

30 years of contaminant monitoring in Bay Sport Fish: 2024 update

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RMP data informs public health communication

California Office of
Environmental Health
Hazard Assessment
(OEHHA)

Updated 2023 using RMP
data through 2019



Women
(18 – 49 Years)

Children
(1 – 17 Years)

2 TOTAL SERVINGS A WEEK

OR

1 TOTAL SERVING A WEEK

0 DO NOT EAT

California Office of Environmental Health Hazard Assessment

web www.oehha.ca.gov/fish
email fish@oehha.ca.gov
phone (916) 324-7572

A GUIDE TO EATING FISH from SAN FRANCISCO BAY

(ALAMEDA, CONTRA COSTA, MARIN, NAPA, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SOLANO, SONOMA COUNTIES)

**WOMEN 18 – 49 YEARS AND
CHILDREN 1 – 17 YEARS**

Eat the Good Fish
Eating fish that are low in chemicals may provide health benefits to children and adults.



Avoid the Bad Fish
Eating fish with higher levels of chemicals like mercury or PCBs may cause health problems in children and adults.



Choose the Right Fish
Chemicals may be more harmful to unborn babies and children.

American Shad
♥ high in omega-3s

Chinook (King) Salmon
♥ high in omega-3s

California Halibut

Jacksmelt

Barred Surfperch

Black Perch

Walleye Surfperch

Northern Anchovy
♥ high in omega-3s

Rubberlip Surfperch

White Surfperch

White Croaker

**Do Not Eat Any Fish from
Lauritzen Channel**

Shark species

Mississippi Silverside

Pacific Sardine

Shiner Perch

Striped Bass

Topsmelt

White Sturgeon

Serving Size
A serving of fish is about the size and thickness of your hand. Give children smaller servings.

For Adults

For Children

Eat only the skinless fillet
Some chemicals are higher in the skin, fat, and guts.

Eat only the meat



SCAN ME

Updated 04/2023

RMP data informs regulation & management

Bay-wide TMDLs {

- Mercury
- PCBs
- Dioxins

North Bay TMDL (sturgeon)

- Selenium

Possible TMDL? (PFOS)

- PFAS
- PBDEs
- Organochlorine pesticides

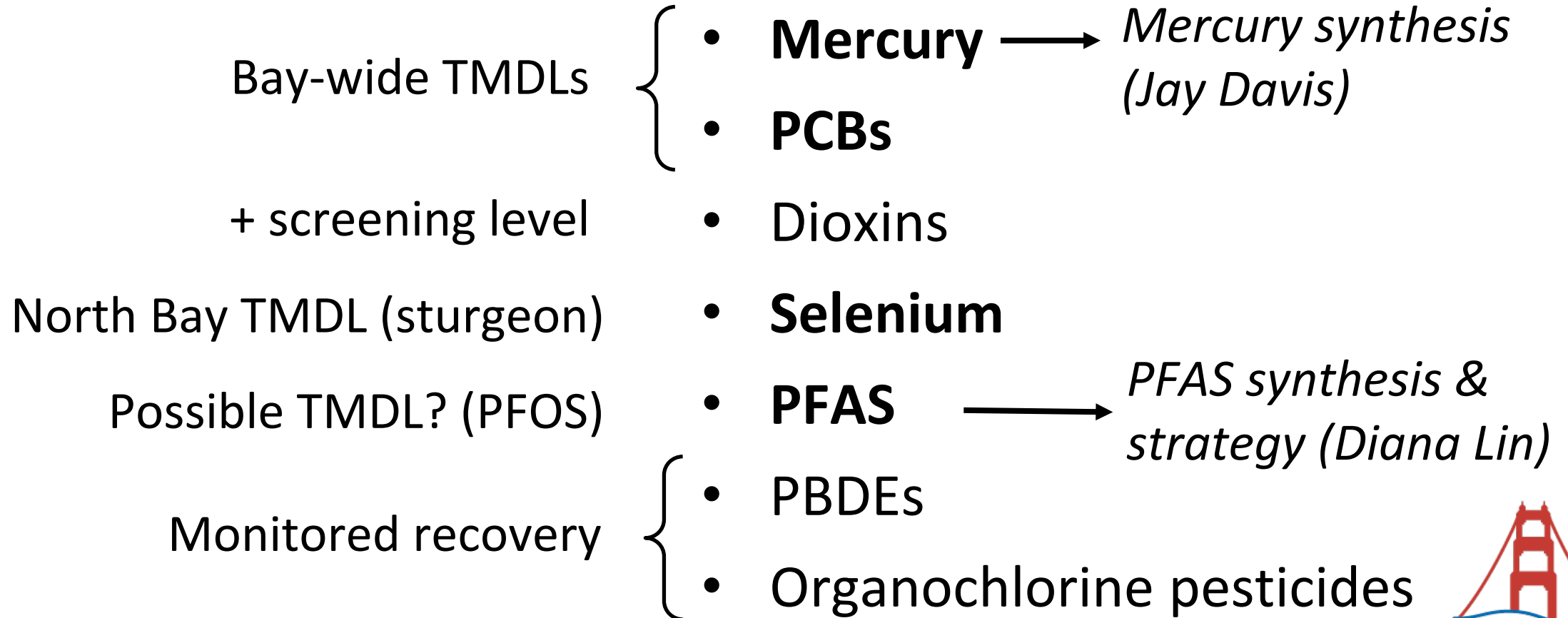


RMP data informs regulation & management

Bay-wide TMDLs	{	• Mercury
+ screening level		• PCBs
North Bay TMDL (sturgeon)		• Dioxins
Possible TMDL? (PFOS)		• Selenium
Monitored recovery	{	• PFAS
		• PBDEs
		• Organochlorine pesticides



RMP data informs regulation & management



2024 Sport Fish Monitoring

30 years of monitoring (1994-2024)

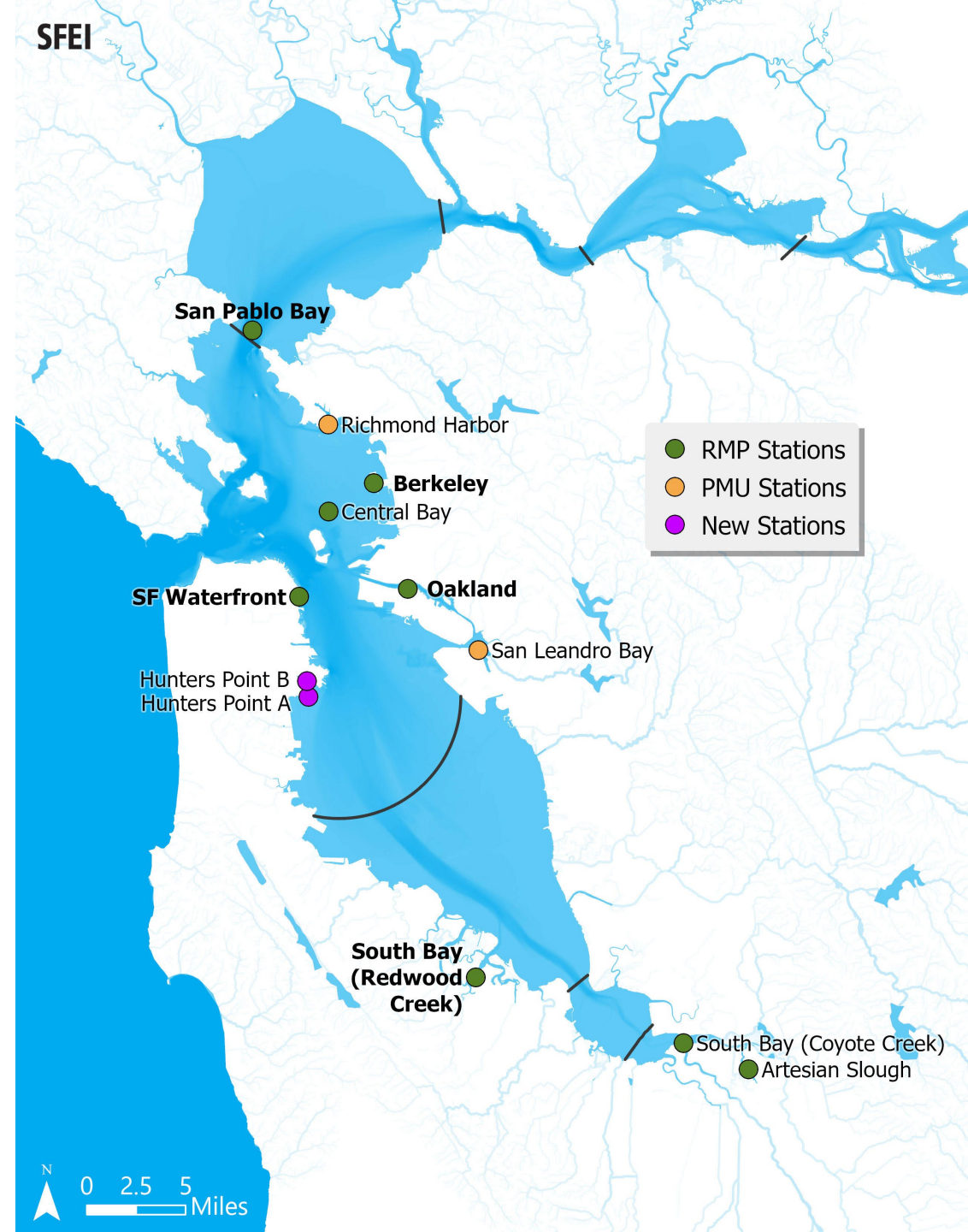
9th round of sampling

18,000+ measurements

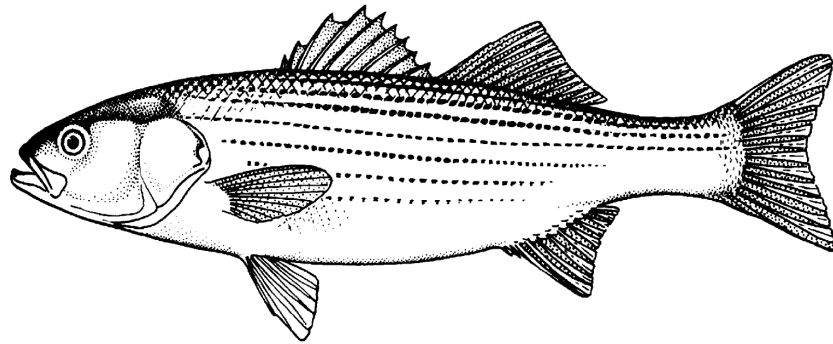
950 fish

67 composites

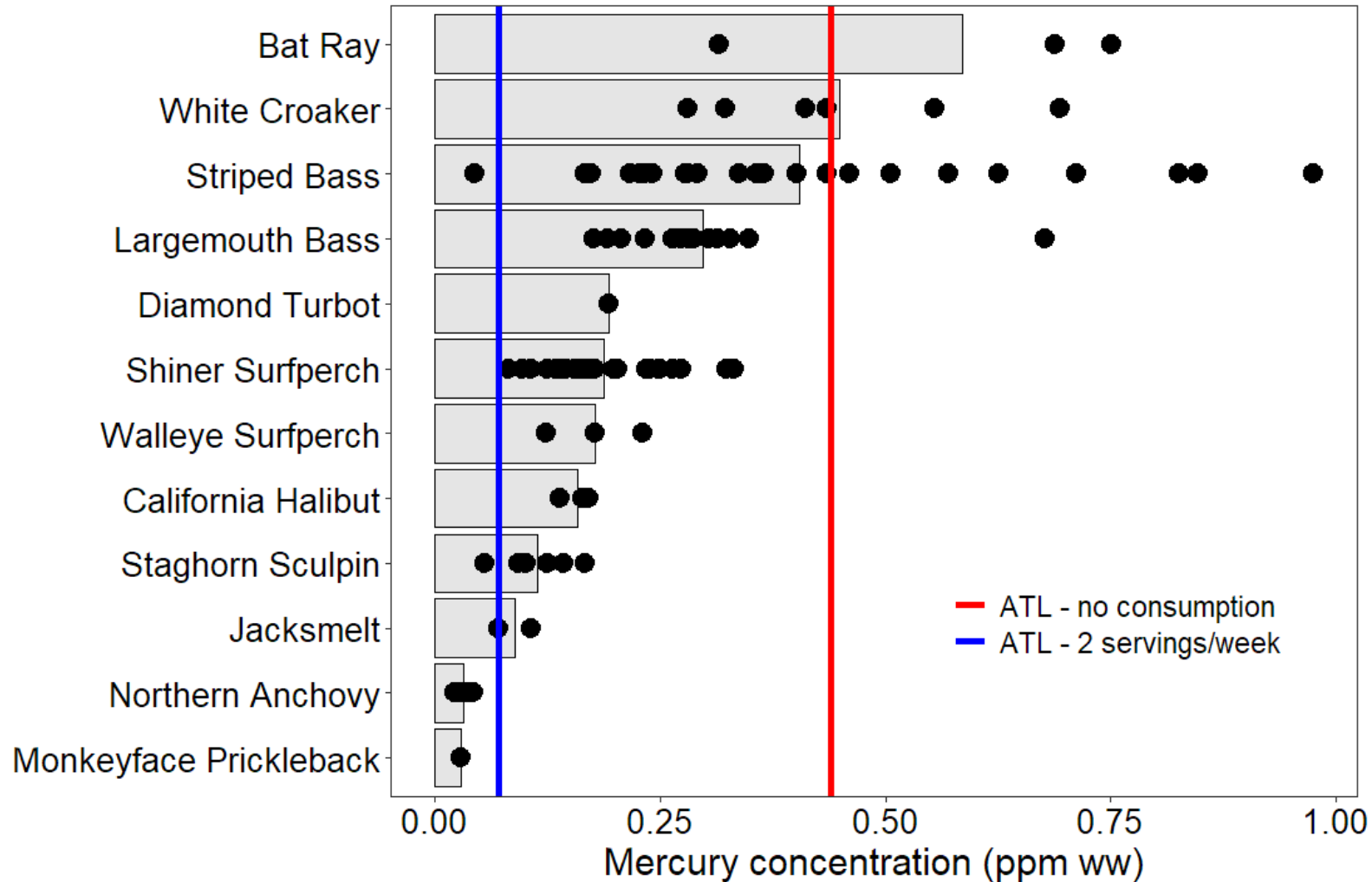
42 individuals (bass mercury)



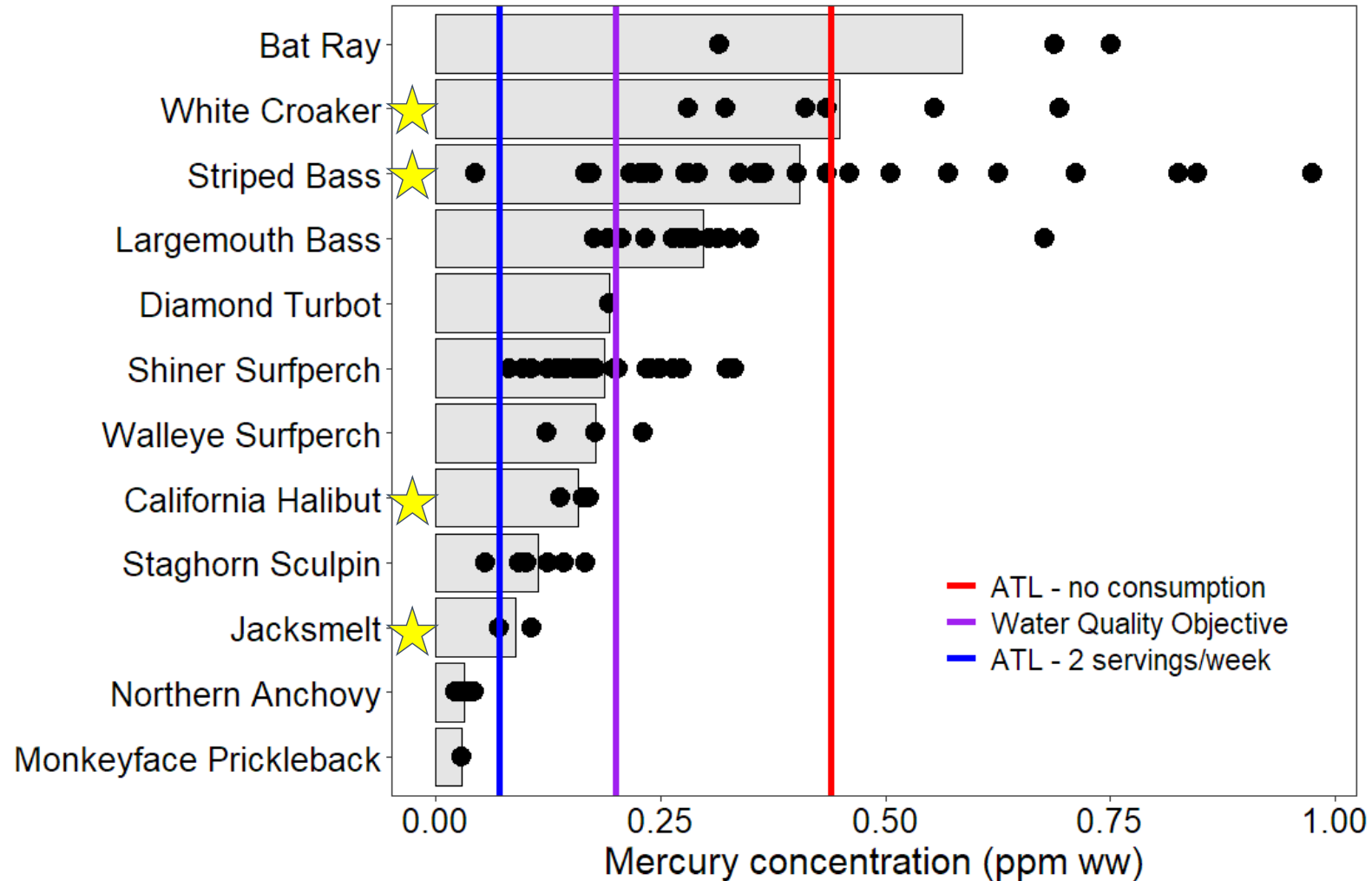
Mercury



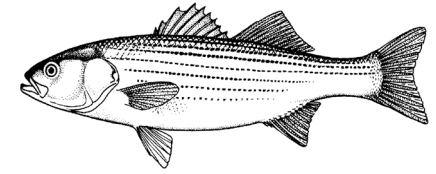
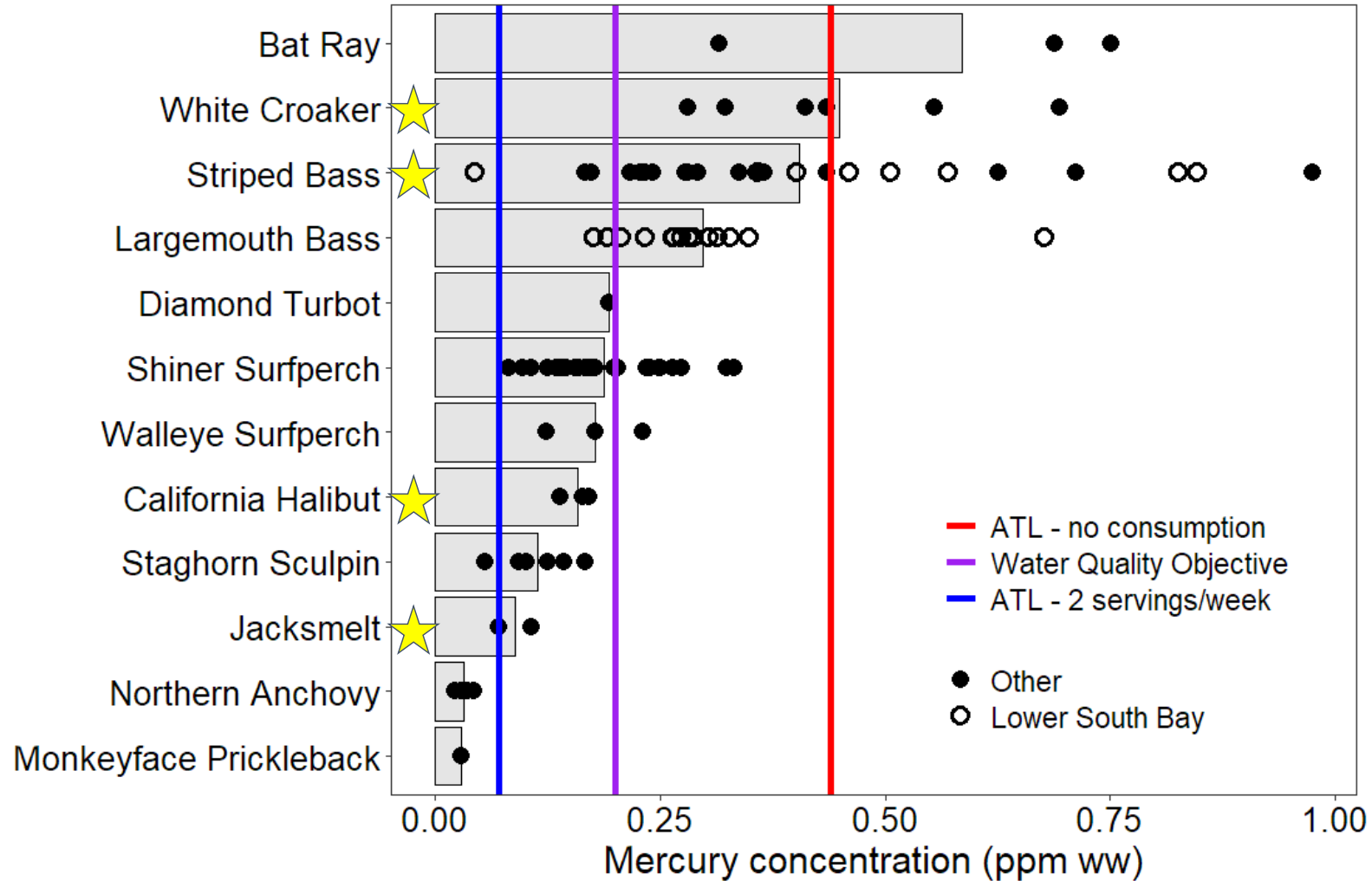
Mercury exceeds thresholds in many species



Mercury exceeds thresholds in many species

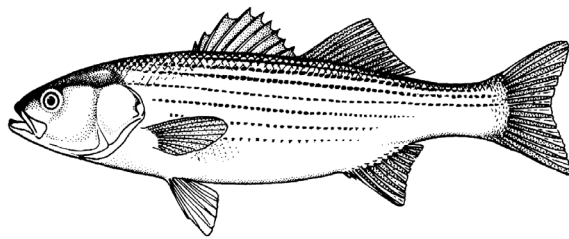


Mercury exceeds thresholds in many species

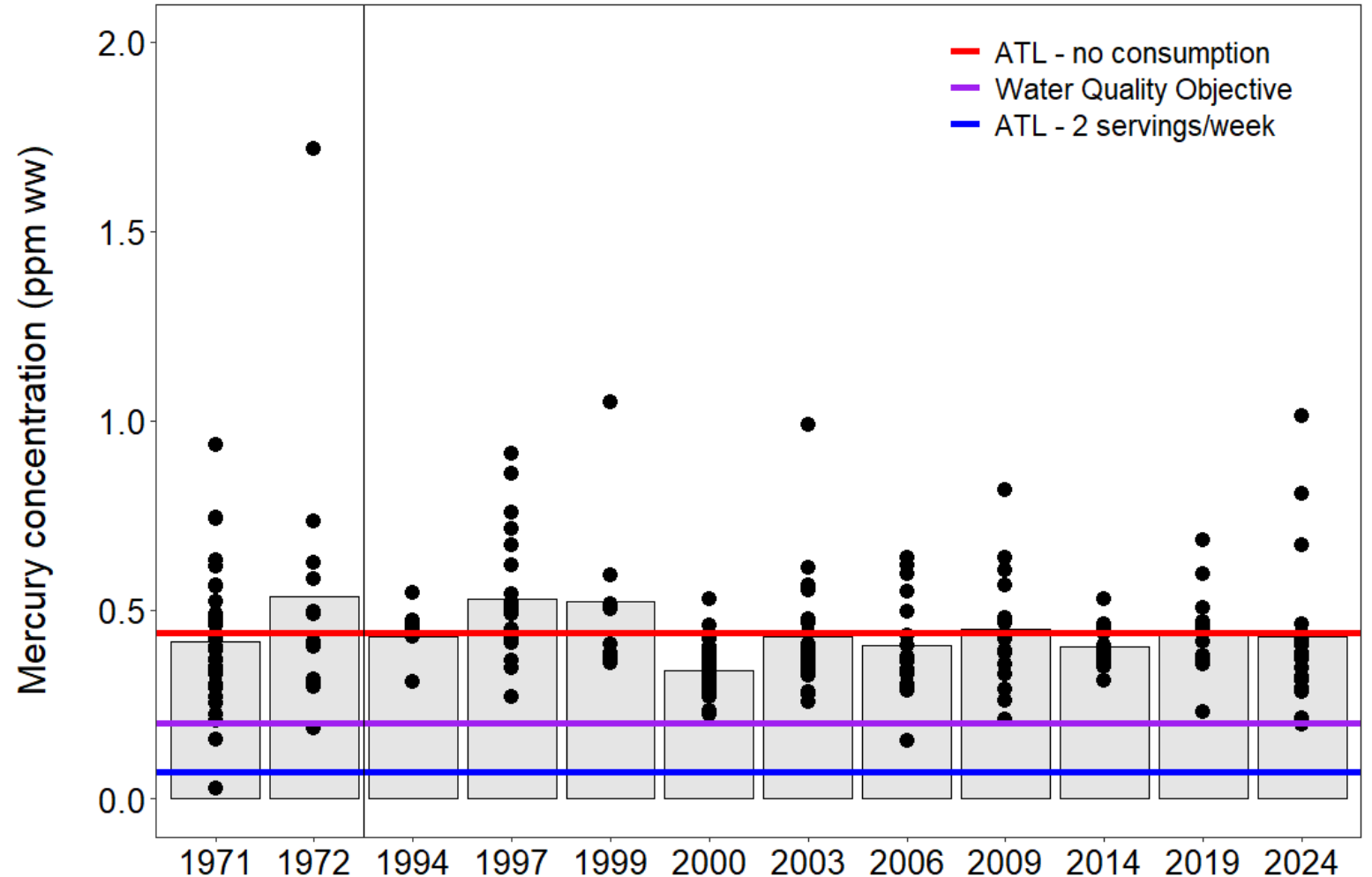


Mercury in Bay striped bass remains high (1971-2024)

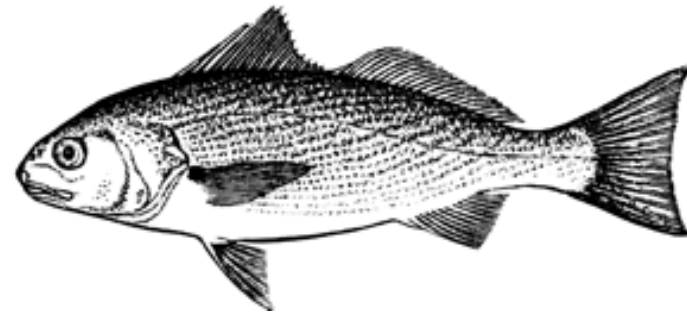
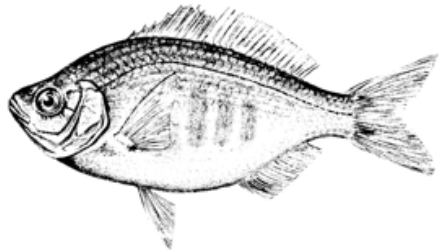
Little change in concentration over 50 years of monitoring



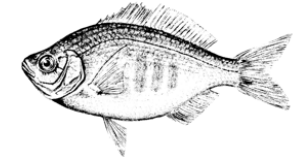
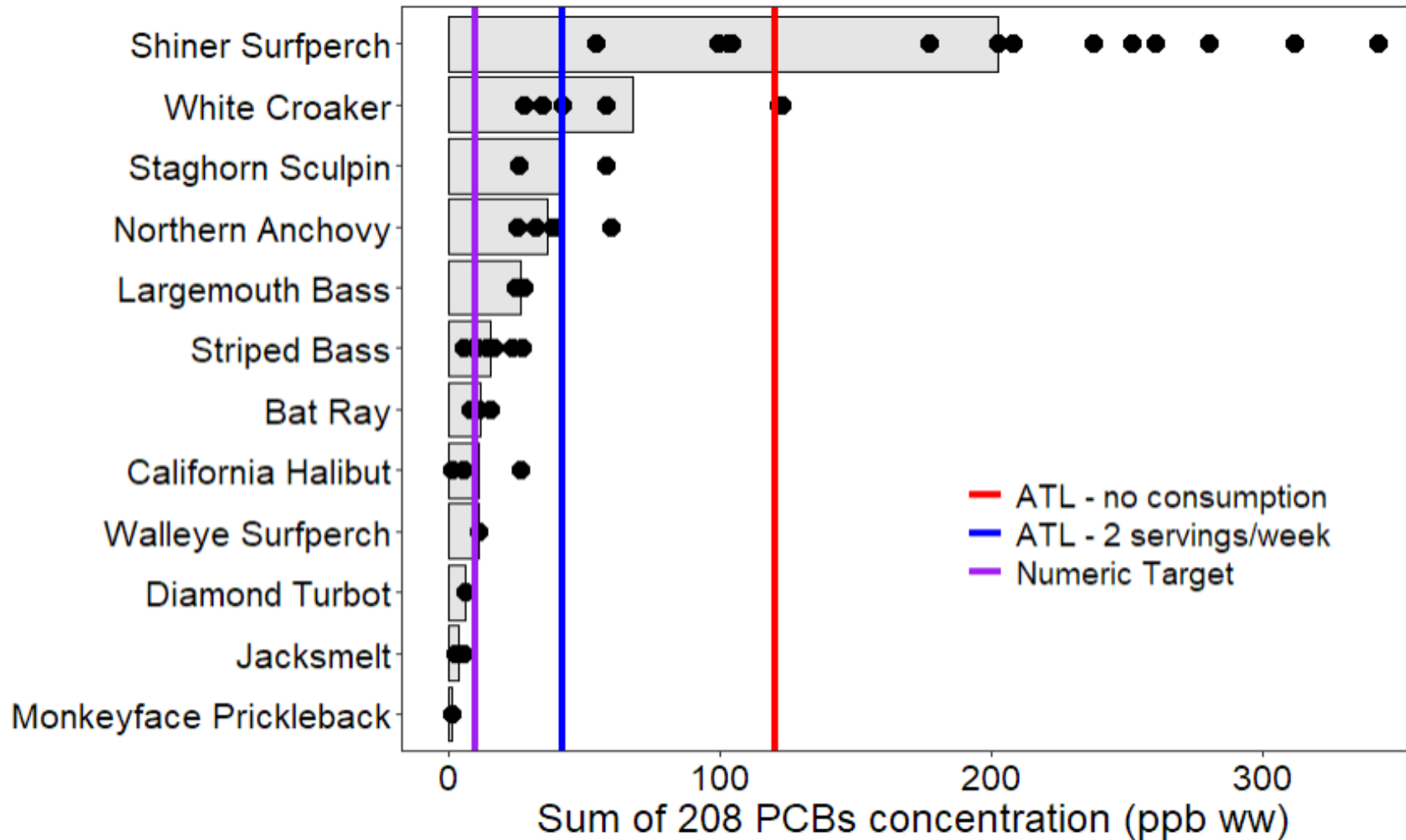
60 cm



PCBs

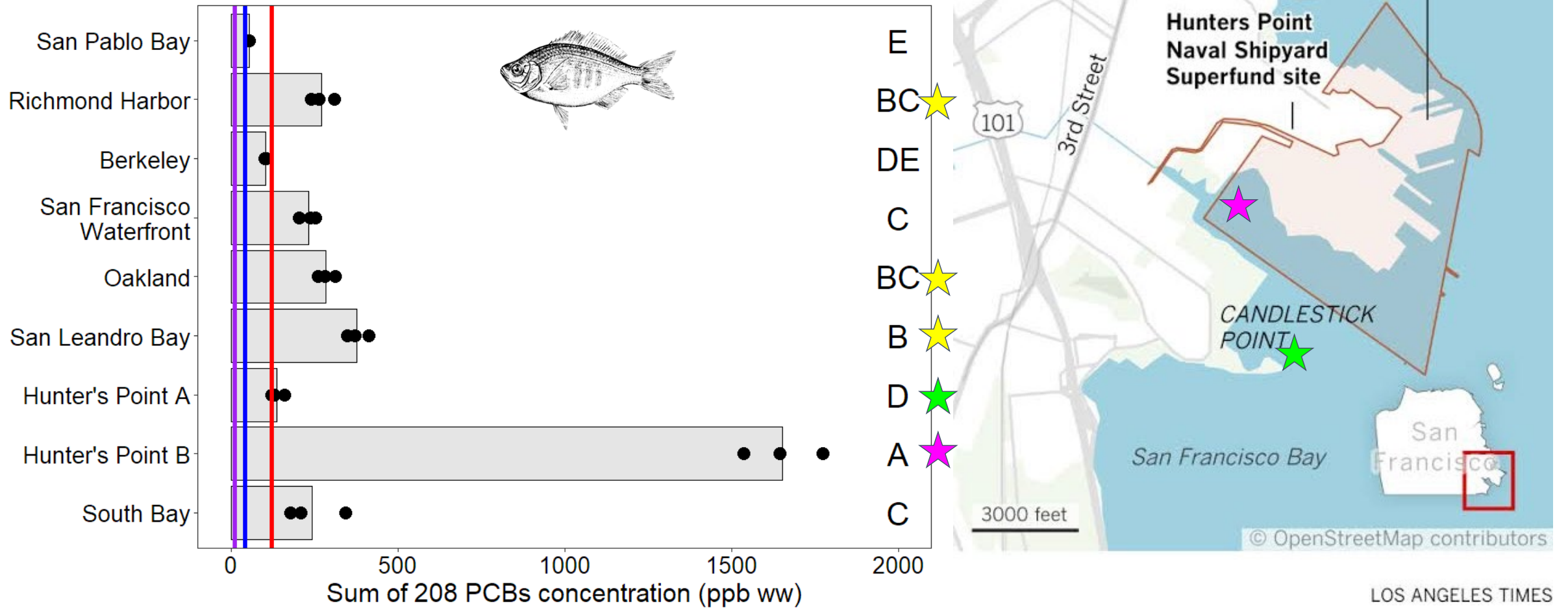


PCBs exceed thresholds in many species



Shiner Surfperch

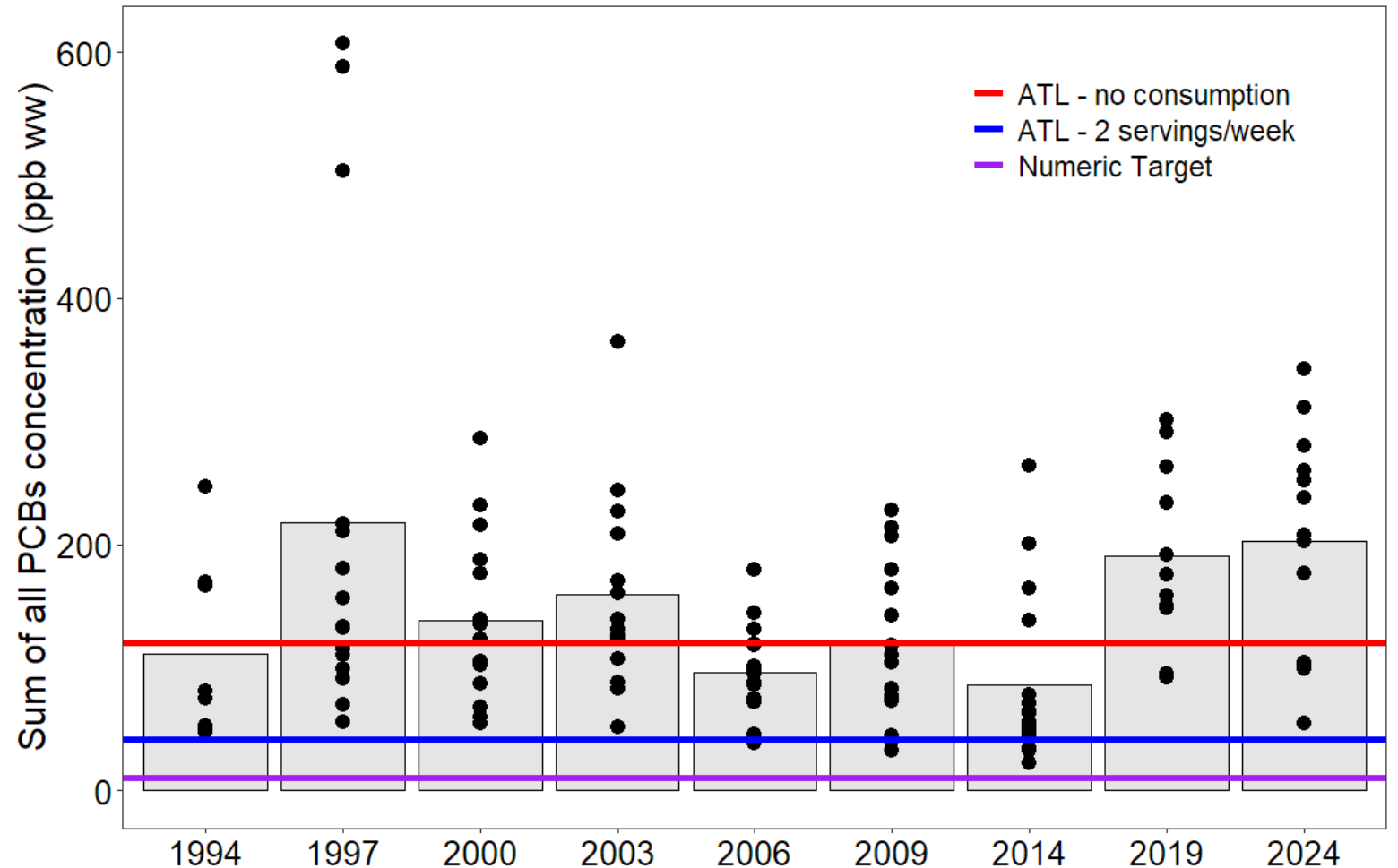
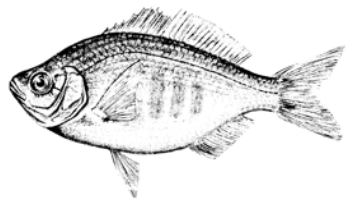
Extremely high concentrations at Hunters Point



PCBs in fish tissues remain high over time

wet weight: PCBs
directly measured in
tissues that humans
consume

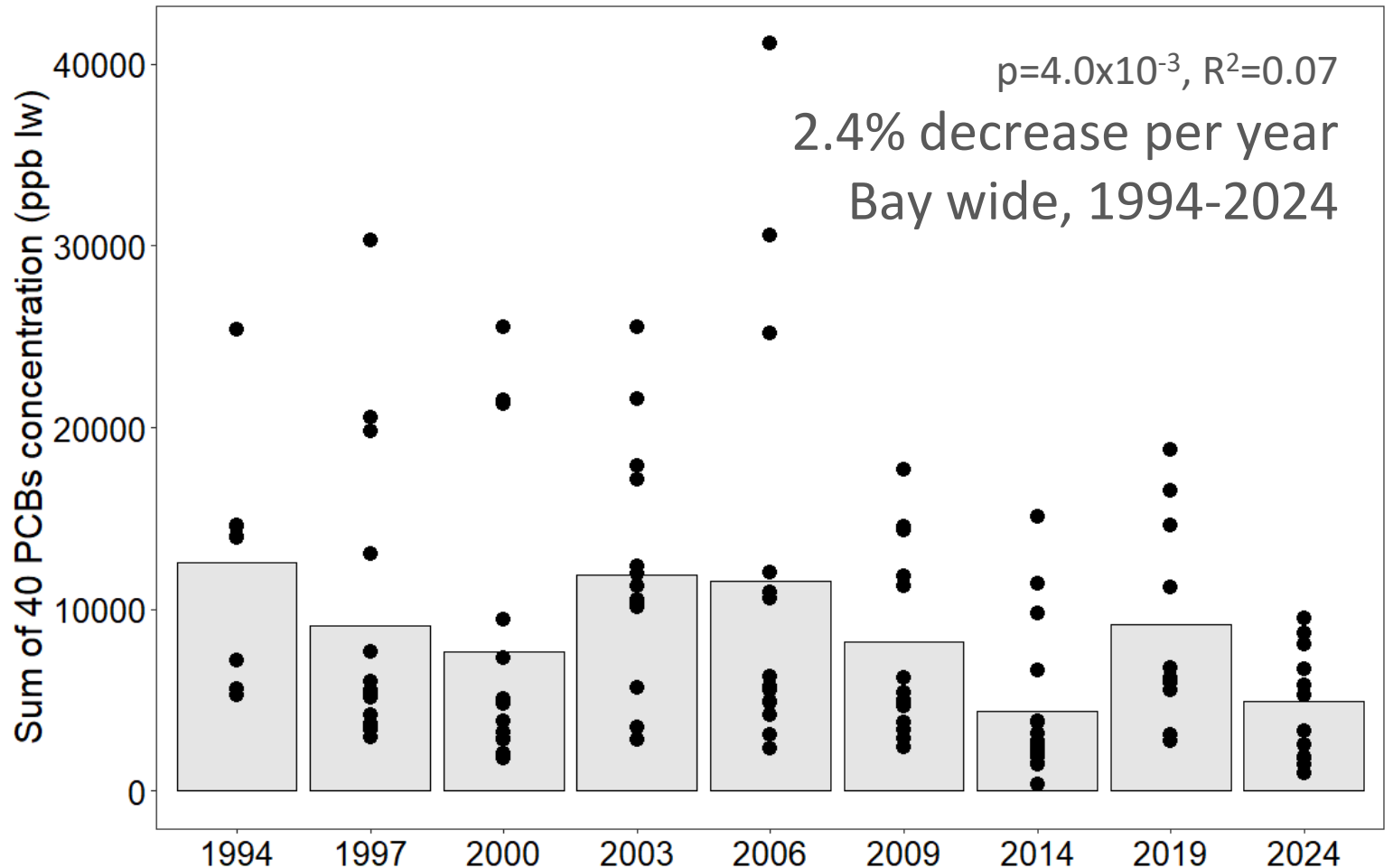
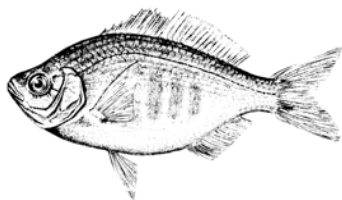
What are humans
being exposed to?



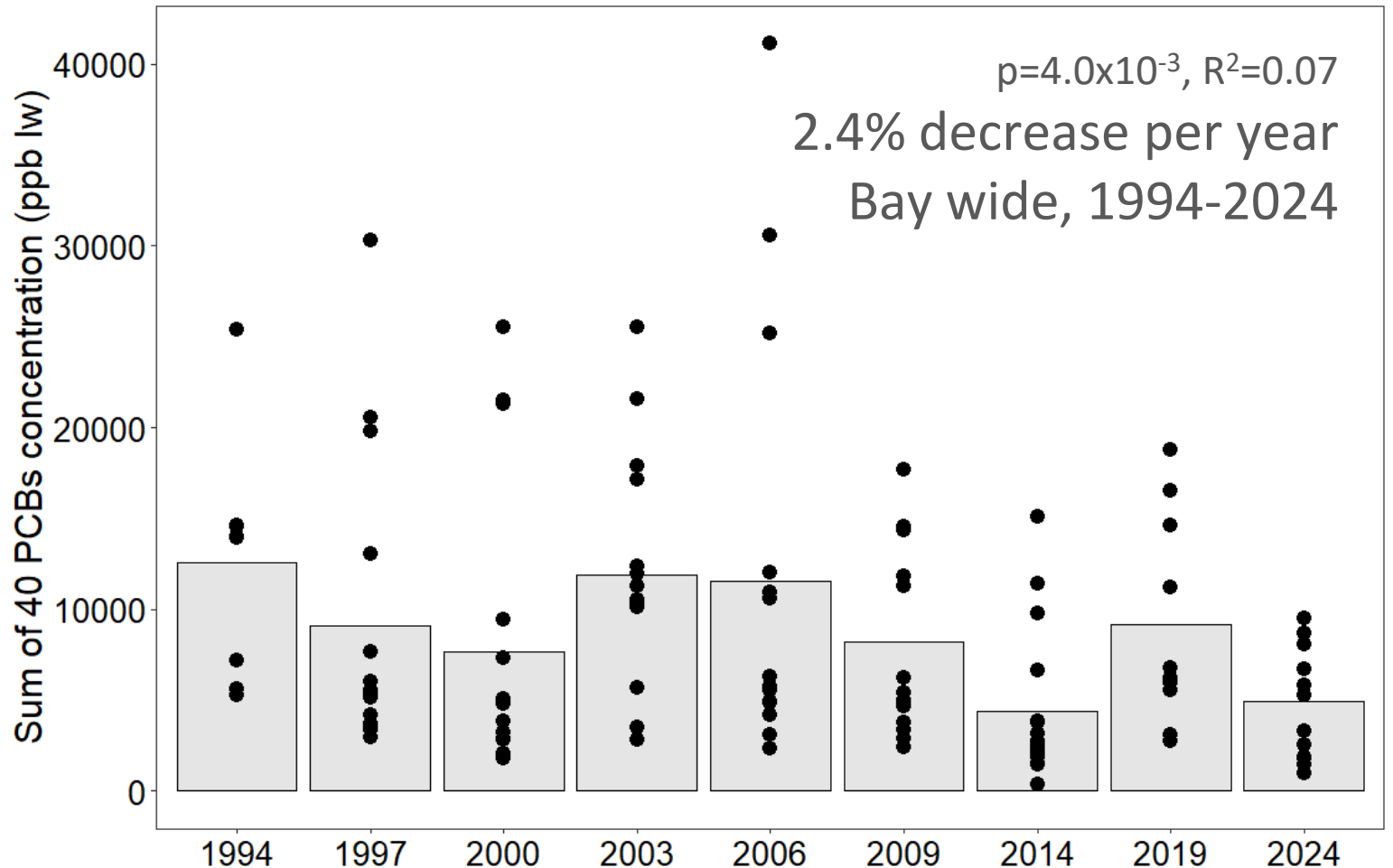
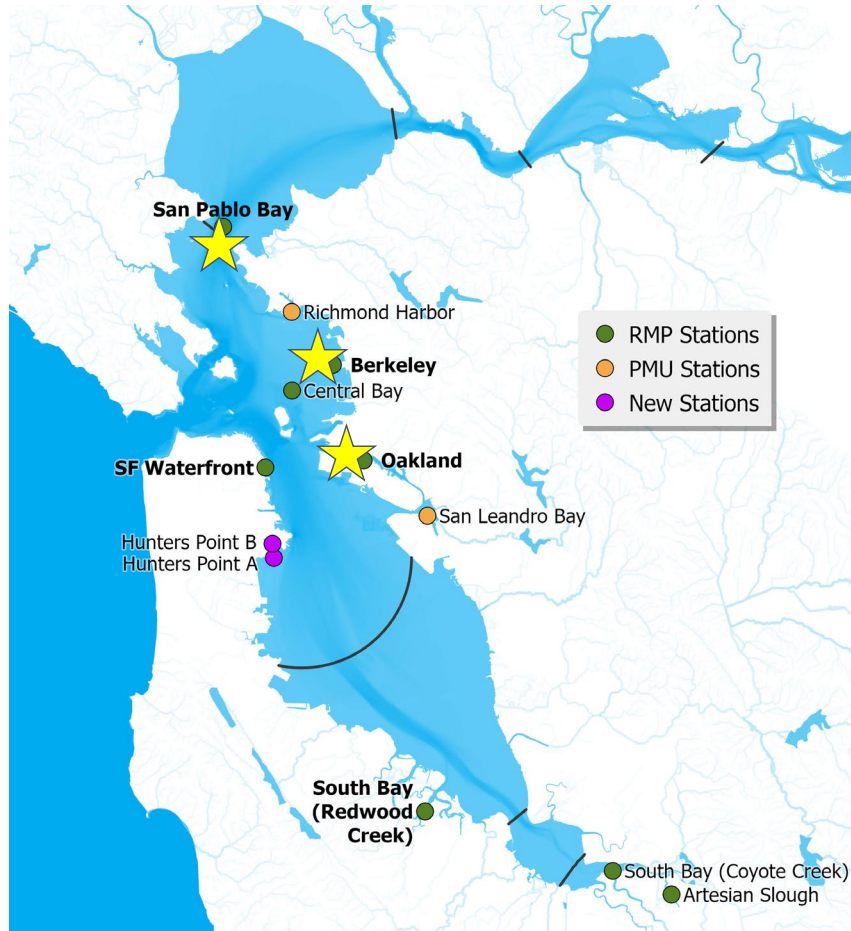
Lipid-normalized PCBs are decreasing in some locations

lipid weight: PCB levels after controlling for lipid variability

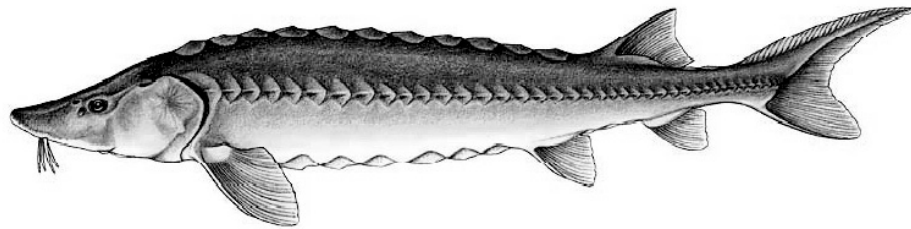
How are PCB levels in the environment changing over time?



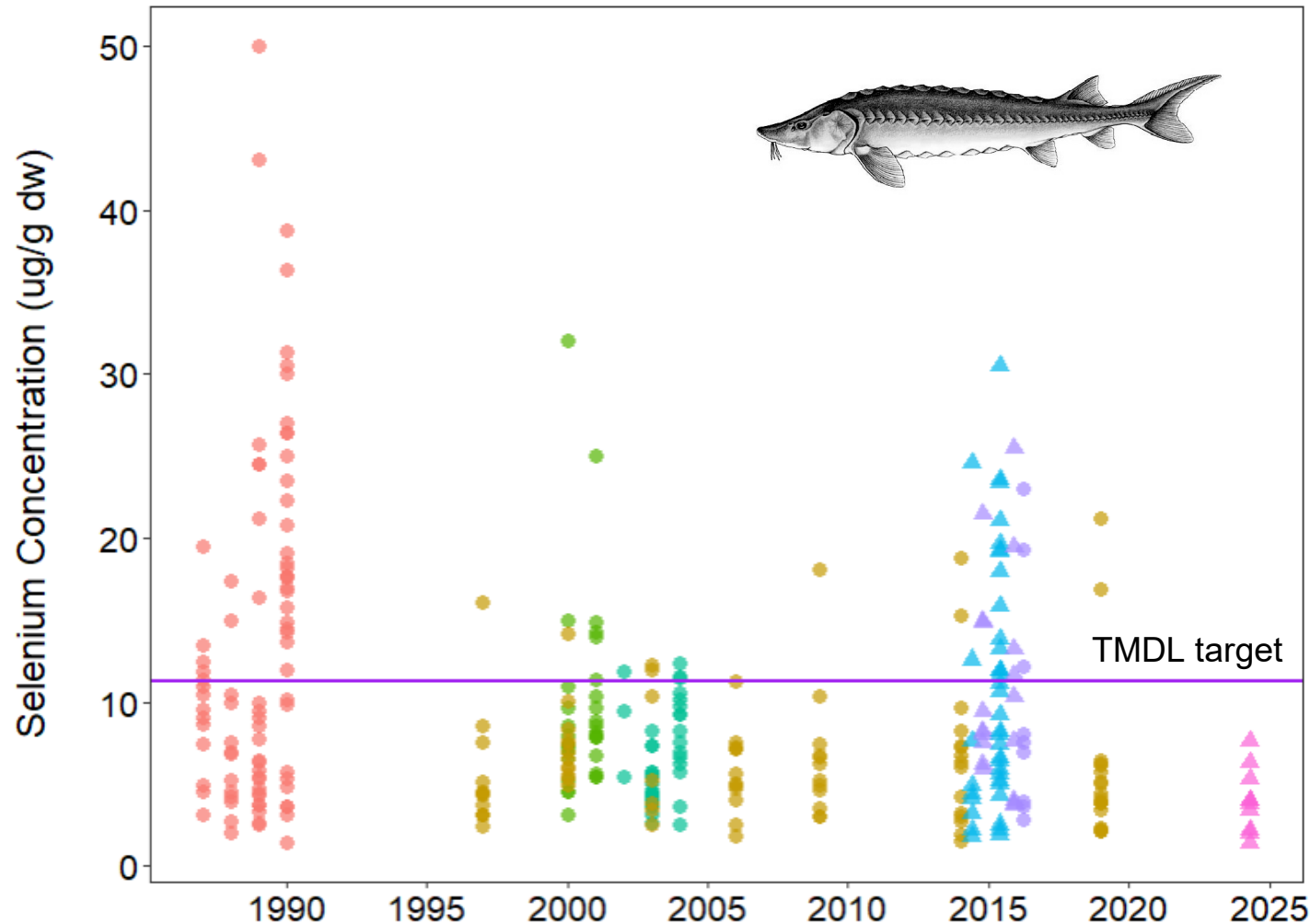
Lipid-normalized PCBs are decreasing in some locations



Selenium



Selenium concentrations are not showing clear long-term declines



Sources of variability

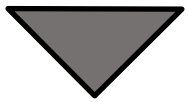
- Wet vs. dry year
- Location
- Season

- Selenium Verification Study
- RMP Status and Trends
- USGS
- Linares-Casenave et al 2004
- RMP Muscle Plug Study
- RMP Sturgeon Derby Study
- Martinez Refining Co. Study

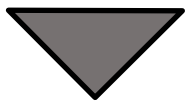
- fillet
- plug



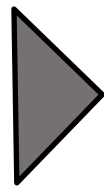
40 measured



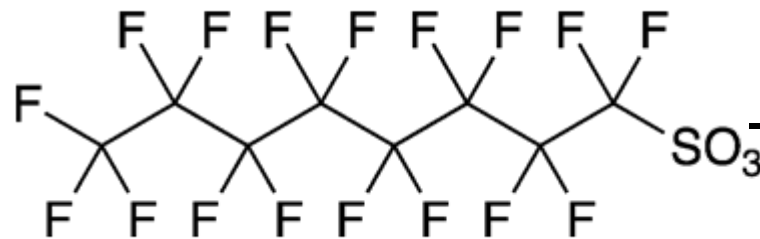
21 detected



4 frequently
detected



PFAS

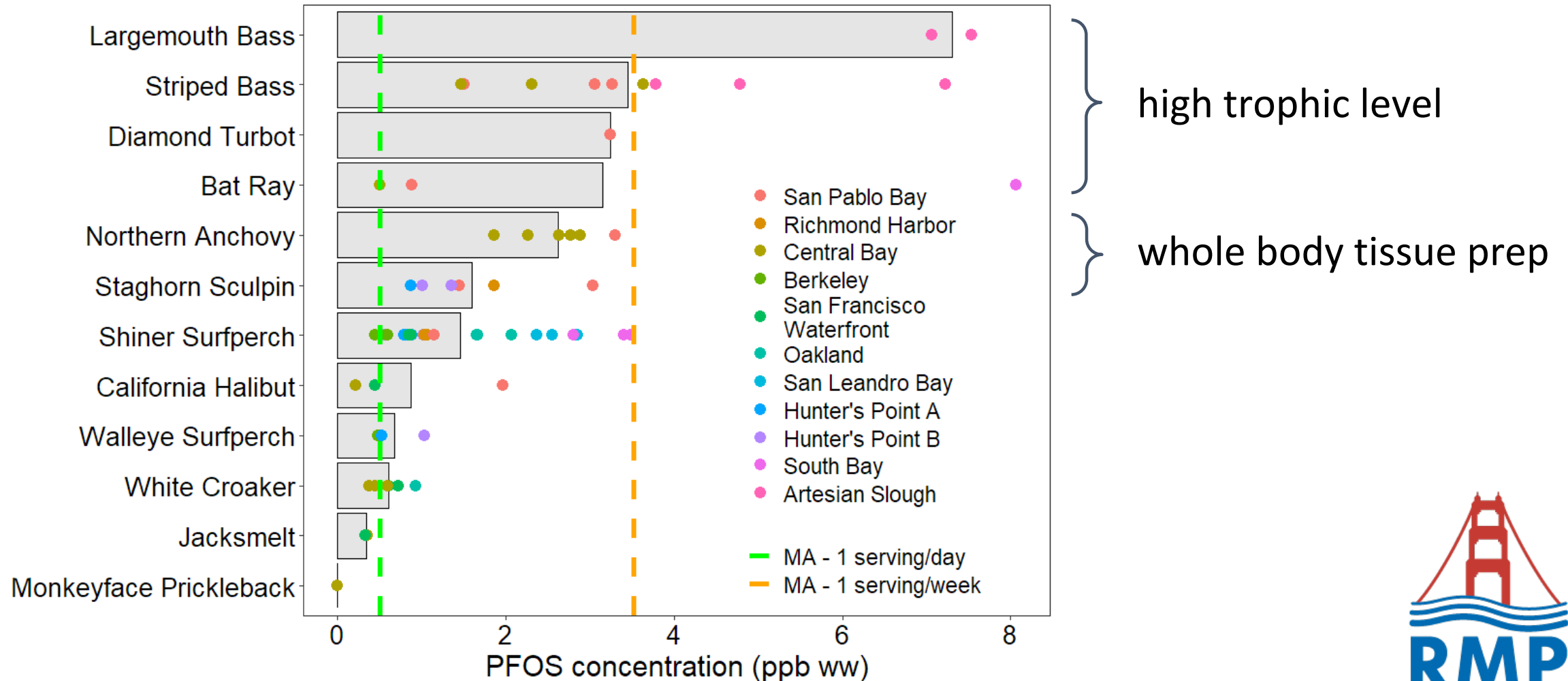


PFOS

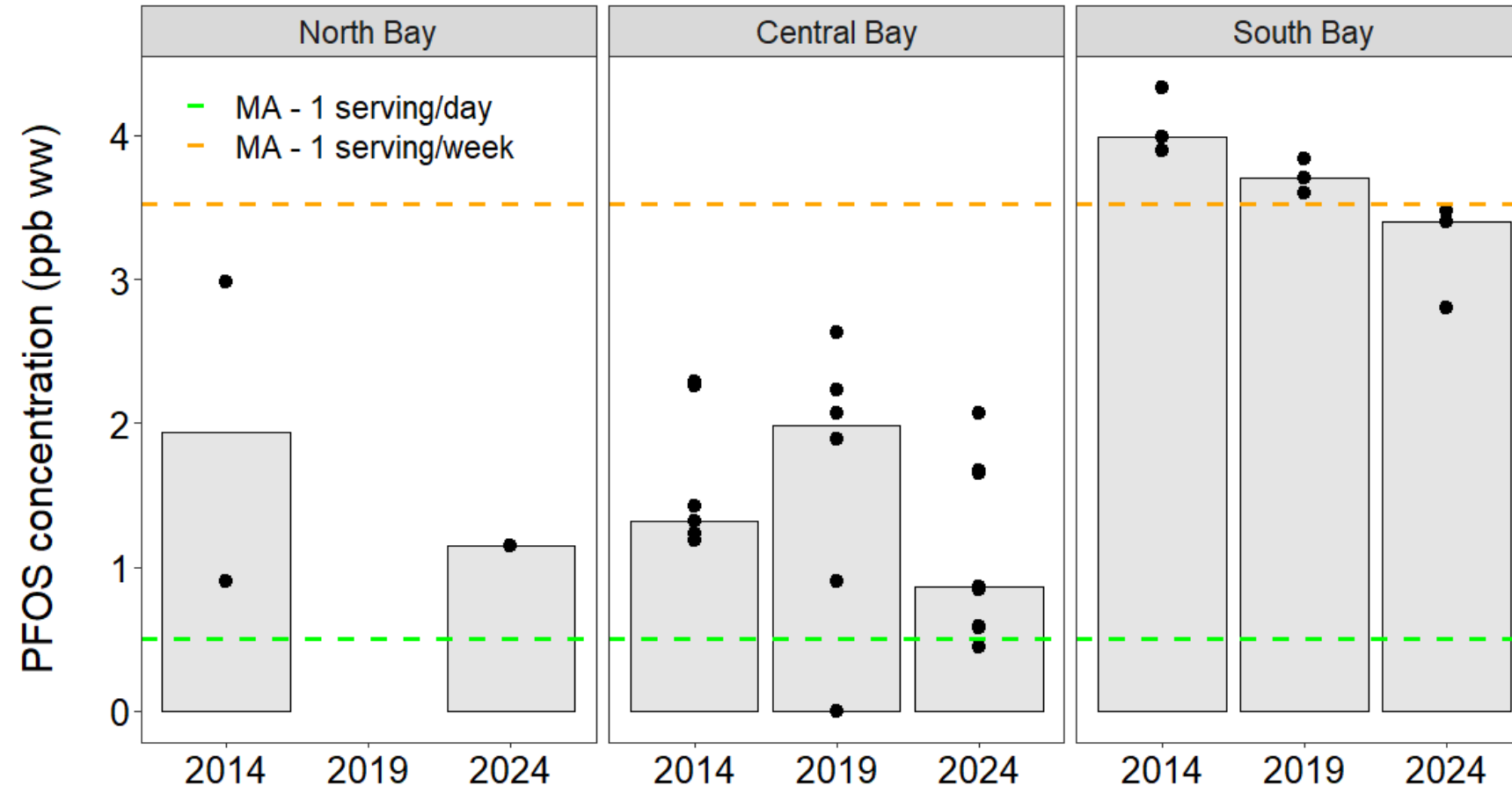
(Perfluoroalkylsulfonic acid)



PFOS exceeds levels of concern for human consumption in other states

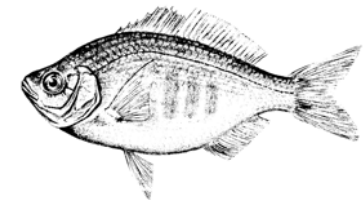


PFOS is elevated in South Bay...

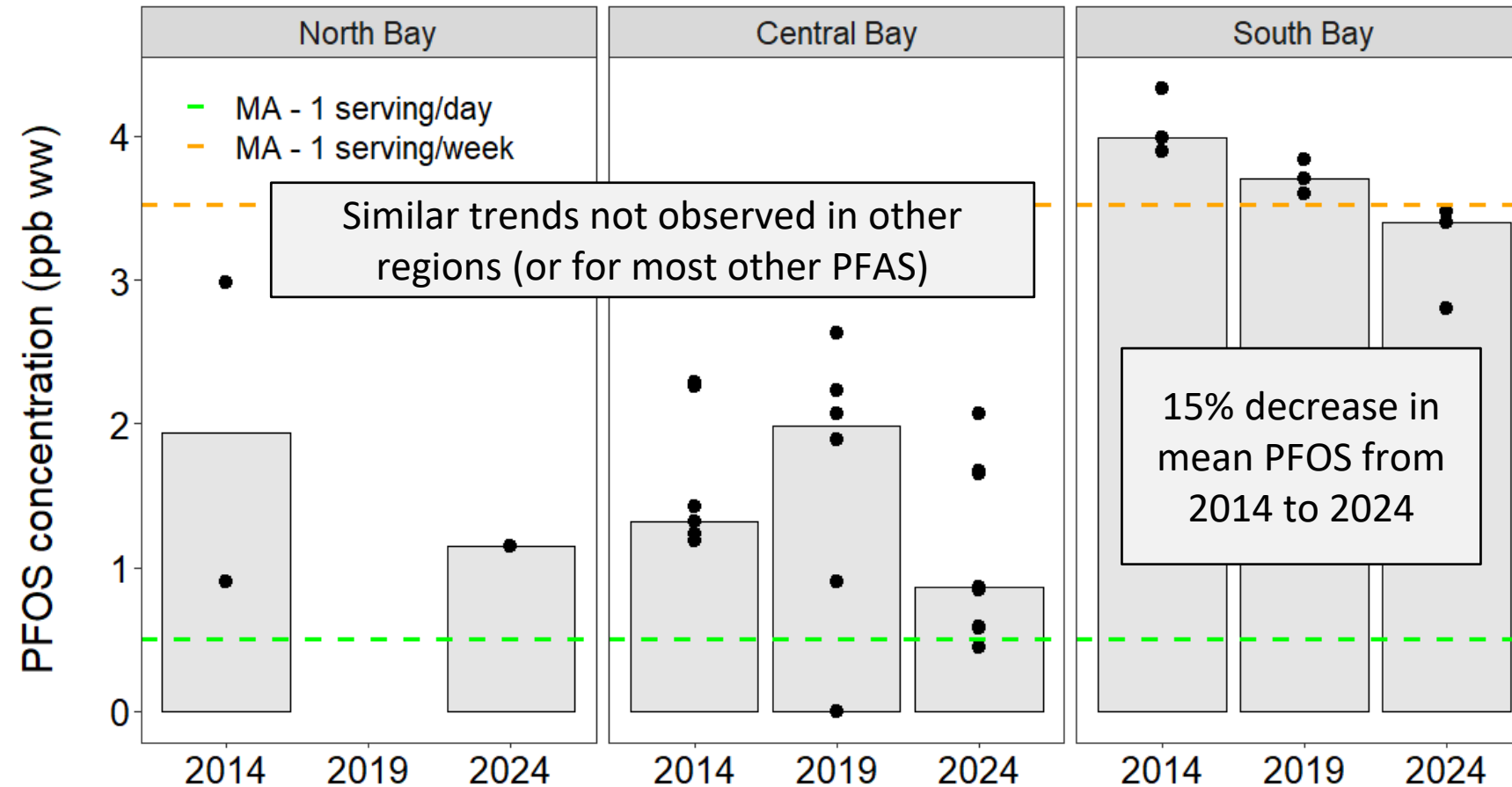


Similar patterns
observed in bird
eggs, sediment

Similar patterns
observed in other
contaminants

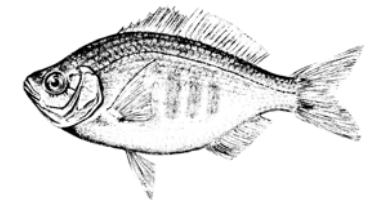


...but PFOS is starting to decrease in South Bay



Increased monitoring frequency (3 year cycle)

Protecting Bay Fishers (2027)



Protecting Bay Fishers

USEPA Water Quality Restoration Grant (2026-2031)

- Fish consumption surveys
- Expanded monitoring of additional species and locations (beginning 2027)
- Exposure reduction through risk communication

Guided by stakeholder engagement & community group input



Coming Soon



Contaminant Concentrations in Sport Fish from San Francisco Bay: 2024

Prepared by:

Jennifer Sun, Adam Wong, Don Yee, Martin Trinh, Ezra Miller, Rebecca Sutton, and Jay Davis
San Francisco Estuary Institute |

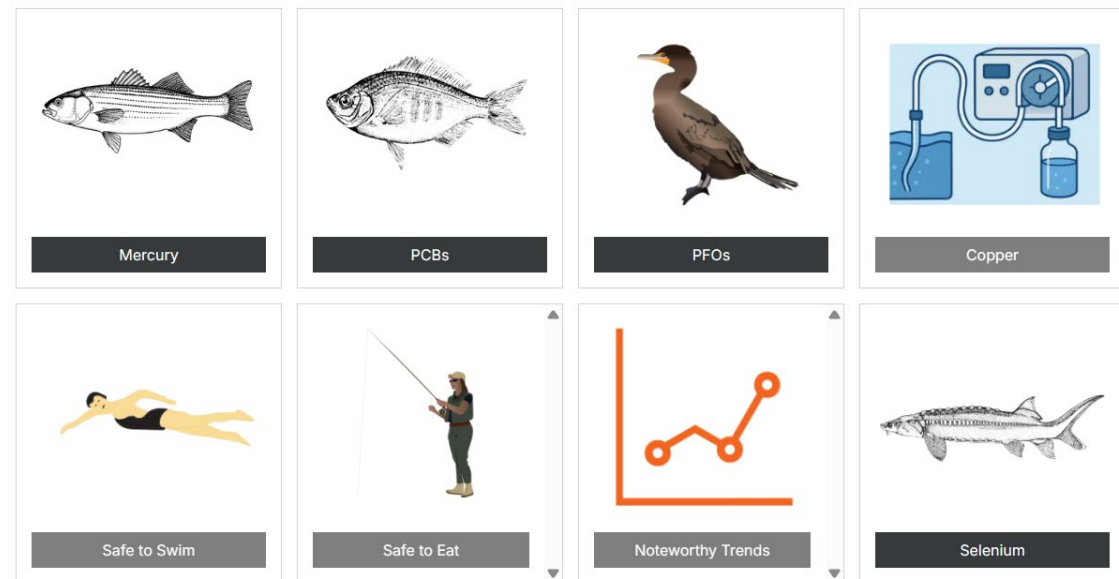
ICF Consulting

Autumn Bonnema, and Wes Heim
Moss Landing Marine Laboratories

Richard Grace
SGS AXYS Analytical Services Ltd.



RMP Data Dashboard



Sign up for
the e-Update!

<https://rmp-dashboard.sfei.org/>



Key Takeaways

- Many legacy contaminants remain above thresholds
- Slow decreases are now detectable for several persistent organic pollutants (lipid-weight)
- Phase-outs have driven tissue declines
- Much more monitoring to come soon



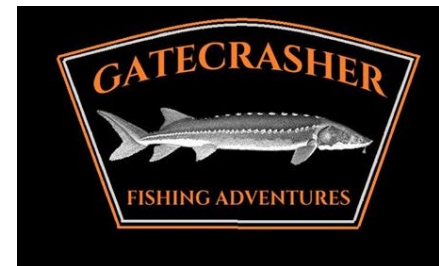
Thank you!



jsun@sfei.org



RMP e-Update



Key Takeaways

- Many legacy contaminants remain above thresholds
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RMP e-Update

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