Ministry for Primary Industries
Manatū Ahu Matua

In-water cleaning

Perspectives from the end of the world….

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Hawaiian In-water Cleaning Workshop June 2015

www.mpi.govt.nz

New Zealand Regulatory Update

- 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

http://www.biosecurity.govt.nz/files/regs/ships/crms-biofouling-standard.pdf

- Guidance document

http://www.biosecurity.govt.nz/files/regs/ships/crms-biofouling-guidance-document.pdf

- Science underpinning standard

http://www.mpi.govt.nz/document-vault/4148

Scenarios for in-water cleaning

- International context
  - IMO guidelines
    - Routine maintenance
  - New Zealand CRMS
    - Routine maintenance
    - Tools for urgent vessel treatment
- Domestic context
  - Range extensions
  - Routine maintenance
  - Pathway management

Image: NIWA Ltd

Scenarios for in-water cleaning

- 2008
  - Determining the efficacy of incursion response tools: Rotating brush technology (coupled with suction capability)
- 2009
  - Review of options for in-water cleaning of ships
- 2012
  - Scenarios of vessel biofouling risk and their management
- 2013
  - In-water cleaning of vessels: Biosecurity and chemical contamination risks
- 2015
  - Framework for testing in-water cleaning systems

Image: NIWA Ltd

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

NO IN-WATER CLEANING

- 2009
  - Code reviewed
- 2013 +
  - Guidelines released
  - Undergoing 1 year review

IN-WATER CLEANING but…

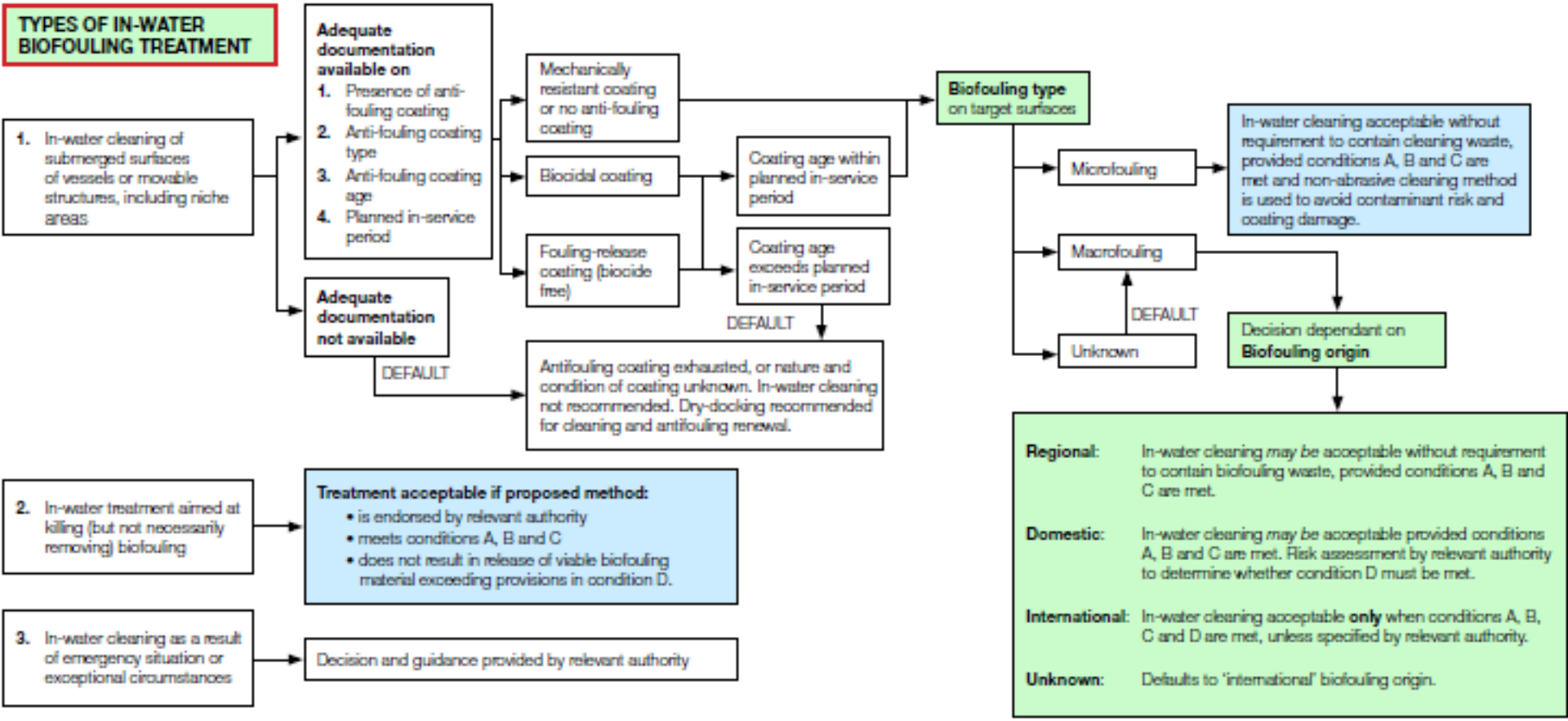
Image: New Zealand Diving and Salvage Ltd

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



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 visible 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

Daniel Kluza (MPI)

Framework for testing in-water cleaning systems

- Objective
  - Develop standard testing requirements for in-water cleaning systems with respect to biosecurity risk
- Approach
  - Categories
  - Investigation of biosecurity risks
  - Standard setting
  - Test development

Image: NIWA Ltd

Framework for testing in-water cleaning systems

- Literature review
  - 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
    - De-mobilsation

Image: NIWA Ltd

Framework for testing in-water cleaning systems

- Performance standards for testing
  - Manual and mechanical technologies
    - Removal of all visible, macroscopic biofouling
  - Shrouding and surface treatment technologies
    - All biofouling rendered non-viable
  - Effluent treatment
    - Maximum particle size (12.5 µm) *or*
    - Non-viable *or*
    - Not discharged

Image: NIWA Ltd

Framework for testing in-water cleaning systems

- General test requirements
  - Vessel testing
  - Simulation of intended use
  - Evaluation conducted by approved, independent contractor

Image: NIWA Ltd

Framework for testing in-water cleaning systems

- Summary
  - Framework
    - Range of current and prospective technologies
  - Encourages technologies that are:
    - Effective at removal or rendering non-viable
    - Effective at containment or treatment of biological (and chemical) waste
  - Independent

Image: NIWA Ltd

Coming soon!

- Operation Sea Chest!
  - 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

In-water cleaning in New Zealand

- Ministry for Primary Industries
  - Provides guidance to local authorities (Regional Councils)
  - All cleaning undertaken according to Aus/NZ guidelines

- In-water cleaning regulations
  - Regional Coastal Plans under Resource Management Act
    - Designed and developed by Regional Councils
    - Council approval required
      - Unless already permitted within that area

Image: New Zealand Diving and Salvage Ltd

Acknowledgements

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