made community compliance voluntary. FEMA requires NFIP communities to choose a compliance pathway to remain NFIP eligible. It then offers those communities guidance on how they may satisfy their ESA compliance obligations under each of the compliance options. That not all of Appendix 4's directives and FEMA's guidance may be applicable to an individual community does not make FEMA's compliance program "optional." In

Florida Key Deer, the RPA allowed for FWS to review development projects at its discretion, and it did not compel landowners to comply with FWS's recommendation, should FWS choose to review a project. Here, the record demonstrates that FEMA required each community to choose a compliance pathway, and that it initiated enforcement actions when communities failed to comply.

Plaintiff's cumulative effects challenge relies on the baseline assumption that project-by-project review can never account for cumulative adverse effects to critical habitat. Critically, the BiOp does not prohibit FEMA from allowing permit-by-permit review so long as a cumulative effects analysis takes place during the permitting review process. Although it makes sense that assessing the cumulative impact of development projects during the review process for an individual project will be more difficult, the BiOp does not prohibit such an approach and FEMA has recognized that permit-by-permit review is not without limitations. *See* AR 3239. Moreover, the record here contains no quantifiable evidence of cumulative adverse effects to critical habitat.

The record before the *Florida Key Deer* court was different. There, the RPA allowed for permit-by-permit review of proposed development projects. The record showed that of the 2,022 projects allowed to go forward, 101 of the projects were for fences in critical habitat areas where the threatened Key Deer's survival was at risk "*due to fencing[.]*" *Florida Key Deer*, 364 F. Supp. 2d at 1357. On that record, the court easily concluded that FWS's "piecemeal review is inconsistent with conclusions of FWS that habitat loss and fragmentation 'taken together' cause jeopardy to the Listed Species." *Id.*

Finally, FEMA contends that the Court should consider NMFS's formal statement that NMFS believes FEMA has complied "with the intent of Element 3" as record evidence demonstrating FEMA's substantive compliance. This statement is found in NMFS Regional Administrator William Stelle, Jr.'s letter to FEMA, dated February 3, 2012. The letter is produced in relevant part as follows:

NMFS believes that the measures FEMA has implemented are consistent with the intent of Elements 3 and 5. Your annual report for 2011 provides new information for NMFS regarding FEMA's compliance with other elements of the RPA. NMFS will provide a review of the report in a separate transmittal, but we are encouraged by the additional information provided this year and the work that is reported as completed.

...

Element 3 requires significant changes to a complex program involving numerous local jurisdictions, state and local regulations and coordination between regional and

national components of a Federal agency. There has also been uncertainty about how to implement the RPA in highly developed watersheds. Landscapes in Western Washington range from undeveloped, nearly pristine habitats that maintain ecosystem functions to fully developed landscapes with fair to poor quality habitat that will not benefit from revised NFIP management under the RPA. *For judging the sufficiency of the protective measures applied to these differing habitats it is necessary to recognize the habitat functions that still exist. We recognize there is a lack of clarity amongst the local jurisdictions regarding expected implementation efforts needed for these different habitats, and that the lack of clarity created difficulties for FEMA and those local jurisdictions.* While NMFS does not expect heavily developed floodplains to be restored to provide the natural ecosystem functions that occur in undeveloped areas, it is our expectation that existing habitat functions will be maintained and enhanced over time as part of the proper and full execution of the RPA. Clarifying the differences among local jurisdictions based upon existing habitat functions underscores the importance of – and our appreciation for – maintaining the close relationship with FEMA as the NFIP is implemented over time in a manner that is consistent with the recovery of listed salmonids.

Dkt. # 34-2, p. 2 (emphasis added). The cautious language used by NMFS, indicating that FEMA’s compliance program satisfies the intent of Element 3, is not dispositive of whether FEMA has in fact complied with Element 3. The letter is not a formal determination by NMFS that the agency action complied with the RPA in full. The letter, however, is meaningful in a different way, as it lends support to the Court’s construction of the scope of the RPA. The letter demonstrates that NMFS was aware that the RPA did not account for different baseline environmental conditions across the NFIP communities, and that the RPA failed to provide clear guidance for communities to implement relevant standards and directives. At heart, Plaintiff relies on evidence of an individual community’s confusion over what RPA standards it must consider before issuing a development permit, or an individual community’s failure to provide the required habitat assessment, to prove that FEMA has failed to implement Element 3. That factual evidence, which is contested by both FEMA and the Defendant intervenors, does not demonstrate that FEMA’s compliance program fails to satisfy the RPA. Instead, the evidence offers a running commentary about Element 3’s lack of clarity, and it shows that the development standards were not tailored to help communities understand their NFIP and ESA compliance obligations.

The Court recognizes that the question of whether individual communities have met their compliance obligations through FEMA’s oversight is both important and controversial. It also recognizes that FEMA’s compliance program has been modified throughout this litigation to better meet NMFS’s expectations, and to respond to allegations of perceived community noncompliance that Plaintiff identified through discovery. *See, e.g.,* Dkt. # 88, Riebau Decl., ¶ 48 (stating in

response to Hassleman Decl at ¶ 24’s allegation that Skagit County issued permits without requiring habitat assessments, “I have contacted Skagit County and requested a full explanation of what [the identified development permits] are for, confirmation that they involved land-disturbing activities, and a description of the steps taken to ensure that issuing the permits, either individually or cumulatively, caused no adverse effect to salmon habitat”). However, the Court’s role under the APA standard, where no party has brought suit against NMFS and the BiOp, is to measure FEMA’s compliance against the language of BiOp. By not defining a comprehensive compliance scheme, the BiOp gave discretion to FEMA to fashion a workable program. Having fully considered the scope of FEMA’s 3 Door compliance program, its guidance documentation, and its enforcement procedures, the Court finds that NWF has failed to meet its burden to show that under Element 3, FEMA’s implementation of the 3 Door compliance program was an abuse of discretion, arbitrary or capricious, or not in accordance with the law.

2. RPA Element 2: Mapping

In its motion, NWF identifies two primary concerns with FEMA’s compliance with RPA Element 2. First, NWF contends that FEMA’s procedure for processing Letters of Map Revision encourages communities to add fill to existing floodplain to map those areas out of the designated floodplain. Second, NWF argues that FEMA has failed to timely update its maps for accuracy and to account for future climate change.

a. *Sub-Element 2.A*

Sub-Element 2.A states in pertinent part as follows:

The FEMA shall process Letters of Map Change caused by manmade alterations only when the proponent has factored in the effects of the alterations on channel and floodplain habitat function for listed salmon, and has demonstrated that the alteration avoids habitat functional changes, or that the proponent has mitigated for the habitat functional changes resulting from the alteration with appropriate habitat measures that benefit affected salmonid populations. The FEMA will ensure that effects from habitat alterations that are reasonably certain to occur but might occur later in time, such as changes in storm water quantity, quality, and treatment, decreased riparian vegetation, lost large woody debris, increased bank armoring, and impaired channel migration, are also mitigated. The FEMA will report to NMFS on the results of mitigation for manmade floodplain changes that become the basis for map revision requests.

BiOp at 152.

FEMA periodically revises its FIRMs by making corrections through Letters of Map Revisions (“LOMRs”) or Letters of Map Amendments (“LOMAs”), collectively referred to as LOMCs. Dkt. # 17, Carey Decl., ¶ 29 (citing 42 U.S.C. § 4104(f), (h) and 44 C.F.R. Parts 70, 72). A LOMR is used to modify a FIRM where “physical measures that affect the hydrologic or hydraulic characteristics of a flooding source” are implemented, which “result in the modification of the existing regulatory floodway, the effective base flood elevation, or the SFHA.” 44 C.F.R. § 72.2. Importantly, FEMA grants LOMR requests for projects that have already been implemented. It “does not authorize, permit, fund, license, zone or otherwise approve construction of any projects in the floodway” for which LOMRs are requested. Dkt. # 17, Carey PI Decl., ¶ 30.

FEMA may issue LOMRs for projects that involve using fill to modify the SFHA. These are referred to as “LOMR-Fs.” *Id.* at 31. “The LOMR-F documents the fact that the property is no longer subject to the 1% annual chance of flooding due to the risk reduction measures taken so the property is now outside the SFHA.” *Id.* The BiOp determined that the practice of using fill to remove property from the SFHA posed a risk to salmon recovery efforts in certain regional locations. *See* BiOp at 133 (“[t]he NFIP requirements that fill be placed to the BFE in order to elevate buildings, [and] that fill above the BFE is a foundation for being removed from the mapped floodplain, . . . create habitat and adjacent watershed conditions in opposition to [salmon] recovery projects and elements”). It also stated that “[p]lacing fill to elevate properties . . . [is] detrimental to floodplain and channel function.” *Id.* at 85. The BiOp recognized that FEMA’s endorsement of using fill to map an area out of the floodplain, and thus out of the NFIP’s insurance requirements, created an incentive for “individuals to remove their property from regulation by artificially filling it.” *Id.* at 84. NWF contends that because FEMA continues to process LOMRs and LOMR-Fs without independently assessing whether the project will adversely affect critical habitat, the incentive to remove property from the floodplain remains.

There are two pathways for property owners to obtain a LOMR that is approved by FEMA. Property owners may either (1) apply for a LOMR from FEMA for a project that has already been completed, or (2) seek a Conditional Letter of Map Revision from FEMA (“CLOMR” and “CLOMR-Fs”), which requires that the property owner demonstrate ESA compliance prior to obtaining FEMA’s approval. FEMA implemented Procedure Memorandum 64 (AR 2310-2316) to comply with the RPA for the CLOMR process. CLOMRs are requested for a project before any floodplain modification occurs. FEMA now mandates that

[t]he CLOMR-F or CLOMR request will be processed by FEMA only after FEMA receives documentation from the requestor that demonstrates compliance with the ESA. The request must demonstrate ESA compliance by submitting to FEMA either an Incidental take Permit, Incidental Take Statement, “not likely to adversely affect” determination from [NMFS and FWS] or an official letter from [NMFS and FWS] concurring that the project has “No Effect” on listed species or critical habitat. If the project is likely to cause jeopardy to listed species or adverse modification of critical habitat, then FEMA shall deny the conditional LOMC request.

AR 2310-2316.

NWF challenges FEMA’s approval of LOMRs because, unlike the CLOMR process, the LOMR process does not require FEMA to independently evaluate ESA compliance and act in consultation with NMFS. Thus, NWF believes that the LOMR process allows property owners to pursue floodplain alterations without demonstrating ESA compliance. NWF wants FEMA to either “require analysis before the fact, or [require] adequate mitigation later.” Dkt. # 74, p. 20. Because FEMA only “reminds” communities about their obligations to comply with the ESA when processing LOMRs, NWF contends that the LOMR process encourages the “cumulative degradation of habitat and the critical point of RPA #2.” *Id.* at p. 21.

FEMA contends that the LOMR process adequately protects against habitat degradation because the permitting process ensures that only RPA Element 3-compliant projects will obtain development permits. FEMA believes that the permitting process offers an independent route for RPA compliance such that it does not have to alter how it approves LOMRs because if a community has obtained an ESA-compliant permit, there is no need for FEMA to re-assess ESA compliance before granting the LOMR. Because FEMA believes that it is in compliance with RPA Element 3, it believes that it has complied with RPA Element 2.A.

As discussed above, FEMA’s implementation of the 3 Door approach to satisfy RPA Element 3 was not arbitrary and capricious. The language of Element 2.A places the burden of demonstrating that the proposed floodplain alteration avoids functional alterations squarely on the proponent requesting the LOMR. Under its 3 Door approach, FEMA requires that all proposed land development permits that affect the floodplain meet the “no adverse effects” test. In that sense, and contrary to NWF’s assertions, FEMA’s process requires “before-the-fact” assessment of adverse affects, and allows for NMFS to identify potential mitigation actions. FEMA has shown that it considered the issues identified by the BiOp related to LOMCs, changed its procedures with respect to the CLOMR process, and changed its permit reporting and compliance procedures to capture floodplain alteration projects for which CLOMRs would be requested. NWF has therefore failed

demonstrated that FEMA's approach to Element 2.A was arbitrary and capricious.

b. Sub-Element 2.C

Sub-Element 2.C concerns updating floodplain modeling to generate accurate floodplain maps and states as follows:

The FEMA shall ensure that floodplain modeling incorporates on-the-ground data to increase the accuracy of maps depicting the floodplain. For multi-thread channels, FEMA shall produce and distribute a Technical Bulletin recommending the use of unsteady state hydraulic models to map the boundaries of the 100-year floodplain. In addition, FEMA will use a 2- dimensional model in estuarine floodplains and in other areas where applicable.

The FEMA will also revise map modeling methods to consider future conditions and the cumulative effects from future land-use change, to the degree that such information is available (e.g. zoning, urban growth plans, USGS Climate study information[]). Future conditions considered should include changes in the watershed, its floodplain, and its hydrology; climate change, and other conditions that affect future flood risk. The FEMA shall ensure that jurisdictions use anticipated future land use changes when conducting hydrologic and hydraulic calculations to determine flood elevations.

BiOp at 152. NWF contends that FEMA has improperly delegated its obligation to update its maps on the individual communities. It believes that FEMA has merely advised communities about updating maps for informational purposes and has failed to offer useful guidance on mapping for future climate change. Although FEMA has been conducting a draft national study on the impact of climate change on floodplain habitat, the draft was only very recently completed. NWF states that “[i]n sum, FEMA has vacillated between claiming it lacks authority to consider future conditions, and arguing that RPA #2 doesn't require it to do anything to address map accuracy at all.” Dkt. # 74, p. 23.

FEMA believes that it is in compliance. Element 2.C requires FEMA to (1) ensure that floodplain modeling incorporates on-the-ground data and issue a Technical Bulletin, (2) revise its modeling methods to consider future conditions and cumulative effects of land-use change, and (4) ensure that jurisdictions use anticipated future land-use changes when calculating flood elevations.

FEMA contends that its FIRMs cannot currently be updated to include future conditions because the FIRMs must actuarially reflect the current risk of flooding in NFIP communities. 42 U.S.C. § 1401; *see also* 44 C.F.R. § 65.6(a)(3) (“revisions . . . cannot be made based on the effects of proposed projects or future conditions”). FEMA also believes that passage of the Biggert-Waters

Flood Insurance Reform Act of 2012 overrides the entire process by which it would analyze and adopt map revisions. *See* Dkt. # 112, Carey SJ Reply Decl., ¶ 44. The Act required creation of a Technical Mapping Advisory Council to address NFIP mapping reform. *Id.* The advisory council is required to recommend

(1) procedures to cost-effectively improve accuracy, general quality, performance metrics, and other aspects of preparing Flood Insurance Rate Maps (FIRMs); (2) mapping standards and guidelines for FIRMs; (3) map maintenance; (4) delegation of mapping activities to State and local mapping partners; (5) improving interagency and intergovernmental coordination and leveraging; and (6) submitting an annual report to the FEMA administrator that contains a description of annual activities, and evaluation of the status and performance of FIRMs and mapping activities to revise and update FIRMs, and a summary of recommendations.

Id. at ¶ 45. The advisory council must also “consult with scientists and technical experts, other Federal agencies, States, and local officials to develop recommendations regarding consideration of future conditions” and it is required “to prepare a separate report . . . that will contain recommendations regarding the treatment of future conditions within the context of the NFIP.” *Id.* at ¶ 46. Plaintiff has failed to show that FEMA’s reliance on the provisions of the Biggert- Waters Act, which governs the revision of NFIP FIRMs and includes the future conditions assessment required by the BiOp, is unreasonable or arbitrary and capricious.

c. Sub-Element 2.D

Sub-Element 2.D requires FEMA to “encourage communities to evaluate and identify the risk of flooding behind 100 year levees based on anticipated future conditions and the cumulative effects from future land-use change.” BiOp at 152. FEMA believes that it has complied with this sub-element in full. In April, 2009, FEMA published a fact sheet to inform property owners of the residual risk associated with living behind levees. *See* Fact Sheet: Living Behind Levees, AR 2204-2205. This Fact Sheet provides information about levee systems for homeowners, business owners, and other citizens who live and work on levee-impacted areas. Additionally, FEMA participated in developing the National Committee on Levee Safety’s report to Congress recommending that a National Levee Safety Commission be established. *See* Report by National Committee on Levee Safety, AR 2208-2309; *see also* http://www.leveesafety.org/ip_FinalProgress_on_Recommendations_21July11.cfm. FEMA also states that future-conditions flood hazard information will be provided at the community’s request for the community’s use in regulating floodplain development. *See* 44 C.F.R. § 64.3. [Dkt. # 17, Carey PI Decl. at ¶ 64]. Plaintiff has not shown that FEMA’s guidance to communities on this sub-element fails to satisfy Element 2.

3. RPA Element 5: Levee Vegetation and Construction

RPA Element 5 addresses the relationship between FEMA's program and the maintenance of levees and certain kinds of other construction. Sub-Element 5.A requires FEMA to “*not* recognize levees certified by the Army Corps of Engineers under its levee vegetation certification standards unless it has been demonstrated that the vegetation standard will not adversely affect species or their habitat.” BiOp at 160. Sub-Element 5.B requires FEMA to revise its procedure memoranda to reflect that levee owners who have been disqualified from Corps repair funding (for failure to abide by the Corps' vegetation standards) will remain eligible for FEMA emergency funding if the levee is certified by a professional engineer. *Id.* Sub-Element 5.D requires that FEMA recognize new levees and floodwalls only when certain criteria are met. *Id.* at 161. NWF contends that FEMA has improperly refused to implement 5.A, B, and D by stating that implementation is beyond its authority.

FEMA states that it “does not design, construct, fund, or approve levee systems or floodwall systems. Rather, FEMA's role is to determine if the levee owner has submitted proof to show that a levee provides protection from the one-percent-annual-chance flood.” Dkt. # 31, p. 48 (citing 44 C.F.R. § 65.10). For 5.A FEMA contends that it lacks authority to decline to recognize Corps-certified levees under 44 C.F.R. § 65.10(e). It also states that it has not recognized a Corps' certified levee since the BiOp was issued. *See* Dkt. # 86, Carey SJ Decl., ¶ 190. For 5.B, FEMA contends that emergency funding issues are types of assistance provided under a different program than the NFIP and therefore 5.B should not have been included in the RPA. Moreover, it contends that it lacks statutory authority to provide disaster assistance to any entity that is eligible for assistance under another federal program. This means that if a person is eligible for, but denied Corps's emergency funding, FEMA may not provide emergency funding as per 42 U.S.C. § 5155(c). Further, FEMA states that it is not aware of any levee owners who were denied flood damage repair funding on this basis. *See* Dkt. # 86, Carey SJ Decl., ¶ 193. For 5.D, FEMA argues that any levee construction or development is subsumed under Element 3's permitting process.

In its February 3, 2012 letter to FEMA, NMFS commented as follow:

Your January 25th letter explains that FEMA is unable to implement certain portions of Element 5 of the RPA because its substance is outside FEMA's authority. NMFS believes the conditions specified in Element 5 are essential to recovery of listed salmonid species in western Washington, and understands that these issues continue to be contentious both locally and nationally. However, NMFS believes that there are better venues among federal agencies to address implementation of the standards

contained in this Element and is actively engaged with FEMA and the Corps of Engineers in those efforts. . . . We are also pleased that FEMA is providing guidance to local jurisdictions with “Levee Vegetation and Mapping” and Procedural Memoranda 63 and 64. It is NMFS understanding, that Region X will require new levees to be evaluated with a Conditional Letter of Map Revision (CLOMR) process that includes a Section 7 consultation.

Supp. A.R. at 8. Considering NMFS’s statement that “there are better venues among federal agencies to address implementation of the standards contained in [Element 5]” with FEMA’s interpretation of its statutory authority, the Court cannot say that FEMA’s implementation of Element 5 was an abuse of discretion or arbitrary and capricious.

4. RPA Element 6: Floodplain Mitigation Activities

Element 6 states in relevant part as follows:

For any development actions in floodplains proceeding consistent with current NFIP requirements, that occur during the period prior to full implementation of RPA elements 2, 3, and 5 [sic], and that degrade channel or floodplain habitat in NFIP communities (including from the indirect effects of development in the floodplain), and for any development for which FEMA, in coordination with NMFS pursuant to RPA 3 finds that additional mitigation is necessary, FEMA shall ensure that appropriate mitigation occurs. For example, FEMA may assist in floodplain mitigation/restoration activities as identified in the PS recovery plan, via contribution of financial, technical, or physical (labor or equipment) support.

BiOp at 161. NWF contends that all FEMA has done to discharge its obligation under Element 6 is provide guidance and technical advice to communities that is untethered from a specific mitigation effort. It contends that there have been no mitigation or restoration activities to offset the harm of floodplain development activities that have occurred since the BiOp was issued.

FEMA contends that by providing technical assistance to communities, it has satisfied Element 6 by its plain terms. FEMA also points out that the reporting process that was implemented under Element 3 is the primary vehicle for identifying permitted projects that require mitigation. FEMA reports to NMFS annually for a determination about whether mitigation efforts may be necessary for any particular project. FEMA notes that NWF has failed to identify a single instance where NMFS required a specific mitigation plan for a project that it was asked by FEMA to review.

FEMA provided technical assistance to communities in the form of training, public outreach, preparing guidance documents, community consultations, a dedicated website, organizing conferences and workshops, and participating in an intergovernmental salmon coalition. Dkt. # 17, Carey PI Decl, ¶¶ 157-171. It procured funding to acquire 25 flood-prone properties for conversion to open space. *Id.* at ¶¶ 144-49. And in 2012, FEMA conducted 26 community assistance visits (“CAVs”) to help communities understand their obligations under the BiOp. *Id.* at ¶ 206. NMFS staff attended 21 of the 26 meetings. *Id.* While Plaintiff contends that such measures are inadequate, the record fails to show that NMFS, the agency tasked with identifying mitigation opportunities in the BiOp, ever told FEMA that mitigation was required to offset the adverse effects of a specific development project. Thus, Plaintiff has not shown that FEMA has failed to implement Element 6.

5. RPA Element 7: Monitoring and Adaptive Management

Element 7 requires FEMA to report to NMFS annually. It provides that upon review of FEMA’s annual reporting, “NMFS will determine, in coordination with FEMA, if some alternate actions or additional changes in RPA elements are needed to avoid jeopardy and adverse modification of critical habitat.” BiOp at 162. It further states that “[i]f NMFS determines that adverse effects to channel and floodplain habitat were not avoided or not mitigated as a result of NFIP actions, FEMA will ensure that mitigation . . . is provided . . .” *Id.* This element “is only checking on implementation of the program as it moves toward addressing more specifically the primary effects of the mapping and minimum criteria elements of the program on listed salmon and steelhead.” *Id.* at 163.

To implement Element 7, FEMA first notified communities that they would be required to report development permitting activity to FEMA. Dkt. # 86, Carey SJ Decl., ¶ 210. FEMA then created and issued its NFIP-ESA “Reporting Tool,” which was later revised to include additional information. *Id.* at ¶ 211; *see also* SSAR 189. FEMA transmitted annual reports to NMFS as it was required to do. Carey Decl., ¶¶ 209-14. The record demonstrates that FEMA and NMFS were engaged in the review process and that NMFS recommended changes to the Reporting Tool that FEMA then incorporated. *See* AR 1643. This back-and-forth communication between the agencies was expressly contemplated by the plain language of Element 7. Plaintiff has therefore failed to show that FEMA failed to comply with Element 7’s reporting obligation.

VIII. CONCLUSION

NWF's challenges target the actions FEMA has taken to implement the RPA. FEMA has demonstrated through the record why it believes that it has either complied with the RPA or why it lacks statutory authority to fully implement sub-elements of the RPA. The Court has considered what the BiOp specifically requires of FEMA; what FEMA has done to implement the BiOp; whether the NFIP satisfies the directives of the BiOp; and if the NFIP failed to satisfy a particular RPA element, whether FEMA has articulated a rational basis for deviating from the RPA. The Court concludes that Plaintiff has failed to demonstrate that FEMA's implementation of the NFIP in the Puget Sound Region was an abuse of discretion or arbitrary and capricious under the plain terms of RPA.

Having considered the motions, the responses and replies thereto, the declarations and attached exhibits, and remainder of the record, the Court hereby finds and ORDERS:

- (1) Plaintiff's Motion for Summary Judgment (Dkt. #74) is DENIED;
- (2) Defendant FEMA's Motion for Summary Judgment (Dkt. #84) is GRANTED;
- (3) Defendant Intervenor Cities Response/cross Motion (Dkt. #92) is GRANTED on the grounds discussed above;
- (4) The Clerk is directed to enter judgment in favor of Defendant FEMA.

DATED this 23rd day of October 2014.

RICARDO S. MARTINEZ
UNITED STATES DISTRICT JUDGE

JOHN A. KITZHABER, MD
GOVERNOR



August 26, 2014

Mr. William Stelle
Regional Administrator
National Marine Fisheries Service
Northwest Region
7600 Sand Point Way NE, Building 1
Seattle, WA 98115

Dear Mr. Stelle,

FEMA Region X recently shared with us the Preliminary Discussion Draft of the Reasonable and Prudent Alternatives (RPAs), dated September 5, 2013, from the forthcoming biological opinion associated with Endangered Species Act consultation over implementation of the National Flood Insurance Program in Oregon. Region X shared these with us so that the State of Oregon could comment on the feasibility of implementing the Minimum Floodplain Management Criteria RPAs that apply to local land development activities. We welcome the opportunity provided us to comment. Today we request that publication of the final biological opinion be delayed until we are able to share our concerns and expertise with your consultation team.

Our review of the draft floodplain management RPAs suggests that they could not be implemented within the State's legal and regulatory authorities. We are concerned, furthermore, that implementation as described in the RPAs would trigger claims under Oregon's Measure 49, which would require local government to pay landowners compensation for lost property rights if the claims are upheld. A slew of Measure 49 claims would impose significant strain on both State and local government resources with no benefit to anadromous fish populations or protection of their critical habitat.

Beside these legal issues lay the possibility of local government and landowner backlash, which could significantly delay implementation of any RPAs thereby continuing the very land use practices that the RPAs seek to stop.

We are confident that the intent of the RPA's Minimum Floodplain Management Criteria can be met in a way that respects both the body of law and regulation that comprise Oregon's land use program, and limits the possibility of Measure 49 claims.

Thank you for your consideration of our request to delay publication of this biological opinion until the State of Oregon has had the opportunity to put forth to National Marine Fisheries Service a proposal for a more workable set of Floodplain Management Criteria. We look forward to working with your team.

Sincerely,

Richard M. Whitman
Natural Resources Director
Office of Governor John A. Kitzhaber, M.D.

CC: Roy E. Wright, Deputy Associate Administrator for Mitigation, FEMA
Mark Carey, FEMA Region X
Jim Rue, Department of Land Conservation and Development, State of Oregon

Litigation: Making Tough Problems Even More Fun!

Professor Dan Rohlf
Lewis and Clark Law School

ESA Purpose

- “The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species” Section 2(b)
- “The terms ‘conserve,’ ‘conserving,’ and ‘conservation’ mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary....” Section 3(3)

Section 7(a)(1)

- “The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act. All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act.”
- What does this mean???

Section 7(a)(2)

- Federal agencies must avoid taking actions that “jeopardize the continued existence of” listed species or result in the “destruction or adverse modification” of designated critical habitat

Section 7(a)(2) consultation

- Agencies must “consult” with FWS/NMFS regarding proposed actions that “may affect” listed species/critical habitat
- Service issues “biological opinion” (BiOp) providing “advice” about agency compliance with section 7(a)(2)
- If jeopardy/adverse mod, Service provides “reasonable and prudent alternatives” (RPA) to avoid problems

“Incidental” take authorization

- Section 9 prohibits “take” of (most) listed species; includes habitat modifications that kill or injure listed species
- Governments authorizing actions that kill protected species also liable
- Service can authorize “incidental” take through section 7(a)(2) incidental take statement in BiOp or by granting incidental take permit

Exception to section 7 requirements

- 50 CFR 402.02: Section 7's substantive and procedural requirements apply only to the extent that a federal agency has "discretionary Federal involvement or control" with regard to a particular action

A couple of big questions...

- Does ESA apply to operation of flood control dams under the Flood Control Act?
- What about FEMA's implementation of NFIP?

In re Operation of Missouri River System Litigation (8th Cir. 2005)

- Flood Control Act of 1994 provides federal agencies with sufficient discretion to consider needs of listed species; statute need not use explicit language (i.e. no "environmental words test")

Florida Key Deer v. Paulison (11th Cir. 2008)

- National Flood Insurance Act of 1968 requires FEMA to make flood insurance available to communities that meet eligibility criteria developed by FEMA, which include local regulation that "otherwise improve the long-range land management and use of flood-prone areas"
- FEMA regulations provide that flood buffers may be used for "wildlife habitat areas;" communities seeking exceptions must discuss impacts on the environment

NWF v. FEMA (D. Wash. 2004)

- FEMA implementation of NFIP is ongoing agency action subject to section 7(2)(2)
 - Mapping changes (particularly prospective changes) discretionary
 - FEMA has discretionary authority to revise minimum eligibility requirements for communities
 - FEMA has discretion to shape Community Rating System (incentives to exceed minimum criteria)

Audubon Society of Portland v. FEMA

- Parties reached settlement agreement requiring FEMA to initiate formal consultation with NMFS regarding impacts to salmonids & habitat
- FEMA Biological Assessment still asserted that FEMA has limited discretion
- Similar activity in California (Coalition for Sustainable Delta v. FEMA)

NMFS Puget Sound BiOp

- Jeopardy BiOp with RPA
- RPA requires that FEMA revise its minimum eligibility criteria so that communities a) outlaw development in the Protected Area; or b) demonstrate that proposed development avoids adversely affecting water quality, quantity, and salmon habitat

FEMA's three doors for local development

- Door 1: Local community adopts restrictive model ordinance consistence with BiOp
- Door 2: Communities prove that their ordinance has all elements of BiOp RPA measures
- Door 3: Communities demonstrate compliance with RPA criteria on a case by case basis; either demonstrate "no adverse effects" or go through site-specific consultation with NMFS

NWF v. FEMA (D. Wash. 2014)

- Plaintiffs: Door 3 leaves too little oversight by FEMA to ensure that individual permits comply with protective provisions of RPA
- FEMA: We're not a land-use authority; we're doing our best by providing guidance, technical assistance, requiring reporting, and taking enforcement actions

Summary judgment opinion

- RPA does not require specific program to comply with biological criteria
- NMFS letter to FEMA acknowledges that RPA leaves much to local governments to decide what is necessary to comply with RPA standards
- "Court agrees with Plaintiff that without clear and objective standards for adverse effects, project proponents can easily prepare 'assessments' finding no adverse effects"

Summary judgment opinion (con't)

- Unlike *Key Deer* case, participation by communities is not voluntary
- BiOp does not prohibit ("more difficult") approach that requires consideration of cumulative effects in deciding whether to authorize individual projects; unlike *Key Deer* case, no quantifiable evidence of cumulative adverse impacts to salmon habitat [cites NMFS letter too]

Was RPA good enough?

- "The Court recognizes that the question of whether individual communities have met their compliance obligations through FEMA's oversight is both important and controversial....By not defining a comprehensive compliance scheme, the BiOp gave FEMA discretion to fashion a workable program." [noting that NWF did not challenge the BiOp/RPA]

Sierra Club v. Glickman (5th Cir. 1998)

- “Given the plain language of the statute and its legislative history, we conclude that Congress intended to impose an affirmative duty on each federal agency to conserve each of the species listed pursuant to [§ 1533](#). In order to achieve this objective, the agencies must consult with FWS as to each of the listed species, not just undertake a generalized consultation.”

Section 7(a)(1) obligations

- Court finds that FEMA’s conservation measures for Key Deer were ineffectual, and thus fell short of the agency’s responsibilities under Section 7(a)(1)
- Court explicitly declined to decide “the scope of discretion afforded agencies under section 7(a)(1) or whether section 7(a)(1) imposes species- or location specific obligations.”

Interesting questions for Oregon (and California and...)

- What will RPA in Oregon BiOp look like? How much discretion will RPA afford to FEMA/local communities?
- Will developers/local communities enjoy incidental take protection?
- Will any plaintiffs take on the BiOp/RPA? Will any plaintiffs sue a developer/permitting authority?

CHAPTER 6

Changes to Mapping Requirements for NFIP

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Chapter 6

CHANGES TO MAPPING REQUIREMENTS FOR NFIP

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NOTES

Chapter 6

CHANGES TO MAPPING REQUIREMENTS FOR NFIP

This session addresses the evolving design and uses of Flood Insurance Rate Maps. We'll start with an overview of how the Federal Emergency Management Agency (FEMA) produces Flood Insurance Rate Maps (FIRMs) and some changes that FEMA has been asked to make in response to the ESA lawsuits in the Pacific Northwest. We'll then hear what additional changes NOAA-Fisheries would like to see, including adding channel migration zones and future conditions to FIRMs. These proposed additions to FIRMs will be explored in more detail. We'll close with a brief discussion of the relationship between map accuracy and modeling uncertainty.

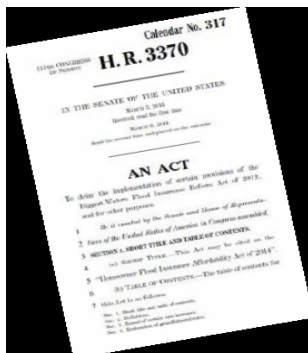
PART A Scott Van Hoff



FEMA Homeowner Flood Insurance Affordability Act Fact Sheet

On March 21, 2014, President Obama signed the Homeowner Flood Insurance Affordability Act of 2014 into law. Complete text of the Act is available at: <http://beta.congress.gov/bill/113th-congress/house-bill/3370/text>.

This law repeals and modifies certain provisions of the Biggert-Waters Flood Insurance Reform Act, which was enacted in 2012, and makes additional program changes to other aspects of the program not covered by that Act. Many provisions of the Biggert-Waters Flood Insurance Reform Act



remain and are still being implemented.

While FEMA actively works to implement the new law, we encourage policyholders to maintain and keep current flood insurance policies. 'FEMA does NOT recommend cancelling a flood insurance policy. Cancelling flood insurance policies now will leave policyholders unprotected during spring flooding

and may cause policyholders to lose important discounts on their rate if they reinstate in the future.

- The new law lowers the recent rate increases on some policies, prevents some future rate increases, and implements a surcharge on all policyholders. The Act also repeals certain rate increases that have already gone into effect and provides for refunds to those policyholders. The Act also authorizes additional resources for the National Academy of Sciences (NAS) to companies, and other stakeholders to implement these Congressionally mandated reforms and to working toward our shared goals of helping families maintain affordable flood insurance, ensuring the financial stability of the NFIP, and reducing the risks and consequences of flooding nationwide. FEMA will also continue to identify and publish special flood hazards and flood risk zones as authorized and required by Congress.

- FEMA has actively begun analyzing and prioritizing implementation of the new law. We will be working with the private Write Your Own insurance companies in the next few weeks to seek their input and expertise prior to issuing business practice bulletins.
- It is not possible for changes to happen immediately. While the new law does require some changes to be made retroactively, applying to certain policies written after July 6, 2012, other changes require establishment of new programs, processes and procedures.
- FEMA's initial priority is assessing potential changes to the NFIP's business processes to stop policy increases for certain subsidized policyholders as outlined in the Act.
- FEMA also plans to issue guidance in the months ahead for the Write Your Own insurance companies to begin issuing refunds as outlined in the law for some policyholders who were previously impacted by subsidy phase outs.



- More information on the new law and its impacts on the NFIP will be forthcoming.

REFUNDS

- For certain flood insurance policies affected by the Pre-Flood Insurance Rate Map(Pre-FIRM) subsidy elimination required by BW-12, the new law mandates refunds of the excess premiums that those policyholders were charged pursuant to the requirements of BW-12. Refunds will not affect all subsidized

policyholders who received rate increases as directed by Congress in BW-12, only policyholders for whom the rate increases under BW-12 were revoked by the new law. Refunds will affect only a small percentage of the overall NFIP policy base.

- o Prior to restoring and refunding premiums, FEMA is required by the Homeowner Flood Insurance Affordability Act to consult with its partner insurers (Write-Your-Own insurance companies or WYOs) to develop guidance and rate tables.
- o In accordance with the new law, FEMA will work to develop and finalize its guidance and rate tables within eight months.
- o The law provides WYO insurance companies between six and eight months to implement the changes and update systems to implement the guidance.
- FEMA is working closely with the WYO insurance companies to develop a timetable for processing refunds expediently.
- **REFUNDS APPLY TO:**
 - o Policyholders in high-risk areas who were required to pay their full-risk rate after purchasing a new flood insurance policy on or after July 6, 2012.
- **REFUNDS MAY APPLY TO:**
 - o Policyholders who renewed their policy after the Homeowner Flood Insurance Affordability Act was enacted on March 21, 2014 and whose premium increased more than 18 percent .

- **REFUNDS DO NOT APPLY TO:**
 - o Policyholders paying the 25 percent annual rate increases, as required by Congress in BW-12, for a Pre-FIRM subsidized non-primary residence, business, Severe Repetitive Loss property, or building that was substantially damaged or improved.
 - o Policyholders whose full-risk premium is less than the Pre-FIRM subsidized premium, or who were not overcharged according to any retroactive revisions to the Pre-FIRM subsidized rates required by the new law.
- Policyholders who saw usual, annual rate increases in 2013 or 2014, or policyholders who paid the 5 percent fee, as required by BW-12, for the NFIP Reserve Fund, will only see a refund if their premium renewal was after March 21, 2014 and their total premium, including the reserve fund, exceeded 18 percent.

PREMIUM RATES FOR SUBSIDIZED POLICIES

- The new law requires gradual rate increases to properties now receiving artificially low (or subsidized) rates instead of immediate increases to full-risk rates required in certain cases under BW-12.
- FEMA is required to increase premiums for most subsidized properties by no less than 5 percent annually until the class premium reaches its full-risk rate. It is important to note that close to 80 percent of NFIP policyholders paid a full-risk rate prior to either BW-12 or HFIAA, and are minimally impacted by either law.



Flood Insurance Policy image. FEMA image.

- With limited exceptions flood insurance premiums cannot increase more than 18 percent annually.
 - o There are some exceptions to these general rules and limitations, The most important of these exceptions is that policies for the following properties will continue to see up to a 25 percent annual increases as required by BW-12 until they reach their full-risk rate: Older business properties insured with subsidized rates;
 - o Older non-primary residences insured with subsidized rates;
 - o Severe Repetitive Loss Properties insured with subsidized rates;
 - o and buildings that have been substantially damaged or improved built before the local adoption of a Flood Insurance Rate Map (known as Pre-FIRM properties).
- In order to enable new purchasers of property to retain Pre-FIRM rates while FEMA is developing its guidelines, a new purchaser will be allowed to assume the prior owner's flood insurance policy and retain the same rates until the guidance is finalized. Also, lapsed policies receiving Pre-FIRM subsidized rates may be reinstated with Pre-FIRM subsidized rates pending FEMA's implementation of the rate increases required by the Homeowner Flood Insurance Affordability Act.

NEW SURCHARGE ON ALL POLICIES

- A new surcharge will be added to all policies to offset the subsidized policies and achieve the financial sustainability goals of BW-12. A policy for a primary residence will include a \$25 surcharge. All other policies will include a \$250 surcharge. The fee will be included on all policies, including full-risk rated policies, until all Pre-FIRM subsidies are eliminated.

GRANDFATHERING

- The new law repeals a provision of BW-12 that required FEMA, upon the effective date of a new or updated Flood Insurance Rate Map, to phase in premium increases over five years by 20 percent a year to reflect the current risk of flood to a property, effectively eliminating FEMA's ability to grandfather properties into lower risk classes.
- Also for newly mapped in properties, the new law sets first year premiums at the same rate offered to properties located outside the Special Flood Hazard Area (preferred risk policy rates).
- With limited exceptions, flood insurance premiums cannot increase more than 18 percent annually.

FLOOD INSURANCE ADVOCATE

- The new law requires FEMA to designate a Flood Insurance Advocate to advocate for the fair treatment of NFIP policy holders.
- The Advocate **will:**
 - o Educate property owners and policyholders on individual flood risks; flood mitigation; measures to reduce flood insurance rates through effective mitigation; the flood insurance

rate map review and amendment process; and any changes in the flood insurance program as a result of any newly enacted laws;



Louisiana home raised above base flood elevation. FEMA photo.

- o Assist policy holders and property owners to understand the procedural requirements related to appealing preliminary flood insurance rate maps and implementing measures to mitigate evolving flood risks;
- o Assist in the development of regional capacity to respond to individual constituent concerns about flood insurance rate map amendments and revisions;
- o Coordinate outreach and education with local officials and community leaders in areas impacted by proposed flood insurance rate map amendments and revisions; and
- o Aid potential policy holders in obtaining and verifying accurate and reliable flood insurance rate information when purchasing or renewing a flood insurance policy.

OTHER PROVISIONS

- The new law permits FEMA to account for property specific flood mitigation that

is not part of the insured structure in determining a full-risk rate.

- The law requires that residential basement floodproofing be considered when developing full-risk rates after a map changes increasing the Base Flood Elevation in an area where residential basement floodproofing is permitted.
- The law mandates that FEMA develop an installment plan for non-escrowed flood insurance premiums, which will require changes to regulations and the Standard Flood Insurance Policy contract.
- The law increases maximum deductibles.
- The law encourages FEMA to minimize the number of policies where premiums exceed 1-percent of the coverage amount, and requires FEMA to report such premiums to Congress.

DRAFT AFFORDABILITY FRAMEWORK

- The new law requires FEMA to prepare a draft affordability framework, which is due to Congress 18 months after completion of the affordability study required by BW-12. The Affordability Study required by BW-12 is underway and is being conducted by the National Academies of Sciences, as specified in the BW-12 law.
- In developing the affordability framework, FEMA must consider:
 - o accurate communication to customers of the flood risk,
 - o targeted assistance based on financial ability to pay,
 - o individual and community actions to mitigate flood risk or lower cost of flood insurance,
 - o the impact of increases in premium rates on participation in NFIP,
 - o and the impact of mapping update

on affordability of flood insurance.

- The affordability framework will include proposals and proposed regulations for ensuring flood insurance affordability among low-income populations.

MAPPING

- The Homeowner Flood Insurance Affordability Act requires the Technical Mapping Advisory Council (TMAC) to review the new national flood mapping program authorized under the 2012 and 2014 flood insurance reform laws. The law requires the Administrator to certify in writing to Congress that FEMA is utilizing “technically credible” data and mapping approaches. The law also requires FEMA to submit the TMAC review report to Congress.



Digital Flood Insurance Rate Map. FEMA image.

- FEMA will be looking to the TMAC for recommendations on how best to meet the legislatively mandated mapping requirements for the new mapping program including the identification of residual risk areas, coastal flooding information, land subsidence, erosion, expected changes in flood hazards with time, and others.



Floodwall in Grand Forks, North Dakota. FEMA photo.

- As the new national flood mapping program is being established, FEMA expects there will be opportunities to make incremental improvements to current procedures as it provides flood hazard data and information under the National Flood Insurance Program (NFIP). FEMA will make those improvements where necessary to ensure all ongoing changes to flood hazards continue to be effectively communicated, mitigated, and properly insured against.
- The law lifts the \$250,000 limit on the amount that FEMA can spend to reimburse homeowners for successful map appeals based on a scientific or technical error. Federal rulemaking is required in order to implement this provision.
- FEMA is authorized to account for reconstruction or improvements of flood protection, not just new construction. It authorizes FEMA to consider the existing present value of a levee when assessing adequate progress for the reconstruction of an existing flood protection system. The law extends certain provisions related to NFIP requirements in areas restoring discredited flood protection systems to coastal levees and clarifies that the levee needs to be considered without regard to the level of federal

funding for the original construction or the restoration.

- The law exempts mapping fees for flood map changes due to habitat restoration projects, dam removal, culvert re-design or installation, or the installation of fish passages.
- The law requires FEMA to consider the effects of non-structural flood control features, such as dunes, and beach and wetland restoration when it maps the special flood hazard area.
- The law requires FEMA to enhance coordination with communities before and during mapping activities and requires FEMA to report certain information to members of Congress for each State and congressional district affected by preliminary maps.



Dune grass stabilizes sand dune repaired after Hurricane Sandy in New Jersey. Dunes are a vital first-line of defense against coastal storms and flooding. FEMA photo.

More information and updates:

For more information and updates as they become available, visit: <http://www.fema.gov/flood-insurance-reform>



What is Risk MAP?

Risk Mapping, Assessment, and Planning (Risk MAP) is the Federal Emergency Management Agency (FEMA) Program that provides communities with flood information and tools they can use to enhance their mitigation plans and take action to better protect their citizens. Through more precise flood mapping products, risk assessment tools, and planning and outreach support, Risk MAP strengthens local ability to make informed decisions about reducing risk.

The Risk MAP Vision

Through collaboration with State, Tribal, and local entities, Risk MAP delivers quality data that increases public awareness and leads to action that reduces risk to life and property. Risk MAP focuses on products and services beyond the traditional Flood Insurance Rate Map (FIRM) and works with officials to help put flood risk data and assessment tools to use, effectively communicating risk to citizens and enabling communities to enhance their mitigation plans and actions.



Risk MAP Solution

Building on the Risk MAP Multi-Year Plan, FEMA has developed a Risk MAP Solution to achieve the Program's vision. The Solution identifies new strategies and products designed to achieve the goals and objectives laid out in the vision. These strategies and products address project prioritization, elevation data acquisition, a watershed study approach, engineering and mapping, risk assessment, mitigation planning support, and risk communications. The following sections provide the overall objective of each of these strategies.

Vision				
Risk MAP will deliver quality data that increases public awareness and leads to action that reduces risk to life and property				
Multi-Year Plan		Risk MAP Program Measures		
Goal 1: Data Gaps	Goal 2: Awareness & Understanding	Goal 3: Mitigation Planning	Goal 4: Digital Platform	Goal 5: Synergize Programs
Address gaps in flood hazard data	Measurably increase public's awareness & understanding	Lead effective engagement in Mitigation Planning	Provide an enhanced digital platform	Align Risk Analysis programs and develop synergies

The Risk MAP Team

FEMA's ten Regional Offices implement Risk MAP at the local level through close collaboration with community officials.

FEMA Headquarters provides direction, policy, and guidance to enable consistent implementation nationwide.

State, regional, Tribal, and local communities can use enhanced hazard data to make more informed decisions regarding risk.

FEMA's Risk MAP Multi-Year Plan and FY12 Report to Congress

On March 16, 2009, Congress approved the Risk MAP Multi-Year Plan for fiscal years 2010 to 2014. The document outlines the goals, objectives, and strategies for Risk MAP and summarizes FEMA's strategic planning approach and stakeholder roles and responsibilities. For more information please visit <http://www.fema.gov/national-flood-insurance-program-0/multi-year-flood-hazard-id-entification-plan>.

FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) Fiscal Year 2012 Report to Congress, dated February 23, 2012, provides an update on FEMA's strategic approach, program budget and measures, and implementation for Risk MAP. For more information about the report please visit <http://www.fema.gov/library/viewRecord.do?id=5924>

Project Prioritization

Guides FEMA's investments in engineering, mapping, assessment, and planning support in order to achieve Risk MAP objectives

- Applies a quantitative approach to determine which communities FEMA will study

Elevation Data Acquisition

Improves engineering data and supports risk assessment data development

- Elevation data is essential to the accuracy and reliability of flood hazard data
- Updated digital elevation data enables better risk assessments
- Detailed, digital elevation data supports innovative risk communication products

Watershed Study Approach

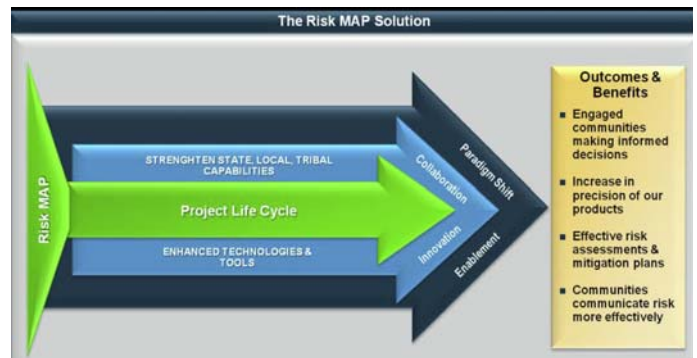
Improves engineering credibility and opens the door to understanding risks in a more holistic, comprehensive way

- Encourages work across community boundaries and a more comprehensive understanding of flooding
- Allows for a better understanding of flood hazards as a result of more comprehensive assessments of stream and tributary relationships
- Provides a framework to evaluate flood risk, engineering need, elevation data acquisition availability and gaps, and availability of community contribution by watershed

Engineering and Mapping

Identifies flood hazards, provides local floodplain management data, supports the National Flood Insurance Program (NFIP), and provides data for risk assessments and mitigation plans for flood hazards

- Includes the scientific collection, processing, and analysis of flood hazard data to provide communities with accurate flood maps and risk assessment products
- Engineering and mapping data provide the foundation for more effective risk communications through assessments and also enable effective mitigation at the local level
- Includes significant investments in the flood mapping of areas impacted by levees and coastal flood hazard



Risk Assessment

Allows communities to make informed mitigation decisions by providing products and technologies that communicate and visualize risks

- Equips communities with the information and tools they need to develop effective mitigation plans
- Provides communities with flood risk information through a Flood Risk Report, Flood Risk Map, and Flood RiskDatabase

Mitigation Planning Support

Provides technical assistance, incentivizes risk reduction activities at the local level, and develops the programmatic infrastructure to monitor community efforts

- Enables communities to assess risks and identify actions to reduce vulnerability to those risks
- Enhances collaboration with and among local stakeholders
- Provides tools to improve communities' understanding of risk and facilitate mitigation planning and local risk reduction efforts
- Incentivizes local effective mitigation planning and risk reduction activities

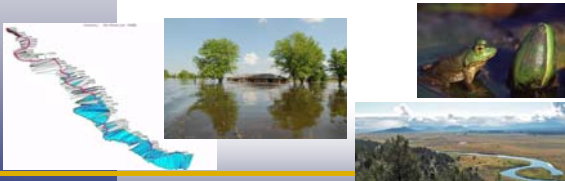
Risk Communications

Motivates citizens to make informed decisions regarding their risks and encourages communities to take the lead in protecting their constituents

- Enhances local capabilities to communicate effectively with constituents about risk
- Allows for an exchange of information about risk between FEMA and other stakeholders
- Provides customizable communications plans, key messages, and materials to communities
- Facilitates national and local collaboration through key partnerships


What is a floodplain and how do you map it?

- What is your purpose in mapping a floodplain
- What is your definition of a floodplain
- What are your specifications for mapping



FEMA
ESA and the NFIP
Implementing a Salmon Friendly Program - FEMA Region 10

Flood Insurance Rate Map



- The official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community
- The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

FEMA
ESA and the NFIP
Implementing a Salmon Friendly Program - FEMA Region 10

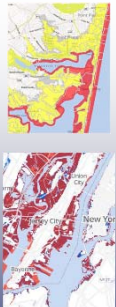
Biggert-Waters 2012 (BW-12)

Establishes The National Flood Mapping Program

- All Maps Must Show 100yr and 500yr FHA
- Residual risk behind levees and below dams
- Establishes the Technical Mapping Advisory Council to advise FEMA.....


“How to use the best available climate science to assess flood risk”

FEMA
ESA and the NFIP
Implementing a Salmon Friendly Program - FEMA Region 10

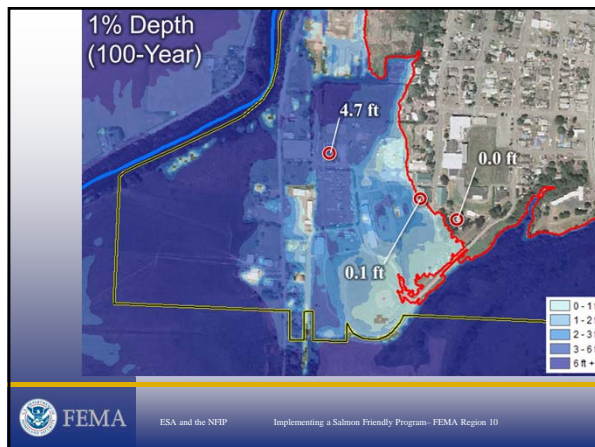


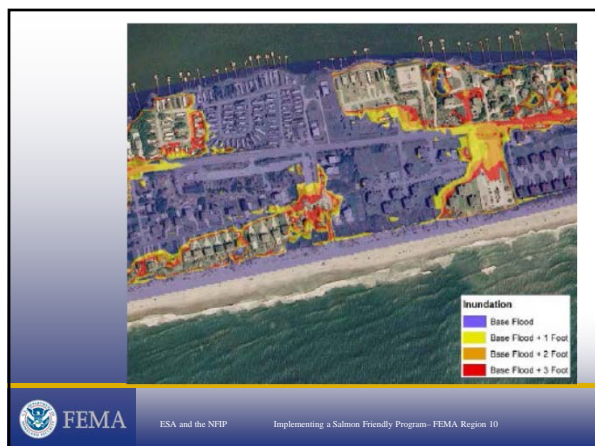
Risk MAP

- Flood Risk Products go beyond the basic flood hazard information on regulatory flood hazard products.
- The Flood Risk Database may contain custom flood risk datasets created for the specific project area or even risk datasets related to other hazards


FEMA

ESA and the NFIP
Implementing a Salmon Friendly Program - FEMA Region 10





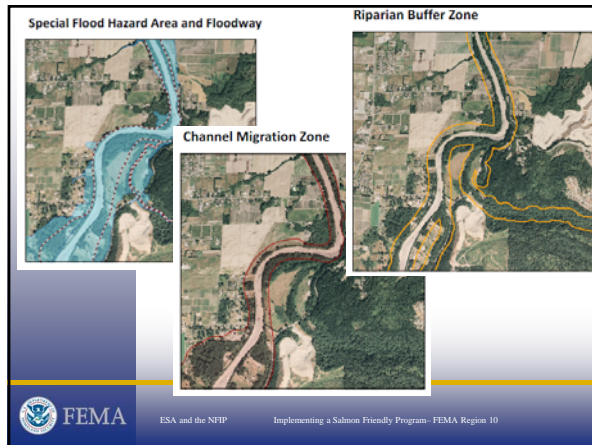
Flood Insurance Rate Map (FIRM) vs. Flood Risk MAP (FRM)

- A FIRM is the official map of a community that shows special flood hazard areas (SFHA)
- The objective of the FRM is to summarize the notable flood risks within the project area and present these data within one large map.



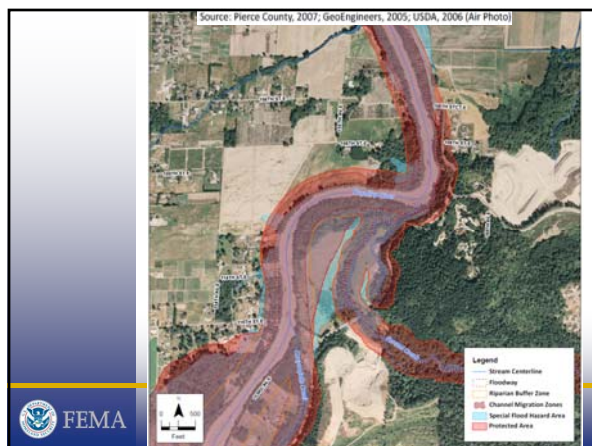
ESA and the NFIP

Implementing a Salmon Friendly Program - FEMA Region 10




ESA and the NFIP

Implementing a Salmon Friendly Program - FEMA Region 10






PART B
FLOODPLAIN MAPPING AND THE ESA
Kim W. Kratz


 **Floodplain Mapping and the ESA**

Why Better Flood Risk Mapping is Essential for the West Coast Region's Listed Fish

November 7, 2014

Various species have been rendered extinct “as a consequence of economic growth and development, untempered by adequate concern and conservation.”
ESA Sec 2(a)(1)







Requirement of the ESA

“[E]nsure that any action authorized, funded, or carried out ... is not likely to jeopardize ... species, or result in the destruction or adverse modification of habitat determined to be critical of such species.”

ESA Sec 7(a)(2)

 U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 3




NFIP and Jeopardy/Adverse Mod

Salmon rely on floodplains and complex off channel habitat for spawning and rearing. Salmon are prey base for SRKW.

- Loss is factor for salmonid decline in original listing documents
- Loss is listed as salmonid limiting factors in most WRIA reports


NFIP minimum criteria and mapping protocols allow or encourage development in floodplains

Development in floodplains worsens limiting factors, degrades PCEs, precludes improving viability, inhibits recovery




In the Interior Columbia River Basin

Floodplain conversion to urban and agricultural land use has occurred in nearly half of all floodplain areas



In the Columbia River Estuary


Approximately 24,000 acres of estuarine habitat was converted to developed floodplain between 1870 and 1983



NOAA
FISHERIES
West Coast
Region

In the Willamette Valley


The Willamette River between Eugene and Albany lost 45% of its primary channel length, between 10,000 and 17,000 acres of river channel and island habitat, and more than half of all small floodplain tributaries and alcoves between 1850 and 1995




NOAA
FISHERIES
West Coast
Region

In the Tillamook Bay Lowlands


At least 6,000 acres had been converted by 1950



EPA EnviroMapper
Tillamook
USGS




NOAA
FISHERIES



Why Change FEMA Mapping?

We need accurate floodmaps because floodplains are fish habitat when they are inundated:


“[T]he Yolo Bypass, the primary floodplain of the lower Sacramento River (California, USA) provides better rearing and migration habitat for juvenile chinook salmon (*Oncorhynchus tshawytscha*) than adjacent river channels...salmon increased in size substantially faster in the seasonally inundated agricultural floodplain than in the river.”



Why Change FEMA Mapping?

We need accurate floodmaps because floodplains provide important functions for fish even when NOT inundated:


“Floodplain perform a variety of essential functions including...groundwater recharge [reduces frequency of and duration of low flows], wave attenuation, stream bank erosion control, reduction in sedimentation rates, water quality maintenance [filters impurities in runoff, moderates temperature fluctuations] and support of highly productive ecosystems.




Why map zone E (flood-related erosion zones)?

Because riverine erosion and channel migration create complex habitats for salmonids:


“Hydrogeomorphic processes within alluvial river systems create, maintain and degrade riparian habitat. The dynamic interactions between water, sediment, aquatic-terrestrial landforms and biotic elements control the functional processes and biodiversity patterns within the riparian zone and, thus, contribute directly to their ecological integrity and societal value.”



Channel Avulsion & Migration = E Zone



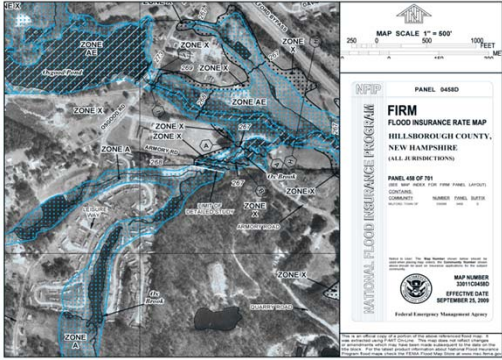
Sandy River Channel Migration




Why map Zone X (future conditions SFHA)?

Because climate change and buildout are changing where floods inundate land; that land is important for salmonid

- growth and survival (at the individual scale),
- persistence and recovery (at the population scale)




NOAA FISHERIES



Why Change FEMA Mapping?

- FEMA's minimum criteria are applicable only where FEMA has mapped flood risk.
- FEMA's minimum criteria can become applicable in Zone E when it is mapped
- Mapping of zones X or the 500-year floodplain will indicate where floodplain management criteria should restrict development, and guide development away from areas of increasing risk.




Flood Mapping for the Nation

A Cost Analysis for the
Nation's Flood Map Inventory

The Association of State Floodplain Managers
(ASFPFM)

March 1, 2013





QUESTIONS?



U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 18

PART C
Jed Roberts

I. CONSIDERATION OF CHANNEL MIGRATION MAPPING UNDER THE NFIP AND BEYOND

A. Current Regulations for Channel Migration Under the NFIP

Riverine erosion, or channel migration, is mentioned within NFIP guidelines but only in a general sense. The Association of State Floodplain Managers (ASFPM) subcommittee on Arid Regions prepared a white paper entitled “Riverine Erosion Hazards & Floodplain Management” that is attached as Appendix A of this document. The white paper states that channel migration zones are not shown on FEMA flood maps because FEMA has not provided technical guidance for mapping them. The subcommittee goes on to make several recommendations on how FEMA can better account for channel migration hazards under the NFIP. There is no indication FEMA will be adopting these recommendations. Though channel migration is not mapped, erosion-related damages are covered by flood insurance.

Relevant excerpts from Title 44 of the Code of Federal Regulations:

§59.1 Definitions.

Area of special flood-related erosion hazard is the land within a community which is most likely to be subject to severe flood-related erosion losses. The area may be designated as Zone E on the Flood Hazard Boundary Map (FHBM). After the detailed evaluation of the special flood-related erosion hazard area in preparation for publication of the FIRM, Zone E may be further refined.

§60.24 Planning considerations for flood-related erosion-prone areas.

The planning process for communities identified under part 65 of this subchapter as containing Zone E or which indicate in their applications for flood insurance coverage pursuant to §59.22 of this subchapter that they have flood-related erosion areas should include-

- (a) The importance of directing future developments to areas not exposed to flood-related erosion;
- (b) The possibility of reserving flood-related erosion-prone areas for open space purposes;
- (c) The coordination of all planning for the flood-related erosion-prone areas with planning at the State and Regional levels, and with planning at the level of neighboring communities;
- (d) Preventive action in E zones, including setbacks, shore protection works, relocating structures in the path of flood-related erosion, and community acquisition of flood-related erosion-prone properties for public purposes;
- (e) Consistency of plans for flood-related erosion-prone areas with comprehensive plans at the state, regional and local levels.

§60.5 Flood plain management criteria for flood-related erosion-prone areas.

The Federal Insurance Administrator will provide the data upon which flood plain management regulations for flood-related erosion-prone areas shall be based. If the Federal Insurance Administrator has not provided sufficient data to furnish a basis for these regulations in a

particular community, the community shall obtain, review, and reasonably utilize data available from other Federal, State or other sources, pending receipt of data from the Federal Insurance Administrator. However, when special flood-related erosion hazard area designations have been furnished by the Federal Insurance Administrator they shall apply. The symbols defining such special flood-related erosion hazard designations are set forth in §64.3 of this subchapter. In all cases the minimum requirements governing the adequacy of the flood plain management regulations for flood-related erosion-prone areas adopted by a particular community depend on the amount of technical data provided to the community by the Federal Insurance Administrator. Minimum standards for communities are as follows:

(a) When the Federal Insurance Administrator has not yet identified any area within the community as having special flood-related erosion hazards, but the community has indicated the presence of such hazards by submitting an application to participate in the Program, the community shall

(1) Require the issuance of a permit for all proposed construction, or other development in the area of flood-related erosion hazard, as it is known to the community;

(2) Require review of each permit application to determine whether the proposed site alterations and improvements will be reasonably safe from flood-related erosion and will not cause flood-related erosion hazards or otherwise aggravate the existing flood-related erosion hazard; and

(3) If a proposed improvement is found to be in the path of flood-related erosion or to increase the erosion hazard, require the improvement to be relocated or adequate protective measures to be taken which will not aggravate the existing erosion hazard.

(b) When the Federal Insurance Administrator has delineated Zone E on the community's FIRM, the community shall

(1) Meet the requirements of paragraph (a) of this section; and

(2) Require a setback for all new development from the ocean, lake, bay, riverfront or other body of water, to create a safety buffer consisting of a natural vegetative or contour strip. This buffer will be designated by the Federal Insurance Administrator according to the flood-related erosion hazard and erosion rate, in conjunction with the anticipated "useful life" of structures, and depending upon the geologic, hydrologic, topographic and climatic characteristics of the community's land. The buffer may be used for suitable open space purposes, such as for agricultural, forestry, outdoor recreation and wildlife habitat areas, and for other activities using temporary and portable structures only.

B. State-Level Regulation in Washington

In the absence of clear federal regulation states have developed their own approaches to identifying and mitigating for channel migration. As a nearby example, the State of Washington includes requirements for channel migration in its Shoreline Management Program (SMP).

From the Washington Department of Ecology website:

Shorelines Guidelines references to CMZs

The following is a general guide to locating specific references to CMZs in the SMP Guidelines.

All requirements must also be read in the context of the entire section and the overall principles established in the guidelines. CMZ provisions apply to the extent that identified CMZ fall within Shoreline Management Act (SMA) jurisdiction.

Definition and identification

- WAC 173-26-020(6): One sentence definition
- WAC 173-26-221(3)(b): More specific definition of CMZs with broader explanation and list of exceptions

Inventory and characterization

- WAC 173-26-201(3)(c)(vii): CMZs included in list of required inventory items
- WAC 201(3)(d)(i)(D): Channel migration rates included as one of many indicators of relative “health” of shoreline ecological functions

Regulatory considerations

- **Critical area provisions:**
 - o WAC 173-26-221(2)(c)(iv)(A): CMZ included as critical freshwater habitats
 - o WAC 173-26-221(2)(c)(iv)(B): Establishing principle that regulations should prevent new development within CMZs that causes net loss of ecological functions.
 - o WAC 173-26-221(2)(c)(iv)(C)(IV): Requires that SMPs include standards to implement principles described above.
- **Flood hazard provisions:**
 - o WAC 173-26-221(3)(b): Establishing general principle that SMP should limit development and shoreline modifications that would result in interference with the process of channel migration that may cause significant adverse impacts to property or public improvements and or result in a net loss of ecological functions associated with the rivers and streams.
 - o WAC 173-26-221(3)(b)(i) - (vii): Describes more specific flood hazard prevention principles, including encouragement to plan for and facilitate removal of artificial restrictions to natural channel migration.
 - o WAC 173-26-221(3)(c)(i): Standard generally prohibiting new development in shoreline jurisdiction where it would require new dikes or levees within the CMZ. Includes list of specific developments that may be appropriate exceptions to the standard.
- **Modifications and Use provisions:**
 - o WAC 173-26-231(3): Fills must protect shoreline ecological functions, including channel migration processes.

- o WAC 173-26-231(3)(f): Requiring conditional use permit for disposal of dredge material on shorelands or wetlands within CMZs.
- o WAC 173-26-241(3)(ii)(E): Requiring conditional use permit for mining within CMZ.

APPENDIX A

Riverine Erosion Hazards & Floodplain Management: A White Paper

By: ASFPM Arid Regions Committee

Introduction

Riverine erosion is a significant, but unstudied, flood risk for many NFIP communities. In 1999, FEMA reported that “approximately one-third of the nation’s streams experience severe erosion problems” resulting in \$450 million of erosion-related damages, over half of which occurs in the arid southwest and in the northwest.¹ For floodplain managers, riverine erosion may be even more problematic than flood inundation for the following reasons:

- Riverine erosion can damage homes elevated well above the regulatory water surface elevation – homes outside the regulatory floodplain can be destroyed when the river banks migrate laterally.
- Property damaged by flood inundation can sometimes be considered a total loss, but property damaged by riverine erosion is not only destroyed, the land itself may be completely washed away leaving no chance to rebuild, let alone recover any property contents.
- Riverine erosion can occur progressively during floods smaller than the 100-year flood, resulting in significant cumulative long-term river migration which destroys homes and property.



Figure 1. Riverine erosion damage to homes located along the Santa Clara River near St. George, Utah. Damage occurred during the January 2005 flood, which had about a 25-year recurrence interval.

Despite these very real, extreme hazards, riverine erosion hazard zones are currently not shown on the Flood Insurance Rate Maps, flood insurance does not necessarily cover damage caused by riverine erosion, and risk of riverine erosion is not considered in the determination of flood insurance rates. Furthermore, despite NFIP directives that communities should be managing erosion hazard areas, clear guidance from FEMA is lacking on how such flood risks are to be managed. The goals of this white paper are to encourage FEMA and ASFPM member communities to: (1) improve tools for delineating and managing riverine erosion hazard areas, and (2) to clarify NFIP erosion hazard management requirements for member communities.

¹ 1998 dollars. FEMA, 1999, Riverine Erosion Hazard Area Mapping Feasibility Study.

Background

The National Flood Insurance Act of 1968 was enacted by Title XIII of the Housing and Urban Development Act to provide previously unavailable flood insurance protection to property owners in floodprone areas. Mudslide protection was added to the Program by the Housing and Urban Development Act of 1969, and flood-related erosion protection was added to the Program by the Flood Disaster Protection Act of 1973.

The Upton-Jones Amendment (1988) modified the NFIP to provide relocation and acquisition coverage for structures in imminent danger from an encroaching shoreline.

While the Amendment focused on coastal erosion, consideration of riverine erosion hazards is not excluded. A prerequisite for insurance coverage under this Act is that the insured structures must be declared uninhabitable by the local permitting authority and they must be subject to erosion, or be within the geographical boundaries of an erosion zone that has been included in a state-approved program.

Riverine erosion is well integrated into the NFIP regulations. Provisions concerning riverine erosion are included in various sections of 44 CFR, Parts 59 and 60.

Definitions of “Area of special flood-related erosion hazard” and “Flood-related erosion area management” are included in Part 59.1 “Definitions.” Part 60.5 deals with “Flood plain management criteria for flood-related erosion-prone areas,” and Part 60.24 covers “Planning considerations for flood-related erosion-prone areas.”



Figure 2. Erosion damage to new construction located along Rillito Creek at 1st Avenue in Tucson, AZ, 1983.

Although protection against damage from flood-related erosion has thus been part of the NFIP since at least 1973, a set of specific programs and procedures for the evaluation and mitigation of riverine erosion hazards has not been implemented as part of the NFIP.

There is a provision in the NFIP for designating Zone E, “Area of special flood-related erosion hazard,” on Flood Hazard Boundary Maps (FHBM), but this appears seldom, if ever, to have been carried through to inclusion on FIRM panels.

The National Flood Insurance Reform Act (NFIRA) of 1994 included a requirement in Section 577 that FEMA submit a report to Congress evaluating the technological feasibility of mapping Riverine Erosion Hazard Areas (REHAs) and assessing the economic impact of erosion and erosion mapping on the NFIP. The report, entitled “Riverine Erosion Hazard Areas: Mapping Feasibility Study” (1999), concluded that it is technologically feasible to map riverine erosion hazard areas. The report’s

conclusions also included preliminary discussion of some methodological details, and rough estimates of the costs for a program of REHA mapping. No progress on implementation of the REHA recommendations has been made since its publication in 1999.

Problem Statement

Flood-related erosion damage is a very real threat to landowners located in or near riverine floodplains. The REHA Report (FEMA, 1999) noted that at least 142,000 miles of streambanks in the United State have experienced extensive erosion, resulting in \$450 million of annual damage. Individual NFIP member communities have been similarly affected. In January 2005, riverine erosion from a single flood in St. George, Utah displaced 50 families, destroying 17 homes, and resulting in more than \$230 million in total damages to private and public infrastructure.² The October 1983 flood in Tucson, Arizona resulted in the loss of 13 lives, and more than \$100 million in erosion-related damage. The State of Vermont has concluded that riverine erosion is their most expensive form of flood damage.

NFIP regulations (44 CFR Chapter 1, Part 60.5(a)) require local communities to manage development in “flood-related erosion prone areas” by (1) Requiring the issuance of a permit for all proposed construction, or other development in the area of floodrelated erosion hazard, as it is known to the community; (2) Requiring review of each permit application to determine whether the proposed site alterations and improvements will be reasonably safe from flood-related erosion and will not cause flood-related erosion hazards or otherwise aggravate the existing flood-related erosion hazard; and (3) If a proposed improvement is found to be in the path of flood-related erosion or to increase the erosion hazard, require the improvement to be relocated or adequate protective measures to be taken which will not aggravate the existing erosion hazard. 44 CFR Chapter 1, Part 60.24 further states that communities with flood-related erosion prone areas shall recognize the following: (1) The importance of directing future developments to areas not exposed to flood-related erosion; and (2) The possibility of reserving flood-related erosion-prone areas for open space purposes.

Despite NFIP regulations that appear to mandate management of riverine erosion hazards by member communities, FEMA has not provided clear guidance on how these mandates are to be carried out, nor have they provided sufficient tools to assure their successful implementation. Specifically, we note the following:



Figure 3. Erosion damage to homes located along the Santa Clara River, January 2005.

² Note that pre-flood erosion hazard delineations and erosion management measures implemented by the City of St. George prevented more than \$5 million in additional damages (FEMA, 2007).

- Requirements for managing riverine erosion are not included in most model floodplain ordinances.
- There is no mechanism for adding riverine erosion hazard zones on FIRM floodplain or RiskMAP multi-hazard delineations.
- Flood insurance does not specifically cover losses related solely to riverine erosion.
- FEMA Guidelines and Specifications for Flood Hazard Mapping Partners do not address riverine erosion hazard delineation.

Current Practice

Although FEMA has taken few steps to clarify the intent of the NFIP relative to riverine erosion, a number of individual NFIP communities have taken steps to manage such hazards. The erosion hazard management actions by local communities range from simple development setbacks from eroding channel banks, to more complex river corridor management plans. Several of these communities have developed specific methodologies for determining erosion hazard zones, which are outlined in detailed design manuals. Some of the communities and agencies that have developed their own guidelines for determining and mapping riverine erosion hazards include:

- Austin, TX
- King County, WA
- Maricopa County, AZ
- Pima County, AZ
- Pinal County, AZ
- Mohave County, AZ
- Salt Lake County, UT
- Washington County, UT
- St George, UT
- Santa Clara, UT
- Saratoga Springs, UT
- State of Vermont
- State of New Hampshire
- State of Arizona
- Albuquerque, NM



Figure 4. Train crash caused by lateral erosion near Caliente, Nevada.

Methods and parameters for estimating riverine erosion hazards vary greatly among communities. One commonality among the various methods is the option to use different levels of detail and complexity

in the erosion hazard analyses, although much of the basic information used to delineate a riverine floodplain can also serve as the basis for developing an erosion hazard setback. For example, some communities have adopted erosion setback methodologies that require only the drainage area, the 100-year discharge and the channel alignment. More complex methods rely on sediment transport analyses, scour computations, geomorphic analyses, and use of historical data regarding river movement. Another commonality is the reliance on sound engineering judgment and a thorough understanding of local river conditions.

Opportunities

Integrating riverine erosion hazard areas into the NFIP will require the development of detailed procedures for each of the traditional three components of the Program: mapping, insurance and management. As part of the process of modifying existing NFIP regulations to accommodate management of riverine erosion hazards, clarification of other aspects of the NFIP regulations not directly related to riverine erosion can also be considered. The new provisions for riverine erosion could be harmonized with the existing coastal erosion policies. Development of the riverine erosion guidelines will require close coordination with programs at the state, county, district and local levels, some of which have been in place for some time. Finally, clarification of NFIP riverine erosion policies also provides an opportunity to contribute to the evolving FEMA RiskMAP program. The development of coordinated multi-hazard delineations in the RiskMAP program will permit a more comprehensive depiction of flood risk, from each contributing cause and also as an overall assessment.

Recommendations

Therefore, the Arid Regions Committee strongly encourages the ASFPM Board to endorse the following recommendations:

Recommendation #1: Clarify NFIP regulations with respect to management of riverine erosion hazard zones to specifically and unambiguously include riverine erosion as a flood hazard to be managed and regulated by NFIP communities. Without clear direction from FEMA, NFIP member communities may neglect erosion hazards. Specifically, the following measures are recommended:

- Allow placement of riverine erosion hazard zones on FIRM panels
- Provide insurance coverage for erosion damage to structures
- Prepare interim guidelines describing how communities should manage riverine erosion hazards
- Provide CRS credits for communities who actively manage riverine erosion hazards.

Recommendation #2: Recognize the following foundational principles for riverine erosion hazard management:

- Not all rivers are the same. Different tools and approaches may be required for different rivers. FEMA and member communities should avoid “one size fits all” approaches to delineation and management.
- Erosion hazard delineation techniques should account for local hydrologic, soil, and climatic conditions, consider site-specific hydraulic data, and should reflect local topography, channel morphology, and stream processes operating over reasonable engineering time scales, rather than relying on single event channel response.
- Methodologies for delineating riverine erosion hazards must be repeatable and

defensible.

Recommendation #3. Add direction for riverine erosion hazard delineation in FEMA Guidelines & Specifications for Flood Hazard Mapping Partners.

- This will assure that a consistent standard is applied throughout the nation.

Recommendation #4. Investigate and promote the development of new methods to quantify and delineate riverine erosion hazards.

- A variety of tools that represent scaled levels of effort and detailed may be required to achieve appropriate results.

Recommendation #5. Develop management guidelines and recommendations for NFIP communities.

- These guidelines should include best-management practices, mitigation measures, non-structural measures, flood-warning systems, erosion zone delineation, and coordination with multi-objective floodplain management goals.

Recommendation #6. Develop protocols to assure a consistent review process.

Guidelines for FEMA and local community staff responsible for reviewing erosion hazard delineations and erosion mitigation measures are needed. Other measures may include:

- Engineering Design Guidelines
- Review Checklists


Recommendation #7: Conduct regular training to increase awareness of riverine erosion hazards and keep abreast of advances in technology. This training should be targeted at FEMA and local community floodplain reviewers, floodplain management agencies, and development engineers. The target audience should be taught to recognize and delineate potential riverine erosion hazard areas.

Recommendation #8. Collect better documentation of cases of riverine erosion.

Communities should be encouraged to document actual riverine erosion using ground and aerial photography, video, pre- and post-flood matching photographs, high water marks, flood inundation limit mapping, weather records, and flood damage reports. A central repository for historical flood documentation should be established and maintained for future reference and scientific evaluation.

Recommendation #9. FEMA should explore linkages between delineation of riverine erosion hazards and insurance/management concerns. Better understanding of the nature and type of riverine erosion hazards will result in better assignment of risk for insurance purposes and better management of the actual hazards.

*ASFPM Arid Regions Committee
Riverine Erosion Hazards White Paper
December 22, 2010*



Oregon Department of Geology
& Mineral Industries

Consideration of Channel Migration Mapping Under the NFIP and Beyond





Photo credit: Oregonian

NFIP = National Flood Insurance Program

Sandy River, Clackamas County, Oregon (2011)

Jed Roberts, M.S.
Geographer, Certified Floodplain Manager



Oregon Department of Geology
& Mineral Industries

What Is Channel Migration?





Photo credit: Oregonian

Sandy River, Clackamas County, Oregon (2011)

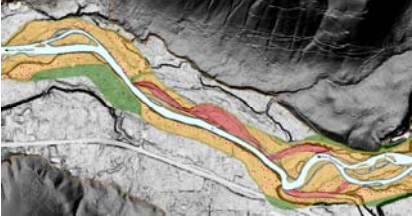
- Natural process of erosion
- Lateral movement of rivers; usually gradual
- Rapid movement typically associated with floods
- Some rivers more prone to rapid movement



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How Is the Hazard Mapped?

- FEMA has not developed/endorsed a mapping approach
- States have developed their own
- DOGAMI has used State of Washington detailed approach



DOGAMI = Oregon Department of Geology & Mineral Industries

DOGAMI Channel Migration Zone Mapping of Sandy River

Oregon Department of Geology & Mineral Industries

Channel Migration Zone (CMZ) Mapping Explained

CMZ Components

1. Historic Migration Zone (HMZ): Determined from aerial photos
2. Avulsion Hazard Zone (AHZ): Interpreted through lidar and field study
3. Erosion Hazard Area (EHA): Projected erosion rates from HMZ

Disconnected Migration Areas (DMA): Would be within EHA but manmade structures reduce migration risk

Oregon Department of Geology & Mineral Industries

Challenges of Detailed CMZ Mapping


- **Historic aerial photos can be difficult to find**
- **Lidar data may not be available**
- **Level of effort may be inappropriate**
 - Less prone rivers may not need detailed mapping
 - *Extra wrinkle: No objective assessment of which rivers are more or less prone in Oregon*
- **State of Washington just released “planning-level” approach (i.e. less detail/effort)**

Oregon Department of Geology & Mineral Industries

How Is the Hazard Accounted for in Regulation?

- **It is not directly regulated in Oregon**
 - Not the same as regulatory 1% chance flood zone
 - Sometimes covers larger area
- **FEMA acknowledges erosion hazards in NFIP; does not explain how to map it***
 - Erosion damage covered by flood insurance
 - Flood insurance “Zone E” exists in rules

*See written materials for legal citations




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How Is the Hazard Accounted for in Regulation?

- **New Endangered Species Act requirements for FEMA may include channel migration**
 - CMZs have important ecological functions
 - Big decisions pending
- **State of Washington regulates in its Shoreline Management Program***
- **Clackamas County considering regulation**

*See written materials for legal citations



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& Mineral Industries

CMZ Mapping in Oregon

DOGAMI Open File Report Publications

- Coos River, Coos County (OFR-11-09)
- Coquille River, Coos County (OFR-11-09)
- Sandy River, Clackamas County (OFR-11-13)
- Hood River, Hood River County (OFR-11-15)

Visit oregongeology.org

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PART D
Christine Shirley

I. FUTURE CONDITIONS

If the challenges of mapping current flood depths and extents were not enough, the NFIP is now being challenged to map future conditions. Specifically, the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) requires FEMA to establish a Technical Mapping Advisory Council (TMAC) one of whose duties is to develop recommendations on how to ensure that Flood Insurance Rate Maps (FIRMs) incorporate the best available climate science to assess flood risks and ensure that FEMA uses the best available methodology to consider the impact of the rise in sea level and future development on flood risk. (GPO) NOAA Fisheries picked up on BW-12 requirements in their recent draft biological opinion for Oregon writing as one of the reasonable and prudent alternatives,

Consistent with the Biggert-Waters Act and in order to accurately predict flood risks, FEMA shall:

1. Ensure future condition modeling uses 100-year predictive horizon and consider:
 - a. Climate change;
 - b. Hydrology, including sea level rise and modified dam operations; and
 - c. Land use change, including a full build-out condition.

BW-12 is not the first time FEMA has been asked to address the subject of future conditions mapping. Indeed, FEMA completed rulemaking in 2001 that addressed inclusion of future conditions floodplains on Flood Insurance Rate Maps when requested by a community and with the understanding that these communities would regulate development in the future-condition flood hazard areas (Agency, November 27, 2001). The term future conditions is narrowly defined to include only flood hazards resulting from projected land use changes and increased impervious coverage of the floodplain. (Agency, November 27, 2001) Future conditions modeling would be conducted by the community, not FEMA.

No Oregon community has asked FEMA for future condition mapping as described in the 2001 rulemaking. Nationwide, several states and cities have had incorporated or are planning to add future conditions into their flood insurance rate maps, but a complete inventory of such communities could not be located.

FEMA Region X produced guidance in 2010 on modeling future conditions. This was in response to the ESA lawsuit settled in the Puget Sound region in the State of Washington (FEMA, 2010). The guidance is available at FEMA's Region X website: http://www.fema.gov/pdf/about/regions/regionx/nfip_esa_guidance_docs/h_and_h_guide_final.pdf

The 2001 rules and the FEMA Region X guidance do not address increased flooding caused by climate change, and by extension sea-level rise. The TMAC will take up this issue shortly. Follow TMAC deliberations at: <http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/technical-mapping-advisory-council>

II. UNCERTAINTY

Flood Insurance Rate Maps (FIRMs) are built without consideration to the inherent uncertainties associated with various input variables such as precipitation, stream flow, topographic representation, modeling parameters and techniques, and geospatial operations. In addition, the

propagation of these individual uncertainties is not well understood. The actual extent of the Special Flood Hazard Area (SFHA) may be wider or narrower than that depicted on FEMA's FIRMs, but by how much is not reported or even known (Venkatesh Merwade, 2008).

The inherent uncertainty associated with map making contrasts sharply with the way FIRMs are used. Landowners, developers, lenders, insurance agents, and local government floodplain managers make their development, construction, lending, and insurance rating decisions based on whether a particular parcel or building is in or out of FEMA's Special Flood Hazard Area. These users don't think about and can't use the concept of uncertainty. As a result, where the map shows the project area is inside the SFHA but the user can produce evidence that it is not using FEMA's Letter of Map Change process or by comparing a surveyed elevation to the base flood elevation in a deterministic manner, then the FIRM is just "wrong" or "inaccurate." Not recognizing uncertainty, then, undermines credibility in the FIRM, and by extension FEMA and local government floodplain management objectives. The solution is for us to find better ways of communicating what information the maps can reliably convey and how to make good decisions in the face of inherent uncertainty.

III. CONCLUSION

This session described some of the challenges associated with making and using FIRMs. As described, although FIRMs were initially designed to rate flood insurance policies and to indicate to local government where flood hazard regulations apply, FIRMs are increasingly being relied upon for other purposes with the expectation that they are accurate for these uses. As we've seen this may not be the case. In particular, the extent of flood hazard may not be a suitable proxy for the area that must be managed for salmon recovery. We may hear more about that in the next presentation.

CHAPTER 7

Floodplains and Local Land Use Regulation

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Chapter 7

FLOODPLAINS AND LOCAL LAND USE REGULATION

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NOTES

Chapter 7

FLOODPLAINS AND LOCAL LAND USE REGULATION

PART A
Kaitlin Lovell

ENDANGERED SPECIES ACT SECTION 7 STREAMLINING AGREEMENT BETWEEN THE CITY OF PORTLAND, NOAA FISHERIES, U.S. ARMY CORPS OF ENGINEERS AND U.S. FISH AND WILDLIFE SERVICE February 14, 2003

PURPOSE

This agreement establishes a cooperative process for streamlining Endangered Species Act Section 7 consultations between the City of Portland (City), NOAA Fisheries, Army Corps of Engineers (Corps), and the U.S. Fish and Wildlife Service (USFWS). The streamlined consultation will provide a number of benefits including increased coordination for reviewing and providing analysis and documentation of City projects, programs and activities in order that they proceed in a timely manner while meeting Federal agency and City goals for ensuring ESA compliance and assisting in the conservation and recovery of listed and proposed species.

GOALS

The purpose of this agreement is to create a process to meet the following goals:

- (1) To ensure that City project and program timeframes are met in a timely manner;
- (2) To improve coordination, communication, and agreement on formal and informal consultation/conferencing on listed and proposed species prior to and during project/program proposal development; and
- (3) To ensure that ongoing activities do not jeopardize listed and proposed species, result in the destruction/adverse modification of designated critical habitat, or result in unauthorized take during consultations on an existing project or activity;
- (4) To support conservation and recovery of listed and proposed species.

PROCESS

Coordination between the City and Federal agencies early in the planning process for projects, programs and activities that require or would benefit from federal agency review is expected to result in the early identification of potential impacts to listed and proposed species and critical habitat and means to address such impacts. Early cooperation is also expected to conserve listed and proposed species while at the same time minimizing delay of proposed City projects, programs and activities.

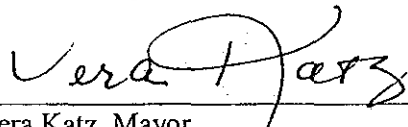
The City and Federal agencies will convene a team to meet on a quarterly basis or when mutually deemed necessary by the parties to work towards the following:

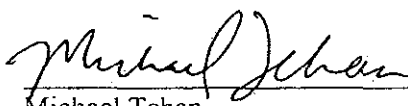
- (1) Ongoing and future Section 7 consultations with the City will be discussed and streamlined (e.g., batching similar projects or with similar timing needs, combining multiple agency consultations, etc.);

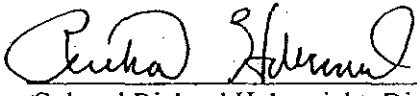
- (2) Information, documentation, format, and timeframes will be developed for Biological Evaluations/Assessments (BE/BA) and Biological Opinions;
- (3) Agreement on the use of the Programmatic Biological Opinion for Standard Local Operating Procedures for Endangered Species (SLOPES) for Certain Activities Requiring Department of Army Permits in Oregon;
- (4) Development of additional compliance strategies in addition to Section 7 (e.g., 4(d) rule limit, sub-basin planning and programmatic opportunities) as needed for City projects, programs and activities; and
- (5) Achieve better coordination between strategies to comply with the ESA and additional regulatory requirements with other state and Federal regulatory programs.


A regular assessment of the progress made towards achieving the goals of this agreement will be made on an annual basis. A process for resolution shall be developed in a timely and expeditious manner where issues, barriers, or disagreements that would preclude meeting the intent of the agreement are identified.

Successful implementation of the intent of the agreement will require full cooperation and coordination. The agreement will be carried out based on trust, mutual respect and accountability.


Vera Katz, Mayor
City of Portland


Michael Tehan
USDC, NOAA Fisheries


Colonel Richard Hobernicht, District Engineer
U.S. Army Corps of Engineers, Portland District


Kemper M. McMaster, State Supervisor
USDI Fish and Wildlife Service

STANDARD OPERATING PROCEDURES FOR THE CITY OF PORTLAND STREAMLINING TEAM

Pre-Application Guidance for City Project Teams Updated October 1, 2014

I. INTRODUCTION

This document clarifies standard operating procedures for meetings between City project teams and members of the City's interagency Streamlining Team. The protocols identify the structure and content of the Streamlining Team meetings. These meetings are designed to provide a forum for multiple agency representatives to coordinate key decision criteria required by working in a unified manner to deliver timely, responsive and non-conflicting decisions.

II. BACKGROUND

On February 14, 2003 the City and Federal agencies signed an Agreement establishing a cooperative process for streamlining Army Corps of Engineers permits and federal ESA consultations with the National Marine Fisheries Service and U.S. Fish and Wildlife Service. An invitation was extended in November 2006 to State agencies and the City's Bureau of Development Services to join the Streamlining Team. The Streamlining Agreement creates a unified pre-application review process involving multiple laws administered by agencies representing three levels of government. The purpose of these operating procedures is to facilitate the sharing of information needed by city project teams, federal, state and BDS agency representatives in order to encourage consistent decisions between the agencies and that multiple agency decisions will occur within the same time period whenever possible. Streamlining Team representatives include:

<u>Streamlining Team Members</u>	<u>Phone</u>	<u>Email</u>
Michael Reed (Team Chair, COP)	503.823.3399	Michael.Reed@portlandoregon.gov
Jaimee Davis (Corps)	503-808-4390	Jaimee.W.Davis@usace.army.mil
Christy Fellas (NMFS)	503.231.2307	christina.fellas@noaa.gov
Kathy Roberts (USFWS)	503.231.6179	Kathy_Roberts@fws.gov
Melinda Butterfield (DSL)	503.986.5202	melinda.butterfield@state.or.us
Amy Simpson (DEQ)	503.229.5051	simpson.amy@deq.state.or.us
Liz Ruther (ODFW)	503.621.3488 ext.228	elizabeth.j.ruther@state.or.us
Stacey Castleberry (BDS)	503.823.7586	Stacey.Castleberry@portlandoregon.gov

* Please note that turnovers can occur with agency representatives. Please contact Mike Reed for the most current list

Applicants attempting to acquire permits for water-related activities potentially must maneuver through multiple federal, state and city laws in order to gain approval. Some of the regulatory evaluation criteria are similar such as the use of an alternatives analysis to determine the preferred option that has the least impact to the environment.¹ Many of the agencies have

¹ The Corps, DSL and BDS each require applicants to identify the project purpose and need. This information guides the alternatives analysis. The Corps prohibits the discharge of dredged or fill material into waters of the United States unless the proposed discharge is the least environmentally damaging practicable alternative capable of achieving the project purpose. The Department of State Lands Alternatives Analysis (OAR 141-085-0029 (4)) requires that the activity cannot reasonably interfere with paramount state policy to preserve use of waters for navigation, fishing, and recreational use. City guidance for conducting an alternative analysis and mitigation are contained in Title 33 of the Zoning Code

jurisdictional responsibilities that limit them to administering environmental reviews that focus exclusively on either aquatic, terrestrial, or biological communities, with little overlap. In other cases, the laws can appear to overlap such as the Corps and DSL jurisdictional authority over proposed actions below the ordinary high water mark in surface waterbodies.²

In spite of the myriad focus of these environmental laws, there are means for facilitating successful approaches to these requirements. The Streamlining Team's standard operating procedures facilitate the exchange of information between City project teams and the agencies in a predictable and consistent framework. The operating procedures can have the following benefits:

- Early review of the project designs give agencies a chance to provide input before a lot of time and money has been put into the designs
- Discussion of the preferred project option can allow for early agreement among the agencies or recommendation of a process for coming to agreement
- All agencies involved in the project are encouraged to work in a unified manner to deliver timely and consistent decisions

These and other standard operating procedures can result in shorter application review and approval time frames and the project is more likely to stay within projected budgets.

III. STANDARD MEETING PROCEDURES

City project teams are encouraged to meet with the Streamlining Team at crucial phases of the project's planning and pre-design process so that agency input can be incorporated early. This is accomplished by scheduling the following information sharing opportunities:

- 1. First Meeting – Presenting the project's Purpose and Need and the selection of the preferred option through an Alternative Analysis** – The first meeting should be scheduled early in the project planning/pre-design stages. A valuable use of this first meeting is to present the preferred project design option and the reasoning used to arrive at the decision.
- 2. Follow-up meetings to address outstanding issues or need for additional information** – Follow-up meetings are encouraged for the following reasons:
 - a. When there are issues identified from the first meeting that need to be further explored with one or more of the agencies.
 - b. When additional issues or questions arise during the project team's planning.

(Chapters 33.430 and 33.440). When a Review is required, supplemental application requirement includes an Impact Evaluation describing the type of information that is needed to determine compliance with the approval criteria and to evaluate development alternatives. The Environmental Code directs that the impact evaluation will be based on the resources and functional values identified as significant in the reports listed in section 33.430.020. The Greenway Code currently only requires an alternatives analysis in the River Water Quality Overlay Zone ("q" zone).

² The U.S. Army Corps of Engineers administers Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The Oregon Department of State Lands administers the Oregon Removal Fill law. These laws regulate the amounts of removal and fill placed into waters of the U.S. and State.

There can be several of these “follow-up” meetings in order to work out any concerns, confusions, disagreements that have arisen during the design of the project. “Off-line” meetings can be arranged with one or more of the agency representatives when the discussion is not important to all of the Streamlining Team members.

3. **Final Pre-Application Guidance meeting** – There are opportunities to present the final design that will appear in the Joint Permit Application, Biological Assessment and Land Use Application – For larger, more complex projects, a final meeting can be scheduled in order to present specific components of the project including the final design, construction BMPs, work isolation methods, etc. that will appear in the joint permit application package, biological assessment (if applicable) and Environmental/Greenway land use application before they are submitted. The purpose of this meeting can ensure application completeness and that all necessary information has been provided. This can eliminate potential last minute surprises.

Tables 1 – 4 below lists the type of information recommended for each meeting. Table 5 describes common reporting requirements to be aware of with the issued permits.

Table 1. Preparing for the Streamlining Team meeting

<u>Information that should be collected prior to the first contact with the agencies</u>	
➤	Identify project purpose, need, goals, and estimated timelines for the project
➤	Project Team selects a preferred project option using a range of alternatives analysis
➤	Identify proximity to water body (river, stream, wetland) or other site features (trees, steep slopes, utilities, contamination, structures, ownerships of adjoining properties)
➤	Delineate the ordinary high water mark on all water bodies within the project vicinity
➤	Identify wetlands within the project boundary
➤	Identify potential archaeological and historic information connected with the project
➤	Identify potential contaminants that might be associated with the project site (A level 1 assessment will need to be conducted if the agencies agree that contaminants are a potential concern)
➤	Identify potential fish passage issues
➤	Identify zoning designation(s)
➤	Identify project location including address, cross streets, state ID, or tax account number
➤	Project Team should contact Mike Reed, Chair of the Streamlining Team, to schedule a meeting with the Streamlining Team. Mike can also help the project team determine the type of information that should be prepared prior to the meeting

Table 2. First Meeting with the Streamlining Team

<p><u>First Meeting Checklist</u></p> <p><u>Project Team:</u></p> <ul style="list-style-type: none">➤ Present the project purpose, need and the preferred project option as well as other alternatives that were considered. Use plans, maps, or diagrams (as needed) to describe proposal➤ Present estimated timelines for the project <p><u>Streamlining Team:</u></p> <ul style="list-style-type: none">➤ Streamlining Team members will identify which agencies have jurisdiction over the project proposal and potential permit pathways (e.g., Individual Permit, Nationwide permit, General Authorization, Section 7 consultation, SLOPES programmatic, BDS Land Use Review – Type I, II or III Reviews etc.)➤ Determine if unavoidable impacts will be associated with the proposed project and if mitigation is necessary➤ Determine if a level 1 environmental assessment is necessary to address contaminant concerns (If appropriate, the Corps will forward to the Project Review Group for review)➤ Determine if the State Historic Preservation Office (SHPO) will need to be consulted with over potential archaeological/historic features associated with the project site➤ Preliminary agreement on the Endangered Species Act determination of effect➤ Determination if an ESA formal/informal consultation and biological assessment is necessary➤ Determine if there are fish passage issues that need to be addressed with ODFW
--

Table 3. Follow-up Meetings with the Streamlining Team

<p><u>Follow-up Meetings Checklist – Midway through the Project Design</u></p> <p>Additional meetings can be scheduled as needed to ensure that designs and methods (e.g., staging areas, work isolation methods, fish passage design etc.) are supported or to discuss unresolved issues or questions raised during the first meeting.</p> <ul style="list-style-type: none">➤ Follow-up with requested information, questions or unresolved issues from the earlier meetings or as a follow-up to submitted information➤ Preliminary conservation measures are presented and agreed to (e.g., sediment and pollution control plan, work isolation plan, etc.)➤ Additional meetings will be suggested if other issues are identified or as of yet unresolved
--

Table 4. Last Meeting – Presentation of the Joint Permit Application and Biological Assessment

Last Meeting – Final Design Complete, Permit Applications ready for submittal

Final project design and information associated with the permit application and biological assessment (if required) can be presented prior to submittal to the agencies.

Project Team:

- Final project design and associated conservation measures are presented
- Final details of the mitigation proposal are presented
- Biological Assessment is presented (If required) and federal agencies can give informal feedback on effects determination

Streamlining Team:

- Agency’s permit review and approval timeframes are discussed

Once the permits have been acquired and the project has been closed out there are potential monitoring and reporting responsibilities that may be required for several years. The table below outlines some of the more common special and general permit conditions.

Table 5. Common Reporting Requirements associated with Permit Conditions

Common Special and General Permit Conditions

(Please send copies of the permits to Mike Reed for assistance with identifying permit conditions that will require special attention including notifications, monitoring and reporting requirements):

Before Construction Begins:

- Notify the Corps of the “**start of work**” date
- Obtain a **Site Development Permit** after BDS has submitted a final Land Use Review decision

After Project Completion:

- Submit a signed “**Compliance Certification**” to the Corps at the completion of the work
- Submit a “**project completion**” report to the Corps within 60 days of finishing the permitted work
- Submit a “**Action Completion Form**” if the project qualified for a SLOPES V Programmatic (These can be required for the three SLOPES Programmatic Biological Opinions covering Restoration, In-water/Over-Water Structures and Stormwater, Transportation and Utilities)
- For OWEB funded projects, DSL requires a “**Restoration Inventory Report**” to be submitted to OWEB and DSL
- “**As-Built Report**” to be submitted to the Corps within 60 days of completion of the vegetation planting
- “**A Zoning Permit**” can be required by BDS for inspection of the vegetative plantings 2-5 years after completion of the project

Chapter 24.50 Flood Hazard Areas

24.50.010 Purpose.

The purpose of this Chapter is to protect the public health, safety, and welfare by restricting or prohibiting uses which are dangerous to health, safety, or property in times of flood or which cause increased flood heights or velocities, and by requiring that uses and structures vulnerable to floods be protected from flood danger at the time of initial construction.

24.50.020 General.

(Amended by Ordinance No. 182370, effective November 26, 2008.)

A. The provisions of this Chapter shall regulate development and construction in flood hazard areas identified in Section 24.50.030.

B. Land classified in a flood hazard area may restrict or affect uses and development permitted in one or more of the regular zones listed in Chapter 33.16. If an inconsistency exists between Chapter 24.50 and other titles of this Code, the more restrictive uses or requirements shall prevail.

C. A structure or the use of a structure or property which was lawful before the original date of this Chapter but which is not in conformity with the provisions of this Chapter may be continued subject to provisions of the State Building Code, regulations for existing structures.

D. The flood protection elevations and the floodway and floodway fringe areas specified by this Chapter, based on the 100-year flood elevations, are considered reasonable. Greater flood heights and more extensive floodway fringe areas associated with longer flood frequency occurrences may occur or the flood height and extent of flooding may be increased by human or natural causes, such as log jams, bridge openings restricted by debris, or changes in basin conditions. Areas within designated drainage districts and those areas not covered by adequate topographic maps may contain unmapped watercourses subject to flooding. The identification of designated flood hazard areas does not imply that lands outside of such areas will be free from flooding or flood damage.

The City of Portland or any officer or employee thereof, or the Federal Insurance Administration shall not be liable for any flood damages that result from reliance on the provisions or designations of this Chapter or any administrative decision lawfully made thereunder.

24.50.030 Flood Related Definitions.

(Amended by Ordinance Nos. 178741, 182370 and 184235, effective November 26, 2010.) The definitions contained in this Section relate to flood hazard areas and considerations outlined in this Chapter.

A. “Appeal” means a request for a review of the City of Portland’s interpretation of any provision of this ordinance or a request for a variance.

B. “Area of shallow flooding” means a designated AO or AH zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from 1 to 3 feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

C. “Areas of Special Flood Hazard” mean the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

D. “Base Flood (100-year flood)” means the flood having 1 percent chance of being equaled or exceeded in any given year. Designation on maps always includes the letters A or V.

E. “Basement” means any area of the building having its floor subgrade (below ground level) on all sides.

F. “City Datum” means the reference datum for the City of Portland maps. The FIRM maps described in Section 24.50.050 are referenced to the North American Vertical Datum (NAVD) of 1988. To convert NAVD 1988 level to City datum, subtract 2.125 feet from the elevation referenced to NAVD 1988 level.

G. “Development” means any man-made change to improved or unimproved real estate, including but not limited to buildings, bridges, other structures, and mining, dredging, filling, grading, paving, excavation, fencing, landscaping, drainage facilities, drilling operations, or storage of equipment or material.

H. “Existing manufactured home park or manufactured home subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale for which the construction of facilities for servicing the lot on which the manufactured home is to be affixed (including as a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) is completed before the original date of this Chapter.

I. “Expansion to an existing manufactured home park or manufactured home Subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets).

J. “FIA” means Federal Insurance Administration.

K. “Flood Hazard Area” means any area which has been identified as subject to flooding.

L. “Flood Insurance Study” means the official report provided by the Federal Insurance Administration that contains information regarding flooding, discusses the engineering methods used to develop the Flood Insurance Rate Maps (FIRMs), includes flood profiles, and the water surface elevation of the base flood.

M. “Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration has delineated the areas of special flood hazards.

N. “Flood or flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters, and/or the unusual and rapid accumulation of runoff of surface waters from any source.

O. “Flood protection elevation” means the water surface elevation of the base flood plus a freeboard allowance.

P. “Floodplain” means the channel of watercourse and adjacent land areas which are subject to inundation by the base flood.

Q. “Floodproofing” means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, sanitary, and water facilities, structures, and their contents.

R. “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. The actual floodway boundaries are computer activated and approximate. These boundaries are depicted on the FIRM. Boundaries for other watercourses may be subject to identification by the Sewage System Administrator. The width of the floodway for unidentified watercourses should not be less than 15 feet.

S. “Flood fringe area” means any area lying outside the floodway which is subject to flooding by a base flood and for which water surface elevations and floodway and flood fringe boundaries have been determined by a Flood Insurance Study and are shown on the FIRMs. Boundaries for unidentified watercourses may be subject to identification by the Sewage System Administrator.

T. “Freeboard” means an additional height above the base flood level to account for factors that may contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as filling in the floodway fringe, wave action, effect of urbanization of the watershed, map inaccuracies, irregular stream cross sections, irregular constructions at bridges, and the uncertainties of flood discharge computations.

U. “Lowest Floor” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building’s lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance found at Section 24.50.060 F.2.

V. “Manufactured home” means a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For flood plain management purposes, the term “manufactured home” also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term “manufactured home” does not include park trailers, travel trailers, and other similar vehicles.

W. “New construction” means structures for which the start of construction commenced on or after the effective date of this Chapter.

X. “New manufactured home park or manufactured home subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale for which the construction of facilities for servicing the lots on which the manufactured home is to be affixed (including as a minimum, the installation of utilities, either final site grading or the pouring of concrete pads and the construction of streets) is completed on or after the original date of this Chapter.

Y. “Start of construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets, walkways, sanitary sewers, storm sewers, and/or drainage facilities; nor does it include excavation for a basement, footings, piers, or foundation or the erection of temporary forms; nor does it include

the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure.

Z. “Structure or accessory structure” means, for the purposes of this Chapter, a walled and roofed building including a gas or liquid storage tank that is principally above ground.

AA. “Substantial Damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

BB. “Substantial Improvement” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure, either:

1. Before the improvement or repair is started, or
2. If the structure has been damaged, and is being restored, before the damage occurred. Substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include either:

- a. Any project for improvement of a structure to comply with existing State or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions, or
- b. Any alteration of a structure listed on the National Register of Historic Places or the State Inventory of Historic Places.

CC. “Variance” means a grant of relief from the requirements of this ordinance which permits construction in a manner that would otherwise be prohibited by this ordinance.

DD. “Water surface elevation” means the height of the water surface of the base flood for any point along the longitudinal course of a stream.

EE. “Watercourse” means a channel in which a flow of water occurs, either continuously or intermittently, and if the latter, with some degree of regularity. Watercourses may be either natural or artificial.

24.50.040 FIA Study and Flood Hazard Maps.

(Amended by Ordinance Nos. 173979, 176955, 178741, 182671 and 184235, effective November 26, 2010.) The following study and maps in this Section are hereby adopted and declared to be a part of this Chapter.

A. Flood Insurance Study is the official scientific and engineering report entitled “Flood Insurance Study for City of Portland, Oregon: Multnomah, Clackamas and Washington Counties”, dated November 26, 2010 prepared by the Federal Insurance Administration (FIA) under agency agreement with the Portland District Corps of Engineers. The latest edition of the report, along with accompanying FIRMs, are on file with the Bureau of Development Services.

B. Flood Insurance Rate Maps (FIRMs) are the official maps entitled “The Flood Insurance Rate Maps (FIRMs) for City of Portland, Oregon: Multnomah, Clackamas and Washington Counties”, dated either October 19, 2004 or November 26, 2010, whichever is more current, on which the

Federal Insurance Administration has delineated the areas of flood hazards along with the 100-year (base flood) and 500-year flood boundaries, the floodway zone boundaries and the 100-year flood elevations.

C. Water Features Map is the official map, dated May, 1981, or latest edition, compiled by the Bureau of Planning and Sustainability delineating certain watercourses which are subject to special flood hazard and drain 30 acres or more.

D. When base flood elevation data has not been provided by the FIA study, the Sewage System Administrator may obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source. This data shall be utilized only after technical review and approval of the Sewage System Administrator.

E. The “Title 3 Water Quality and Flood Management Area Map,” as adopted by Metro Council on June 18, 1998, is the official map which identifies areas as “February 1996 Flood Inundation.” The identified areas are subject to the regulations of this Title.

24.50.050 Flood Hazard Areas and Flood Protection Elevations.

(Amended by Ordinance Nos. 173979, 178741 and 182370, effective November 26, 2008.) Flood hazard areas shall contain all lands located within the Floodway boundary, Flood Zones within the Flood fringe areas, and other identified Flood Zones. Identified Flood Zones are depicted on the National Flood Insurance Rate Map (FIRM). Both identified and unidentified Flood Hazard areas along with flood protection elevations are described in the following. Figure 1 illustrates the basic flood hazard areas and elevations.

(See Figure 1 at the end of Title 24)

A. Columbia River FIRM Flood Zone AE. These flood zones represent areas for which base flood elevations are determined. The flood protection elevation shall be the base flood elevation plus one foot of freeboard. The nominal one-foot increase for freeboard reflects the relatively wide flood plain of the Columbia River. In the vicinity of the confluence of the Columbia and Willamette Rivers, the Columbia River floodplain shall be considered to be east of the westerly floodway fringe boundary of the Columbia Slough.

B. Multnomah Drainage District No. 1 and Peninsula Drainage District No. 2 FIRM Zone AH. This flood zone represents isolated areas of shallow flooding (1 to 3 feet in depth, resulting from upslope runoff) for which base flood elevations are determined. In the case of unidentified watercourses occurring within the boundaries of the Drainage Districts, the base flood elevation shall be estimated by procedures described in paragraph G. below. The flood protection elevation shall be the base flood elevations plus one foot of freeboard.

C. Columbia River FIRM Flood Zone A. These flood zones represent areas for which base flood elevations are not determined. The flood protection elevation shall be either the grade at the adjacent flood fringe boundary or the crown of the nearest street, whichever is higher, plus one foot of freeboard.

D. Willamette River FIRM Flood Zone AE. These flood zones represent areas for which the base flood elevations are determined. The flood protection elevation shall be the base flood elevation plus two feet of freeboard.

E. Johnson Creek, Fanno Creek and Crystal Springs Creek FIRM Flood Zone AE. This flood zone represents area for which the base flood elevations are determined. The flood protection elevation shall be the base flood elevation plus two feet of freeboard.

F. Johnson Creek FIRM Flood Zone AH. This flood zone represents areas of shallow flooding depth (1 to 3 feet) for which base flood elevations are determined. The flood protection elevation shall be the base flood elevation plus two feet of freeboard.

G. Johnson Creek FIRM Flood Zone AO. This flood zone represents areas of shallow flooding depth (1 to 3 feet) for which the depths of flooding are determined. The flood protection elevation shall be the depth of flooding shown on the FIRM map plus two feet of freeboard above the highest adjacent grade.

H. Johnson Creek, Fanno Creek, Tryon Creek, and Crystal Springs Creek FIRM Flood Zone A. These flood zones represent areas for which base flood elevations are not determined. The flood protection elevation shall be the base flood elevation plus two feet of freeboard. Base flood elevations shall be calculated in accordance with paragraph I. below.

I. Unidentified Watercourse Flood Zones. These watercourses, generally draining one acre or more, are not identified in a Federal Insurance Study and may not be identified on the Water Features map. The flood protection elevation shall be the base flood elevation plus two feet of freeboard. The width of the floodway shall not be less than 15 feet. The floodway boundary, flood fringe boundary, and flood protection elevation data shall be based upon watercourse geometry, slope, channel roughness, effect of obstructions, backwater and other factors which affect flood flow. The requisite flood hazard data, maps, and sections shall be obtained and developed by procedures approved by the Sewage System Administrator. When appropriate and necessary data are available, the flood protection elevation and floodway and flooding fringe boundary data may be provided by the Sewage System Administrator. If pertinent hydrologic data and topographic data are not available, inaccurate, or outdated, and where substantial alterations or relocations of a watercourse are involved, the Sewage System Administrator may require the permit applicant to secure a registered engineer and surveyor to develop and supply the requisite flood hazard data, maps, and sections.

J. Metro Flood Management Areas. Flood 1996 inundation areas shown on Metro Title 3 Water Quality and Flood Management Area Maps shall have a flood protection elevation which provides two feet of freeboard above the Flood 1996 level. Flood 1996 inundation areas adjacent to Columbia River FIRM Flood Zone AE, Multnomah Drainage District No. 1, Peninsula Drainage District No. 2 Firm Zone AH and Columbia River FIRM Flood Zone A shall have freeboard of one foot.

24.50.060 Provisions for Flood Hazard Reduction.

(Amended by Ordinance Nos. 165678, 169905, 172209, 173979, 176955, 178741, 182370 and 184235, effective November 26, 2010.) In all flood hazard areas defined in Section 24.50.050, the following provisions are required:

A. Permits. All permit applications shall be reviewed to determine whether proposed building sites will be reasonably safe from flooding. A development or building permit shall be obtained before construction or development begins within any area of flood hazard. Such applications for permits shall include the following specific information:

- 1.** Elevation of lowest floor, including basement, for all structures and floodproofed elevations for nonresidential structures.

2. Elevation of lowest point of bridge structures.

3. Existing and proposed topography of the site taken at a contour interval (normally 1 foot) sufficiently detailed to define the topography over the entire site and adjacent watercourses subject to flooding. Ninety percent of the contours shall be plotted within 1 contour interval of the true location.

4. All necessary permits obtained from the federal and state governmental agencies from which prior approval is required.

5. Where elevation data is not available either through the Flood Insurance Study or from another authoritative source (Section 24.50.050 G.), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of any available hydrological data, drainage basin hydrology, historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

B. Elevation reference. The survey reference datum for finished lowest floor including basement, floodproofed elevations, and finished site grades shall be either the North American Vertical Datum of 1988 or City of Portland datum, whichever is appropriate. When approved by the City Engineer, a local onsite survey reference datum may be adopted for FIRM Zones A and Unidentified Watercourse Flood Zones. The survey reference datum shall be indicated on all relevant plan and Section drawings, and the certified Flood-Elevation Certificate.

C. Certification of elevations and floodproofing. All finished elevations as specified hereunder shall be certified on a FEMA (FIA) Elevation Certificate by a licensed surveyor secured by the permittee, and made part of the permit records.

1. As-built elevation of lowest floor including basement, of all new or substantially improved structures;

2. As-built floodproofed elevation of all new or substantially improved nonresidential structures;

3. As-graded elevation of lowest grade within 25 feet of structures;

4. As-graded elevation of lowest crawl space grade, as applicable.

All floodproofing materials and methods for nonresidential structures shall be certified by a licensed professional engineer or architect as meeting the criteria in Section 24.50.060 F7.

D. Floodway. Encroachments into the floodway by development and structures defined in Section 24.50.020 are prohibited unless it is demonstrated by technical analysis from a registered engineer that the development will result in no increase in the base flood elevation. In areas where a regulatory floodway has not been designated, no new construction, substantial improvement or other development (including fill) shall be permitted within Zone AE, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than 1 foot at any point within the community. Technical analysis shall be reviewed and approved by the Sewage System Administrator. However, the minimum width of the floodway shall not be less than 15 feet.

E. Alteration of watercourses. The Bureau of Development Services shall:

1. Notify adjacent communities and the Department of Land Conservation and Development prior to any alteration or relocation of a watercourse as identified in the Flood Insurance Study and Flood Insurance Rate Map, and submit evidence of such notification to the Federal Insurance Administration.
2. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

F. Special flood hazard areas.

1. General. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

2. Residential construction.

a. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to or above flood protection elevation. Floodproofing of “lowest floor” space is not permitted.

b. Fully closed areas below the lowest floor that are subject to flooding are prohibited or shall be used solely for parking of vehicles, building access or limited storage and be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

(1) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;

(2) The bottom of all openings shall be no higher than one foot above grade;

(3) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(a) Fills required to elevate the lowest floor to the flood protection level shall comply with Chapter 24.70. Fill selection and placement shall recognize the effects of inundation from floodwaters on slope stability, fill settlement, and scour. The minimum elevation at the top of the fill slope shall be at the base flood level. Minimum distance from any point of the building perimeter to the top of the fill slope shall be either 25 feet or twice the depth of fill at that point, whichever is the greater distance.

(b) Piling foundations required to elevate the lowest habitable floor to the flood protection level shall comply with Section 1809 and 1808 of the Structural Specialty Code. Pilings shall be spaced no more than 10 feet apart, and reinforcement shall be provided for piling more than 6 feet above the ground level.

3. Subdivision proposals.

- a.** All subdivision proposals shall be consistent with the need to minimize flood damage;
- b.** All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
- c.** All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and,
- d.** Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).

4. Nonresidential construction. New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall either have the lowest floor, including basement, elevated to the level of the flood protection elevation, or, together with attendant utility and sanitary facilities, shall:

- a.** Be floodproofed so that below the flood protection elevation the structure is watertight with walls substantially impermeable to the passage of water;
- b.** Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- c.** Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this Subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Bureau of Development Services.
- d.** Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described for residential structures.
- e.** Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building constructed to the base flood level will be rated as one foot below that level).

5. Manufactured homes. All manufactured homes to be placed or substantially improved within Zones AO, AH and AE shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the flood protection elevation and be securely anchored to prevent flotation, collapse or lateral movement and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Refer to FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

6. Utilities. All new and replacement water supply and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the sanitary sewage systems into flood waters. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during

flooding.

7. Construction materials and methods. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage, using methods and practices that minimize flood damage. Electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

8. Balanced Cut and Fill Required. In all Flood Management Areas of the City not addressed by Section 24.50.060 G, balanced cut and fill shall be required. All fill placed at or below the base flood elevation shall be balanced with at least an equal amount of soil material removal. Soil material removal shall be within the same flood hazard area identified in Section 24.50.050 A. through I.

a. Excavation shall not be counted as compensating for fill if such areas will be filled with water in non-storm winter conditions.

b. Temporary fills permitted during construction shall be removed.

9. Tank anchoring. Tanks containing hazardous materials must be anchored to prevent flotation if they are located in areas of special flood hazard or flood management areas.

10. Uncontained hazardous materials as referred to in Section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S. Section 9601 et seq.) (CERCLA), section 502 (13) of the Clean Water Act and any other substances so designated by the Director of the Bureau of Development Services are prohibited in flood management areas.

11. AH/AO Zone Drainage. Adequate drainage paths shall be provided around structures on slopes to guide floodwaters around and away from proposed structures.

G. Johnson Creek Flood Zones – Special Provisions. In addition to other requirements of this chapter the following requirements shall apply within designated portions of the Johnson Creek Flood Zones:

1. All Johnson Creek Flood Zones

a. Balanced cut and fill. Within all areas of the Johnson Creek Flood Zones, all new fills below the base flood elevation shall be accompanied by an equal amount of excavation on the same site so that the storage capacity of the floodway and floodway fringe is retained.

b. Mitigation payment allowed in lieu of balanced cut and fill. After September 1, 1998 residential properties within the area of the 100 year floodplain, but outside of the floodway and Flood Risk Area, and bounded by I-205 on the west, SE 142nd Avenue on the east, and the Springwater Corridor Trail on the south, may elect to pay into the Johnson Creek Fill Mitigation Bank in lieu of creating a balanced cut and fill. The amount of the payment shall be determined by the Bureau of Environmental Services.

2. Johnson Creek Flood Risk Area. The following provisions shall apply within the Johnson Creek Flood Risk Area, as established in Chapter 33.535 of the City Code:

a. Balanced cut and fill. The requirements of subsection G.1. above, shall apply within the Johnson Creek Flood Risk Area.

b. Reduction in flooding capacity prohibited. Structures, fill or other development shall only be allowed in the Johnson Creek Flood Risk Area when they are designed so that there is no significant reduction in the storage capacity of the floodway and floodway fringe and there is no significant impediment to the passage of flood waters.

c. Exceptions to Section 24.50.060 G.2.:

(1) One story detached accessory buildings used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet.

(2) Parking garages accessory to one and two family structures, provided the floor area does not exceed 300 square feet.

(3) Fences which do not prevent the flow of water.

d. Buildings designed to meet all of the following criteria shall be presumed to comply with Section 24.50.060.G.2.:

(1) At least 50% of perimeter walls located at, or below, the base flood elevation shall remain open and unenclosed;

(2) At least 25% of each perimeter wall located at, or below, the base flood elevation shall remain open and unenclosed; and

(3) The footprint of all portions of the building located at, or below, the base flood elevation shall not exceed 15% of the footprint of the building located above the base flood elevation.

24.50.065 Recreational Vehicles located in Areas of Special Flood Hazard or Base Flood Zones.

(Added by Ordinance No. 180330, effective August 18, 2006.)

A. Any recreational vehicle placed on a site located in either an Area of Special Flood Hazard or in the base flood zone shall:

1. Meet the elevation and anchoring requirements for manufactured homes;

2. Be on the site for fewer than 180 consecutive days; or

3. Be fully licensed and ready for highway use. As used in this section, “ready for highway use” means that the vehicle is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and has no permanently attached additions.

B. For the purpose of this section, “recreational vehicle” means any vehicle which is:

1. Built on a single chassis;

2. 400 square feet or less when measured at the largest horizontal projection;
3. Designed to be self propelled or permanently towable by a light duty truck; and
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

24.50.070 Appeals and Variances.

(Amended by Ordinance No. 178741, effective October 19, 2004.)

A. Appeals. Any person aggrieved by a requirement, decision, or determination made pursuant to the administration of this Chapter may appeal such action to the Building Board of Appeal in accord with Chapter 24.10.

B. Variances. If variances from requirements of this Chapter are requested, all relevant factors and standards specified in other sections of this Chapter shall be considered, as well as the following:

1. The danger that materials may be swept into other lands to the injury of others;
2. The danger to life and property due to flooding or erosion damage;
3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
4. The importance of the services provided by the proposed facility to the community;
5. The necessity to the facility of a waterfront location, where applicable;
6. The availability of alternative locations, not subject to flooding or erosion damage;
7. The compatibility of the proposed use with existing anticipated development;
8. The relationship of the proposed use to the Comprehensive Plan and Floodplain Management Program for that area;
9. The safety of access to the property in times of flood for ordinary and emergency vehicles;
10. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;
11. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges; Upon consideration of the factors listed above and the purposes of this Chapter, such conditions may be attached to the granting of variances as deemed necessary.

C. Conditions for variances.

1. Generally the only condition under which variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of 1/2 acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (1-11) have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases.

2. Variances shall not be issued within designated floodway if any increase in flood levels during the base flood discharge would result.
3. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this Section.
4. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
5. Variances shall only be issued upon:
 - a. A showing of good and sufficient cause,
 - b. A determination that failure to grant the variance would result in exceptional hardship to the applicant, and
 - c. A determination that the granting of a variance would not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
6. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.
7. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
8. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except 24.50.070 C.1. and otherwise complies with Section 24.50.060 F.1. and 24.50.060 F.7.

City of Portland Section 10 Habitat Conservation Plan (805 pages)

available at: <http://www.portlandoregon.gov/water/46157>

West Hayden Island Planning and Sustainability Committee Recommendation (234 pages)

available at: <http://www.portlandoregon.gov/bps/article/461005>

BASIC FLOODPLAIN RELATIONSHIPS

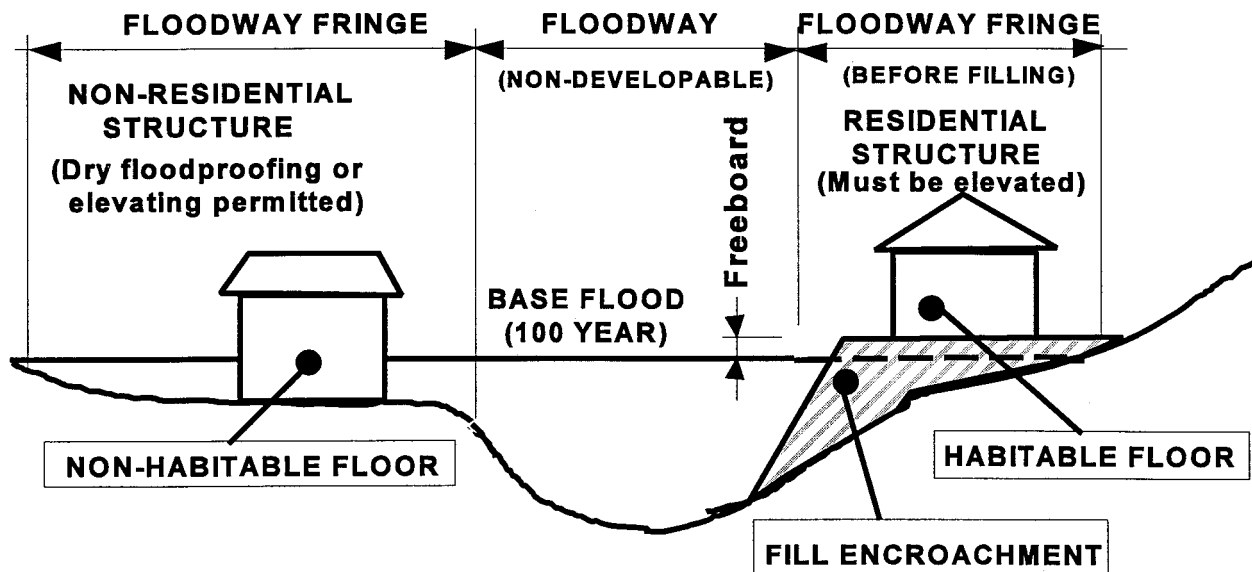
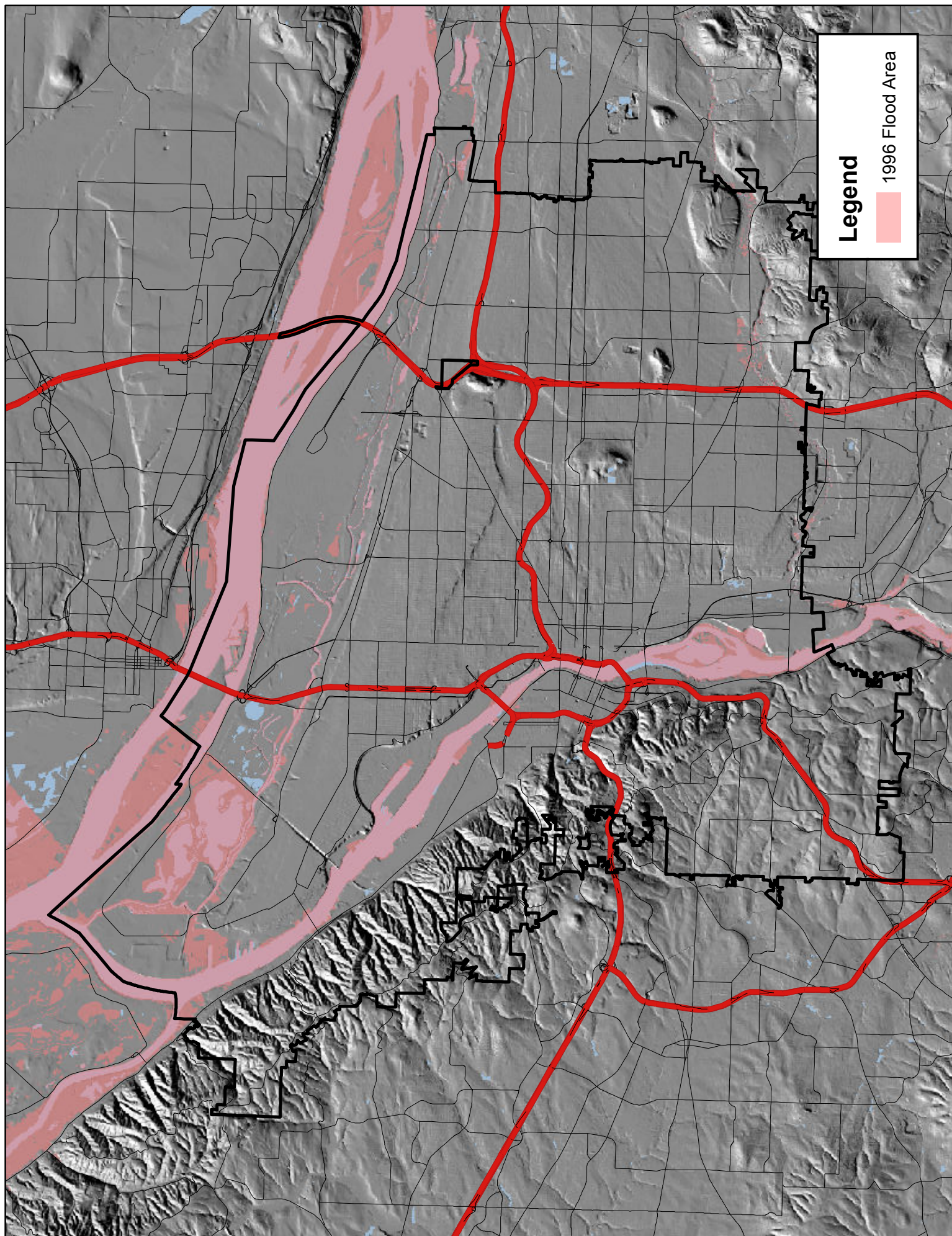


FIGURE 1 (Section 24.50.070)



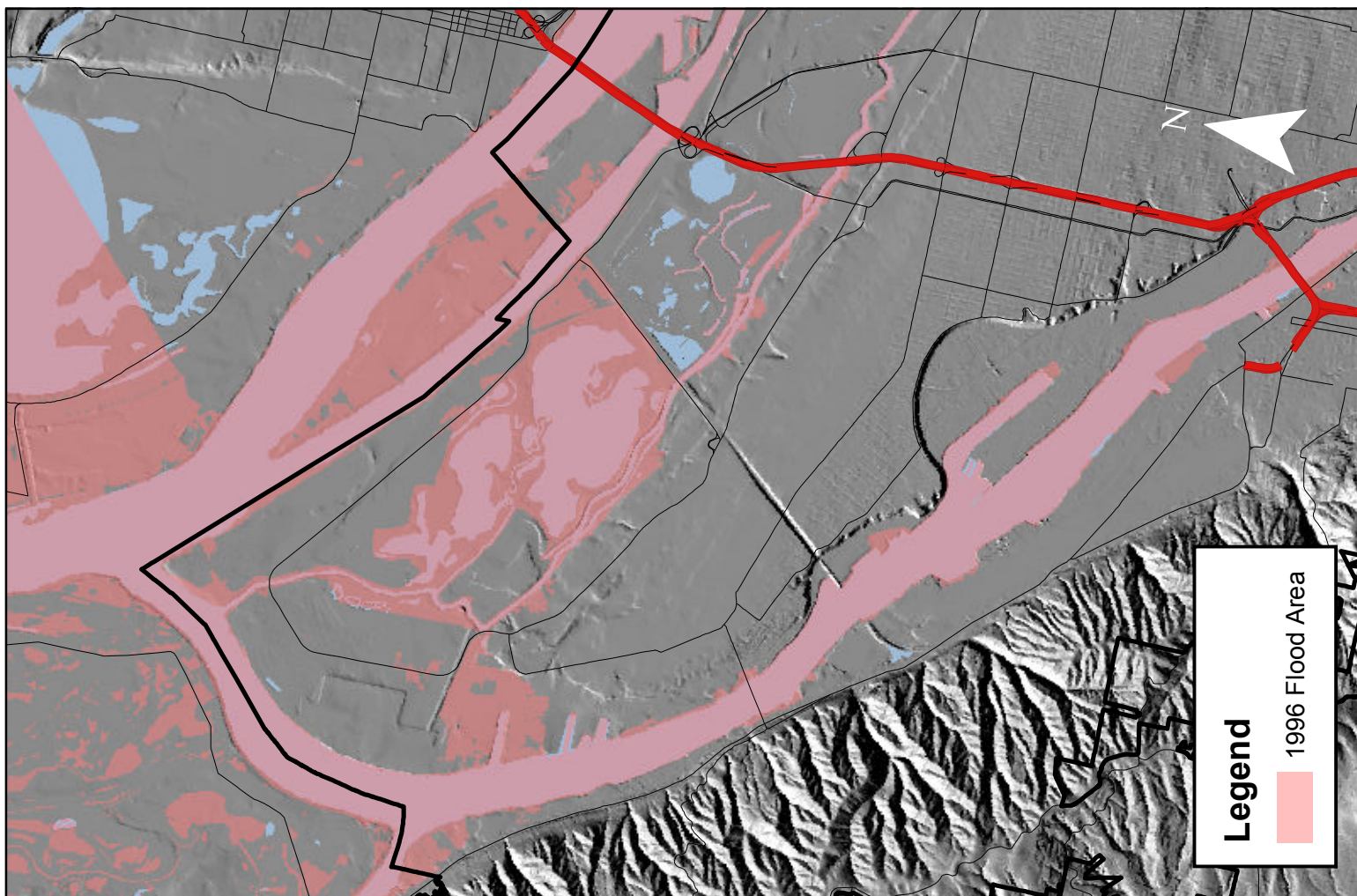
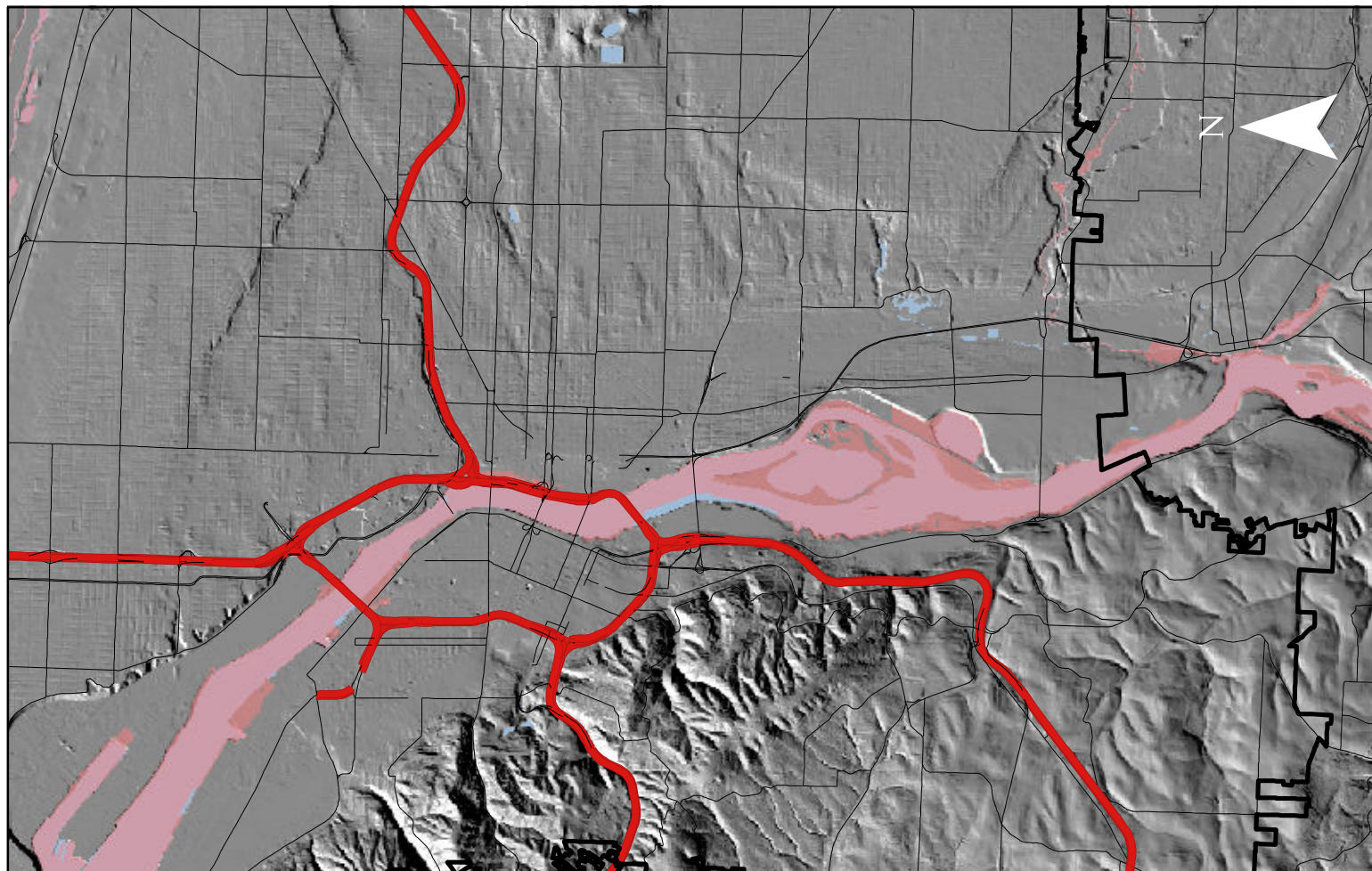







Image U.S. Geological Survey



working for clean rivers



FEMA and the ESA in Portland

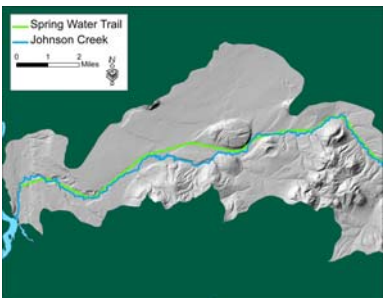



ENVIRONMENTAL SERVICES
CITY OF PORTLAND


NICK FISH, COMMISSIONER | DEAN HARRIS, DIRECTOR

Kaitlin Lovell, Esq.
Watershed Services
Bureau of Environmental Services
November 2014


Portland's history with flooding



WPA Channelizing and Rock Lining Johnson Creek 1930s – 2012



1934



2009

How to become a Level 5 Community?

- Title 24 – included in your handouts
 - Includes balanced cut and fill
 - Strict floodplain development requirements
- Impervious limit requirement
 - Stormwater Management Manual
 - Johnson Creek Basin code
- Voluntary Projects like Foster Floodplain

East Lents Floodplain Restoration Project 2011-2012

- \$2.7 million FEMA Pre-disaster mitigation grant
- Willing Sellers!
- Reduces the frequency of flooding on Foster Rd. from 1.5 years to ~ 6 years.



First test a success!



Portland's History with the ESA

- 1999 – Council Resolution; created the ESA Program
 - In 2007 it was absorbed by the SciFiWi Division
- 2000 – Council Resolution committing the City to salmon and steelhead recovery
- 2003 – Streamlining Agreement*
- 2006 – Framework (local recovery plan) and the Portland Watershed Management Plan
- 2006 – 4(d) – RRM and IPM
- 2010 – Water Bureau's §10 HCP*

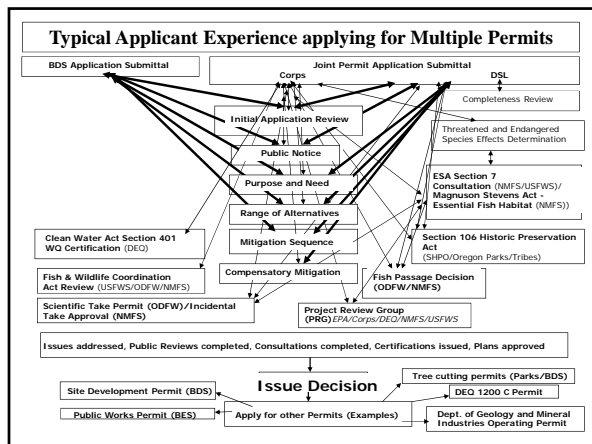
STREAMLINING AGREEMENT

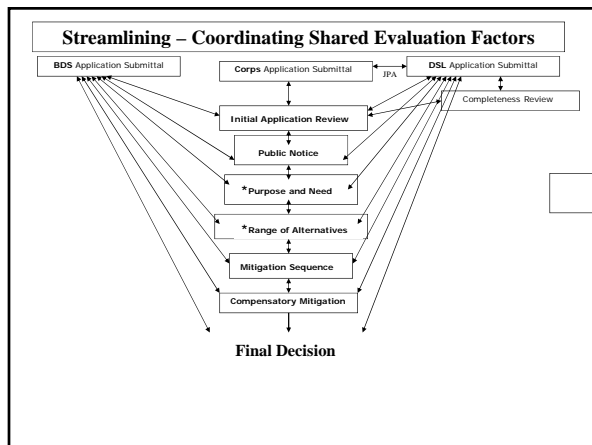
- The Purpose is to build a collaborative process that encourages efficient and effective communication among multiple agencies and City of Portland project teams
- The Goal is to secure timely and non-conflicting decisions from the agencies for proposed City projects that require permits and other authorizations



Current Membership of Portland Streamlining Team

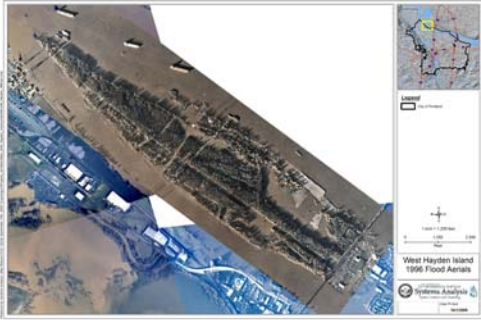
- **Federal agencies**
 - Army Corps of Engineers (Corps)
 - National Marine Fisheries Service (NMFS)
 - U.S. Fish and Wildlife Service (USFWS)
- **State agencies**
 - Department of State Lands (DSL)
 - Department of Environmental Quality (DEQ)
 - Department of Fish and Wildlife (ODFW)
- **City of Portland**
 - Bureau of Development Services (BDS)





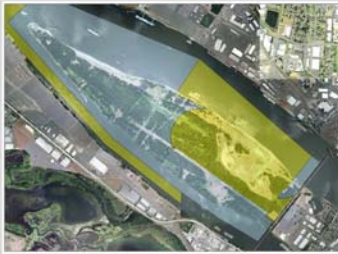
- ### Streamlining Team Facts
- **One-hundred eighty-seven (187) City Bureau presentations** were given to the Streamlining Team between 2003 and 2013
 - **One-hundred sixty-eight (168) permits** were issued by the Streamlining Team's participating agencies to **fifty-seven (57) City projects** between 2003 and 2013
 - **Forty-two (42) agency representatives** have served on the Streamlining Team since 2003 (Seven agency representatives serve on the Team at any one time)
 - **Four Bureaus used the Team most often from 2003-2013:**
 - Bureau of Environmental Services – 109 presentations
 - Portland Parks and Recreation – 20 presentations
 - Portland Water Bureau – 10 presentations
 - Portland Bureau of Transportation – 10 presentations

Evaluating the DRAFT RPAs in Portland



West Hayden Island

- Proposed Port of Portland Marine Terminal
- Need to annex the property
- Annexation proposal:
 - 500 acres open space
 - 300 acres of development
 - Net GAIN of ecosystem function



Some thoughts to leave you with

- Why are protected floodplains not considered infrastructure under Goal 9?
- Are there ways to customize the RPAs
 - Section 4(d) – the MCRI limit redux?
 - Section 10 HCPs?
- While there are many opinions about whether the RPAs go too far or not far enough, one thing is certain - development in the floodplain will be affected by climate change, changes in the CWA and application of the ESA – what's the common denominator solution?

Local Floodplain Permitting

Pre and Post ESA

Bryan W. Pohl – Director, Tillamook County
Community Development

Floodplain Development Permitting Now

- Flood Insurance Rate Maps
 - Zone determinations
 - Base Flood Elevation
- Local Ordinance
 - Freeboard
 - Floodway
- Plan Review
- Inspections
- Elevation certificates
- Engineering documents (V zones)

Future Permitting (Conservation Zone)

- Riparian buffer (170 feet)
- Channel Migration Zone
 - Proxy
 - Long-term
- Floodway
- Wetlands
- Connected areas
- Erosion Prone Areas

What Does it Mean?

- Dramatically more stringent permitting requirements
- Existing areas in floodway
- Federal control over local permits
- Biological assessment review
- Economic impacts

Pacific City



Tillamook



CHAPTER 8

Columbia River Treaty

BRIAN C. GRUBER

Ziontz Chestnut, Seattle

JOHN SHURTS, Ph.D.

Northwest Power and Conservation Council, Portland

Chapter 8
COLUMBIA RIVER TREATY

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Chapter 8

COLUMBIA RIVER TREATY

PART A

A FLOOD OF QUESTIONS ABOUT THE COLUMBIA RIVER TREATY

John Shurts

My presentation will introduce the participants to the Columbia River Treaty between the U.S. and Canada, first executed in 1964, and to the legal and policy issues that arise out of the relationship between storage reservoir operations under the Treaty, the use of some of that storage for flood control, the effects of flood management on river flows, and the biological consequences of flow management. I will also introduce the participants to the recent reviews of the Treaty on both sides of the international border. These reviews resulted in recommendations to the respective national governments that may lead us eventually into cross-border negotiations about modifying and modernizing the Treaty for a number of reasons, including the possibility of rethinking the balance between flow management for flood control and for ecosystem functions. The Treaty reviews have also highlighted a number of domestic issues and opportunities relating to that same balance.

The presentation will begin with a quick introduction to the Treaty, with a particular focus on the flood risk management aspects of the Treaty. One result has been significant flood risk reduction benefits for the region, especially for the Portland metro area. But those benefits come at some cost – or at least, there are factors that complicate our understanding of the flood control benefits. One complicating factor is that the water that would otherwise present flood risk in the lower river has to be stored somewhere else upriver, and those operations carry their own damages and costs, in dollars, in less-useful lands, and in the anger of people affected. Another complication is that storage in the Columbia system is not enough to protect the lower river areas from the possibilities of flood damage from the highest runoff levels observed in the past and likely to occur in the future. Another complication or cost is the effect of flood risk management on the physical and biological attributes of a free-flowing, flood-prone river, something we learn more and more about every year – and the main focus of the presentation. And a final complicating factor is that the provisions of the Treaty itself are about to put an end (in 2024) to the assured flood control operation under the Treaty! To be replaced by what looks on its face as an absurdity – an “on-call” flood control operation, with much uncertainty as to how it will work and what its effects will be.

The two nations began their respective reviews of the Columbia River Treaty partly for this reason. So the next part of the presentation is a quick introduction to the reviews. That will then lead to the ecosystem function and salmon flow issues that we already knew existed in relation to, among other things, the system flood control operations, but which the Treaty reviews brought out squarely. The focus within the Treaty reviews was on storage reservoir and flow operations, including consideration of alternatives for future flood control operations, the relative significance of the changes in flows that would result, and the biological analyses of these flow changes. But the reviews highlighted the full range of issues concerning the relationship of flood risk management and ecosystem function, including issues that are related to but not directly part of the Treaty storage operations. This includes what look like purely domestic questions about the relative effects on the ecosystem of local structural flood control and about alternative approaches to assessing and

protecting high-value property from flood risk, including non-structural solutions in certain areas.

The presentation will conclude with an introduction to the recommendations that came out of the two reviews, especially the review in the U.S., with a focus on the flood control/flow/ecosystem function recommendations. The finale will also include a few words on the domestic issues that were also highlighted in the review recommendations, including the topic of the flood risk assessment for which the Corps of Engineers will take responsibility, and the efforts under the *Columbia River Basin Fish and Wildlife Program* and elsewhere to improve the measures aimed at restoring the river's connections to its floodplain.

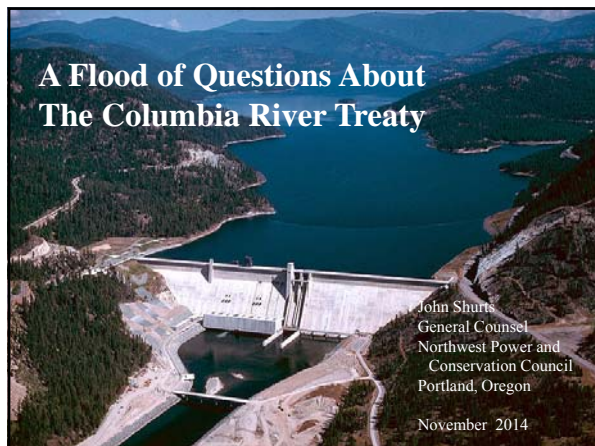
Information on the Treaty itself, including its text, history, organization and implementation, may be found on the website of the Permanent Engineering Board (an entity set up under the Treaty, but whose website is hosted by the Corps. http://www.nwd-wc.usace.army.mil/PB/PEB_08/index.htm; http://www.nwd-wc.usace.army.mil/PB/PEB_08/docs/ColumbiaRiverTreaty.pdf.)

Both nations organized reviews of the Treaty in the last few years. The U.S. review began late in 2010 and went to the end 2013. The review was led by the two federal agencies that also constitute the Treaty-implementing Entity for the U.S. side, the U.S. Army Corps of Engineers and the Bonneville Power Administration. The review also included formal participation by representatives of the states and Indian tribes in the region, and opportunities for stakeholder and public input. The Province of British Columbia led the review on the Canadian side, with assistance from B.C. Hydro (part of the provincial government and designated the Canadian Entity for implementation of the Treaty) and other provincial and federal agencies, and with plenty of opportunities for consultations with affected people and local governments in the basin and separate consultations with First Nations. Both reviews maintain websites that contain masses of information about the Treaty, about its implementation and effects, about the issues that confront us now 50 years in on Treaty implementation, about the issues, considerations and analyses within the reviews, and about the recommendations that came out of the reviews. <http://www.crt2014-2024review.gov/>; <http://blog.gov.bc.ca/columbiarivertreaty/>.

The final regional recommendations to the State Dept. out of the US review may be found here <http://www.crt2014-2024review.gov/Files/Regional%20Recommendation%20Final,%2013%20DEC%202013.pdf>. The final decision by British Columbia out of the review on the future of the Treaty is at http://blog.gov.bc.ca/columbiarivertreaty/files/2012/03/BC_Decision_on_Columbia_River_Treaty.pdf, accompanied by a lengthy consultation report, http://blog.gov.bc.ca/columbiarivertreaty/files/2013/09/Columbia-River-Treaty-Review-Public-Consultation-Report-_March-2014.pdf.



Additional information on the Treaty, on the issues, and on the reviews may be found in numerous places. For just a few examples, see the Council's own website <http://www.nwcouncil.org/news/intlcolumbiariver/>; <http://www.nwcouncil.org/history/ColumbiaRiverTreaty>; the website of the Columbia Basin Trust in British Columbia, <http://www.cbt.org/crt/>; the website of the Columbia River Inter-Tribal Fish Commission, <http://www.critfc.org/tribal-treaty-fishing-rights/policy-support/columbia-river-treaty/>; and others, such as: <http://www.estuarypartnership.org/our-work/science-policy-summit-2013-columbia-river-treaty>; <http://naiads.wordpress.com/category/columbia-river-treaty/>; <http://www.crtpowergroup.org/>; and <http://www.akblg.ca/content/columbia-river-treaty>.

Two further publications by the author are “Rethinking the Columbia River Treaty,” in *The Columbia River Treaty Revisited: Transboundary River Governance in the Face of Uncertainty*, Barbara Cosens, ed. (Oregon State University Press, 2012), and (with Richard Paisley) “The Columbia River Treaty,” in *Water Without Borders?: Canada, the United States, and Shared Waters*, Norman, Cohen & Bakker, eds. (University of Toronto Press 2013).



Columbia River Treaty (1961/64)

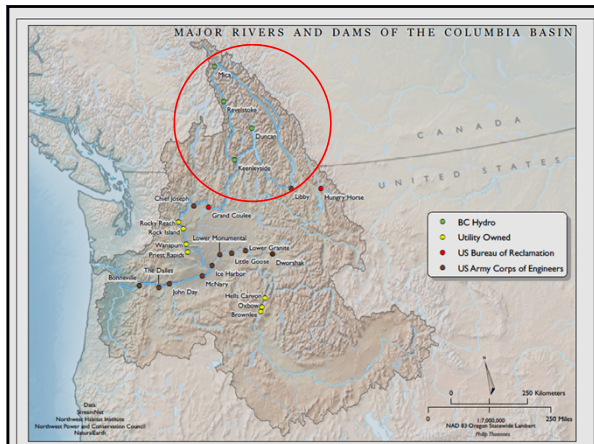
- 15 maf of storage in Canada (Mica, Duncan, Keenleyside/Arrow)
- Downstream flood control and power generation benefits
- Flood control: \$64.4 million payment for 50% of estimated value of flood damages prevented for 60 years.

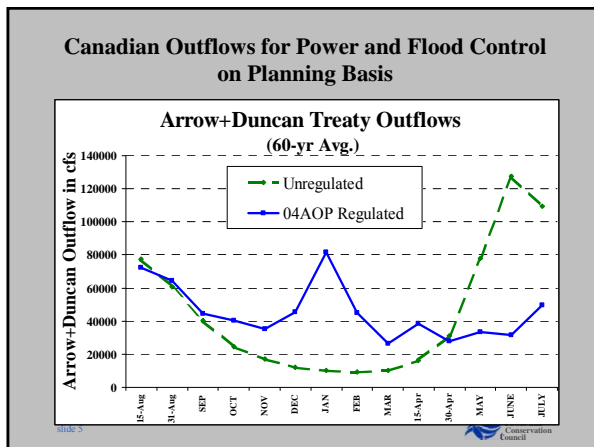



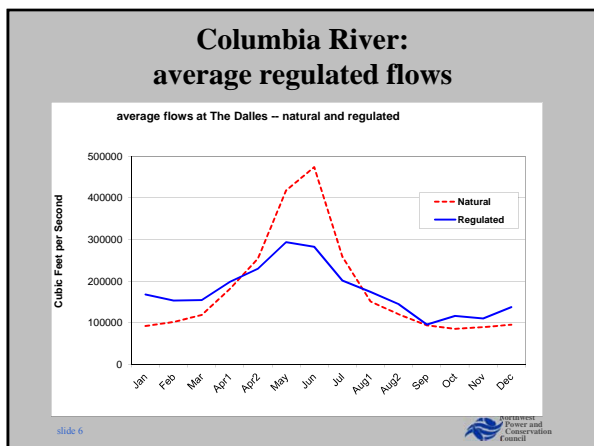
Columbia River Treaty (cont'd)

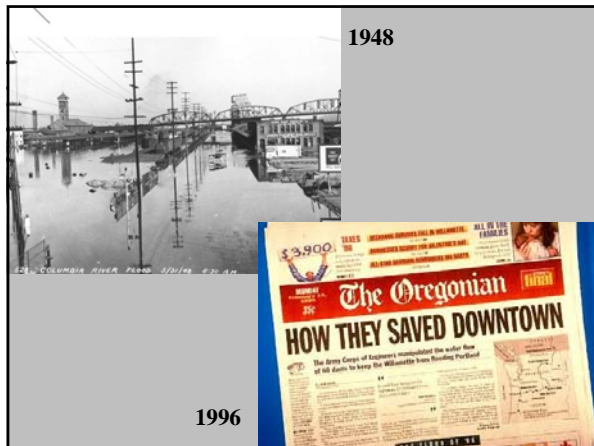
- US authorized to build Libby Dam on Kootenai River
 - no sharing of benefits
 - operations coordinated
- Entities designated to implement Treaty are BC Hydro in BC; Bonneville Admin and Corps Div Commander in US

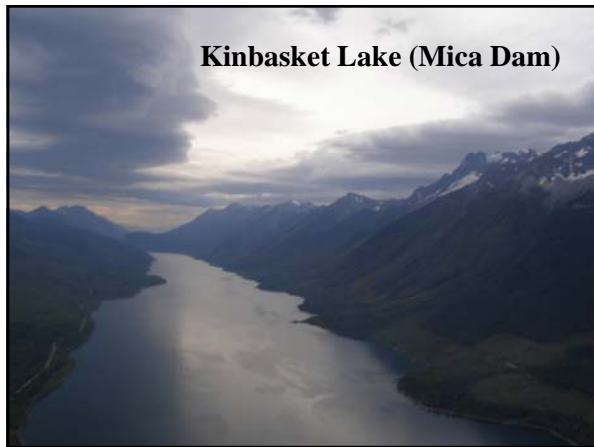


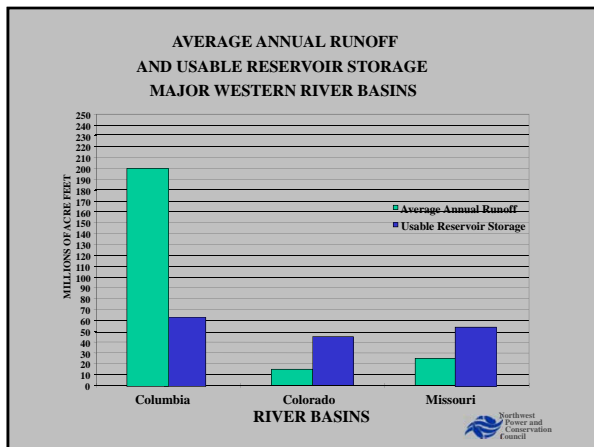













Why the 2014/2024 Review? Flood control changes

Assured systematic flood control operations last only 60 years (to 2024)

- Thereafter only if “called upon” subject to certain requirements, including effective use of US storage and payment of economic costs.
- Differences of opinion as to level of flow management at The Dalles Dam towards which the US can “call upon” flood control space from BC Hydro – 600/450 or fight!

slide 10





U.S. Army Corps of Engineers - Bonneville Power Administration



2014/2024 Review Columbia River Treaty

Sovereign Review Team/Technical Review:

United States agencies: (Bonneville, USACE, NMFS, USFWS, BOR, BLM, EPA, USFS, USGS, BIA, NPS)

States: Oregon, Washington, Idaho, Montana

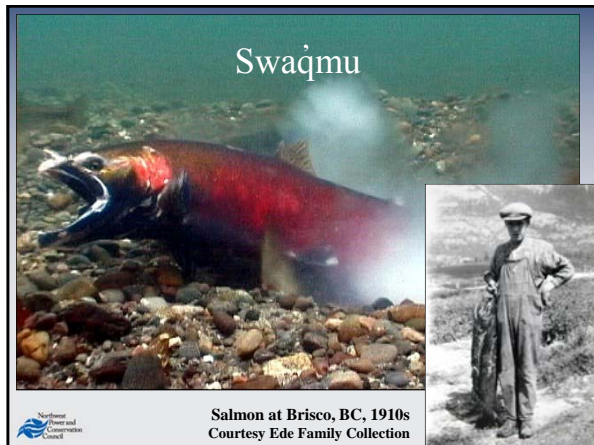
Northwest Indian Tribes: 5 representatives of 15 tribes (CRITFC, UCUT, USRT, Cowlitz, CSKT)

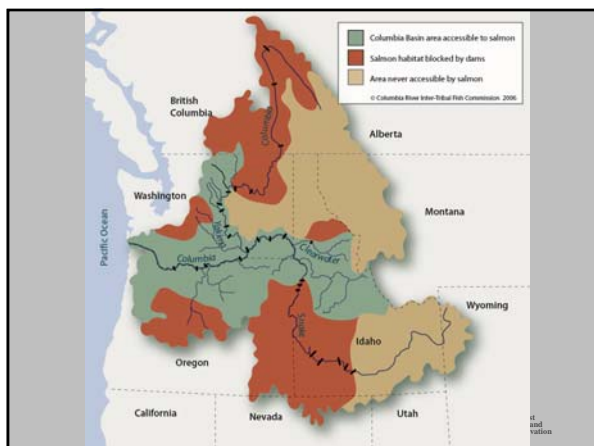
Northwest Stakeholders and Public Engagement

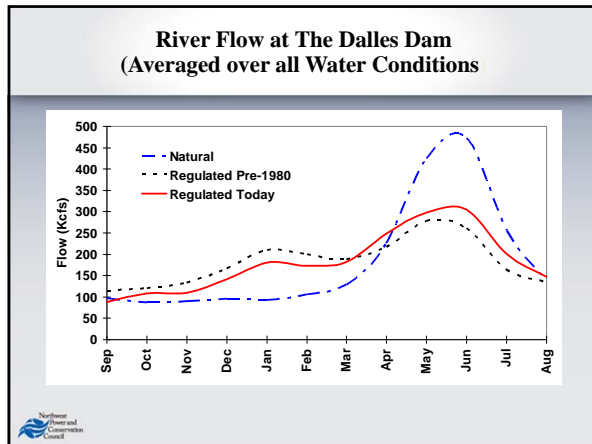
regional listening sessions; listening sessions directly between SRT/STT and regional stakeholders and technical experts; public open houses

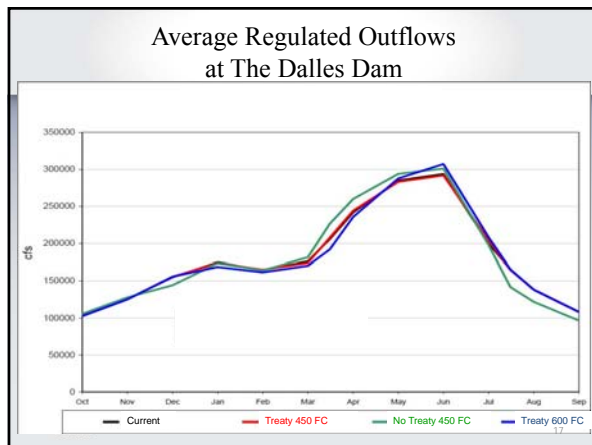


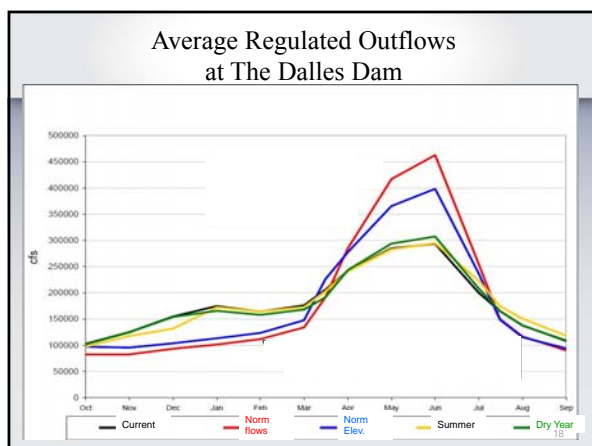


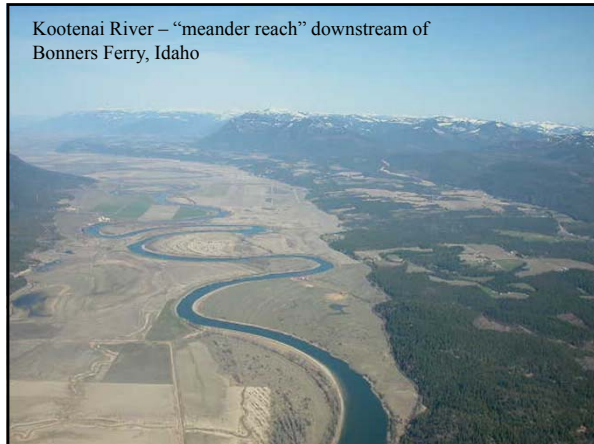




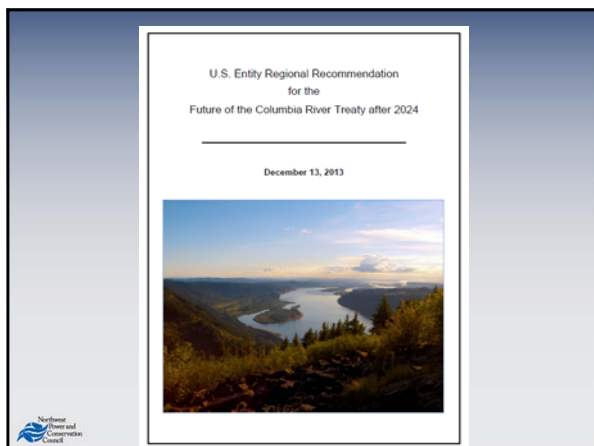












Flood Risk Assessment

Loss of regular access to **9 million acre feet** of flood control storage

Analyze effects on operations of US storage

Inventory and analyze existing floodplain data...

- Floodplain Mapping and Surveying
- Levee Assessments
- Economic Surveys



Columbia River Basin Fish and Wildlife Program 2013 / 2014

Northwest Power and
Conservation Council
nwccouncil.org/fishwildlife
document 2014-12 / October 2014

PART B
THE COLUMBIA RIVER TREATY AND
FLOOD RISK MANAGEMENT
Brian C. Gruber¹

I. INTRODUCTION

Not long ago, few people in the Pacific Northwest (aside from those intimately involved in the management of the Columbia River) had any significant knowledge of the Columbia River Treaty, and most had never heard of it or understood its importance to the highly controlled management of the river and its tributaries. The Treaty—signed in 1961 by President Eisenhower and his Canadian counterpart and ratified three years later—was overshadowed by more visible and contentious issues relating to management of the Basin’s hydropower system. Most notable among these were the listing of 13 Basin salmon and steelhead species under the Endangered Species Act and nearly continuous litigation over the impact of the Federal Columbia River Power System on these fish.

Like many in the region, the 15 tribes of the Basin with management rights and authorities under federal law, placed little or no emphasis on the Treaty. Perhaps this is unsurprising, since the tribes were not consulted or involved in any meaningful way in the bilateral negotiations leading to the historic agreement. Similarly, the Treaty may have appeared immutable and permanent, with its central provisions fixed for sixty years and the pre-determined changes occurring in 2024 already hard-wired into the Treaty. The September 16, 2014, 10-year notice requirement for terminating the Treaty, however, gave rise to a multi-year review by the U.S. Entity (Bonneville Power Administration and the U.S. Army Corps of Engineers) and a potential opportunity for the tribes and other sovereigns and stakeholders in the region to participate in the review and subsequent decisionmaking regarding the post-2024 future of the Treaty.

Following organizational meetings and information gathering in 2008 and 2009, the 15 Columbia Basin Tribes formed an unprecedented coalition to engage in this once in a century opportunity. With the U.S. Entity, agencies of the federal government, the states of Washington, Oregon, Montana and Idaho, the tribes established the Sovereign Participation Process, culminating in a December 2013, regional recommendation submitted by the U.S. Entity to the Department of State.

The Treaty review’s detailed analysis, modeling, policy discussions, and, finally, the drafting of the recommendation, provided substantial information about how future Treaty operations would affect the Treaty’s current dual purposes of hydropower production and flood control, as well as opportunities to integrate what became known as ecosystem-based function as a third, co-equal Treaty purpose. During this three-year process, it became clear that flood risk management, particularly by the Corps of Engineers in the U.S. part of the Basin, presented significant challenges and opportunities. Full integration of ecosystem-based function would require utilizing available flexibility in the current flood risk management regime, and, possibly, adjustments to current flood management standards. Discussion of potential changes to flood management standards was a

¹ The views expressed in these materials and in my presentation at the November 7, 2014, CLE are solely my own and do not represent any positions or opinions of the 15 Columbia Basin Tribes, unless stated otherwise.

highly sensitive topic, and the Corps made clear to the sovereigns participating in the Treaty review that it could not make any such adjustment – or call for it in the recommendation – without congressional authorization and appropriation for detailed studies and subsequent changes to the system’s flood risk management authorities. Consequently, the potential opportunities to improve ecosystem function and the legal requirements applicable to the Corps’ management regarding Basin flood control became key issues in the Treaty review and will continue to be major factors in any negotiations with Canada over the future of the Treaty and implementation of a modernized (or possibly unchanged) Treaty.

II. THE 15 COLUMBIA BASIN TRIBES AND THE SOVEREIGN PARTICIPATION PROCESS

When the Columbia River Treaty was negotiated, signed and ratified in the early 1960s, the 15 Columbia Basin Tribes were not consulted or included in the analysis or negotiation preceding the actual approval of the Treaty, nor did they have a role in the Treaty’s implementation. The Treaty that resulted from this exclusive process has no provision for ecosystem function or other tribal values. The intervening fifty years of Treaty implementation has, as a result, severely and adversely impacted the tribes and First Nations of the Basin. The impacts are wide ranging, from diminished spring and early summer flows for salmon and steelhead, to wide fluctuations in reservoir levels affecting non-anadromous resident fish, wildlife, plant communities, and cultural resources. The Treaty has affected such core tribal interests as first foods (water, salmon, other fish, wildlife, berries, roots, and other native medicinal plants), cultural sites and burial locations.

Recognizing the importance of the Treaty to so many aspects of tribal life, the 15 tribes joined to form a coalition to ensure that tribal values and voices would not continue to be excluded from the Treaty review or any modifications in the Treaty and its implementing documents for the post-2024 period. The tribes embarked upon this effort with a far different legal, scientific, and cultural landscape than existed a half-century earlier. During the Treaty’s lifetime, several of the tribes in the coalition had successfully confirmed their fishing rights established by treaties and other agreements with the United States in federal court. In vindicating their long-held rights, the tribes established themselves as co-managers of the Basin’s fish and its other natural resources. In addition, several tribes have formally partnered with BPA, the Corps and the U.S. Bureau of Reclamation in the effort to recover listed salmon and steelhead through the Columbia Basin Fish Accords. The United States, too, has more faithfully complied with its trust responsibility to the tribes, recognizing and implementing this unique legal relationship through President Clinton’s issuance of *Executive Order 13175* (Nov. 6, 2000) and improved efforts to engage tribes in meaningful consultation regarding tribal rights and interests. In addition, mainstream society’s views on the ecosystem shifted, recognizing greater value to the water resources of the Basin than mere generation of inexpensive hydropower, transportation, irrigation and prevention of property-damaging floods. Reflecting views inherent in tribal identity, the United States enacted landmark environmental laws through the 1960s and 1970s, giving rise to powerful legal tools for concerned citizens to protect and enhance the environment of the Basin. Moreover, Congress took action specific to the Columbia Basin, obligating the government to protect, mitigate and enhance fish and wildlife resources affected by the hydropower system in the 1980 Northwest Power Act. These developments and the partnerships they fostered with the regions’ sovereigns paved the way for robust tribal participation in the Treaty review process.

The tribal coalition is unprecedented in its geographic scope, consistency of effort and united

position and includes tribes from the upper and lower Columbia and the Snake River Basin.² Through several meetings late in 2009 and early in 2010, the tribes coalesced around a set of common views about the Treaty and its future. The common views document is attached as Appendix 1. After describing the limitations of the Treaty and the many ways in which it failed to acknowledge and protect tribal values, the Common Views document sets forth a series of principles for the reconsideration of the Treaty and asserts that the “tribes’ collective voices must be included in the implementation and reconsideration of the Columbia River Treaty” in order to realize these principles. In conjunction with their Common Views document, the tribes also developed goals and objectives of their participation, including gaining a seat in the Treaty’s governance (for the Treaty review, any subsequent negotiations with Canada, and in the implementation of a future Treaty), managing the Basin to achieve ecosystem-based function as a co-equal purpose to flood control and hydropower production, and restoring salmon and other fish passage to historic habitats in the Upper Columbia and Snake River Basins. While the tribes discussed other goals, these three represented the collective highest priorities for a future Treaty.

The 15 tribes achieved their initial governance objective when in 2010 the Entity established the Sovereign Participation Process at the tribes’ request. This process involving the U.S. Entity, numerous federal natural resource agencies, 15 tribes (13 of which designated their respective coordinating organization to appear on their behalf in the policy and technical forums), and the four states affected by the Treaty was intended to enhance the regional sovereigns’ input regarding the future of the Treaty and operated on three levels. Decisionmaking occurred on a government-to-government basis, for example through meetings between elected tribal leaders, the BPA administrator, and the Corps’ Northwest Division commander. Policy and process issues were addressed by the Sovereign Review Team, and technical work was conducted and reviewed by the Sovereign Technical Team at the direction of the Sovereign Review Team. The tribes participated extensively in and made valuable contributions on all three levels of the sovereign process. Throughout, their central objective was to integrate ecosystem-based function in its many facets as a co-equal purpose of the Treaty, alongside power production and flood control. The shorthand often used by the tribes in describing their intent was the establishment of a third leg of the stool on which a future Treaty would firmly rest.

III. ECOSYSTEM-BASED FUNCTION

As the Treaty review progressed, the tribes were frequently asked to define “ecosystem-based function.” In the spring of 2013, the coalition adopted the narrative definition below, which incorporated broad consideration of and protection for the natural and cultural resources of the Basin. Natural resources included water, fish, wildlife, and plants (collectively referred to as first foods to represent their importance both to the Basin’s ecosystem and the tribes’ subsistence way of life), and cultural resources encompassed both traditional and ceremonial sites and burial locations, but also many of the same natural resources central to tribal ceremonial life. While the narrative definition has been available for some time, the tribes and other regional

² The Burns Paiute Tribe, the Coeur d’Alene Tribe, Confederated Salish and Kootenai Tribes of the Flathead Nation, the Confederated Tribes of the Colville Reservation, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Cowlitz Indian Tribe, the Kalispel Tribe of Indians, the Kootenai Tribe of Idaho, the Nez Perce Tribe, the Fort McDermitt Paiute Shoshone Tribes, the Shoshone-Bannock Tribes of the Fort Hall Reservation, the Shoshone Paiute Tribe of the Duck Valley Indian Reservation, the Spokane Tribe of Indians, with support from the Columbia River Inter-Tribal Fish Commission, Upper Columbia United Tribes and the Upper Snake River Tribes tribal organizations.

sovereigns continue to work to develop real-world system operations that would implement the intent and objective of establishing ecosystem function as a third purpose of the Treaty.

Definition of Ecosystem-Based Function

Adopted by the Coalition of Columbia Basin Tribes June 2013

Since time immemorial, the rivers of the Columbia Basin have been, and continue to be, the life blood of the Columbia Basin tribes. Columbia Basin Tribes view ecosystem-based function of the Columbia Basin watershed as its ability to provide, protect and nurture cultural resources, traditions, values and landscapes throughout its' length and breadth. Clean and abundant water that is sufficient to sustain healthy populations of fish, wildlife, and plants is vital to holistic ecosystem-based function and life itself. A restored, resilient and healthy watershed will include ecosystem-based function such as:

- Increased spring and summer flows resulting in a more natural hydrograph;
- Higher and more stable headwater reservoir levels;
- Restoring and maintaining fish passage to historical habitats.
- Higher river flows during dry years;
- Lower late summer water temperature;
- Reconnected floodplains throughout the river including a reconnected lower river estuary ecosystem as well as reduced salt water intrusion during summer and fall;
- Columbia River plume and near shore ocean enhanced through higher spring and summer flows and lessened duration of hypoxia; and,
- An adaptive and flexible suite of river operations responsive to a great variety of changing environmental conditions, such as climate change.

Improved ecosystem-based function in the Columbia Basin Watershed is expected to result in at least:

- Increased recognition, protection and preservation of tribal first foods and cultural/sacred sites and activities. First foods include water, salmon, other fish, wildlife, berries, roots, and other native medicinal plants.
- An estuary with an enhanced food web and increased juvenile fish survival;
- Increases in juvenile and adult salmon survival;
- Decreased mainstem travel time for migrating juvenile salmon;
- Increased resident fish productivity that provides stable, resilient populations;
- Increased wildlife productivity that provides stable, resilient populations; and,
- Salmon and other juvenile and adult fish passage to historical habitats in the Upper Columbia and Snake River basins, and into other currently blocked parts of the Columbia River Basin.

IV. THE U.S. ENTITY'S REGIONAL RECOMMENDATION

In December 2013, the U.S. Entity submitted the *U.S. Entity Regional Recommendation for the Future of the Columbia River Treaty after 2024* to the U.S. Department of State under a carefully drafted cover letter. The *cover letter* indicated that “the Pacific Northwest region broadly supports modernization of the Treaty to bring about better and more balanced benefits” and that the Entity “believes this would be in the best interest of the region and the United States.” The Entity also acknowledged that all interests and opinions from the review process could not be accommodated and that it anticipated some would continue lobbying for one portion of the recommendation or another:

Throughout the Treaty Review process, every effort was made to achieve the broadest regional consensus possible. This recommendation represents the U.S. Entity's best effort to reflect the perspectives of the full spectrum of regional interests, but, like any process of this scope and complexity, some compromise was necessary to garner as much region-wide support as possible. As such, not every opinion or perspective submitted to the U.S. Entity could be incorporated into the recommendation.

In forthcoming discussions at the national level, some parties may advocate for future Treaty operations that benefit certain uses over others. The U.S. Entity believes this would be inconsistent with the spirit and letter of this recommendation, which is built around the idea that all of the general principles outlined in this document are to be taken together and should be mutually achieved in a post-2024 Treaty. We support improving the Treaty for the benefit of all interests in the region by providing a collective net “win” and ensuring the Treaty is sustainable for the long term.

The U.S. Entity's statement about regional consensus was a particularly important message in light of the State Department's urging the sovereigns and others in the region to send a unified recommendation, thereby increasing the likelihood of action on the recommendation by the Secretary of State and the President. The recommendation, which was comprised of a summary of the region's goals, general principles and detailed recommendations, included the tribes' priority of integrating ecosystem-based function into the Treaty:

A. Ecosystem-Based Function

In order to achieve the goal of modernizing the Treaty to further ensure a more comprehensive ecosystem-based function approach throughout the Columbia River Basin watershed, the region recommends the following:

1. A modernized Treaty should provide streamflows from Canada with appropriate timing, quantity, and water quality to promote productive populations of anadromous and resident fish and provide reservoir conditions to promote productive populations of native fish and wildlife. While recognizing existing Treaty obligations, a modernized Treaty should: (a) incorporate existing Treaty flow augmentation operations and accommodate post-2024 modifications to flow augmentation; (b) incorporate a dry-year strategy; and (c) gain long-term assurance of ecosystem-based functions rather than negotiating for these functions on an annual basis.
2. A modernized Treaty should recognize and minimize adverse effects to tribal, First

Nations, and other cultural resources in Canada and the United States. To the extent there are adverse effects to U.S. cultural resource interests, such changes should be addressed under the Federal Columbia River Power System (FCRPS) Cultural Resources Program. This Program has the ability to be amended and expanded as needed if there are effects on cultural resources resulting from changes due to future operations in a modernized Treaty.

3. A modernized Treaty should be designed to be adaptable to meeting ecosystem-based function requirements as new information becomes available or conditions change (e.g., climate change) based on the management priorities of both countries.
4. The United States should pursue a joint program with Canada, with shared costs, to investigate and, if warranted, implement restored fish passage and reintroduction of anadromous fish on the main stem Columbia River to Canadian spawning grounds. This joint program would proceed on an incremental basis, beginning with a reconnaissance-level investigation, and continue with implementation actions. All such federal actions at the Chief Joseph and Grand Coulee projects are subject to congressional authorization and appropriation. Modernized Treaty operations should not interfere with other opportunities to restore fish passage and reintroduction of fish in other blocked areas of the Columbia River Basin.
5. The United States should continue to coordinate its operation of Libby Dam with Canada, with the goal of achieving mutually desirable ecosystem benefits on both sides of the border. VarQ at Libby and Hungry Horse dams, including any modifications to VarQ, balances the multiple uses of the dams and incorporates ecosystem-based function.

B. Regional Recommendation at 5-6

Broad support for all aspects of the recommendation was achieved in part by addressing certain issues deemed by the U.S. Entity as outside of the Treaty in the regional recommendation document. These issues were addressed under the heading “Domestic Matters to be Addressed Post-2013” and included related topics that had been thoroughly discussed and analyzed in the Sovereign Participation Process, but which ultimately fell outside the narrow confines of the recommendation sought by the Department of State. Notwithstanding its effort to pare down the size of the document, the U.S. Entity still exceeded guidance to limit the document to a five-page high level recommendation.

While the 15 tribes considered several of the “Domestic Matters” critical to their support for the recommendation as a whole and in particular its call for modernizing the Treaty, two are central to the topic of this conference: U.S. Columbia River Flood Risk Policy Review and U.S. Flood Plain Reconnection. See Regional Recommendation at 7-8.

As one of the two purposes of the current Treaty, flood control – or “flood risk management” as the Corps now prefers to call it – was studied extensively by the Sovereign Technical Team and discussed intensely by the Sovereign Review Team throughout the Treaty review. The third round of modeling of different Treaty scenarios indicated that the alternative designed to explore one potential integration of ecosystem-based function would cause some identifiable, albeit limited, increase in flood risk. The Corps, likely mindful of the criticism it received following hurricanes

and Midwest floods in the past decade and seeking to avoid a public backlash were it to embrace an increase in flood risk, stated that it could not endorse such a future Treaty operation absent congressional authorization. This placed the question of the Corps' existing authorities regarding Basin flood control squarely at issue, and in particular what flood control standards had Congress mandated, and what discretion to manage the system given the wide range of annual hydrological and climatological variation did the Corps possess in light of its expertise in flood control?

The Corps maintained its position throughout the Treaty review that any change in flood risk would require congressional authorization, and the regional recommendation reflects this in several places. For example, in specifying the regional goal for the Treaty and in the details regarding flood risk management, the recommendation states that modernization of the Treaty must include maintaining or providing "an acceptable level of flood risk." Footnote 2 clarifies that "acceptable" flood risk is defined as "'similar to current level' of flood risk." As a result of the extensive modeling exercises in the Treaty review, the tribes and others recognized that any significant gains for ecosystem-based function could not be achieved without either utilizing the available flexibility within the Corps' current authorizations or, more likely, seeking adjustments to the flood risk standard. This is because of the tension inherent between maintaining reservoirs at higher levels in the winter and early spring so that the water can be released later in the spring and summer to benefit salmon migrating to the ocean on one hand and drafting the reservoirs to levels that greatly reduce the risk of property damaging floods in the lower Basin on the other. The Corps' view of its authorities combined with the 15 tribes' and other sovereigns' desire to fully integrate ecosystem-based function led to a compromise of sorts in the form of a call for a regional flood risk management review that would inform potential changes by Congress to the current flood risk standard.

As noted above, the tribes' viewed this provision in the recommendation document as essential for their support of the recommendation itself, and fully expect the Corps and the other sovereigns to ensure that it takes place in a timely manner. The express link between the current flood risk standard and the regional review was made clear throughout the document, for example in the first item in the detailed description of flood risk management:

1. The United States should pursue post-2024 Treaty flood risk management through a coordinated operation plan that provides for an acceptable level of flood risk. Unless modified based upon future review of flood risk management policy for the Columbia River, the level of risk will be similar to the level of risk existing prior to 2024 (see *Domestic Matters to be Addressed Post-2013* section).

In the Domestic Matters section of the document, the regional flood risk management review is described in detail under the first issue. This review is intended to have broad participation throughout the region and address a wide range of activities that could be affected by any change in flood risk management.

1. **U.S. Columbia River Basin Flood Risk Policy Review:** Pacific Northwest states and tribes support the pursuit of Congressional authorization and appropriations for a region-wide public process to assess potential changes to the current level of flood risk protection in the Columbia River Basin to enhance spring and summer flows. Any such process should occur between 2014 and 2024. Post-2024 Treaty provisions, including Called Upon, will be designed to adapt to any such changes that may be authorized. If a process

is initiated, it will be a comprehensive approach, subject to public input, that addresses all opportunities to manage high flow events, including floodplain management, Columbia River Basin reservoir operations, and strategic improvements to existing levees and the need for additional levees. Potential impacts to other river uses and infrastructure such as navigation, bridges and other transportation features, hydropower, irrigation, recreation, fish and wildlife, and cultural resources also will be evaluated and addressed.

An important, related Domestic Matter addressed future efforts to reconnect floodplains:

5. **U.S. Flood Plain Reconnection:** Tribal, federal, and state sovereigns will work with the Northwest Power and Conservation Council's Fish and Wildlife Program and the National Oceanic and Atmospheric Administration/National Marine Fisheries' Recovery Planning process (particularly estuary actions) or any other identified process throughout the Basin to advance selective flood plain reconnection for the purpose of achieving additional benefits from a modernized Treaty.

V. THE CORPS' FLOOD RISK MANAGEMENT AUTHORITIES IN THE COLUMBIA BASIN

Although the Corps has not produced a formal, comprehensive analysis of its congressional authorities for public review, it made several presentations during the Sovereign Participation Process regarding flood control aspects of the Columbia Basin system, congressional authorizations for the system and Treaty-related agreements and plans for managing flood risk. A key part of the discussion relating to these presentations was the basis for the Corps' position that it must manage flows at The Dalles to a target of 450 kcfs or less if sufficient storage capacity exists to do so. Some exceptions to this rule include low runoff years, where the Corps will manage flows at less than 450 kcfs to ensure reservoirs are refilled by July, and very high runoff years that threaten major flood damage. In the latter circumstance, the Corps will manage for higher flows at The Dalles because of storage limitations. Flood risk management in moderate to low runoff years is a central concern for integration of ecosystem function because overly conservative management can result in greater reservoir drawdown and less water to augment spring and summer flows for migrating salmon as well as reducing the chances of reservoir refill. These are both crucial needs in the driest water years. As the Corps indicated in its presentations, management to a target flow involves actually managing to an even lower flow to account for uncertainty in runoff, particularly related to heavy precipitation events during the spring.

The congressional authorizations on which the Corps relies are the *Flood Control Act of 1950*, Pub. L. 81-516, and the *Flood Control Act of 1962*. These Acts incorporate thousands of pages of engineering studies, modeling, and economic analysis for the Columbia Basin which, like the Treaty itself, are now over a half-century old, having been carried out between the late 1940s and 1961. The studies and analyses are compiled into two numbered House of Representatives Documents incorporated by reference in the Acts. House Documents 531 and 403 were incorporated by the 1950 Act and 1962 Act, respectively. See 1950 Act at 5; 1962 Act at 21. The sheer magnitude of the documents, including multiple levels of often overlapping and repetitive discussion, makes them unwieldy to analyze and susceptible to multiple interpretations. What follows are some general observations regarding the two pillars of congressional authorization.

- The overarching emphasis of HD 531 and HD 403 is the prevention of catastrophic

floods such as those experienced in 1894 (1,240 kcfs unregulated flow) and 1948 (1,010 kcfs unregulated flow), the latter being the devastating Vanport flood which galvanized public support for the Treaty. HD 531 proposes a system of reservoirs and levees that would reduce the peak flow of the 1894 flood to 800 kcfs at The Dalles. In HD 403, Congress reduced this target flow to 600 kcfs.

- Congress intended a dual system of flood control, relying on a balance of reservoirs and levees to protect low-lying areas, particularly in the lower river. The heavy emphasis on levees was reflected in HD 531, which stated that “[w]ith the planned improvement of levees, only minor damage would be caused by flows up to 800,000 second-feet.” HD 531, App. M at 2819 n.6.
- Several of the proposed projects in both House Documents were never constructed, for a range of reasons, including the effects on benefit-cost analysis as a result of the planned construction of the four Treaty dams. Likewise, the levee system never attained its intended capacity, and over time, those levees that were constructed and are now maintained by local governmental entities, may well provide far less protection than envisioned due to their design and deterioration over time.
- A 1991 Corps’ study of flood control in the Basin updated the standard project flood based on the existing reservoir system and current operating policies and compared them with the capacity of the levees in 20 drainage districts along the lower Columbia. This comparison showed that all “Safe Levee Heights” would be exceeded by an occurrence of the “Levee Design Flood”, a conservative design flood used for urban high hazard situations. A 100-year flood would exceed the safe levee height in 11 of the districts. As a result of the study, the Corps concluded that “the flood control capability of the combined reservoir-levee system is not overly conservative and is perhaps inadequate in some instances.” Columbia River and Tributaries Study, CRT-63 (June 1991) at Executive Summary, 11, 128.
- In light of the current reservoir and levee system, the Corps acknowledges that if flows equal to the 1894 flood occurred again, it could not manage them to 600 kcfs as called for in HD 403, and would, instead, manage to a level closer to 750 kcfs at The Dalles.
- With most of the emphasis placed on reducing damage from major floods, there is virtually no guidance in the House Documents regarding flood risk management in lower flow events, primarily those closer to 450 kcfs. There are references in some of the studies to a margin of safety or buffer associated with target control levels, but this appears to be largely up to the Corps’ discretion when setting initial flow levels based on runoff forecasts, particularly for predicted flows near the 450 kcfs level, where damages begin to accrue in floodplains.
- Throughout the Corps’ discussion of its authorities relating to flood control, the agency placed a heavy emphasis on documents it developed to implement flood risk management in the Basin. These include the *Columbia River Treaty Flood Control Operating Plan* (FCOP), which was developed in conjunction with the Canadian Entity and most recently updated in 2003, and the *Columbia River Basin Master Water Control Manual*. These documents guide yearly, seasonal and day-to-day management of the system, and are far more precise than HD 531 and HD 403 in

prescribing control of flood risk to non-damaging levels, i.e. below 450 kcfs at The Dalles. While prescriptive of the Corps' and Canada's project operations, the FCOP is not a congressionally approved document and any changes in it would, necessarily be in the discretion of the Corps subject to other applicable laws. The Corps' 2011 *White Paper on Columbia River Post-2024 Flood Risk Management Procedure* sets out a concise summary of the FCOP's guidance to achieve non-damaging spring flows, i.e. 450 kcfs at The Dalles, whenever possible:

A. Flood Regulation Objective

The objective for flood regulation in the current Treaty FCOP is to operate reservoirs to reduce to non-damaging levels the stages at all potential flood damage areas insofar as possible, and to regulate larger floods that cannot be controlled to non-damaging levels to the lowest possible level with available reservoir storage. The limits to which the flows/stage elevations should be reduced under the current Treaty provisions have been established in the Treaty FCOP. . . . The Treaty FCOP provides that flooding in the Columbia River downstream from the mouth of the Snake River begins when the river reaches elevation 17.8 feet, NGVD (1959 USGS adjustment) at Vancouver, Washington (16 feet, Columbia River Datum). The corresponding flow measured at The Dalles, Oregon, is approximately 450 kcfs. As indicated in paragraph 4-2, Treaty FCOP, significant damage begins at elevation 24 feet NGVD (22.2 feet, Columbia River Datum). The corresponding flow at The Dalles, Oregon, is approximately 600 kcfs.

White Paper at 7-8. The Corps has not identified any mandate regarding non-damaging flow levels in its congressional authorizations.

VI. CONCLUSION

Flood risk management presents significant challenges and opportunities for the Regional Recommendation's call to fully integrate ecosystem-based function into a modernized Columbia River Treaty. Maintaining reservoirs at higher levels through the winter is the primary means of achieving greater ecosystem function in the Basin, yet it has the potential to affect the Corps' long-standing flood risk management practices. Reliance on engineering studies conducted in the same era and with the same narrow focus as the Treaty is unlikely to provide the type of forward-thinking approach that the region requires to take on current and future ecological, power generation, and flood management challenges. While there is substantial room to debate the precise scope and asserted mandates established by Congress's adoption of HD 531 and HD 403 over fifty years ago, it is clear that a new and comprehensive review of flood risk management in the Basin is necessary and appropriate. With the opportunity presented by the Treaty review and likely negotiations with Canada over post-2024 operations, the region should strongly support the regional flood risk management review, whether it is conducted at the Corps' discretion or after formal approval from Congress.

APPENDIX 1

U.S. Columbia River Tribes Common Views on Future of the Columbia River Treaty February 25, 2010

The present Columbia River power and flood control system operations are negatively affecting tribal rights and cultural interests throughout the Columbia River Basin. The Columbia River Treaty is foundational to these operations.

The Columbia River Treaty –

- Was negotiated and continues to be implemented without regard to the Tribes' unique legal and political relationship with the federal government.
- Is narrowly designed for the benefit of power and flood control.
- Does not include ecological considerations for critical tribal natural resources.
- Does not include considerations of critical tribal cultural resources.
- Created a power and flood control system that degraded rivers, First Foods, natural resources, and tribal customs and identities.
- Significantly affects tribal economies.
- Excludes tribal participation in its governance and implementation.
- Limits what can be accomplished with non-Treaty agreements to meet tribal resource priorities.

The Columbia River Treaty is under review by the U.S. and Canadian governments for reconsideration in 2014. Reconsideration of the Treaty provides an opportunity for the Tribes to seek benefits not realized in 50 years of Treaty implementation.

The Columbia River Tribes' interests must be represented in the implementation and reconsideration of the Columbia River Treaty. The Columbia River must be managed for multiple purposes, including –

- Respect for the sovereignty of each tribal government—each tribe has a voice in governance and implementation of the Columbia River Treaty.
- Tribal cultural and natural resources must be included in river management to protect and promote ecological processes—healthy and useable fish, wildlife, and plant communities.
- Integrate the Tribes' expertise of cultural and natural resources in river management.
- Equitable benefits to each Tribe in priority to other sovereign parties in Columbia River management.
- Respecting and preserving the benefits of settlement agreements with Tribes.
- Recognize Tribal flood control benefits.
- Protecting Tribal reserved rights to current and future beneficial uses, in a manner consistent with ecosystem-based management.

In order to realize these principles, the Tribes' collective voices must be included in the implementation and reconsideration of the Columbia River Treaty.

Seeking Balance: The Future of the Columbia River Treaty and Flood Risk Management



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November 7, 2014



Overview

- 1) Tribal Interests and the Columbia River Treaty
- 2) 15 Tribes' Engagement in the Treaty Review
- 3) U.S. Entity's Regional Recommendation
- 4) The Need for a Regional Flood Risk Management Review
- 5) 2014-2024 and Beyond – Uncertainties and Questions

The Treaty Affects Fundamental Tribal Interests



Columbia River Treaty Review

Columbia Basin Tribes

15 tribes with management authorities and responsibilities affected by the Treaty

- Government-to-Government Consultation
- Sovereign Review Team
- Sovereign Technical Team

Tribal Priorities in the Treaty Review



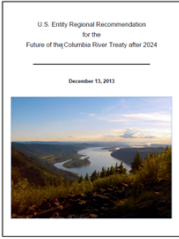
2014/2024 Review Columbia River Treaty

- Ecosystem-Based Function as Third Treaty Purpose
- Governance
- Adaptation for Climate Change
- Respect for Tribal Sovereignty
- Protection of Tribal Cultural and Natural Resources

U.S. Entity's Regional Recommendation

Flood Risk Management and Ecosystem-Based Function

"[D]evelop a modernized framework for the Treaty that ensures a more resilient and healthy ecosystem-based function throughout the Columbia River Basin while maintaining an acceptable level of flood risk²"



² Throughout this document, "acceptable" flood risk is defined as "similar to the current level" of flood risk; however, the "acceptable" level of flood risk may change pending the outcome of a regional flood risk review process post-2013 as noted in item 1 listed in the *Domestic Matters to be Addressed Post-2013* section at the end of this document.

Regional Flood Risk Management Review

Domestic Matter #1

What - States and tribes support the pursuit of congressional approval for a region-wide process to assess potential changes to the current level of flood risk protection in the Basin with the goal of enhancing spring and summer flows.

Who – Not specified, but emphasizes public participation.

When – Between 2014 and 2024.

Scope – Comprehensive approach: (a) all opportunities to manage high flow events, including floodplain management, reservoir operations, and strategic improvements to existing levees and the need for additional levees; and (b) potential impacts to other river uses and infrastructure.

The Uncertain Future of Columbia Basin Flood Risk Management

- 1) **450 vs. 600, Part I** – When may the U.S. “Call Upon” Canada?
- 2) **450 vs. 600, Part II** – What flood risk standard did Congress actually authorize?
- 3) **1894 De Ja Vu** – Can the System handle the next 1% flood?
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The Uncertain Future of Columbia Basin Flood Risk Management

The next 1894-like flood

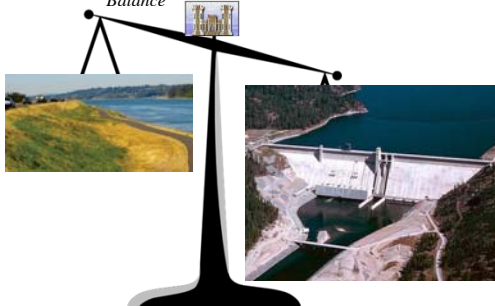


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The Uncertain Future of Columbia Basin Flood Risk Management

*Seeking and Finding
Balance*



The Uncertain Future of Columbia Basin Flood Risk Management

*Seeking and Finding
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of Lewis & Clark Law School**

Title of CLE Activity: **A FLOOD OF QUESTIONS: INTEGRATING FLOODPLAIN
MANAGEMENT AND SALMON CONSERVATION**

Date and Location: **Friday, November 7, 2014
Columbia River Inter-Tribal Fish Commission
Portland, Oregon**

Video Date and Location: _____

Full Credit. I attended the entire program and the total authorized credits are:

 7 General *or* Practical Skills

 N/A Ethics

Partial Credit. I attended _____ hours of the program and am entitled to the following credits*:

 _____ General *or* Practical Skills

 N/A Ethics

***Credit Calculation:**

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