In-water cleaning?

New (perspectives) Zealand

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2014 Prevention First Symposium, Long Beach, California

Growing and Protecting New Zealand

www.mpi.govt.nz
Craft Risk Management Standard for Vessel Biofouling signed off
4 year “early adoption period” (voluntary)
Mandatory regulation to begin 2018
Alignment with IMO Guidelines
Risk minimisation

For more details

- Standard
- Guidance document
- Science underpinning standard
New Zealand (and Australia): In-water cleaning

- 1997
  - Code of Practice for Anti-fouling and In-water Hull Cleaning and Maintenance (ANZECC Code).
  - Concerns
    - Release of biocides
    - Establishment of non-indigenous species
- 2009
  - Code reviewed
- 2013 +
  - Guidelines released
  - Undergoing 1 year review

Image: New Zealand Diving and Salvage Ltd
New Zealand (and Australia): In-water cleaning

- Guidelines (principles)
  - In-water cleaning
    - Regular is effective
    - Not a substitute for poor practice
    - Suitable anti-fouling coatings only
    - Not suitable on coatings at the end of their service life
- Clean before you leave
- Minimise discharges
- Immediately report suspected non-indigenous species

Image: New Zealand Diving and Salvage Ltd
New Zealand (and Australia): In-water cleaning

Types of In-water Biofouling Treatment:
1. In-water cleaning of submerged surfaces of vessels or movable structures, including niche areas
   - Adequate documentation available on:
     1. Presence of anti-fouling coating
     2. Anti-fouling coating type
     3. Anti-fouling coating age
     4. Planned in-service period
   - Mechanically resistant coating or no anti-fouling coating
   - Coating age within planned in-service period
   - Biofouling type on target surfaces
     - Microfouling
     - Macrofouling
     - Unknown
   - In-water cleaning acceptable without requirement to contain cleaning waste, provided conditions A, B and C are met and non-abrasive cleaning method is used to avoid contaminant risk and coating damage.

2. In-water treatment aimed at killing (but not necessarily removing) biofouling
   - Treatment acceptable if proposed method:
     - is endorsed by relevant authority
     - meets conditions A, B and C
     - does not result in release of viable biofouling material exceeding provisions in condition D.
   - Decision dependent on Biofouling origin
     - Regional: In-water cleaning may be acceptable without requirement to contain biofouling waste, provided conditions A, B and C are met.
     - Domestic: In-water cleaning may be acceptable provided conditions A, B and C are met. Risk assessment by relevant authority to determine whether condition D must be met.
     - International: In-water cleaning acceptable only when conditions A, B, C and D are met, unless specified by relevant authority.
     - Unknown: Defaults to ‘international’ biofouling origin.

3. In-water cleaning as a result of emergency situation or exceptional circumstances
   - Decision and guidance provided by relevant authority

Conditions for Removal and/or Treatment of Biofouling:
A: Anti-fouling coating is suitable for cleaning/treatment.
B: Cleaning/treatment method does not damage coating surface.
C: Discharges meet local standards or requirements.
D: Cleaning/treatment method ensures that release of biological material into the water column is minimised through the capture and containment of biofouling waste. Cleaning method should aim to, at least, capture debris greater than 50 μm in diameter which will minimise the release of viable adult, juvenile and larval stages of macrofouling.
New Zealand (and Australia): In-water cleaning

- Decision Support Tool for in-water cleaning
  - Anti-fouling coating
    - Presence, type, age, length of service life
  - Fouling
    - Type, origin
  - Method
    - Type, suitability, re-capture ability, discharge

Image: New Zealand Diving and Salvage Ltd
Balancing the risks of in-water cleaning

• Research Question
  – “When do the environmental costs of releasing non-indigenous species and chemical contaminants during in-water cleaning outweigh the risks of no action?”

• Approach taken
  – Key questions
  – Literature review and modelling/risk assessment
  – Combine chemical and biosecurity risk assessments
  – Knowledge gaps?

“Vessel dry-docking in Singapore” Daniel Kluza (MPI)
Balancing the risks of in-water cleaning

- Scenarios examined
  - Vessel origin
  - Vessel type
  - Vessel size
  - Paint type
  - Cleaning method
  - Number of vessels cleaned
  - Ports and marinas

Daniel Kluza (MPI)
Balancing the risks of in-water cleaning

• General conclusions (International vessels)

• All vessels (Biocide free)
  – Acceptable (without capture)
    • Slime layer
  – Acceptable (with capture)
    • visits > 48 h and Level of Fouling (LOF) ≤ 3

• Biocidal systems
  – Restrictions
• LOF > 3
  – Not acceptable

Daniel Kluza (MPI)
Balancing the risks of in-water cleaning

- General conclusions (Domestic vessels)
  - Cleaning location
  - **Acceptable**
    - Biocide-free
    - Port of origin
  - **Restricted / Not acceptable**
    - Fouling origin
    - Biocide
    - Duration of visit
    - Level of fouling
    - Presence of non-indigenous species
Current Research

Determining the efficacy of in-water cleaning systems

• Objective
  – Develop standard testing requirements for in-water cleaning systems with respect to biosecurity risk

• Methods
  – Categories
  – Investigation of biosecurity risks
  – Standard setting
  – Test development
Current Research

• Results
  – In general, biosecurity risks associated with:
    – Set up/accessing the hull
    – Cleaning water-line
    – Cleaning general hull, niche areas and edges
    – Capture of waste material
    – Filtration/treatment of waste material

• To come
  – Framework to test each cleaning category
Future research

• Niche areas
  – Small proportion of the hull
  – High susceptibility to biofouling
  – Increased fouling abundance and diversity relative to hull
  – Reactive measures to mitigate biosecurity risk lacking

• Research objectives
  – Evaluate methods
  – Environmental cost/benefit
  – Develop data requirements for efficacy testing
Acknowledgements

• Service providers
  – ES Link Services Pty Ltd (John Lewis)
  – NIWA Ltd
    (Graeme Inglis, Don Morrisey, Chris Woods, Leigh Tait, Jennifer Gadd
     Mike Page, Oli Floerl)

• In kind support
  – Dept. of Fisheries Western Australia (Justin McDonald)

• MPI
  – MPI Operational Research Team (Andrew Pavitt, Suzanne Keeling)
  – Andrew Bell, Dan Kluza, Biosecurity and Environment Group, Response Group

Thanks for listening!