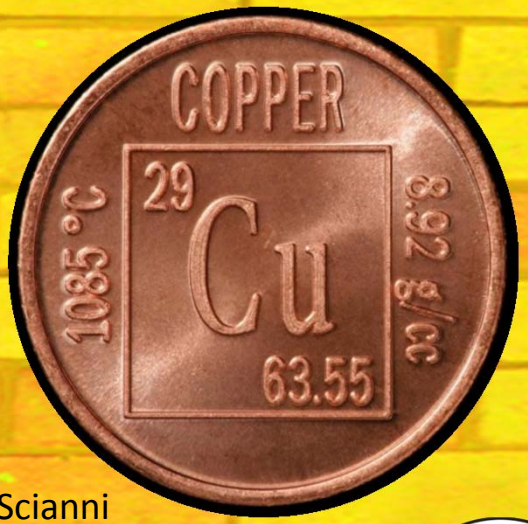
Barnacles and Mussels and Copper, Oh My!

What are the Concerns with In-Water Cleaning?

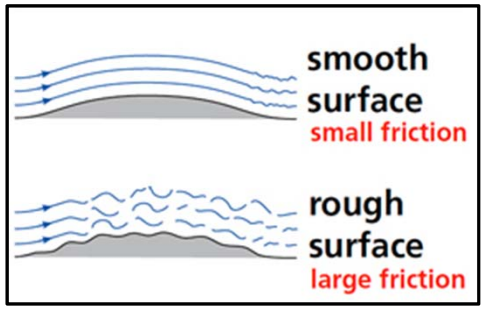


Chris Scianni
CSLC Marine Invasive Species Program
Prevention First 2016 – Session 1E
September 28, 2016 – Long Beach, CA

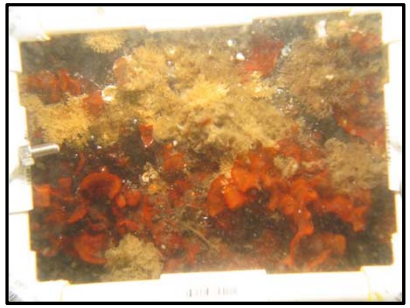
Vessel Biofouling: What's at Risk?

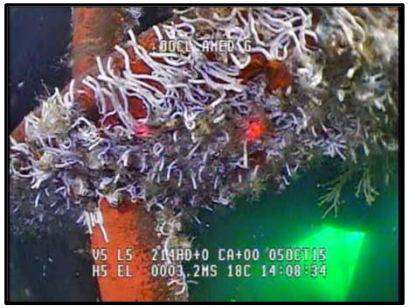
- Corrosion
  - Microbially-influenced corrosion (MIC)

- Drag-induced fuel consumption
  - Increased $$ Operating Costs $$
  - Increased Greenhouse Gas emissions



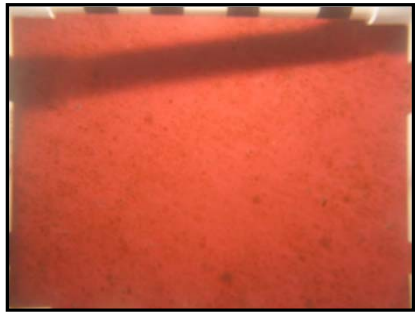
- Nonindigenous species

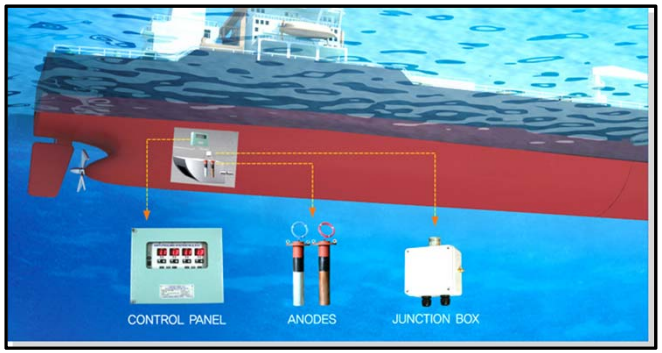




Vessel Biofouling: How is it Managed?

- Preventive/Proactive
  - Antifouling systems
    - Antifouling coatings
    - Foul-release coatings
    - Marine Growth Prevention Systems
- Reactive
  - In-water cleaning
- Hybrid
  - Hull grooming





http://www.iccp-mgps.com/images/mgps/img_mgps.jpg

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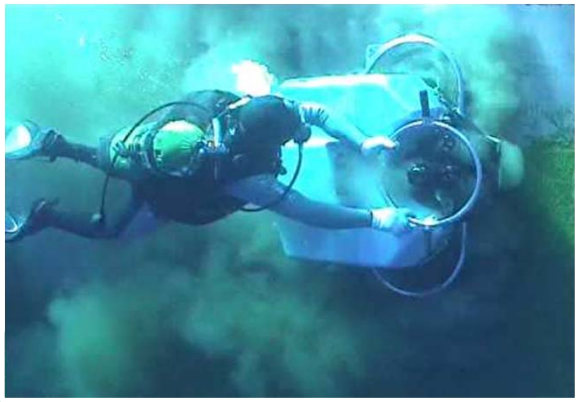

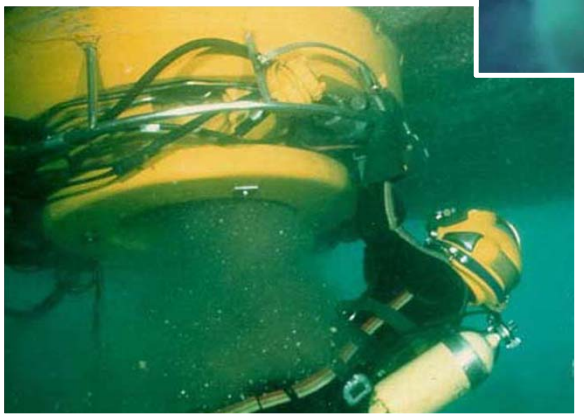

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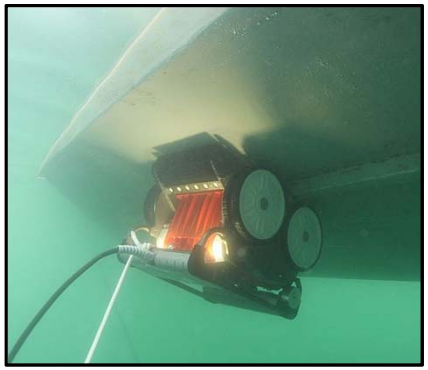
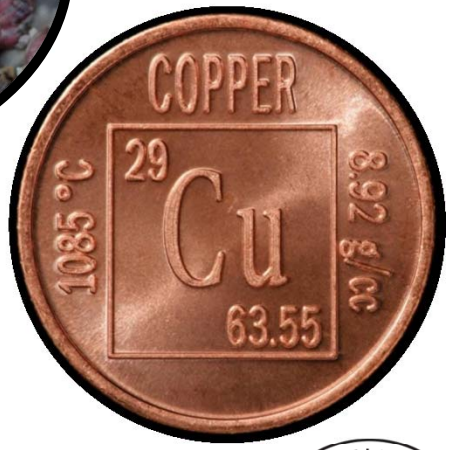
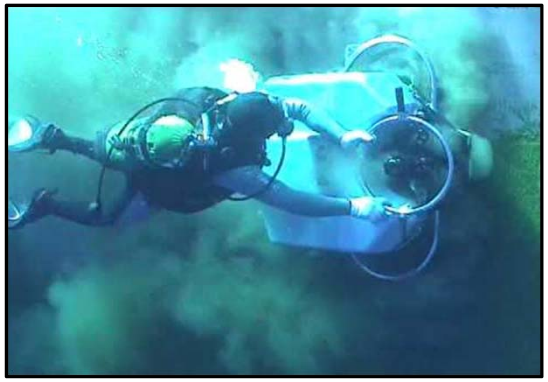
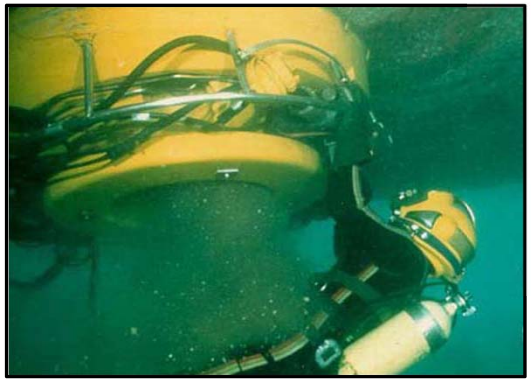


In-Water Cleaning: What Are the Environmental Risks?

- Nonindigenous species
- Chemical/biocides
  - Heavy metals
  - Others

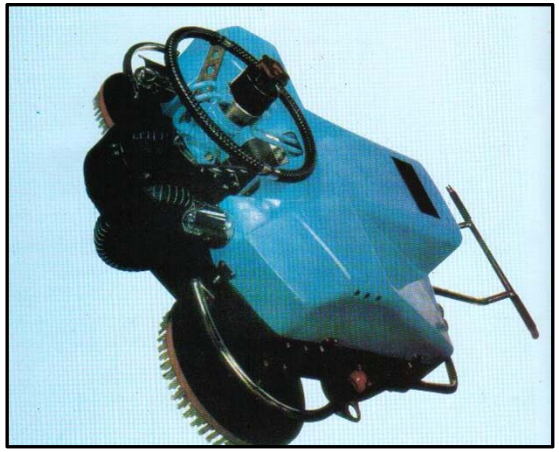






In-Water Cleaning: What is it Really?

- Different Cleaning Mechanisms:
  - Brushes
  - Water Jets
  - Heat
  - Contactless/rotating discs



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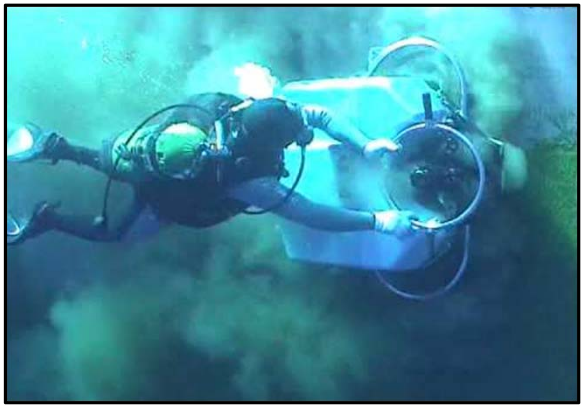
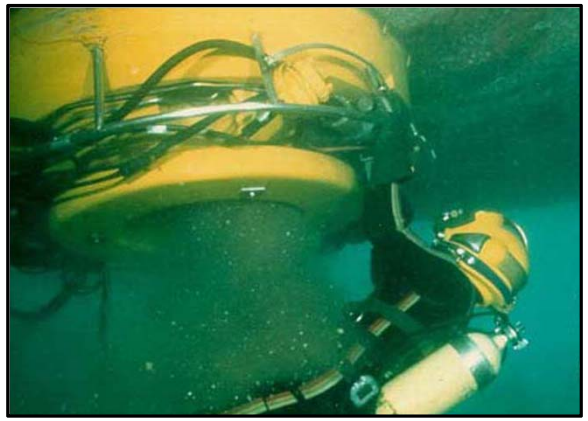
  - Recapture systems
  - Treatment only (i.e. no physical removal)





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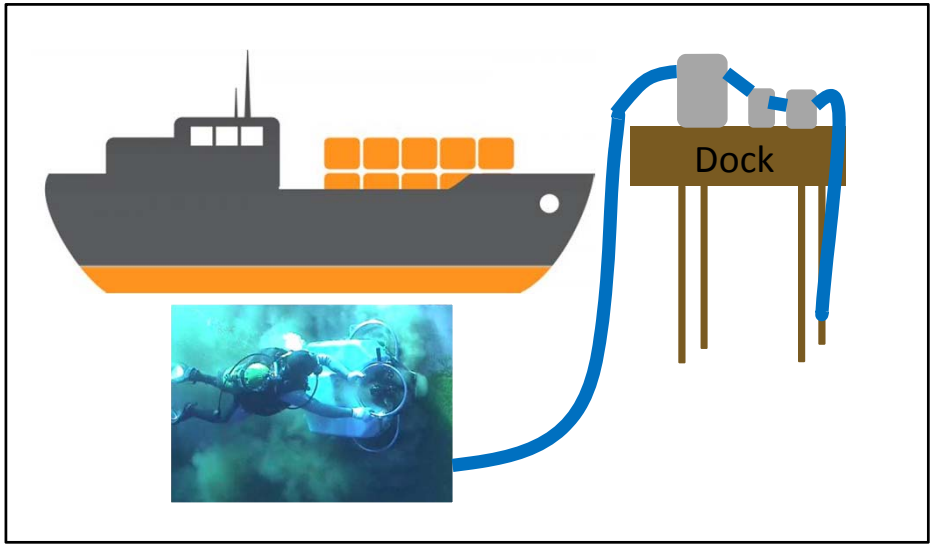

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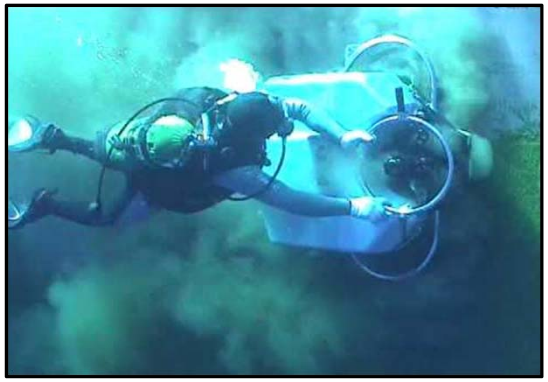
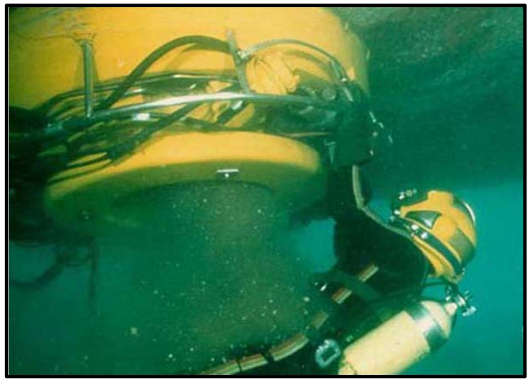
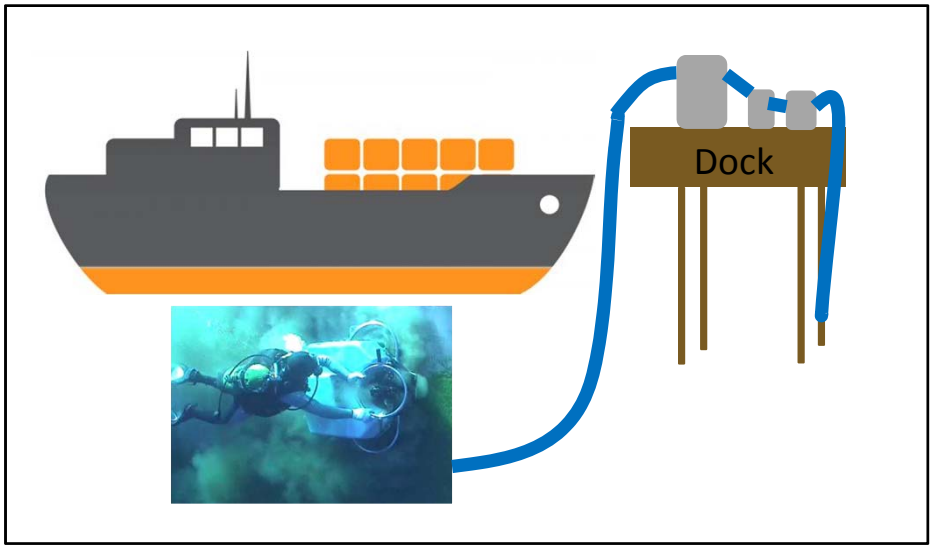
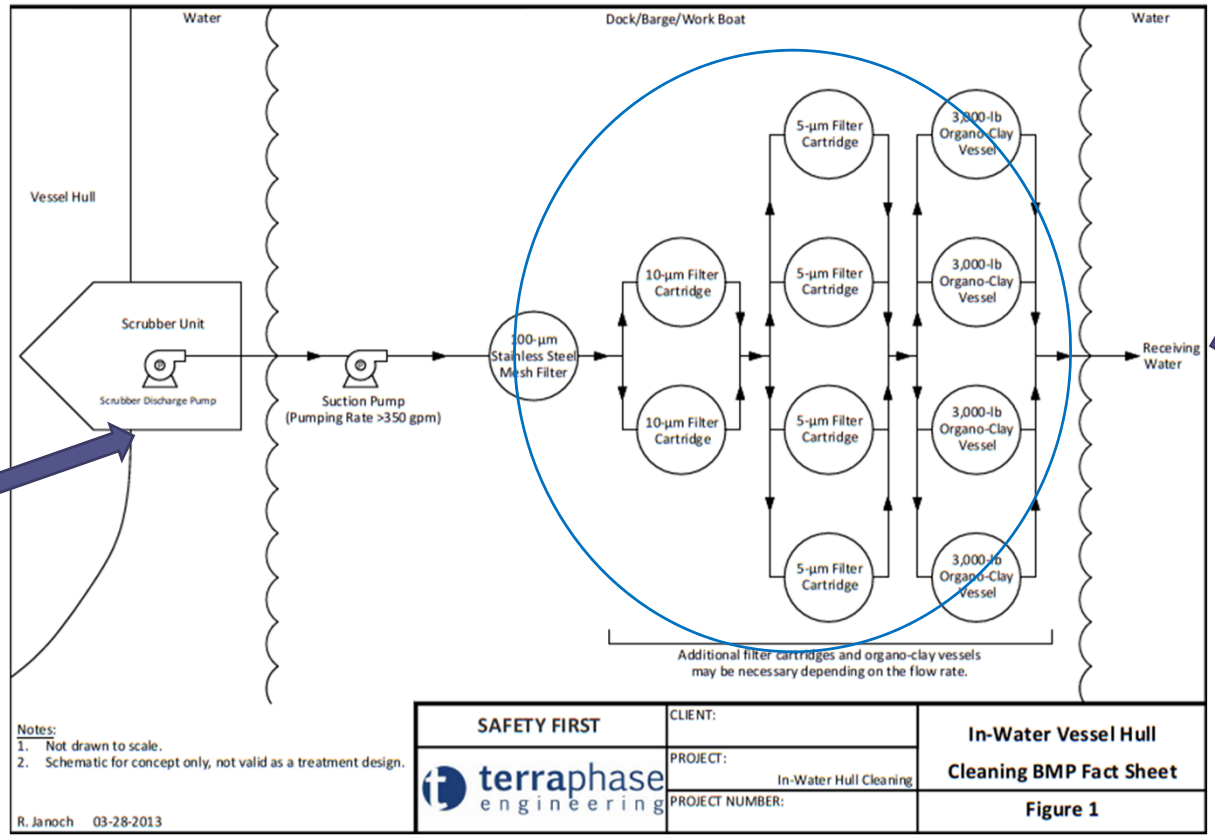






In-Water Cleaning: How Are Risks Realized?

During removal
- Capture efficiency
- Incidental release by diver or equipment



Upon discharge of the effluent

In-Water Cleaning: How Do We Reduce Risks?

- Careful regulation that addresses both NIS and chemical contamination risks

- Stay tuned for next few talks:
  - How is IWC being regulated across different jurisdictions to reduce both types of risks?
    - San Francisco Bay
    - New Zealand
    - Australia

Thank You

- For more information:
  - Chris Scianni, Senior Environmental Scientist (Supervisory)
    - Chris.Scianni@slc.ca.gov; 562-499-6390

www.slc.ca.gov