Barnacles and Mussels and Copper, Oh My!
What are the Concerns with In-Water Cleaning?
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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In-Water Cleaning: What Are the Environmental Risks?

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- Chemical/biocides
  - Heavy metals
  - Others
In-Water Cleaning: What is it Really?

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  - Brushes
  - Water Jets
  - Heat
  - Contactless/rotating discs
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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
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