

**MIACC:  
A Progress Update on the Shelter Island  
Yacht Basin (SIYB)  
Total Maximum Daily Load (TMDL) and  
Findings from Hull Cleaning Pause**

# TMDL Overview



Copper levels in Shelter Island exceed 3.1  $\mu\text{g}/\text{L}$  water quality standard



TMDL adopted in 2005; 17-year timeline



Per TMDL copper-based antifouling paint is primary source (98%) via

- Passive leaching
- In-Water Hull Cleaning

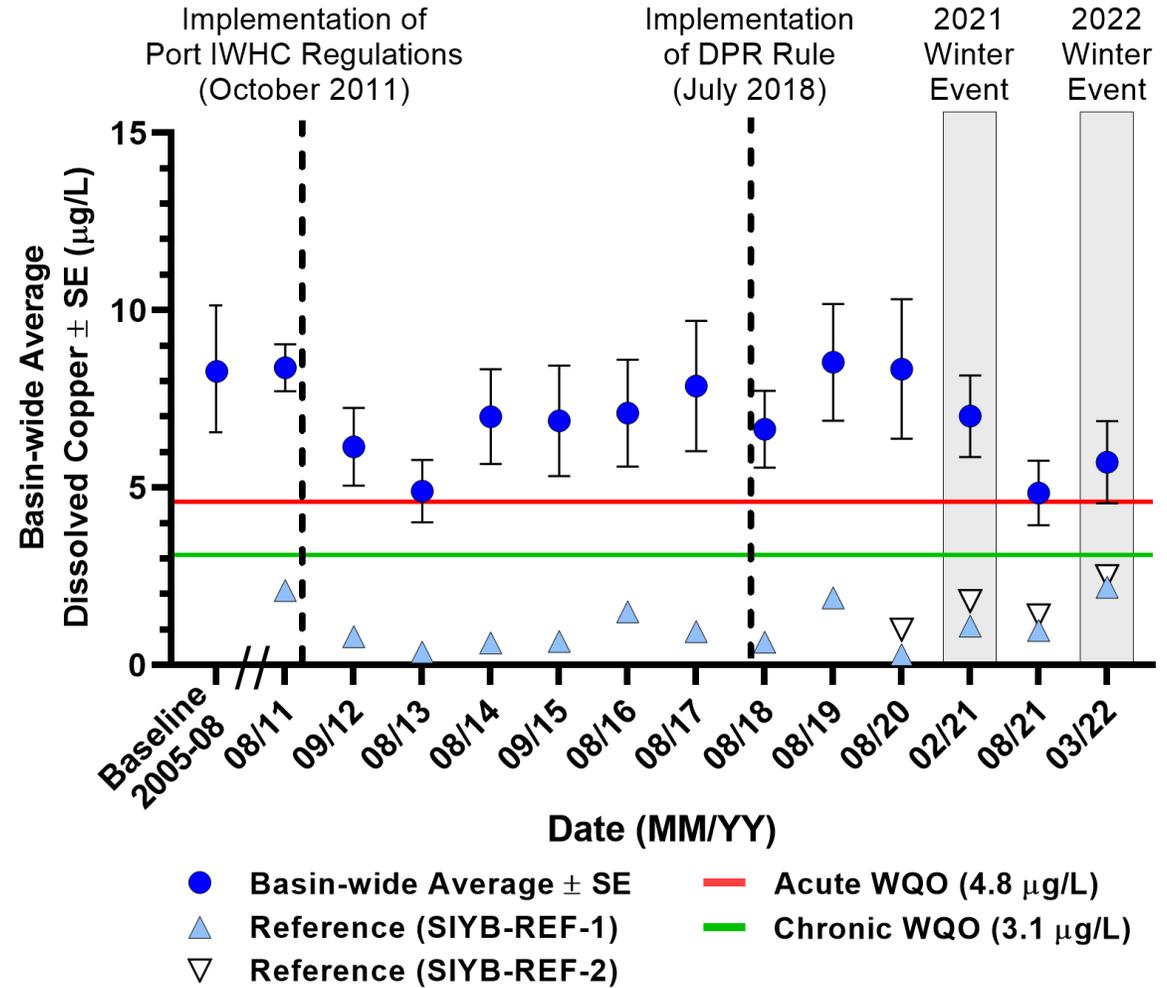


76% reduction required by 2022

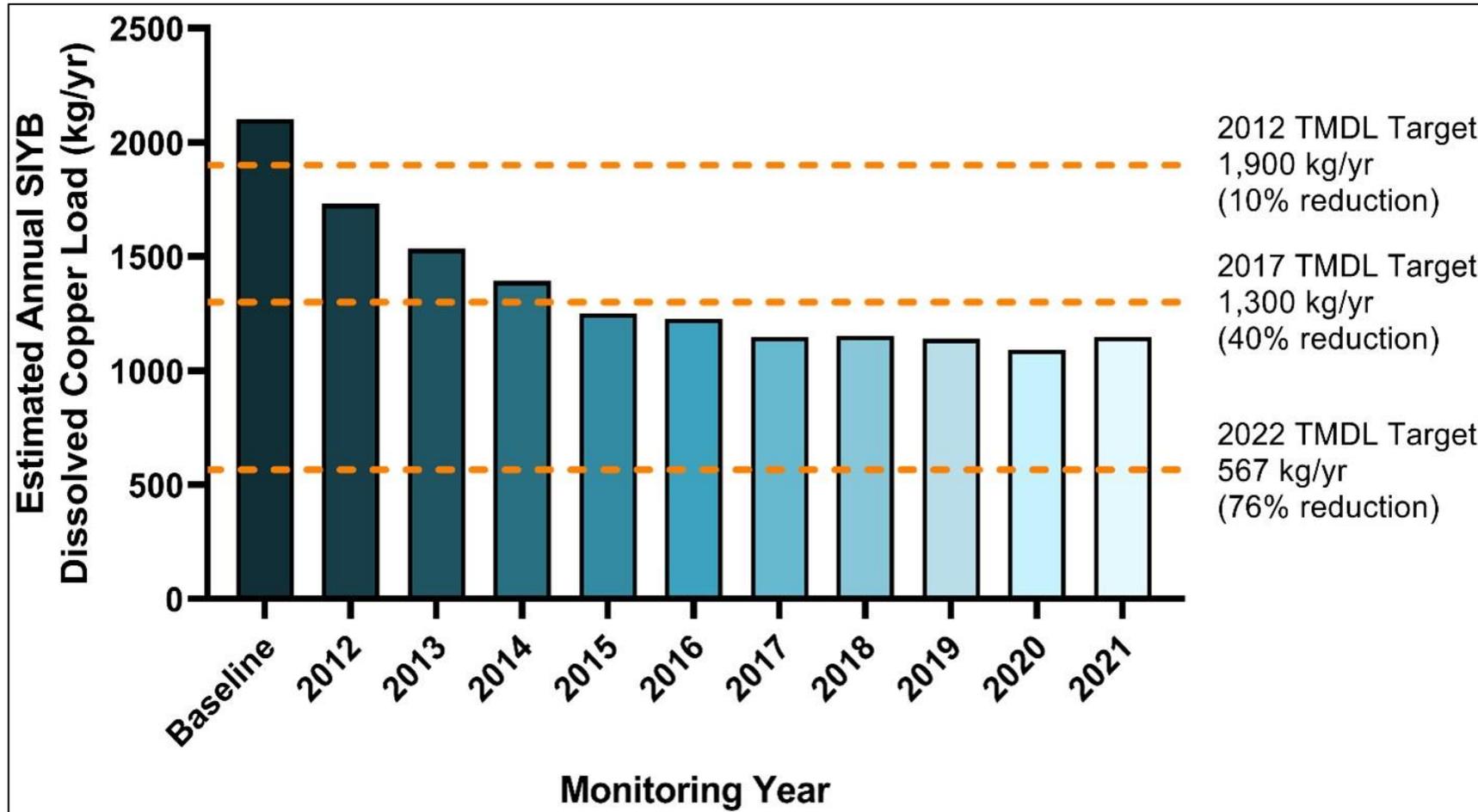


District, marinas & yacht clubs, hull cleaners, and boaters are named dischargers

# TMDL Water Quality Sampling



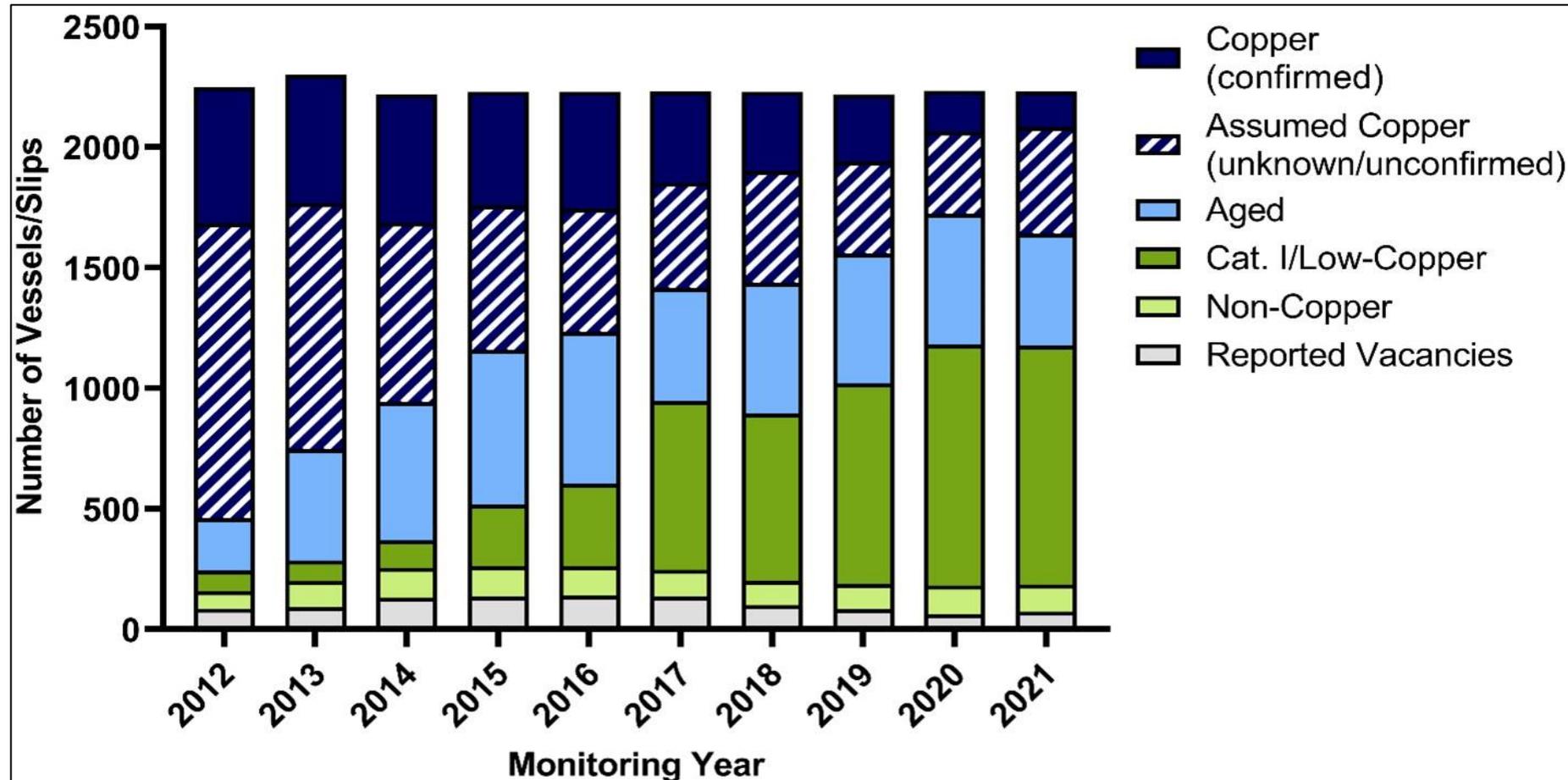
# Copper Load Estimates – Copper Going Into the Basin



## Changes in Copper Loading over Time

Source: 2021 SIYB Annual Monitoring & Progress Report, Wood, March 2022

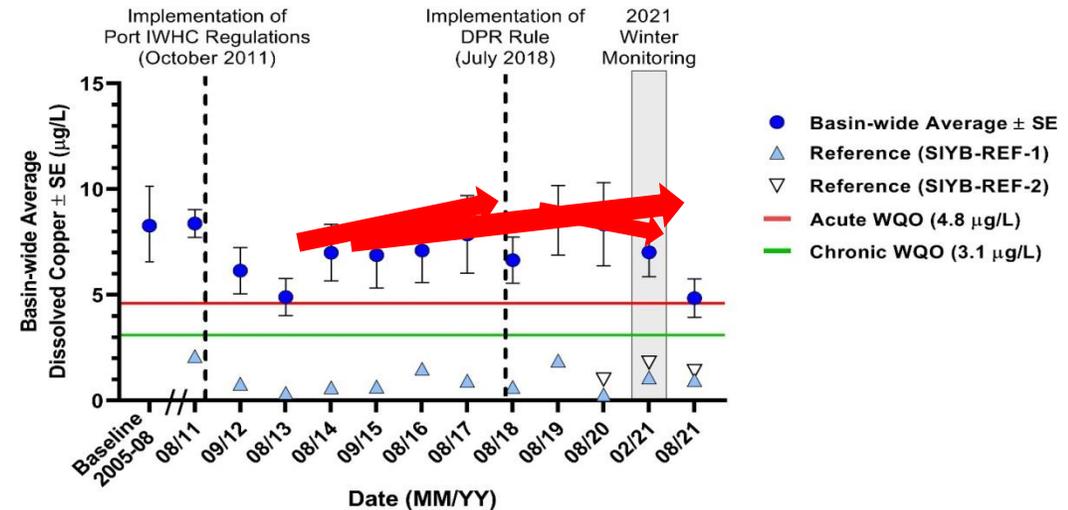
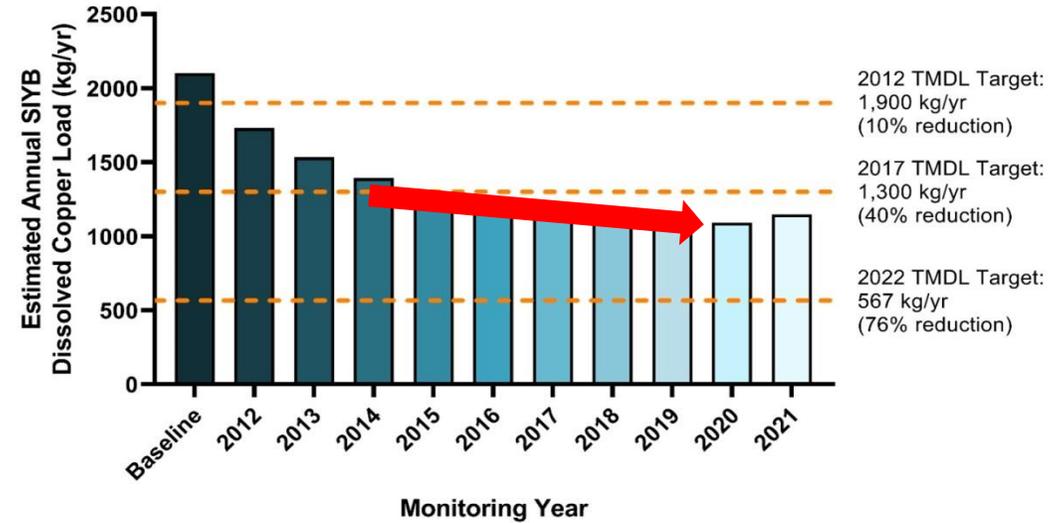
# Copper Load Estimates – Copper Paint Source Analysis



## Changes in Paint Use over Time

Source: 2021 SIYB Annual Monitoring & Progress Report, Wood, March 2022

# Water Quality and Loading Disconnect



Source: 2021 SIYB Annual Monitoring & Progress Report, Wood, March 2022

# Hull Cleaning Pause

## How does a pause in IWHC affect dissolved copper concentrations in SIYB?

- Implemented a temporary pause in hull cleaning from December 19, 2021 – February 9, 2022
- Performed daily dock-walks for a total of 217 inspections



*Port Staff performing dock walks*



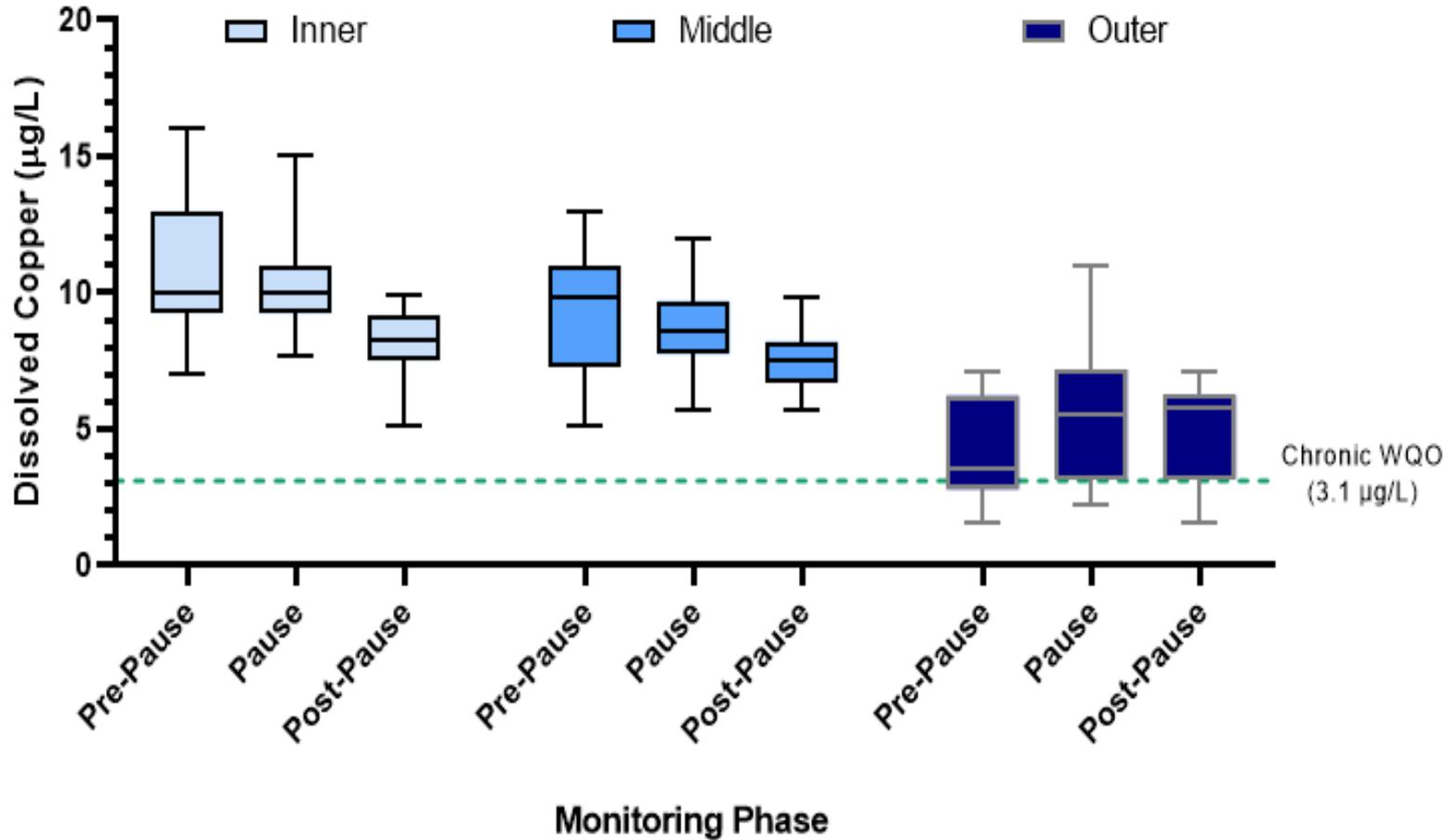
*Water quality sample collection*

# Water Quality Monitoring Program

- 16-Week Monitoring Program (Nov. 22 – Mar. 8)
  - 4 weeks pre-pause, 8 weeks during pause, and 4 weeks post-pause
  - Weekly at **core** and reference stations
  - Biweekly at **enhanced** stations
- Sampled storm event during Week 4
- Tsunami occurred during Week 9
- Field-filtered for dissolved copper analyses

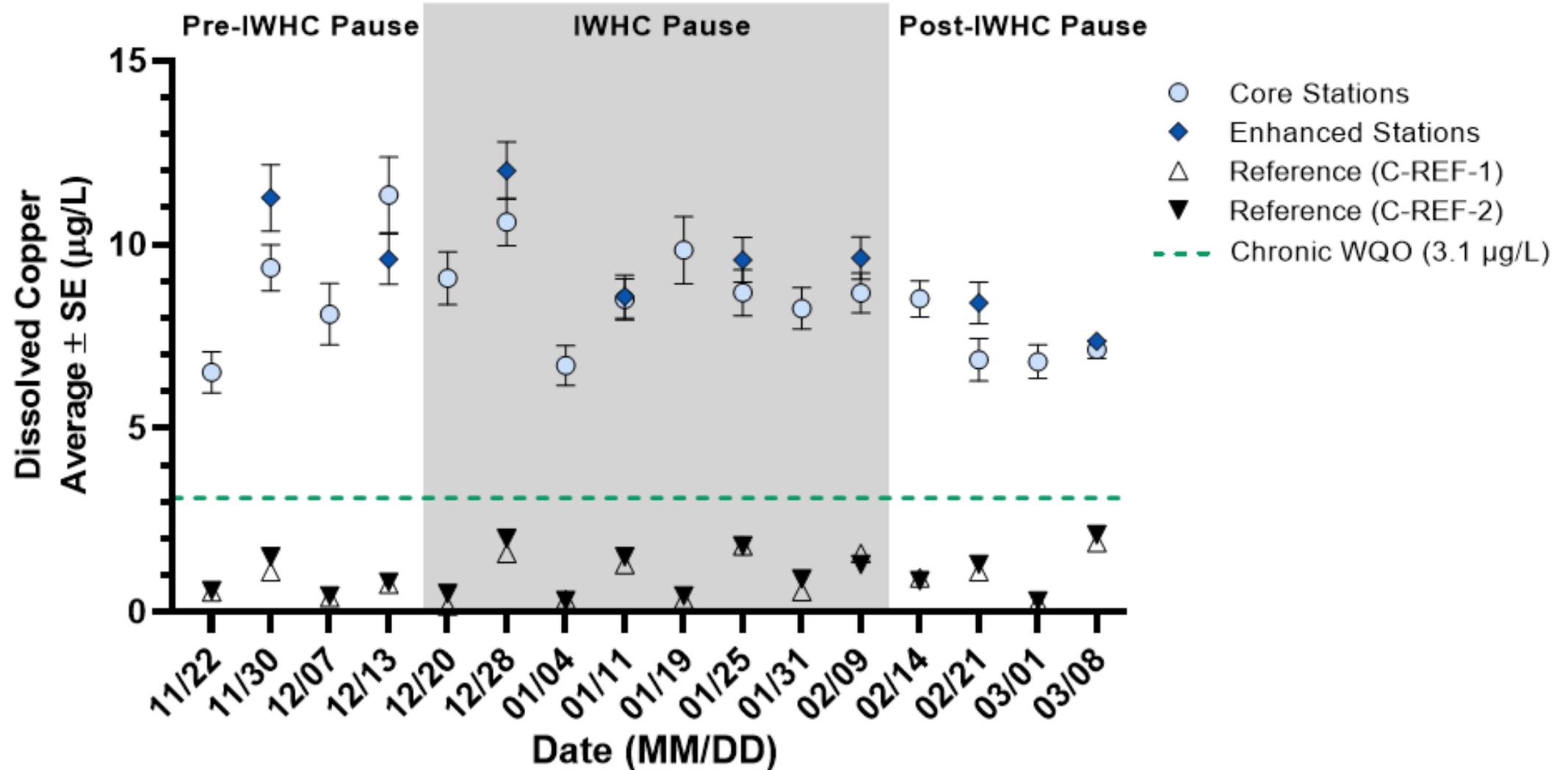


# Preliminary Pause Findings – Dissolved Copper by Region

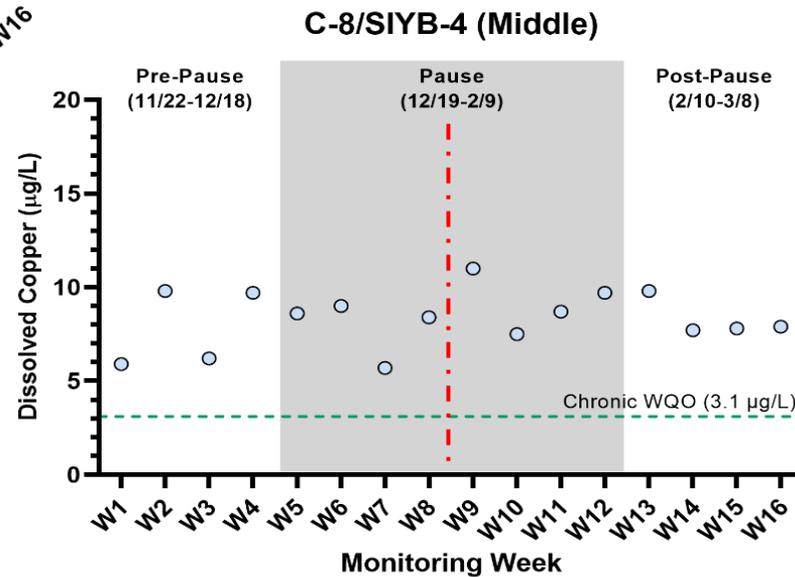
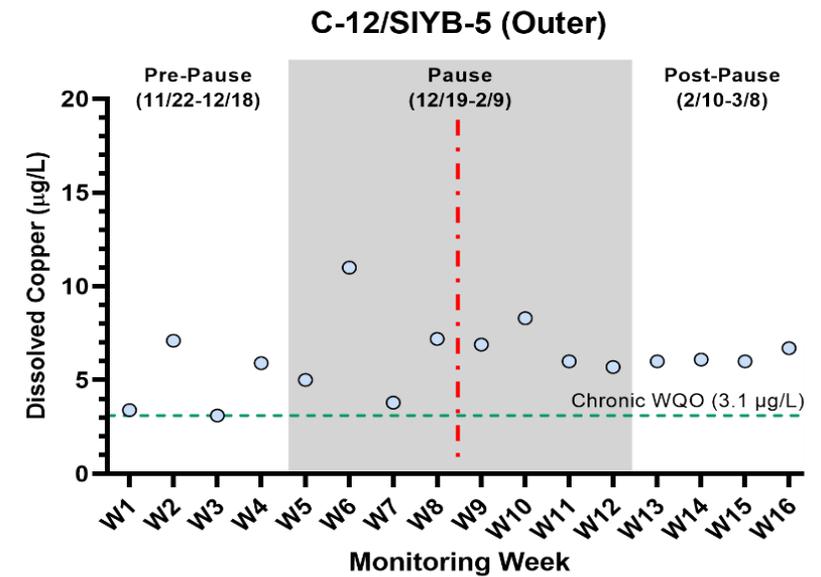
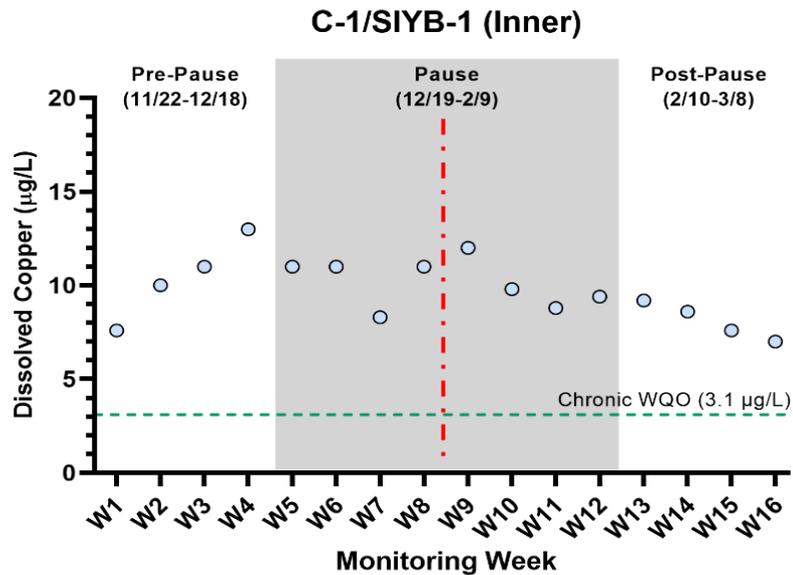


# Preliminary Study Findings –

## Average Weekly Dissolved Copper at Core and Enhanced Stations



# Preliminary Study Findings – Copper Levels at Individual Stations



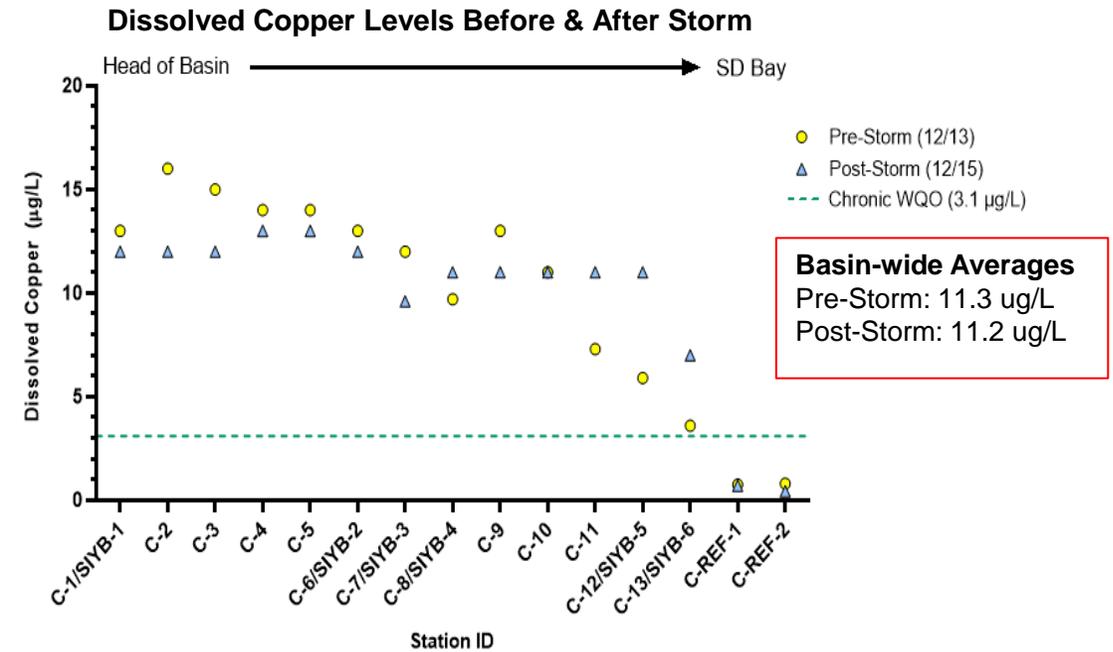
--- Tsunami (1/15)

# Preliminary Pause Findings – Other Environmental Factors

## Storm Monitoring – December 14, 2021 (Week 4)



*Sample collection of stormwater runoff*

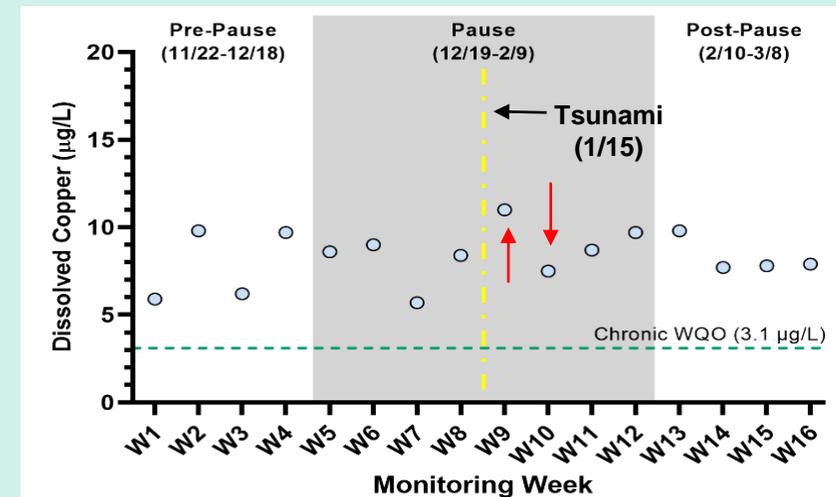


## Tsunami – January 15, 2022 (Week 9)



*Surging tsunami waves at SIYB dock*

### Dissolved Copper Levels Before & After Tsunami Station C-8/SIYB-4 (Middle of Basin)



# Key Takeaways

- Inspection program verified that cleaning did not occur
- Despite slight decreases, dissolved copper concentrations at end of the Pause still did not meet water quality standards at a majority of stations (19 of 20).
- Changes in dissolved copper concentrations due to elimination of hull cleaning appear to be minor compared to passive leaching.
- The complete data set & figures are in the *Hull Cleaning Pause Water Quality Monitoring Technical Report, June 2022*



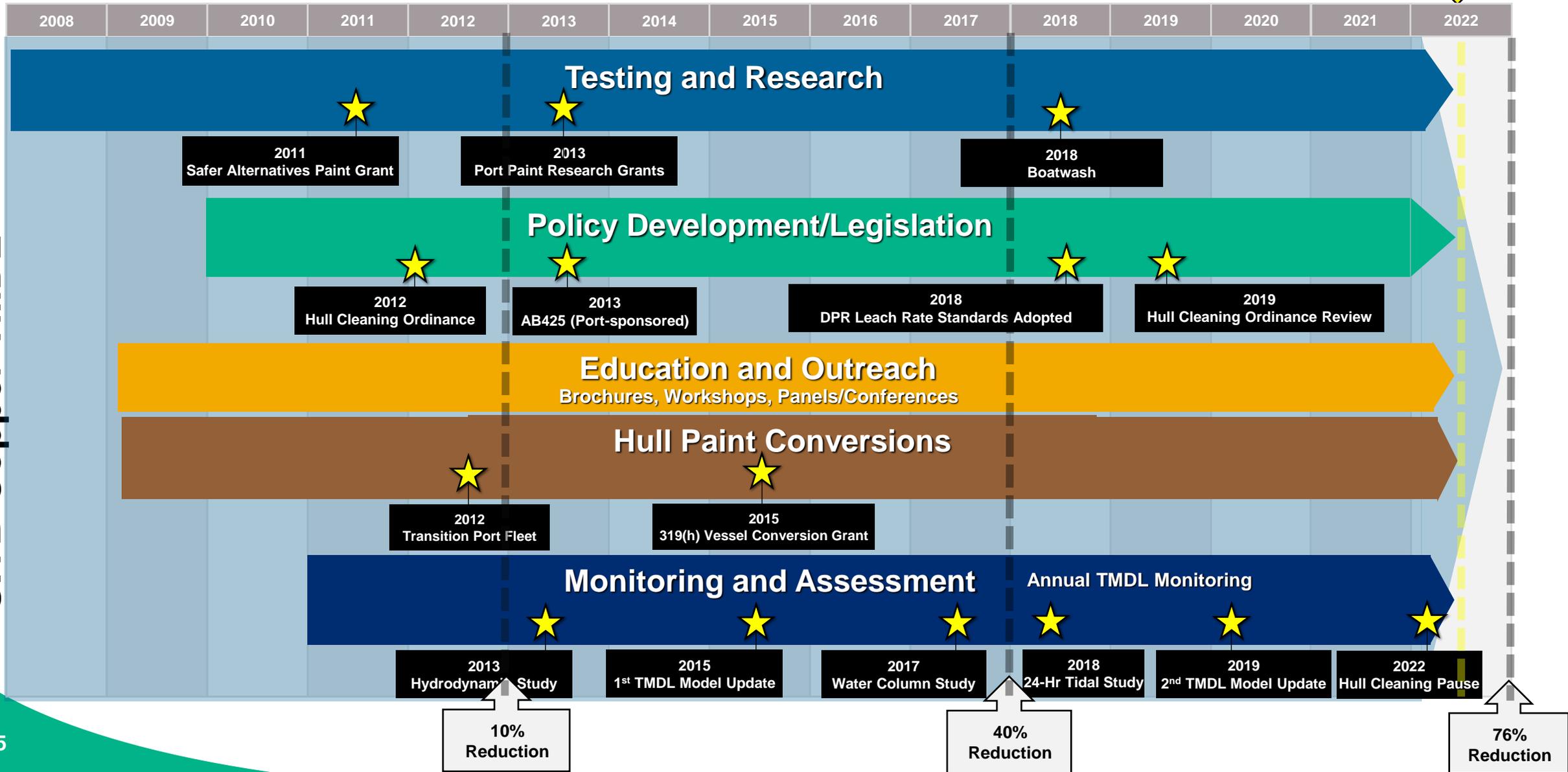


# Achievements & Next Steps

# Accomplishments & Milestones

**WE ARE HERE**

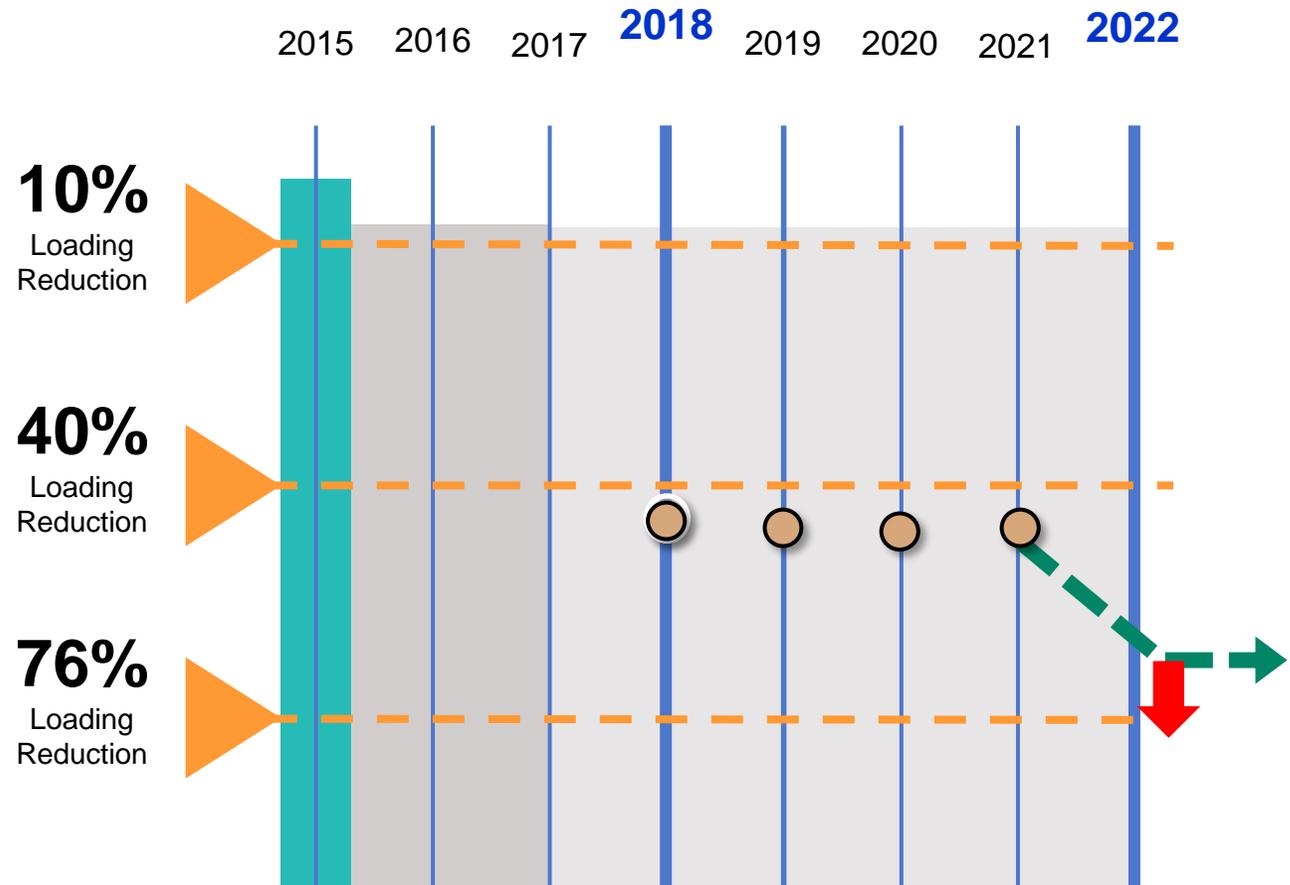
**SIYB Copper TMDL**



# Dept of Pesticide Regulation –

## Transitioning to Lower Leaching Antifouling Paints

- Statewide Paint Regulation starting July 1, 2018
- Paint phase out ongoing
- DPR monitoring water quality in SIYB and other areas
- Potential to reduce copper load further beyond TMDL



# In Summary –

The Knowns and Unknowns of the SIYB TMDL

## The Knowns

- Basin Water Quality knowledge has improved
- Copper Paint is greatest loading source
- Non-copper paint use remains limited

## The Unknowns

1. Challenges exist because copper paint remains legally available
  - Have yet to reach full benefit of DPR new leach rates
  - Unsure whether DPR or state will take further action
2. TMDL final target is December 2022
  - Need time to understand full effects of DPR leach rates
  - Regional Board alignment of healthy bay initiatives and TMDL timelines

## Next Steps

- Meet with Regional Board to discuss future of TMDL, options, and expectations