



In-water cleaning?

New (perspectives) Zealand

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Growing and Protecting New Zealand



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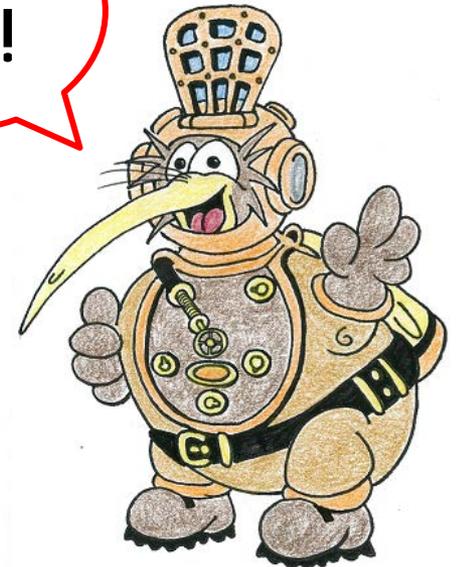
New Zealand Regulatory Update

- 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 
- Guidance document 
- Science underpinning standard 

World first!



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 +
 - Biocides released
 - Undergoing 1 year review

NO IN-WATER CLEANING

IN-WATER CLEANING but....

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

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

Adequate documentation not available

Mechanically resistant coating or no anti-fouling coating

Biocidal coating

Fouling-release coating (biocide free)

Coating age within planned in-service period

Coating age exceeds planned in-service period

DEFAULT

Antifouling coating exhausted, or nature and condition of coating unknown. In-water cleaning not recommended. Dry-docking recommended for cleaning and antifouling renewal.

Biofouling type on target surfaces

Microfouling

Macrofouling

Unknown

DEFAULT

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.

Decision dependant on Biofouling origin

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.

3. In-water cleaning as a result of emergency situation or exceptional circumstances

Decision and guidance provided by relevant authority

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.

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

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?



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

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**

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

A large white ship is positioned in the middle ground, with a long, dark boom extending from its side into the blue water. The background shows a range of dark mountains under a clear sky. The overall scene is set during the day with bright lighting.

- 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

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Thanks
for
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