

# Contaminants in San Francisco Bay Sport Fish 2006 Results

November 5, 2008



# 2006 Status & Trends

- Main Indicator Species

- Organics - white croaker & shiner surfperch

- ✓ PCBs - PBDEs - Dioxins - Legacy Pesticides

- Mercury - striped bass & white sturgeon

- Otolith results



# 2006 Additional Species

- Screening level look at additional sport fish species
  - Anchovy, barred surfperch, black surfperch, brown rockfish, Chinook salmon, rubberlip surfperch, walleye surfperch
  - Analyzed PCBs, Hg and PBDEs



# Screening Values

- ✓ PCBs - TMDL Tissue Target - 10 ppb ww
- ✓ Dioxins - TMDL Tissue Target - 0.14 ppt ww
- ✓ Mercury - TMDL Tissue Target 0.2 ppm ww
- ✓ DDT, Chlordane, and Dieldrin - OEHHA values
- ✓ PBDEs - No state screening value



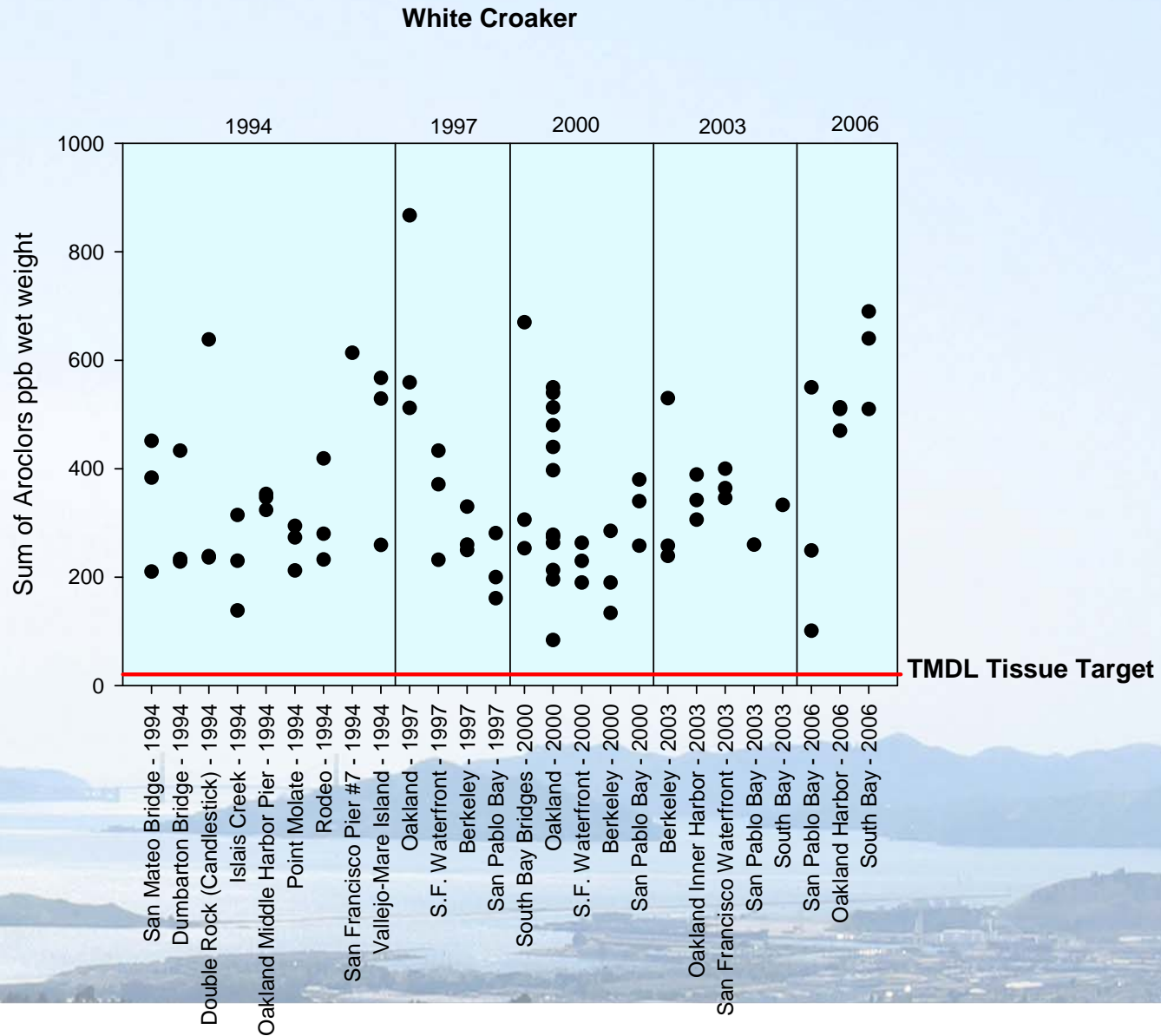
# Many Species Still Exceeding Targets

Analyte	Mercury*	Total Aroclors*	Dioxins	Total DDT	Total Chlordanes	Dieldrin
Screening Value	0.20 ppm ww	10 ppb ww	0.14 ppt ww	100 ppb ww	30 ppb ww	2 ppb ww
Shiner Surfperch	NM	15/15	NA	0/15	0/15	4/15
White Croaker	NM	9/9	9/9	3/9	1/9	4/9
White Sturgeon	3/4	4/4	NA	0/4	0/4	1/4
All S&T Species	3/4	28/28	9/9	3/28	1/28	9/28
All Species (Including Special Study Species)	8/25	42/49	9/9	3/28	1/28	9/28
% of Species Above SV	<b>32</b>	<b>86</b>	<b>100</b>	<b>11</b>	<b>4</b>	<b>32</b>



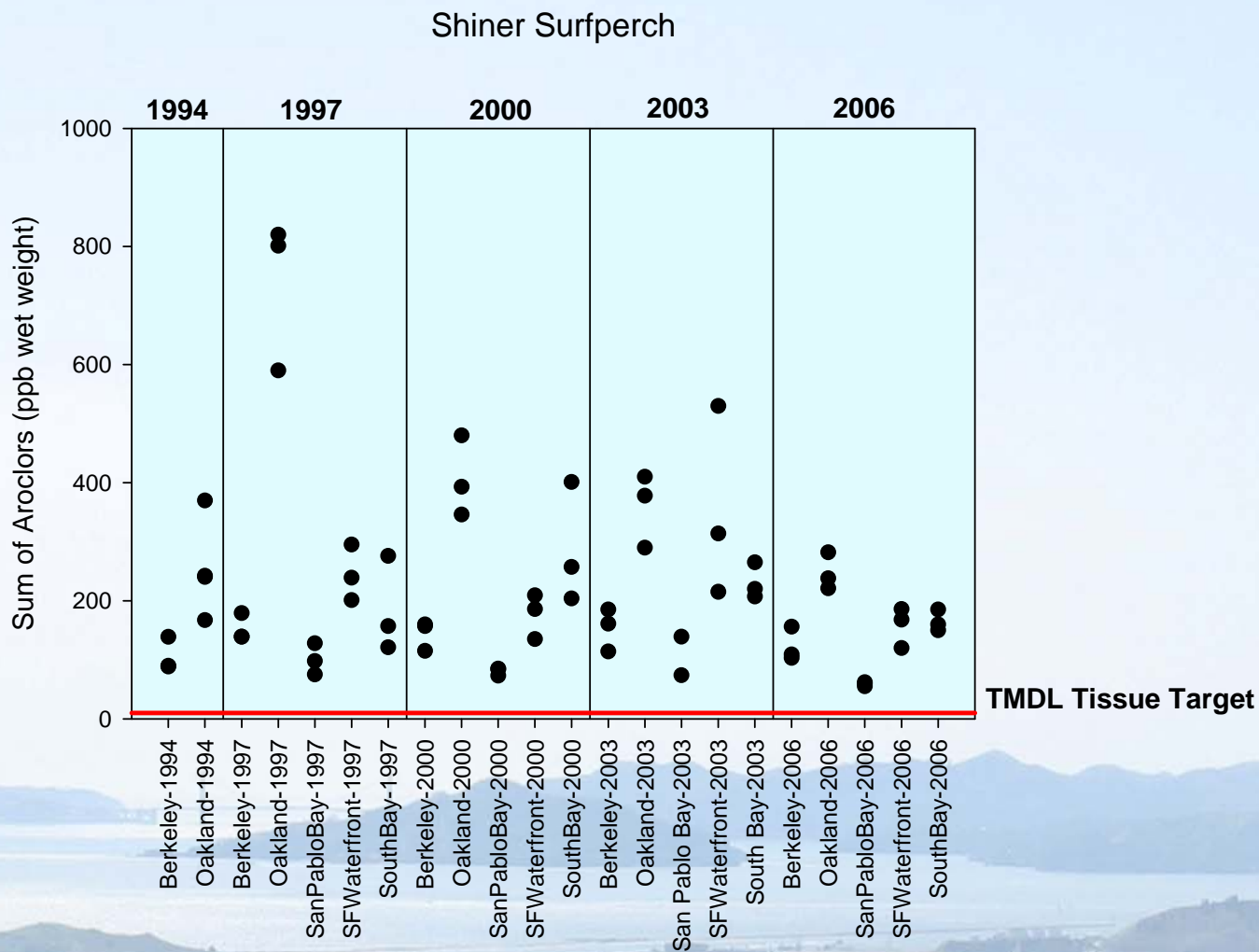
# 100% Croaker Exceeding PCB TMDL Target

98% reduction in average concentrations to reach target

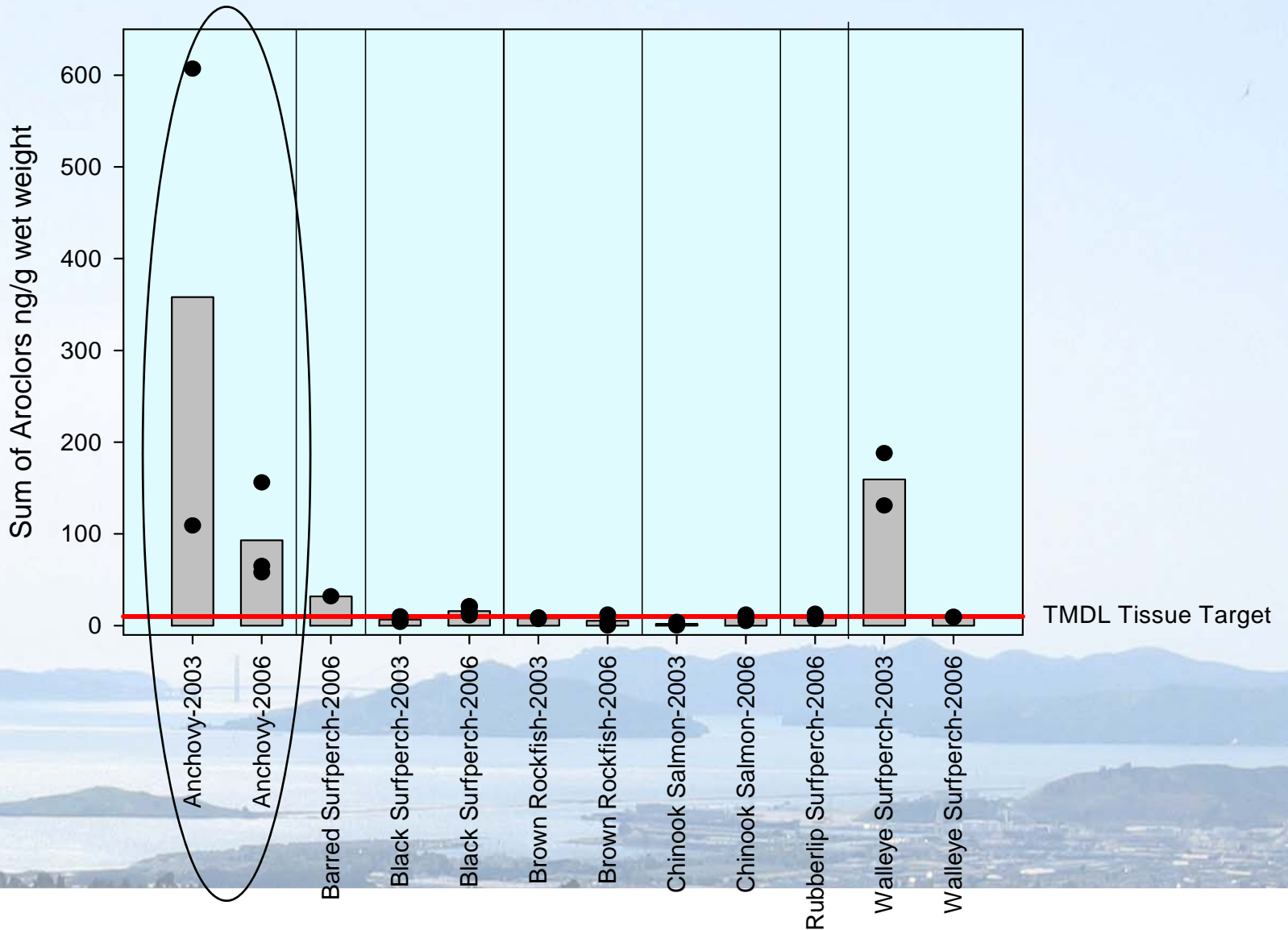


# 100% Shiner Exceeding PCB TMDL Target

94% reduction in average concentrations to reach target



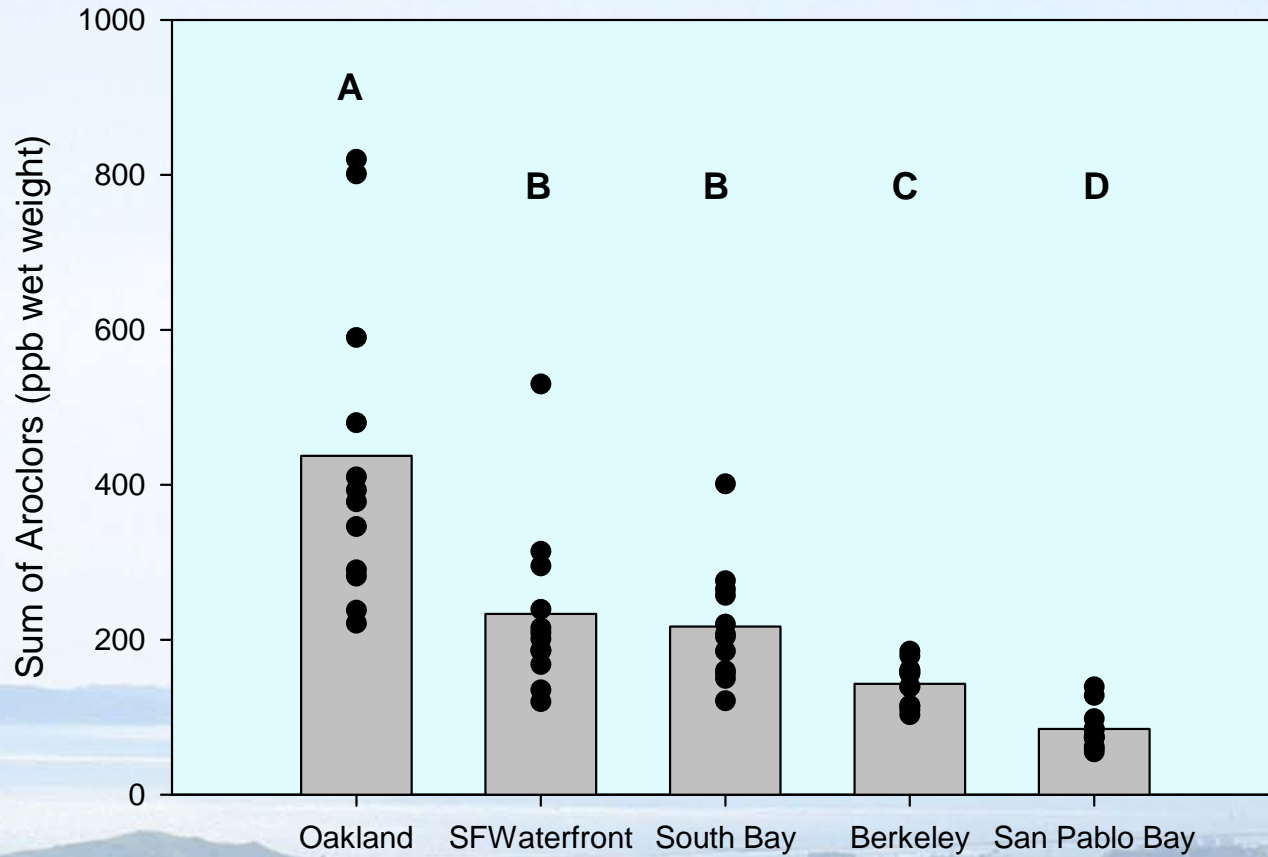
# PCBs - Other Species 2003-2006





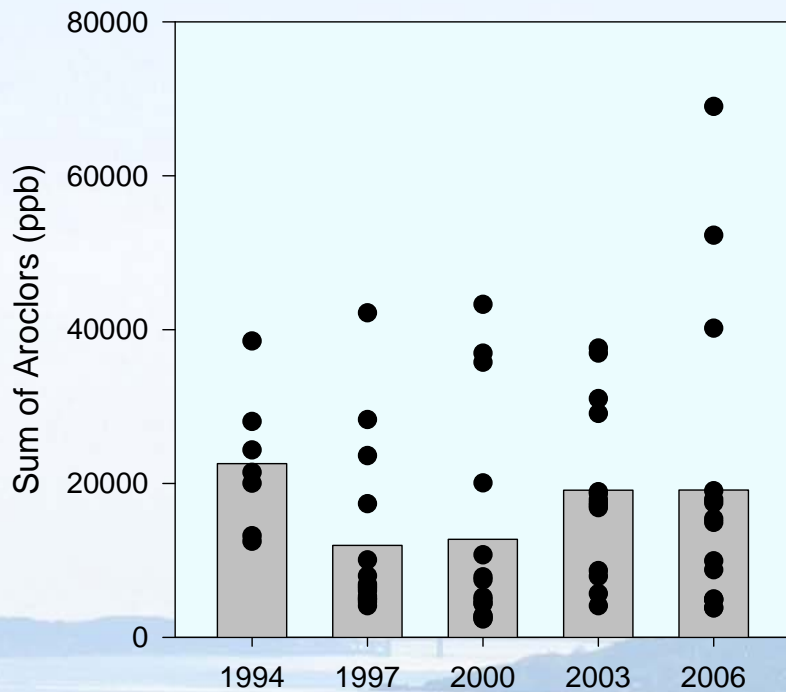
# Shiner Perch PCBs highest in Oakland (1997-2006)

Shiner Perch

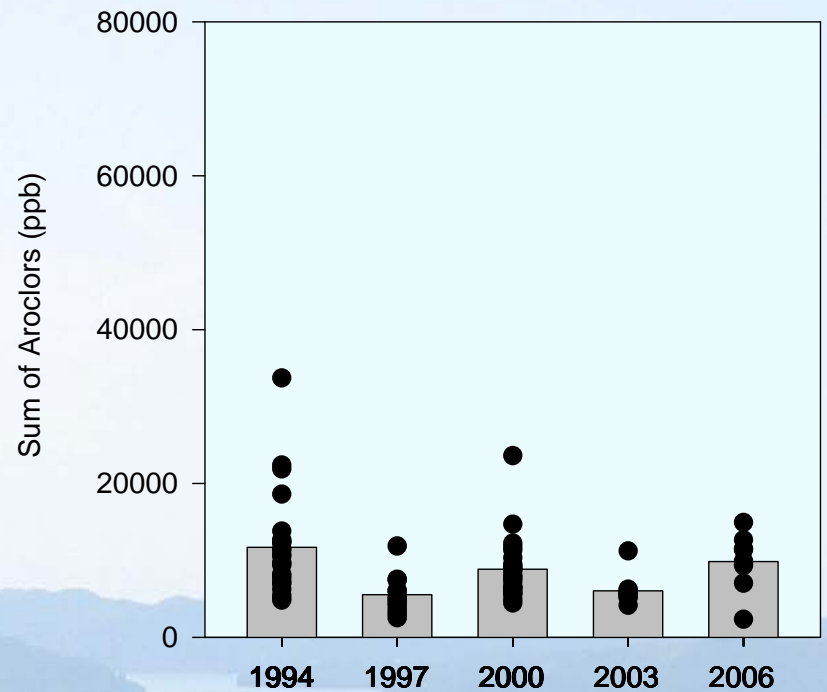


# Long Term PCB Levels

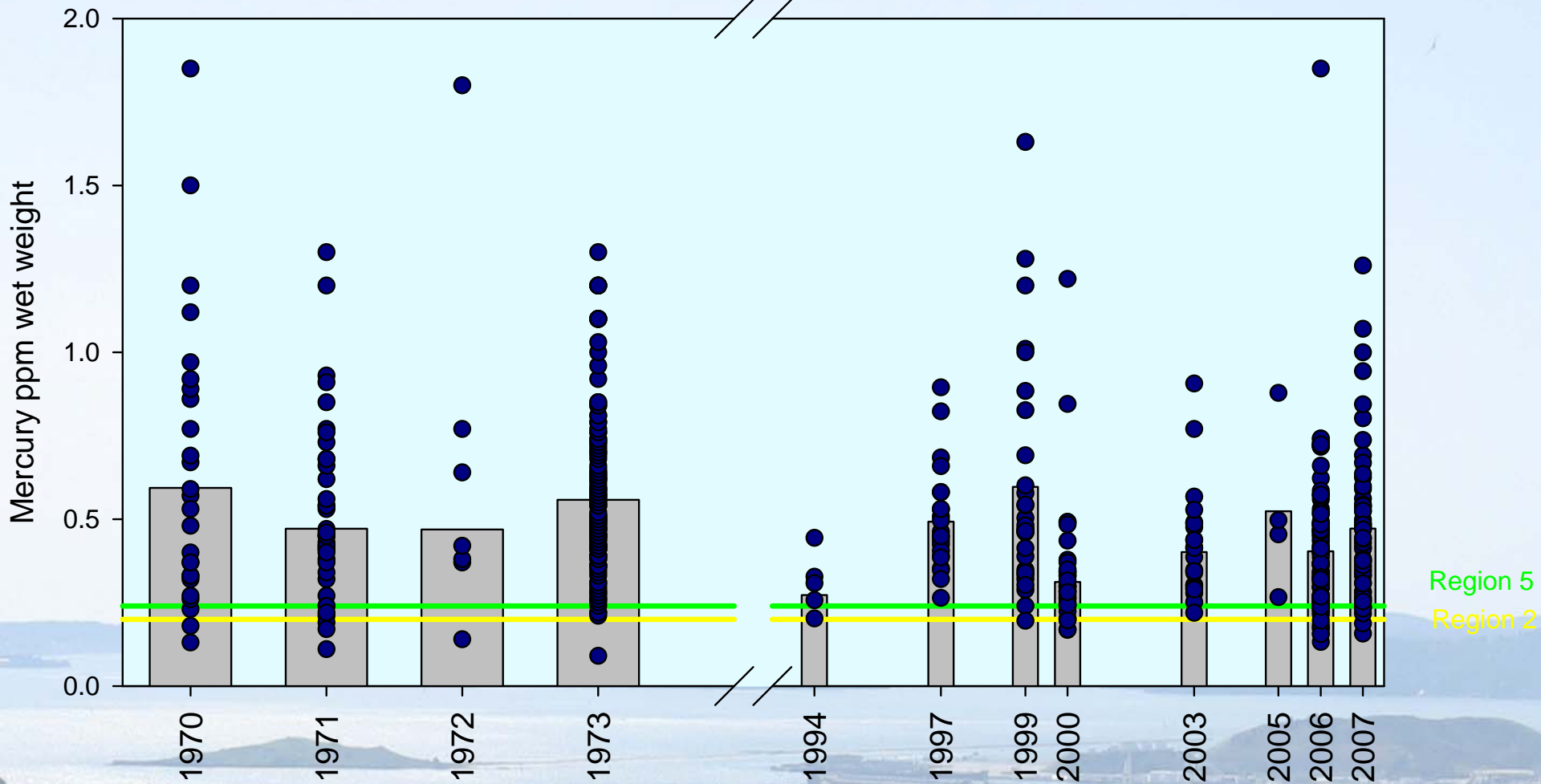
## Shiner Surfperch



## White Croaker

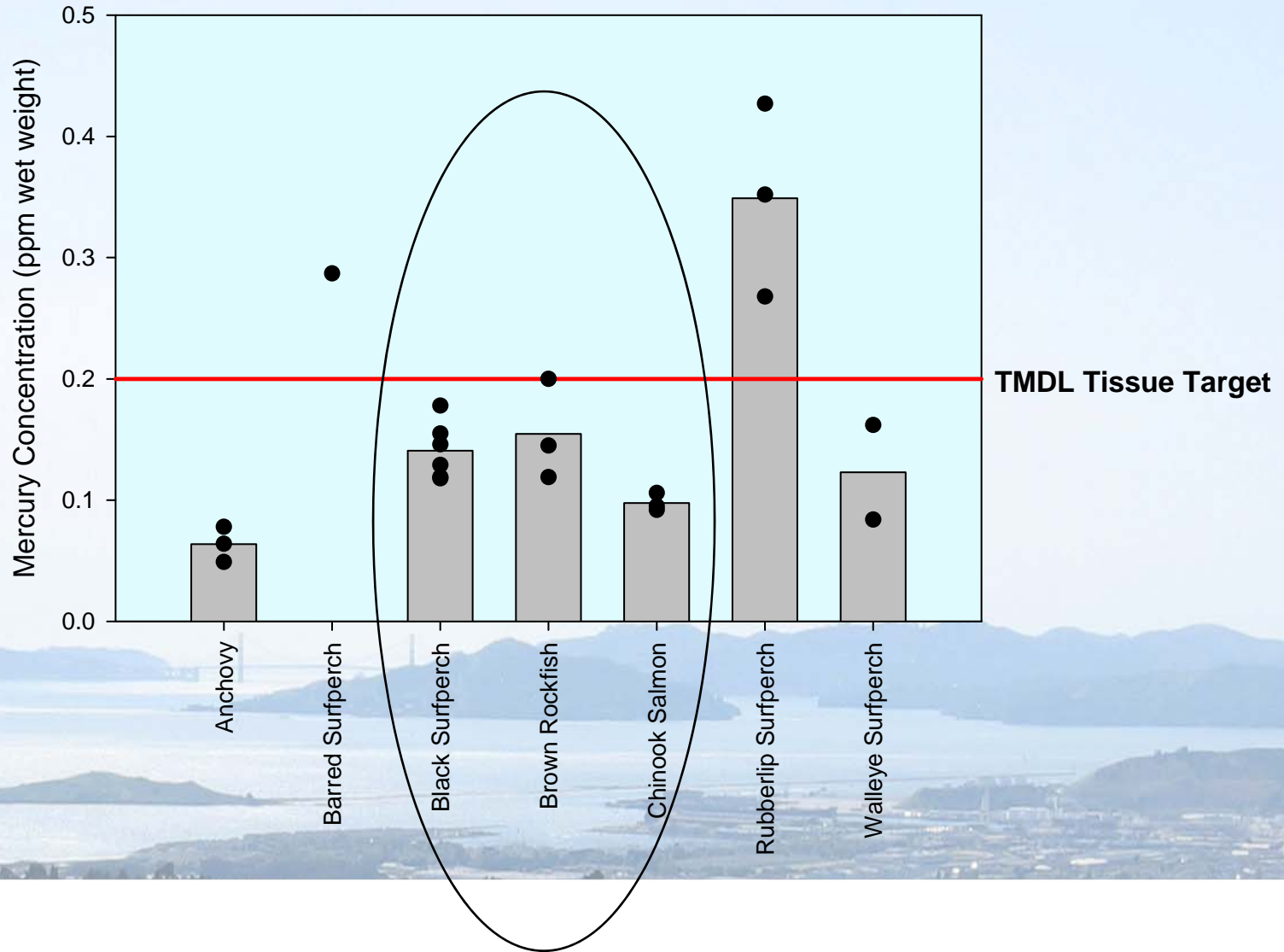


# Striped Bass Above Hg TMDL Target



# Good News!

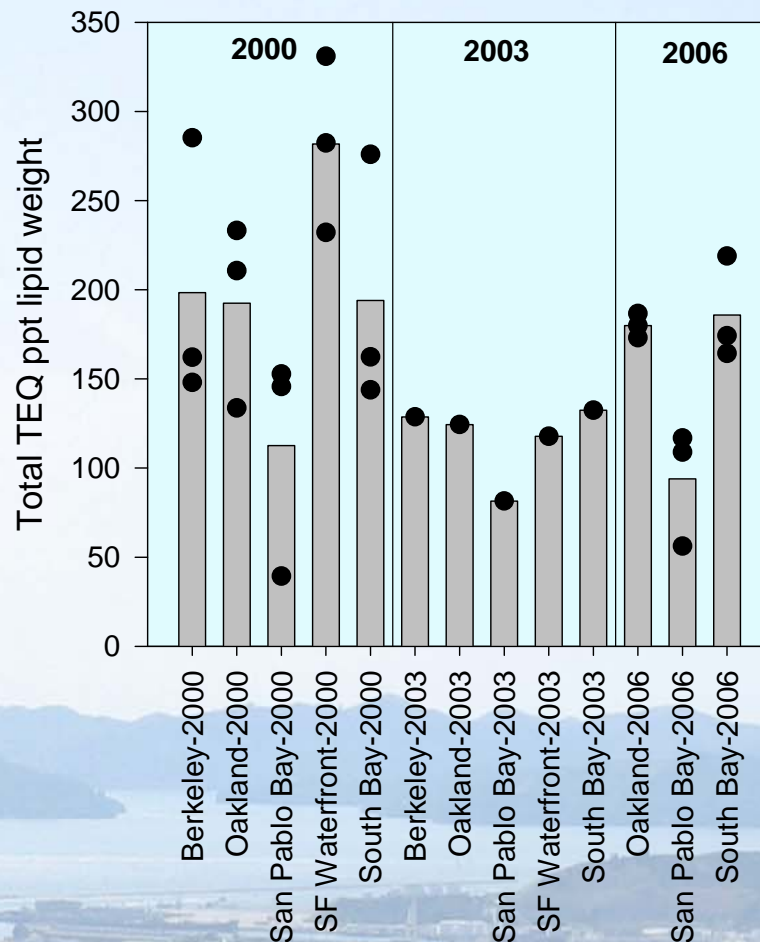
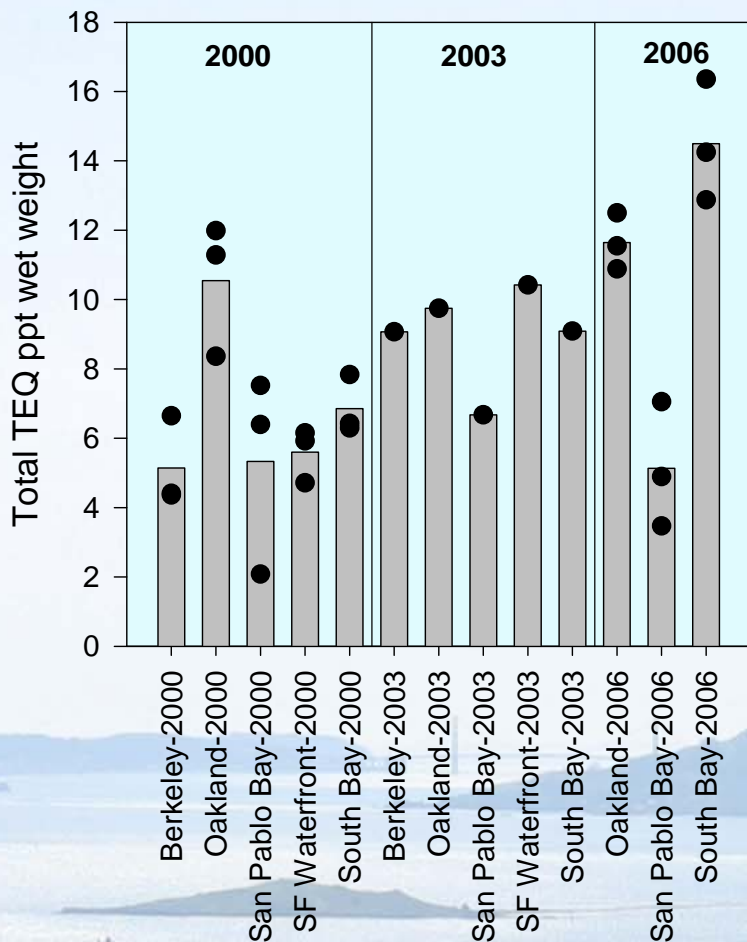
## Many Bay Species Below Hg TMDL Target



# Total Dioxin Toxicity Not Changing

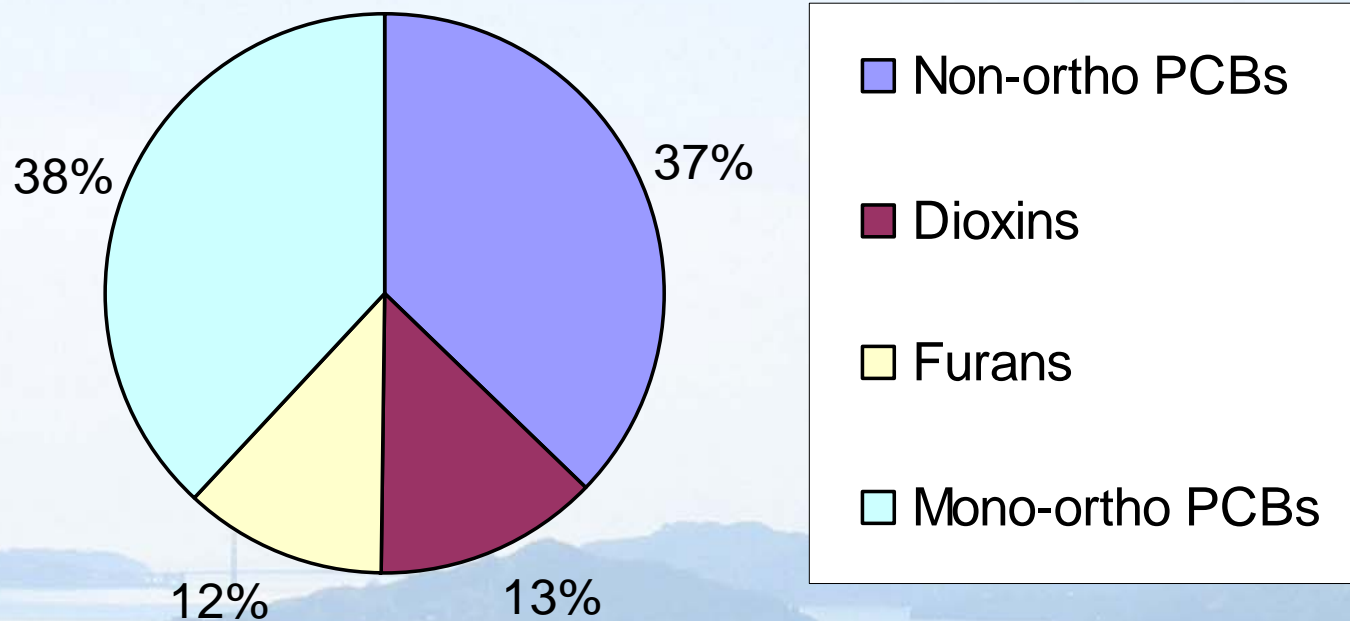
Sum of Dioxin, Furan, and dioxin-like PCB TEQs

White Croaker Total TEQ (ND=1/2 MDL)

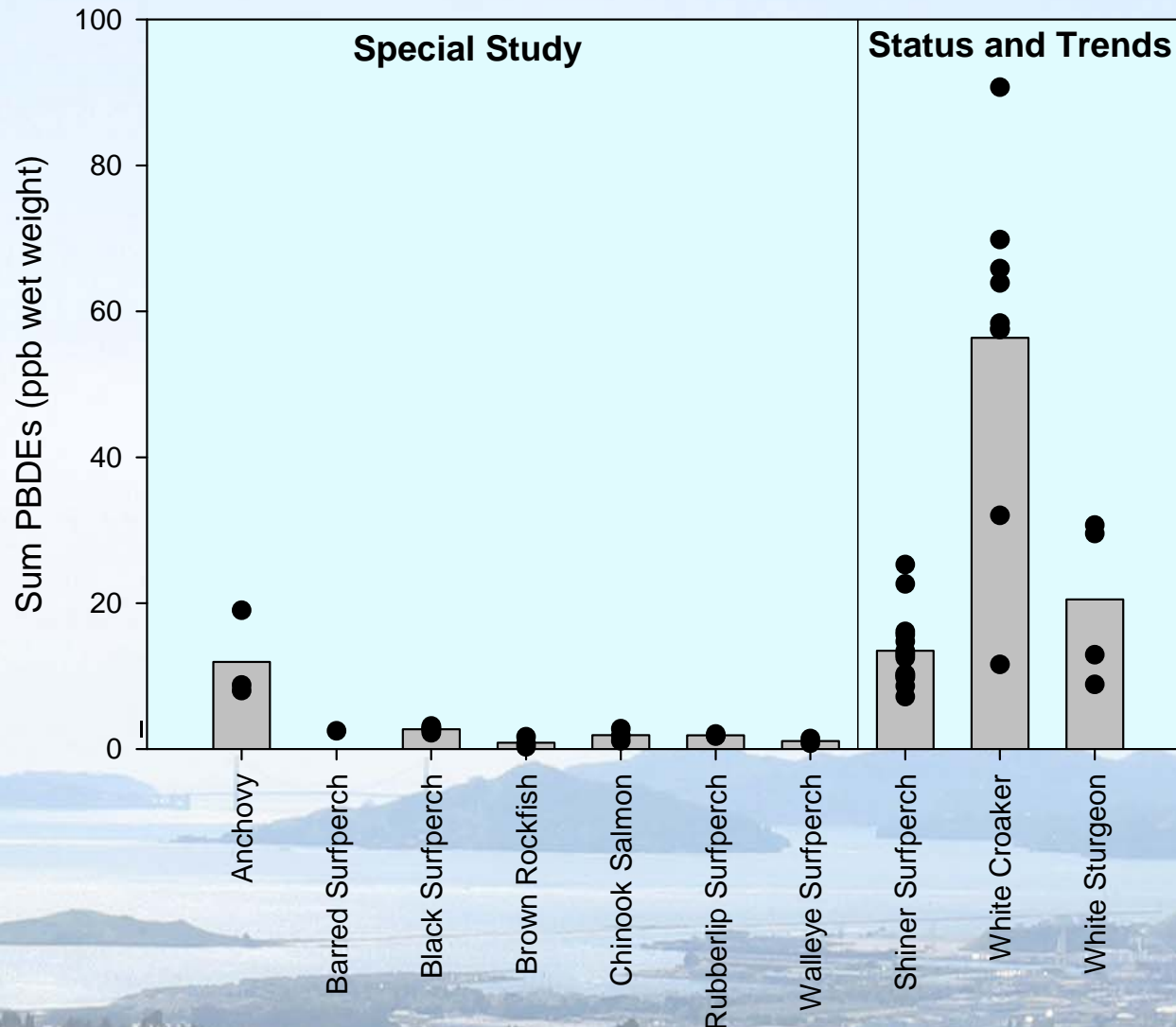


# PCBs Dominate Dioxin-Like Toxicity

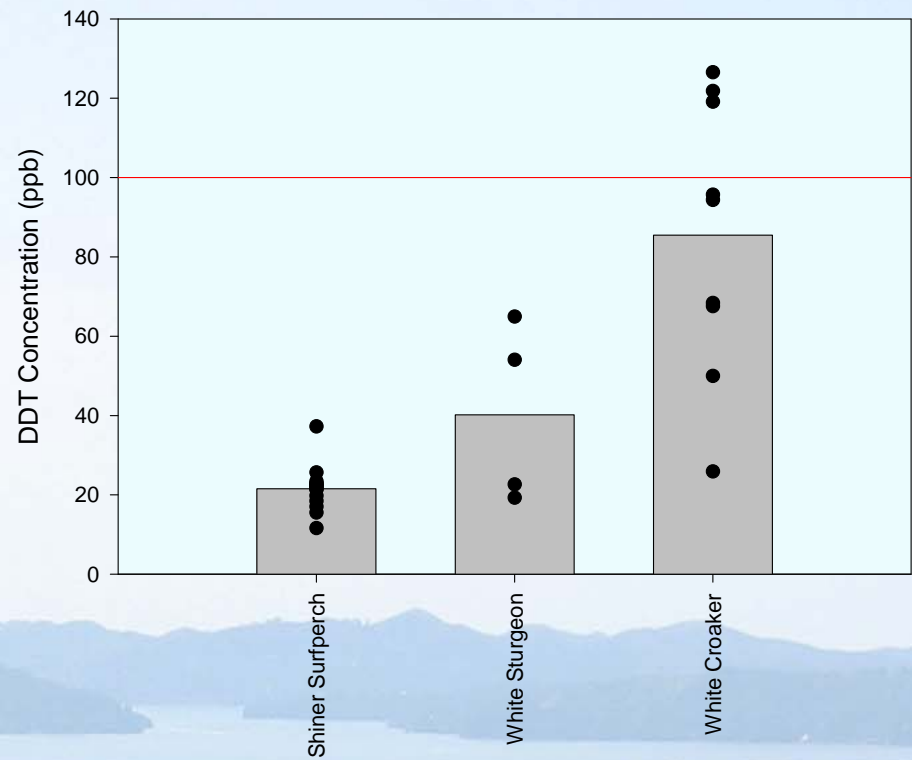
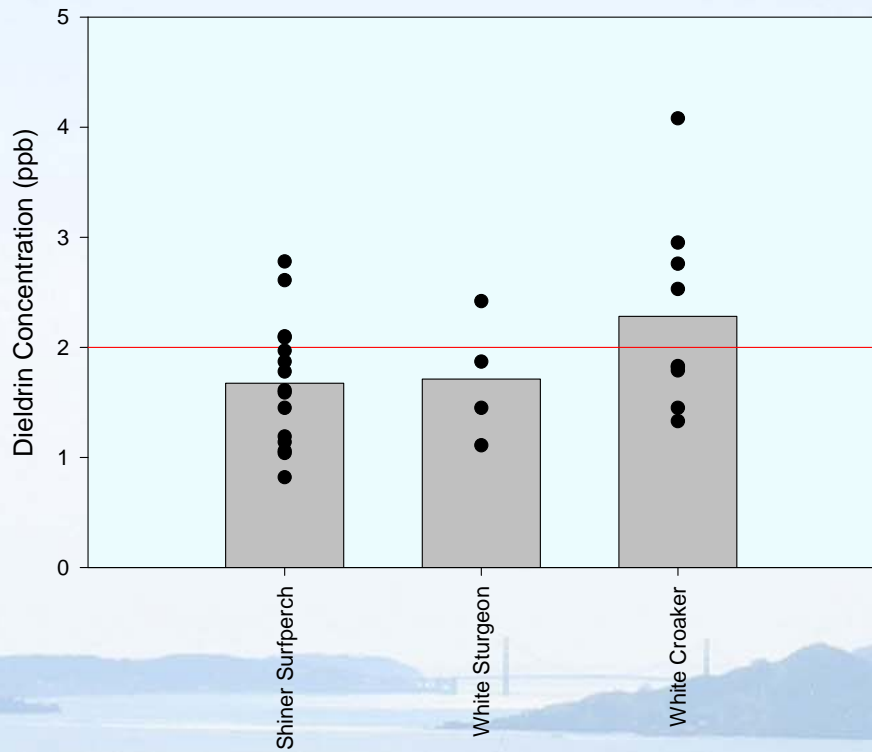
TEQ Percentage 2003 & 2006



# 2006 PBDEs - All Species



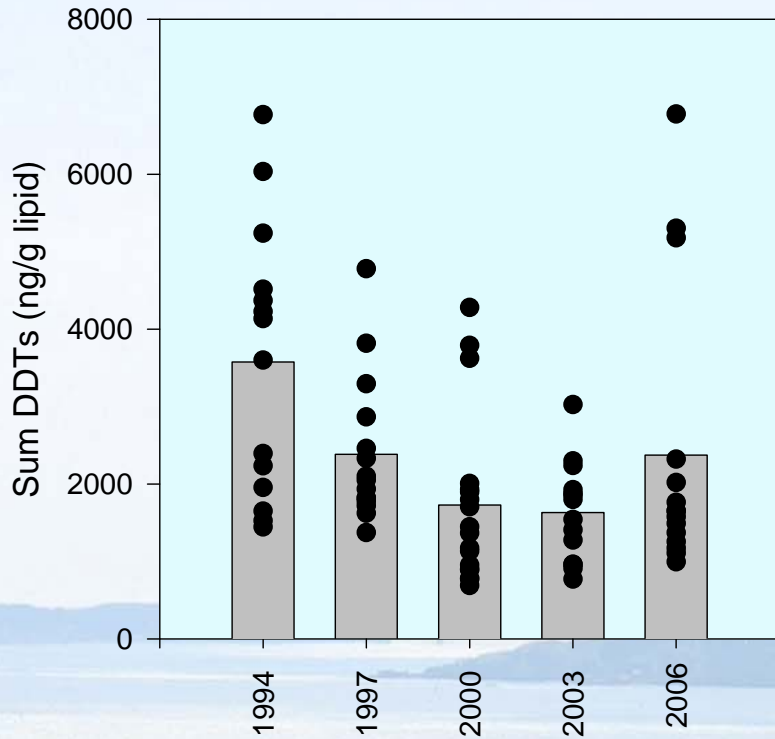
# 2006 Dieldrin and DDTs



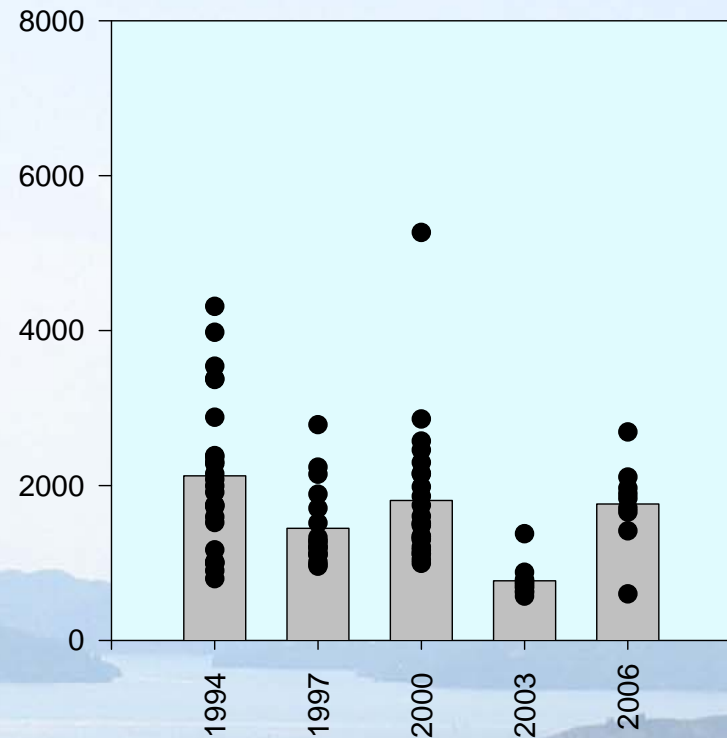


# 2006 DDT Concentrations Higher

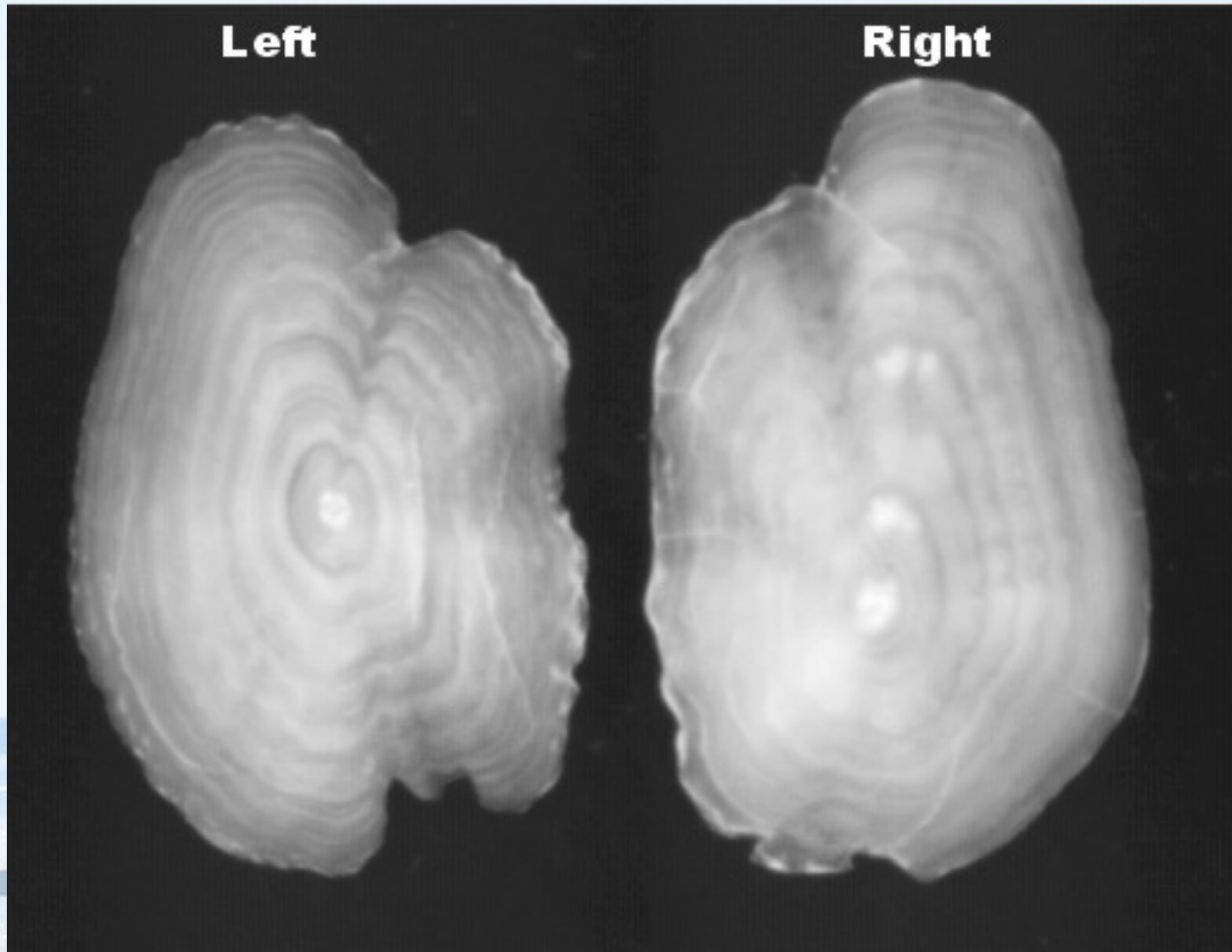
## Shiner Surfperch



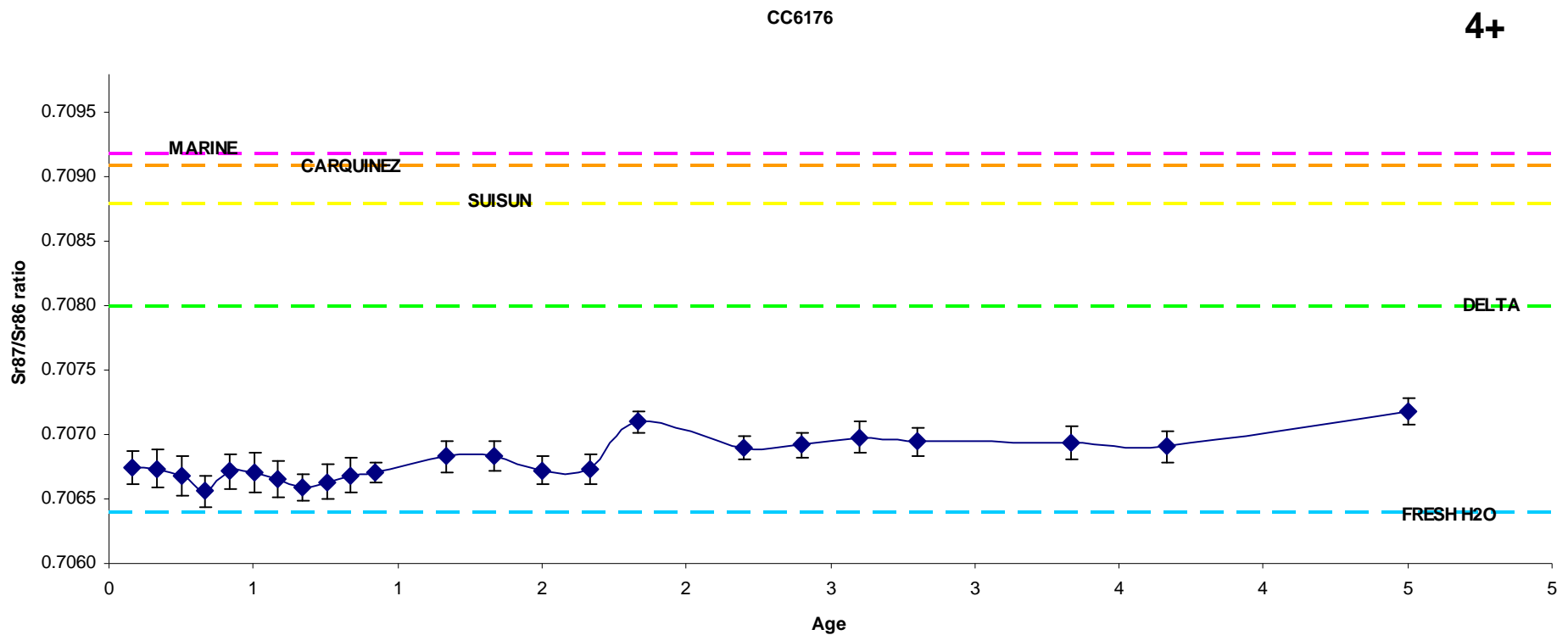
## White Croaker



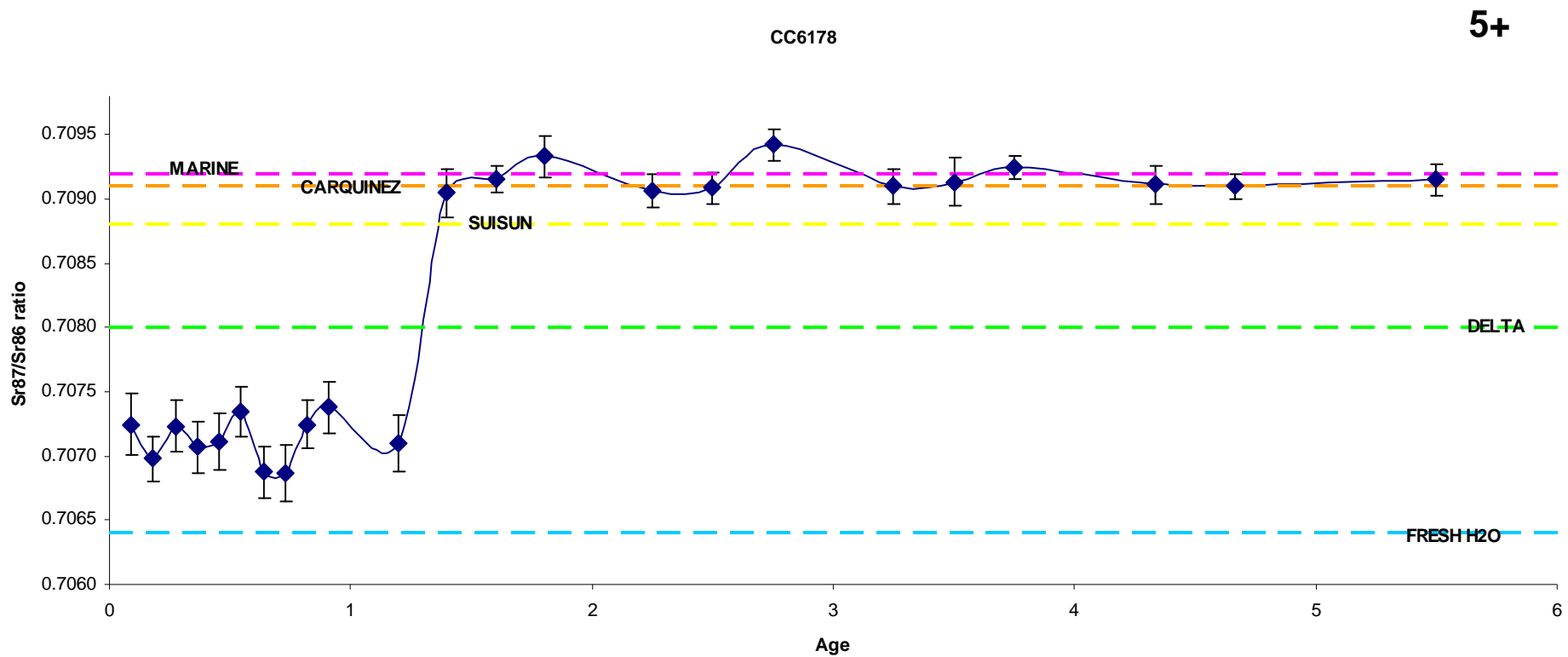
# What Can Otoliths Tell Us About Life History?



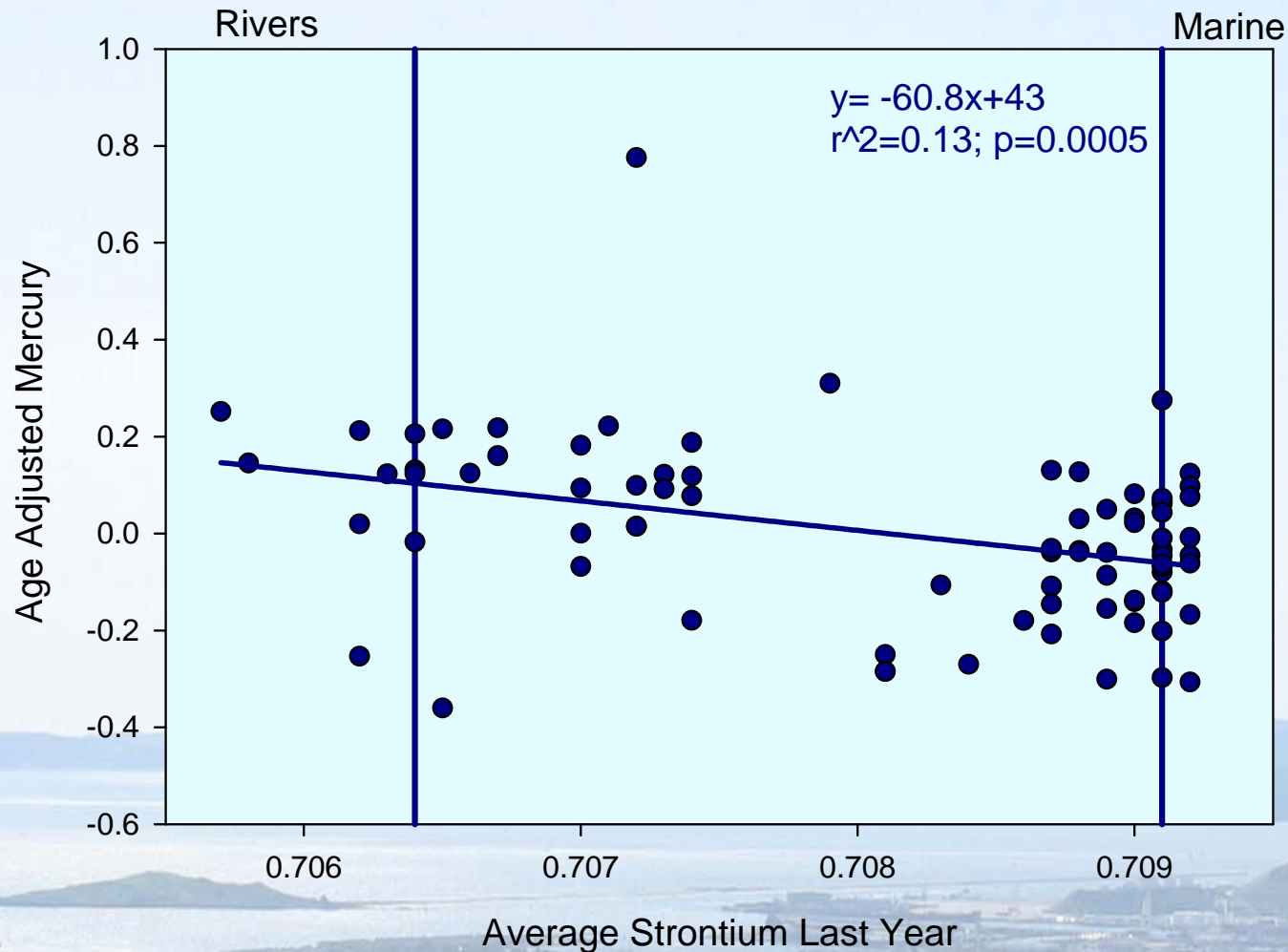
# Bass Can Reside in One Location...



# ...or Reside in Multiple Locations



# Negative Relationship of Hg and Otolith Strontium Ratio



# Acknowledgements

- RMP Fish Committee
- Sampling Crew - Rusty Fairy, Marco Sigala et al.
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