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# Littoral State and Industry Cooperation on Hull Management

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## Littoral State and Industry Cooperation on Hull Management

### Presentation Outline

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1. Biofouling and the need for hull management
2. Industry perspective
3. Littoral State and Industry Cooperation proposal



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## Littoral State and Industry Cooperation on Hull Management

### 1. Biofouling and the need for hull management

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#### 1. Minimise the risk of introducing invasive species





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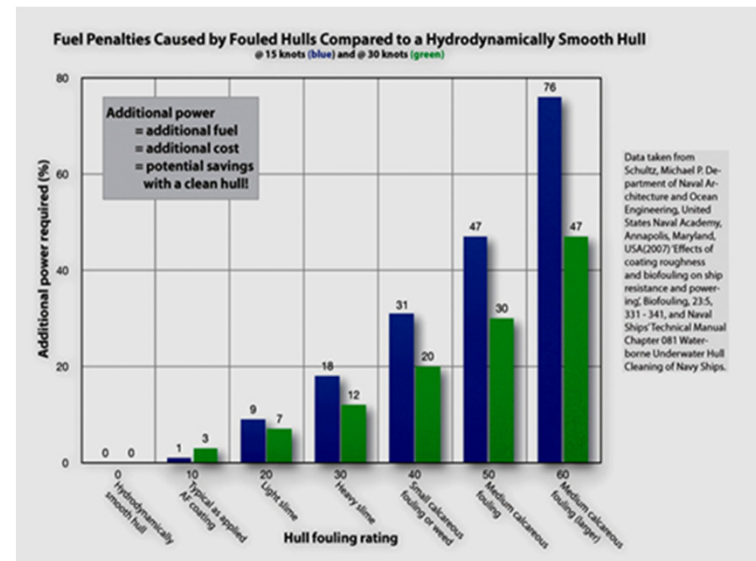
## Littoral State and Industry Cooperation on Hull Management

### 1. Biofouling and the need for hull management

1. Minimise the risk of introducing invasive species
2. Reduction of air emissions

<u>Fouling Type</u>	<u>Increase in Resistance</u>
Slime	5%
	8 – 14%
	18%
	10 – 20%
	25%
	8 – 18%
Shell & Weed	85% (extreme case)

Reported effect of fouling on hull's frictional resistance (Townsin, 2003 and Schultz and Swain, 1999, source, Advances in Marine Antifouling Coatings and Technologies; Edited by Claire Hellio and Diego Yebra)



Fuel Penalties Caused by Fouled Hulls Compared to a Hydrodynamically Smooth Hull (Dr. M. Schultz)



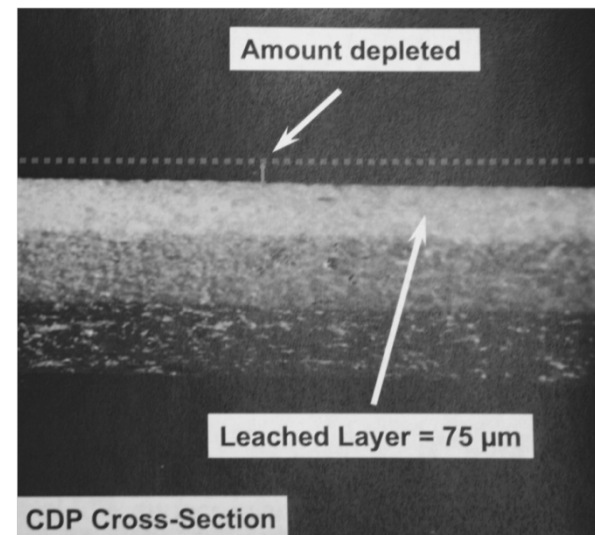
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## Littoral State and Industry Cooperation on Hull Management

### 1. Biofouling and the need for hull management

1. Minimise the risk of introducing invasive species
2. Reduction of air emissions
3. Minimise the introduction of harmful substances into the marine environment

Controlled Depletion  
Polymer (CDP) cross-  
section showing leach  
layer thickness





## 2. Industry perspective

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### Effective Hull management

1. Frequent and effective hull 'grooming'
  1. Minimise slime
  2. Cleaning of micro-fouling before the onset of macro-fouling
  3. Meet regional mandatory regulatory requirements and voluntary IMO guidance
2. Basic requirements:
  1. Professional underwater hull cleaning services
  2. Safe area to undertake hull management operations



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### 3. Littoral State and Industry Cooperation proposal

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1. Develop a list of service providers in Straits of Malacca and Singapore
2. Develop a list of areas in the SOMS suitable for hull management operations
3. Compilation of guidance and/or procedures required by LS for undertaking hull management operations



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Thank you