

# Application of voice recognition software for collecting lake trout survey data in Lake Superior



Originally by  
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Modified by Kevin Rathbun



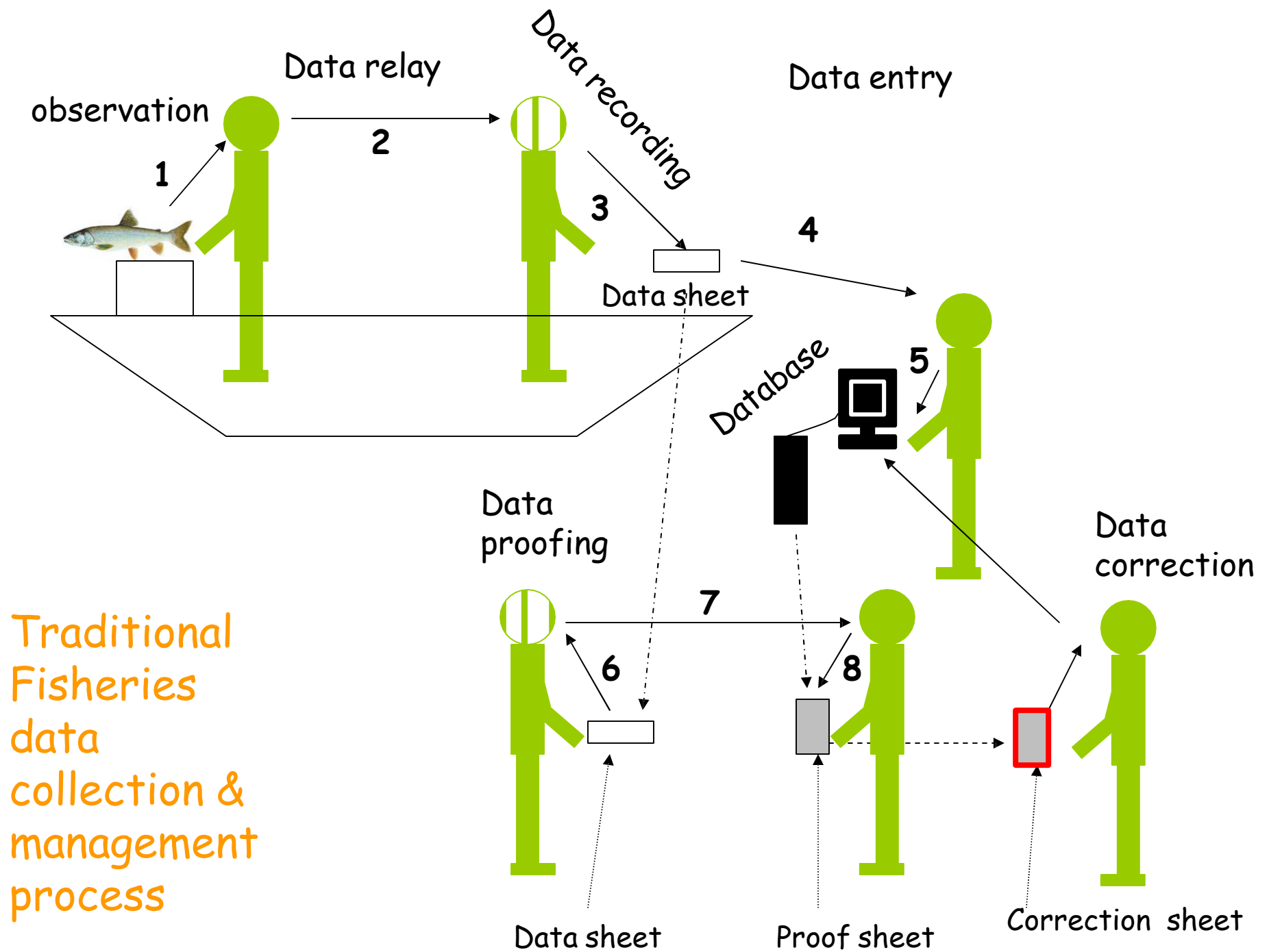
KISS ??

Keep

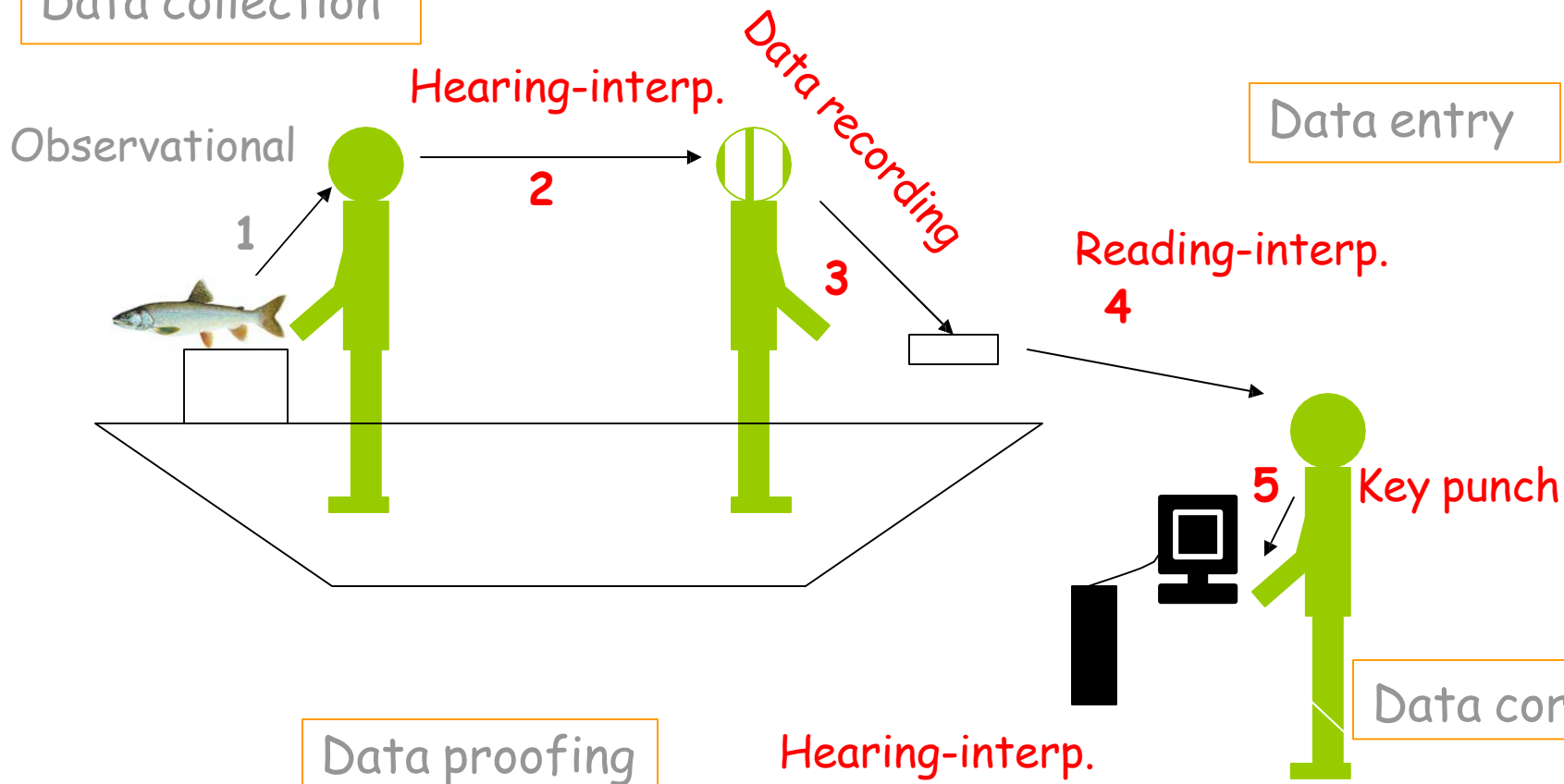
It

Simple

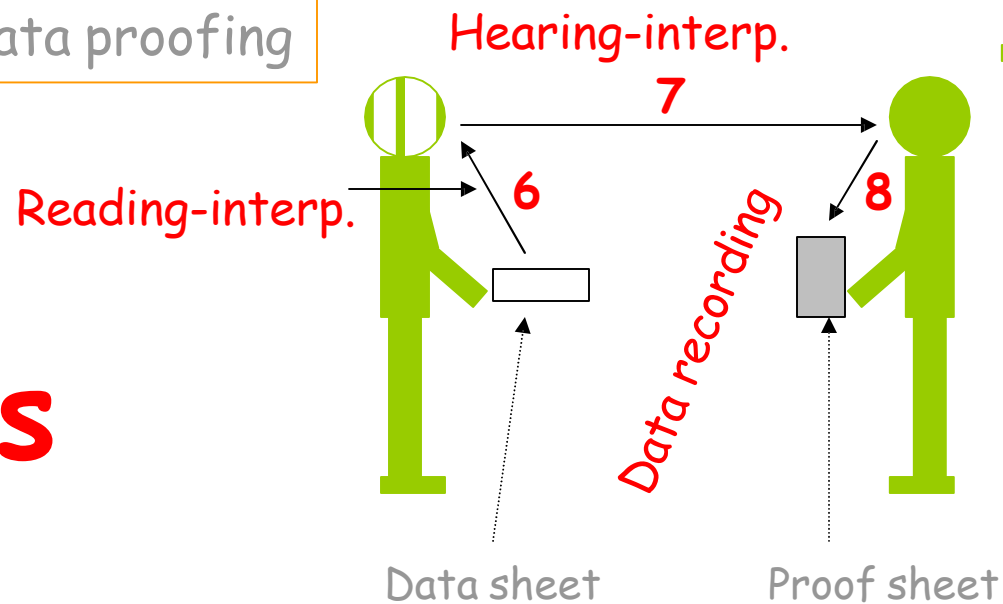
Stupid



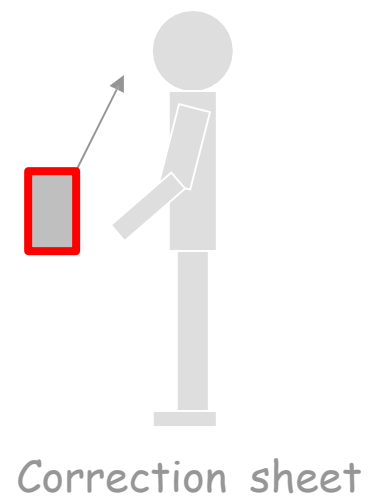
## Data collection

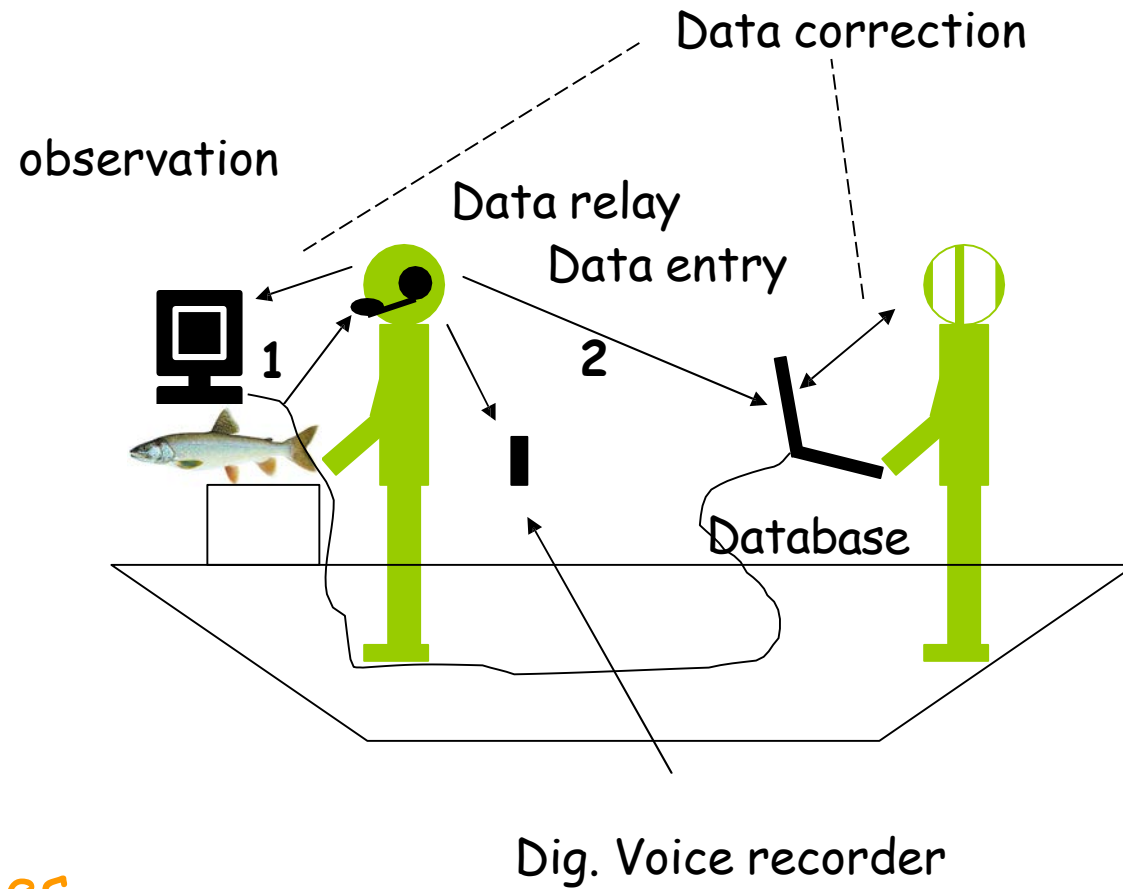


## Data proofing



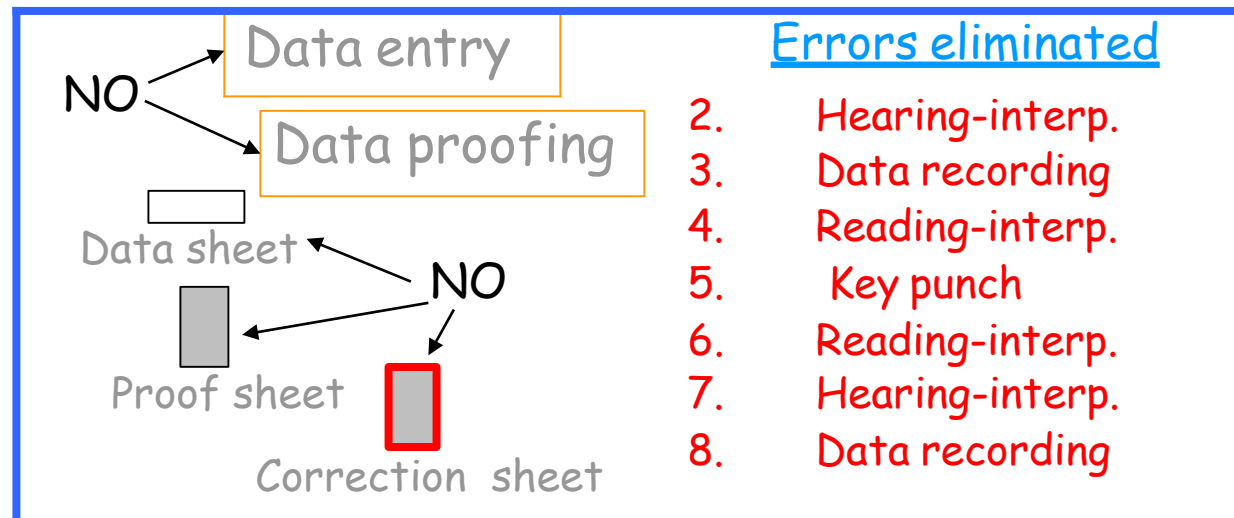
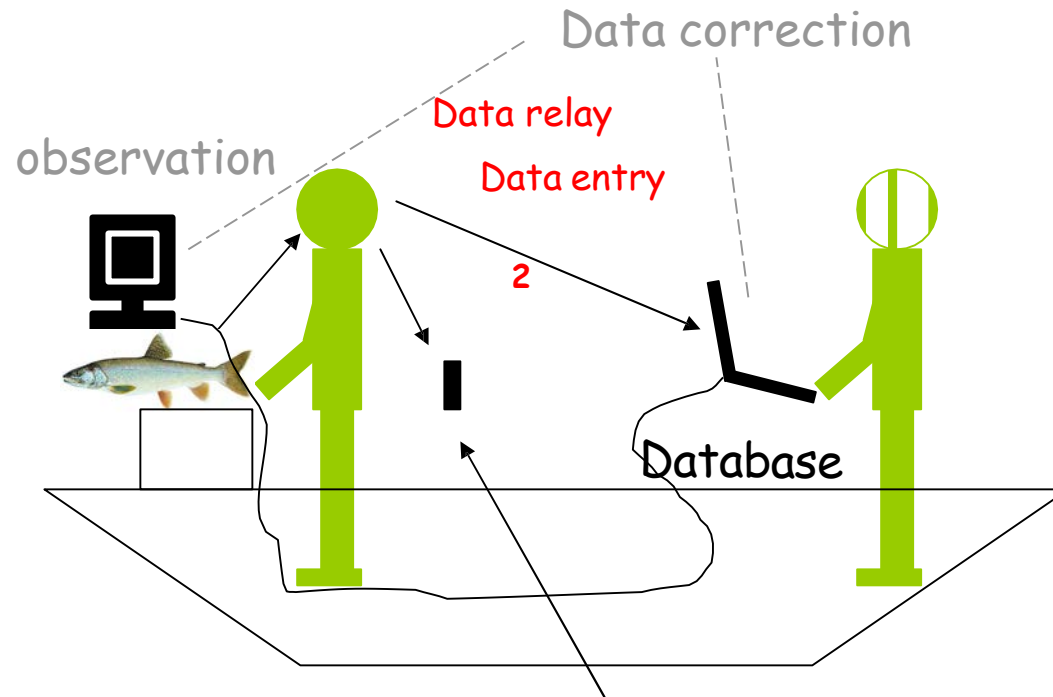
# Errors



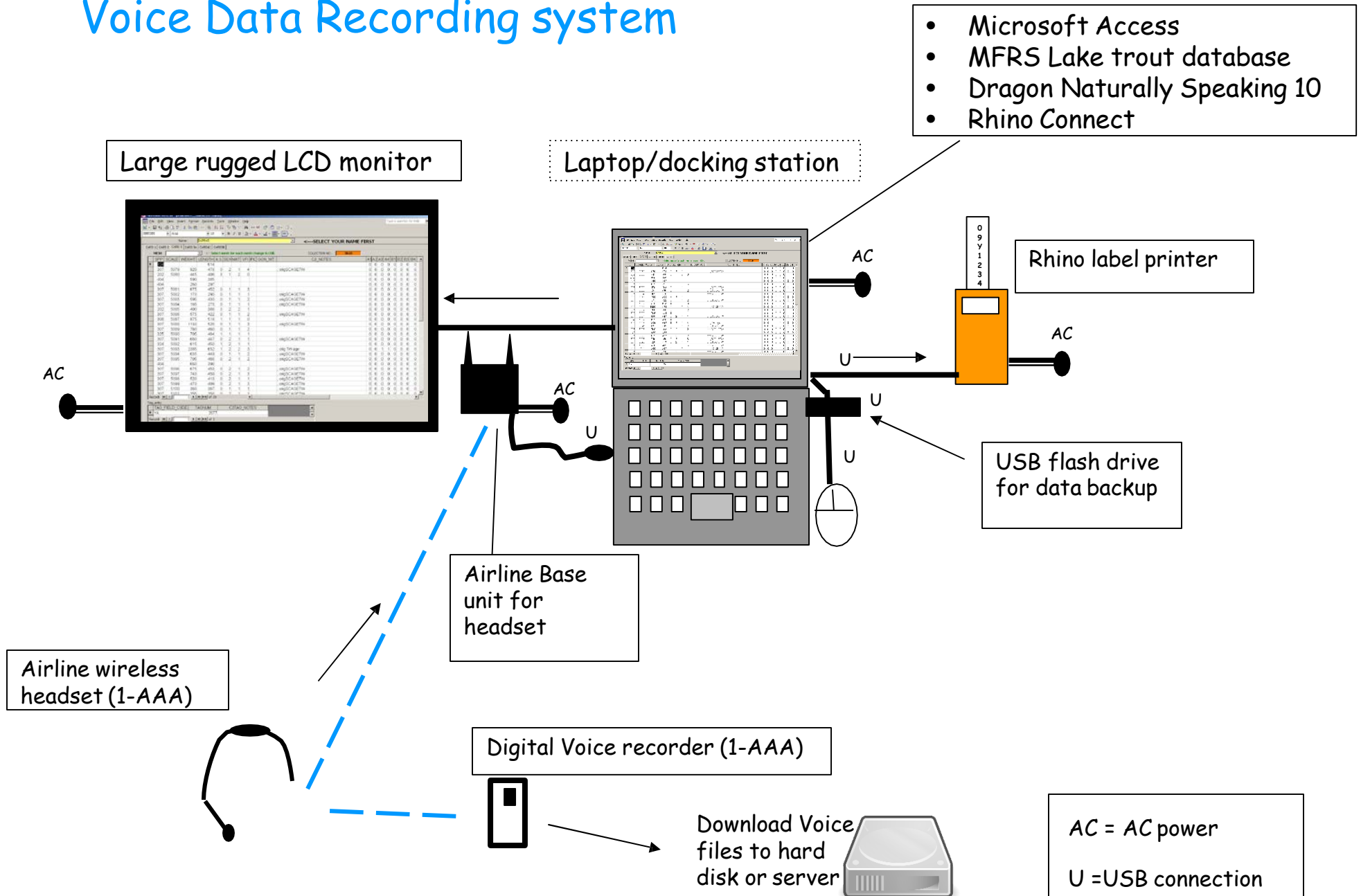


Fisheries  
Voice Data  
Recording  
process

# Resulting Simplifications



# Voice Data Recording system

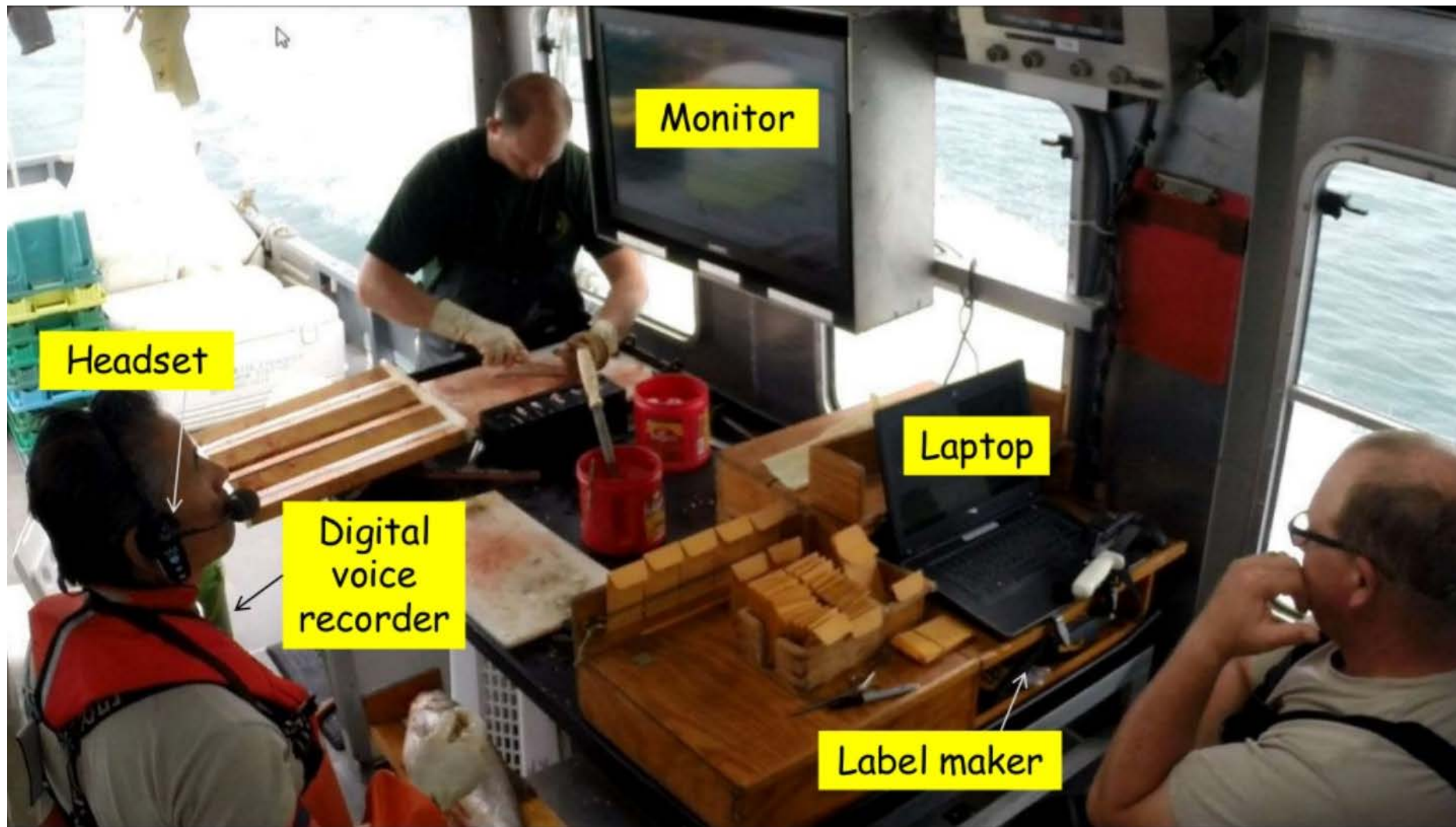


# Dragon Naturally Speaking

- Product is a speech to text system
- Used widely in systems needing voice recognition capability
- Here's a short clip of demo using the technology:



Crtl + Click to see Dragon demo

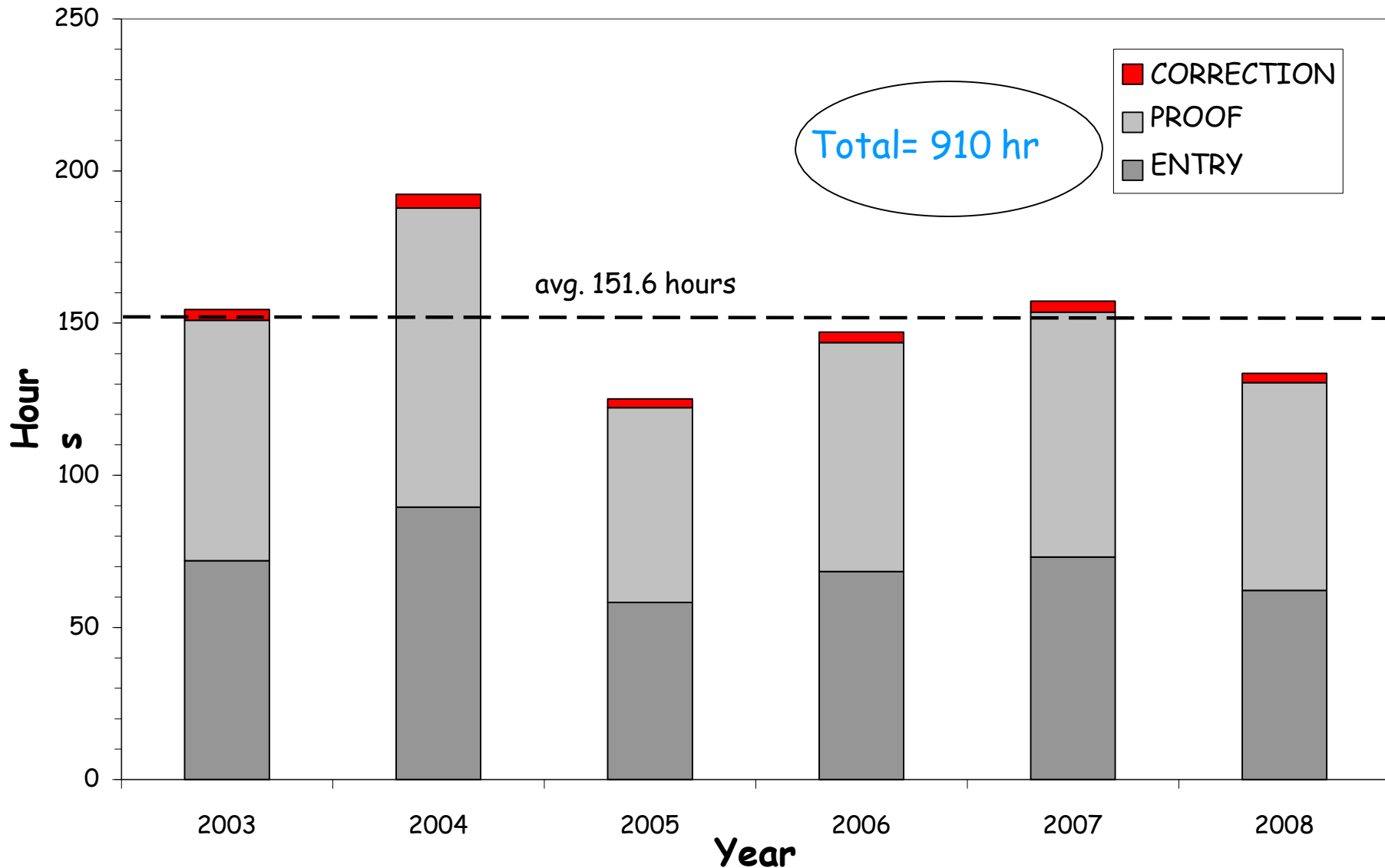


Note: both the monitor and laptop are “ruggedized” to withstand water and a broader range of temperatures than regular office equipment

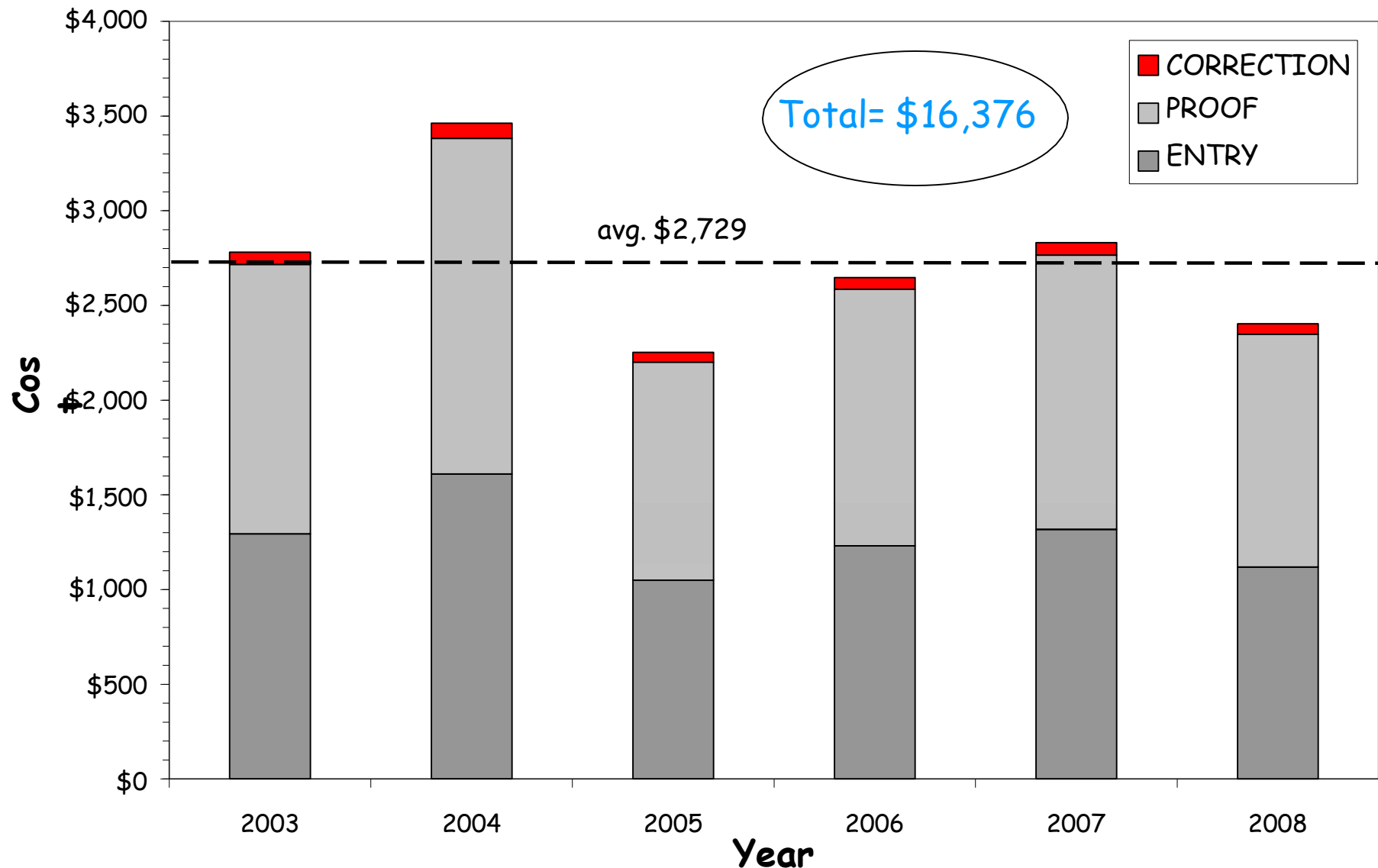


Crtl + click to see video

# Hours of data processing



# Cost of data processing (e.g., Tech @ \$18/hr)



# Cost of VDR

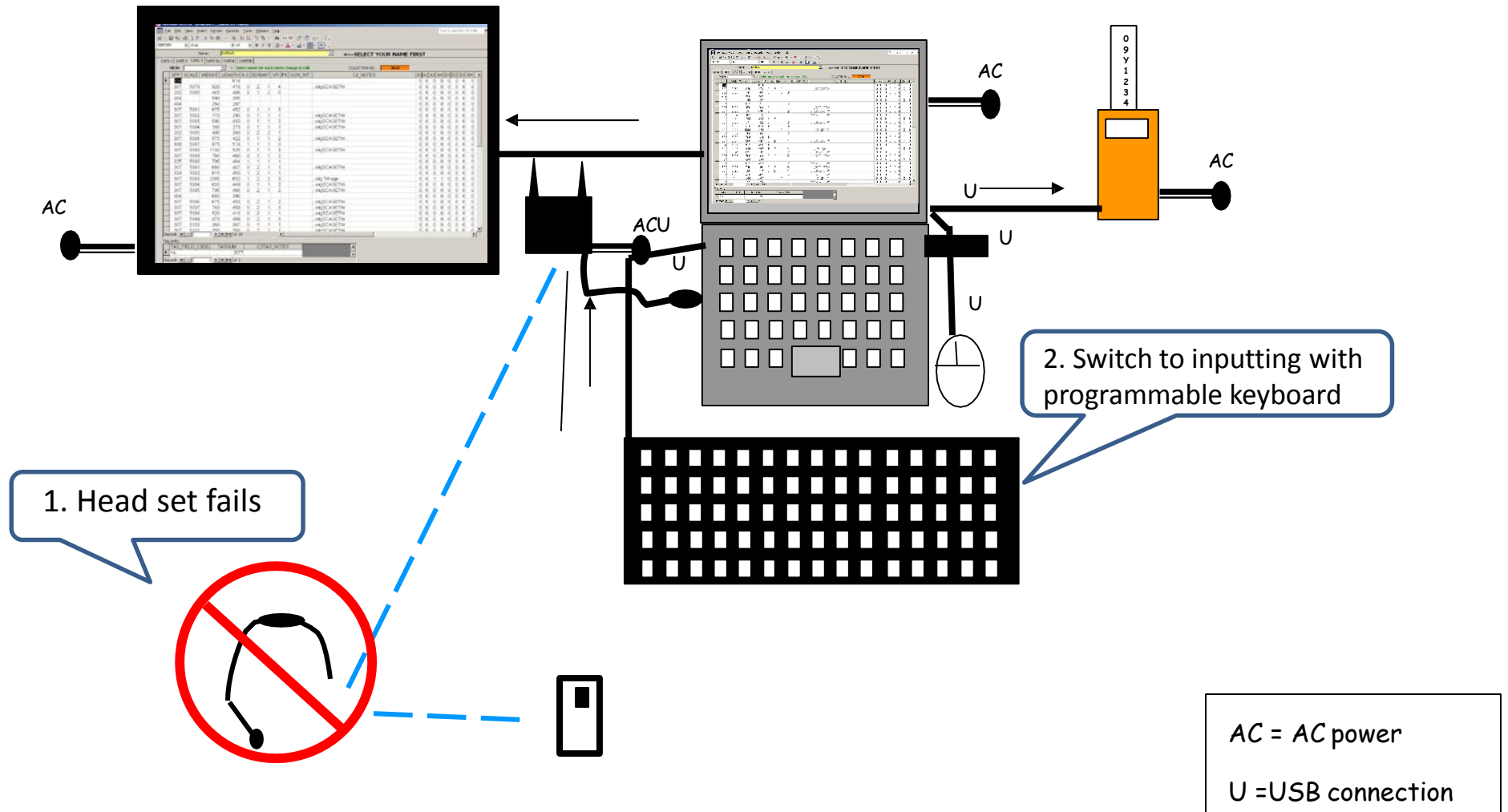
## Voice Data Recording System for R/V Lake Char

<u>Item</u>	<u>Desc</u>	<u>Price</u>
Label maker	Rhino 6500 labeler	\$ 240
Labels	Vinyl/polyester label tape 1" x 18' rolls (\$13/roll): ~ 140 labels per roll (10 r	\$ 130
Dell Latitude D630 ATG semi-rugged laptop	Dell machine Need >1.5 GHz processor and lots of RAM; SOUNDCARD suppo	\$ 2,900
Dell D/Dock Docking Station	Allows all accessories to be integrated	\$ 300
Dell Optical mouse	USB	\$ 17
Dragon Naturally Speaking, professional 10	Software to integrate Speech recognition to MS Access	\$ 695
Samson airline 77 wireless mic	Model B; qV10E headset	\$ 349
Andea USB adapter for wireless mic		\$ 49
Programmable keyboard (secondary system)	PI Engineering 128 key programmable keypad	\$ 300
Digital voice recorder (backup for VDR)	Olympus WS210S	\$ 70
20" LCD Marine-rugged Monitor,	Need to withstand cold temps, vibration, moisture, and sunlight	\$ 2,774
Total		\$ 7,824

# Key concerns of VDR

- What if the system crashes?
- Would it be slower than paper data sheets?
- Would background noise cause problems?
- Do you have to say tab between each field?
- What if you say words that are not part of data entry? (e.g., uh oh, tare, etc.)

# Backup Data Recording System





Programmable Keyboard

# The Results

Microsoft Access - [frmENTRY\_SURVEYS : Form]

File Edit View Insert Format Records Tools Window Help

Type a question for help

Name: **GITAR** <- SELECT IDer name

CARD 1 CARD 2 CARD 3 CARD 3A CARD 1C CARD 3B CARD 3\_KEYBOARD

MESH **2.0** <- Select mesh !!!!!

	SCALE	MFRS_	WEIGH	LENGT	sexL	Mat.	VF	C3_NOTES	ST(HE/	Bag	PICA1	A2	A3	A4	B1	B2	B3	B4	FC:	A.S.	MESH
	3887	LWF	175	298	G	N	1				0	0	0	0	0	0	0	0	NC		2.25
	3888	LT	435	377	G	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
	3889	LT	390	363	B	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
	3890	LT	430	375	B	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
	3891	LWF	385	377	G	N	3				0	0	0	0	0	0	0	0	NC	1	2.5
	3892	LWF	295	338	B	N	2				0	0	0	0	0	0	0	0	NC	1	2.5
	3893	LWF	180	295	B	N	0				0	0	0	0	0	0	0	0	NC	1	2.5
	3894	LWF	330	347	B	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
	3895	LWF	280	333	G	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
	3896	LWF	200	292	G	N	2				0	0	0	0	0	0	0	0	NC	1	2.5
	3897	LWF	270	327	B	N	2				0	0	0	0	0	0	0	0	NC	1	2.5
	3898	LWF	220	317	B	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
	3899	LWF	210	303	B	N	2				0	0	0	0	0	0	0	0	NC	1	2.5
▶	3900	LWF	215	314	G	N	1				0	0	0	0	0	0	0	0	NC	1	2.5
*											0	0	0	0	0	0	0	0	NC	1	2

Record: 14 of 35

Tag\_entry

TAG_FIELD_CODE	TAGNUM	C3TAG_NOTES
▶		

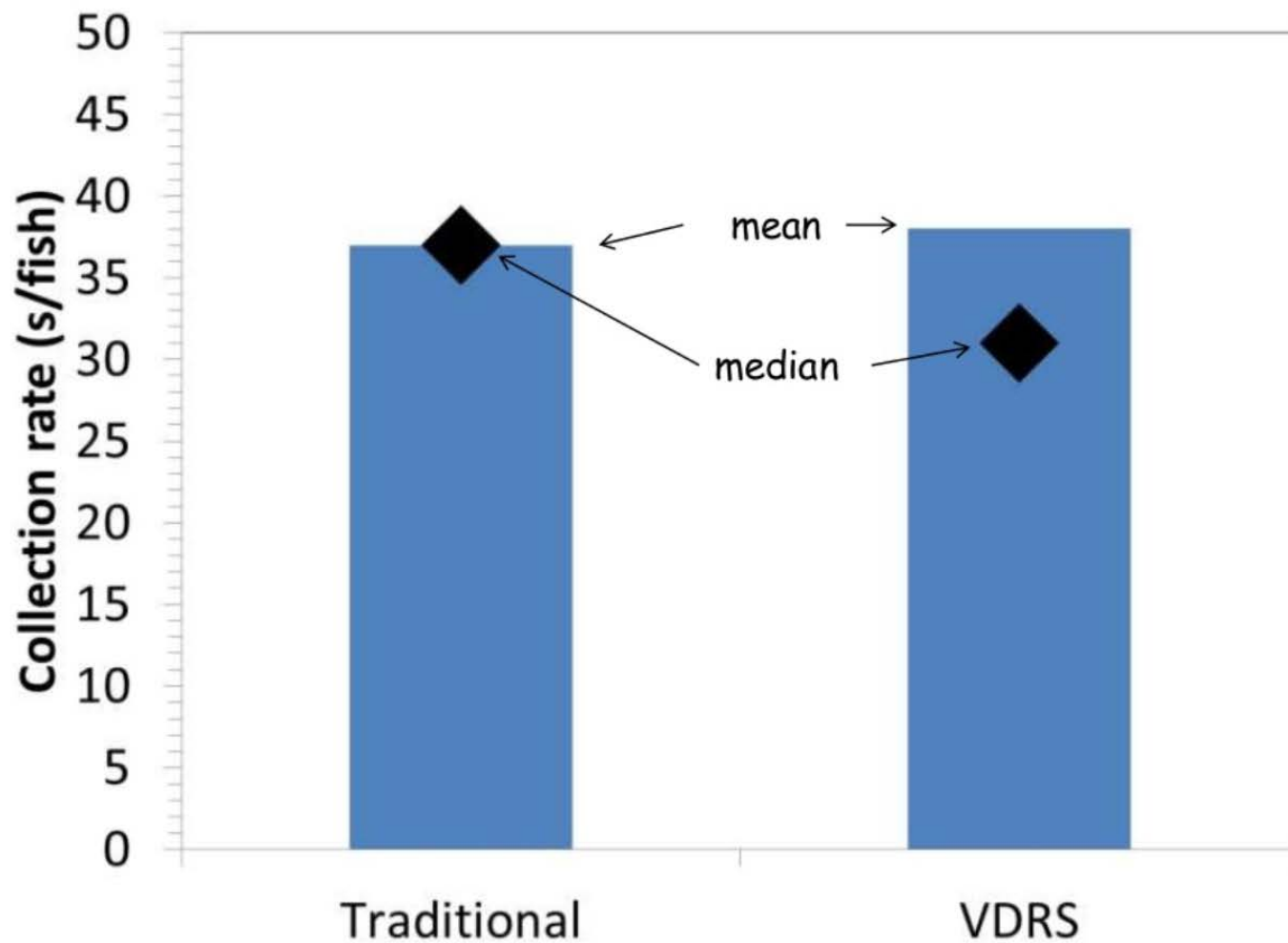
Record: 14 of 1

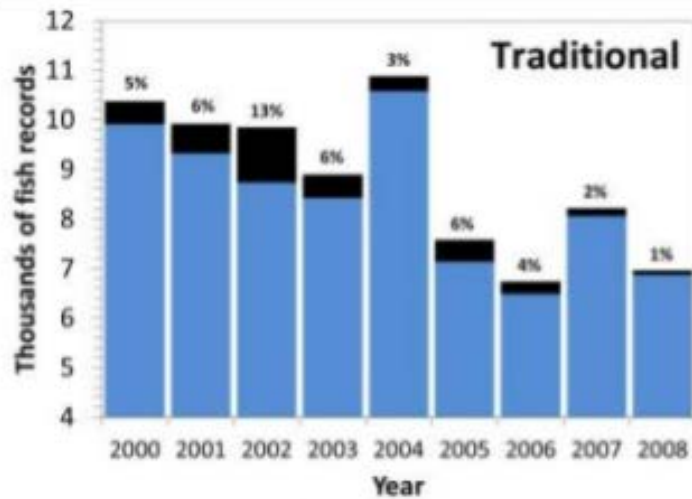
Charles Norton

COLLECTION NO.

**3983**

# Efficiency: Collection rate

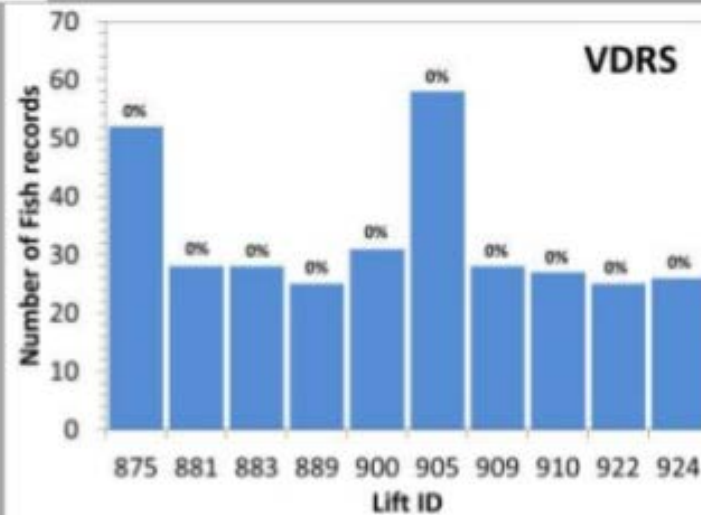




## Error rates

↑  
Average = 5.1%

Average = 0% →



## Summary

- VDRS was more efficient than traditional method
  - Collection rate was similar between VDRS and traditional method
  - About 200 staff-hours per year saved using VDRS (no transcription, proofing steps)
- Error rates were lower using VDRS
- It works!



# QUESTIONS???





THAT'S ALL FOLKS!!!!