

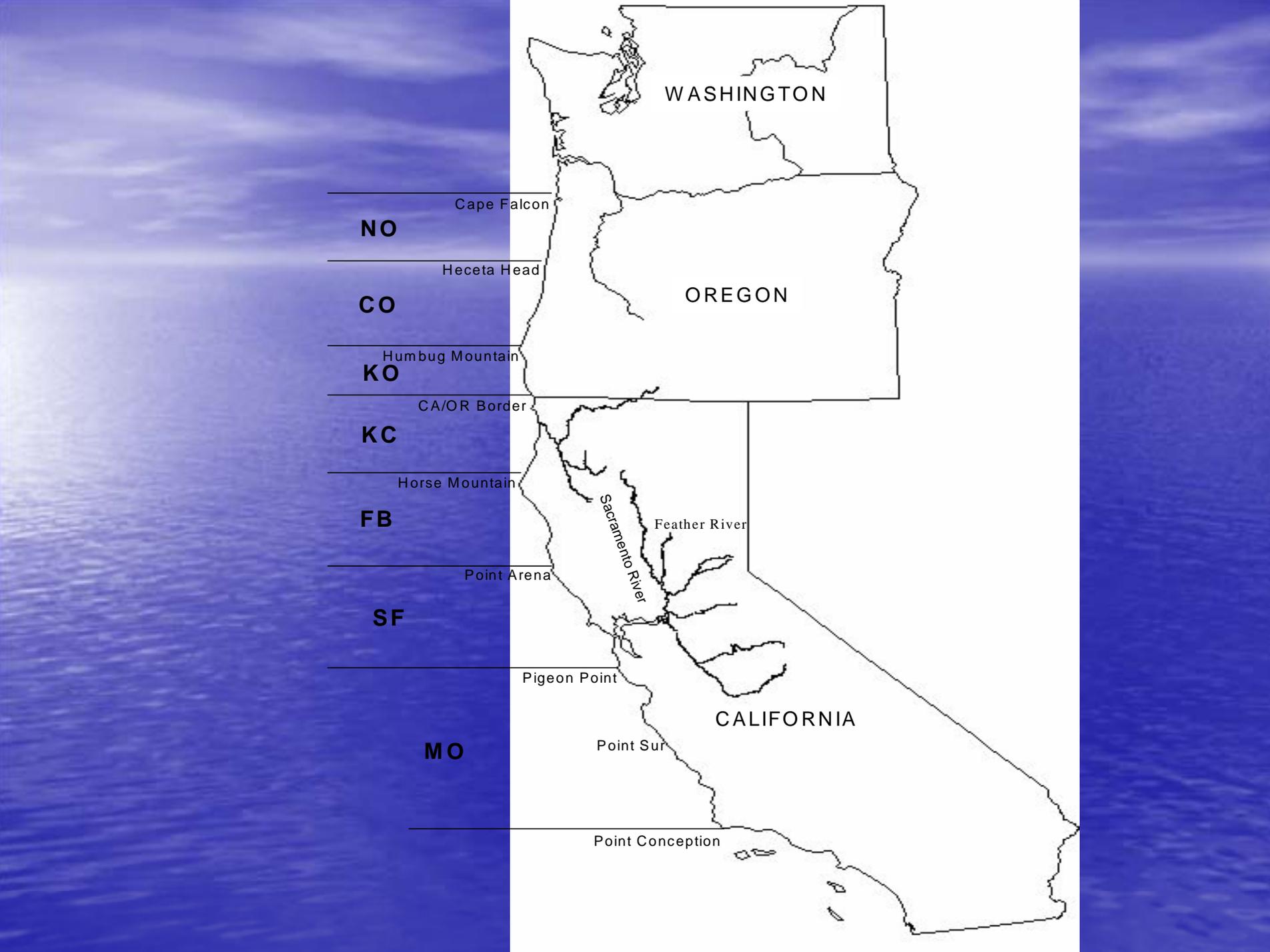
Estimating Ocean Harvest and Recovering Coded Wire Tags

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Sampling Objectives

- ❖ Estimate salmon harvest & fishing effort by major port & half month periods for all California ocean salmon fisheries.
- ❖ Collect a 20% sample to estimate coded wire tagged (CWT) salmon contribution rates in all California ocean salmon fisheries.



WASHINGTON

NO

Cape Falcon

CO

Heceta Head

OREGON

KO

Humbug Mountain

KC

CA/OR Border

FB

Horse Mountain

SF

Point Arena

Sacramento River

Feather River

MO

Pigeon Point

CALIFORNIA

Point Sur

Point Conception

Recreational Fishery Sampling

❖ PRIVATE SKIFFS

- Sample 20% or more of all landings at each major port
- Stratified random sampling program with weekend-holiday and weekday strata
- Sampling unit: observe 100% of all skiff landings in a day at a minor port sample site

❖ CHARTERBOATS

- Sample 20% or more of all salmon trips within each major port
- Sampling unit: observe all salmon landed by each charter trip

Commercial Fishery

- ❖ Sample more than 20% of all landings by weight for each major port
- ❖ Sampling unit: 100% of each commercial landing

Age-Specific Escapement Estimates of Hatchery and Natural Spawners

- ❖ Random sample of scales from 550 fish from each escapement component
- ❖ Scale samples from known age CWT fish for use in scale age reader validation
- ❖ Apply known age reader bias correction to produce age structured run size estimates
- ❖ Estimate natural component by subtracting the production expanded CWT recoveries by age from the total run size by age

Feather River Hatchery Cohort Reconstruction

- ❖ Review RMIS release data and compare to hatchery reports
 - Group hatchery production by area of release
 - Calculate production expansion factors for each release group
- ❖ Review recovery data in the CV to determine coverage of escapement monitoring for CWT's and run size estimates in potential spawning areas
 - Review sample expansion factor associated with each recovery
 - Review escapement estimates comprised of in-river harvest, spawning grounds and hatchery returns.

Feather River CWT Release Groups

❖ INBF

- InBasin FRH Production – Fingerlings released in Feather R./Sacramento R. Basin

❖ TRKF

- Trucked FRH Production – Fingerlings released in S.F. Bay/San Pablo Bay

❖XHAF

- Experimental/Extra FRH Production - Fingerlings released in Yolo Bypass/San Joaquin Basin

❖FRHS

- Trucked FRH Spring Production - Fingerlings released in S.F. Bay/San Pablo Bay

❖FRWI

- Feather River Wild – Mostly Presmolts (<50mm) Rotary Screw Trapped, Tagged and Released around Live Oak

❖TRHY

- Trucked FRH Production – Yearlings released in S.F. Bay/San Pablo Bay

FRH Cohort Reconstruction analysis requirements

- ❖ Determine age composition of runs from 2000 through 2004 for brood year 1998 and 1999
- ❖ Determine size at age for the FRH stock based on CWT recoveries taken in 1998 through 2003 fisheries with minimum size limits of ≤ 20 " TL
- ❖ Fishery specific hook and release mortality rates
- ❖ Natural mortality rates (50% < Age3 May 1 and 20% there after)
- ❖ Drop off mortality rate (5% of contacts)

Cohort Reconstruction analysis provide

- ❖ Ocean abundance estimates by month
 - Forecasts preseason abundances
 - Calculate harvest parameters
- ❖ Ocean fishery Impact rates
 - Used to rebuild the natural stock
 - Forecast harvest by area and fishery
- ❖ Ocean fishery Contact rates
 - Build ocean harvest models
 - Estimate harvest levels
 - Forecast postseason escapement
- ❖ Maturation rates
- ❖ Stray rates

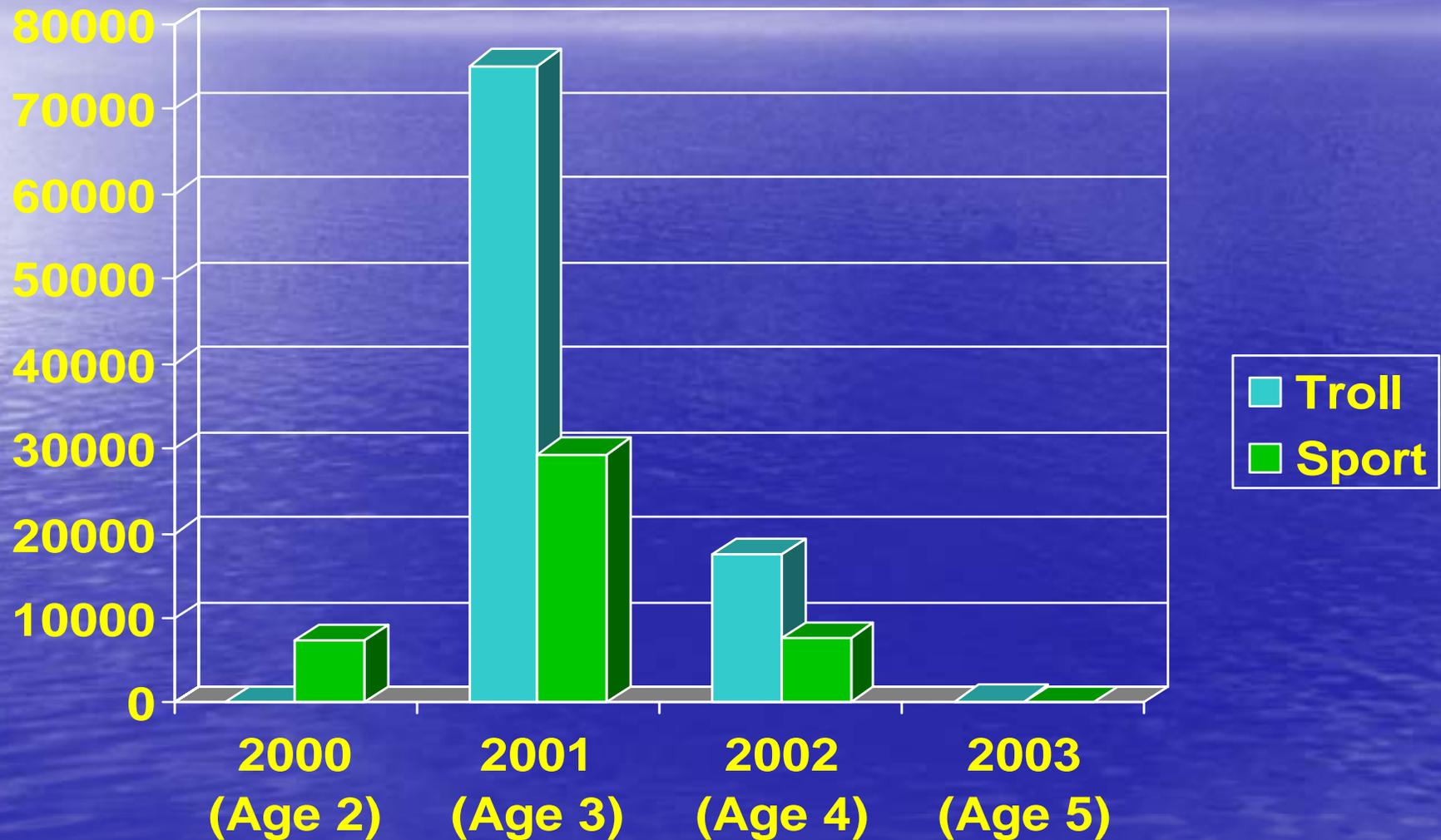
Summary of Feather River CWT '98 brood year Chinook Inland Recoveries

<u>FRH CWT release groups</u>	<u>#CWTed</u>	<u>Total Returns</u>	<u>% Total Recovered</u>	<u>Feather Basin</u>	<u>Yuba Carcass</u>	<u>Lower Sac. Sport</u>	<u>Outside Basin</u>
In-basin FRH Fall (INBF)	771,600	2,898	0.38%	90%	—	5%	4%
Trucked FRH Fall (TRKF)	457,500	4,188	0.92%	85%	0%	7%	7%
Experimental FRH Fall (XHAF)	301,100	573	0.19%	54%	1%	4%	42%
Trucked FRH Spring (FRHS)	309,600	3,685	1.19%	90%	0%	1%	9%
Wild Feather River stock (FRWI)	133,000	20	0.01%	100%	—	—	—

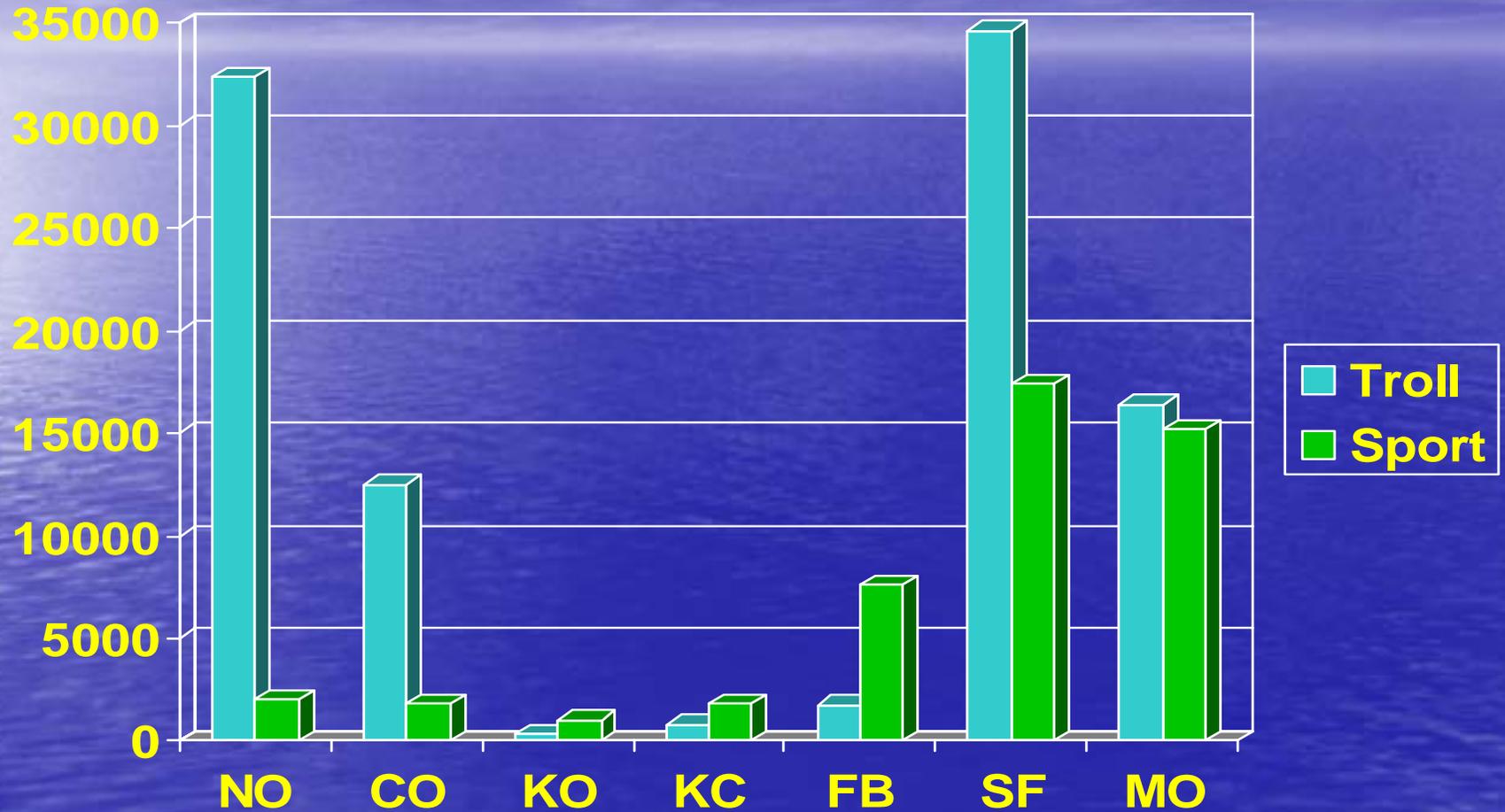
Summary of Feather River CWT '98 brood year Chinook Ocean Recoveries

<u>FRH CWT release groups</u>	<u>#CWTed</u>	<u>Total Returns</u>	<u>% Total Recovered</u>	<u>Ocean Age 2</u>	<u>Ocean Age 3</u>	<u>Ocean Age 4</u>	<u>Ocean Age 5</u>
In-basin FRH Fall (INBF)	771,600	4356	0.6%	288	3557	509	2
Trucked FRH Fall (TRKF)	457,500	7919	1.7%	448	5979	1479	13
Experimental FRH Fall (XHAF)	301,100	760	0.3%	105	619	33	3
Trucked FRH Spring (FRHS)	309,600	4154	1.3%	169	3212	766	7
Wild Feather River stock (FRWI)	133,000	36	0.0%	3	27	6	0

FRH Brood Year '98 Ocean Harvest by Age



FRH Brood Year '98 Ocean Impacts by Fishery and KOHM Area



Brood Exploitation Rate .235

Thank You

Questions?

