

Recreational vessel summer survey



TOS Partnership Meeting

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Context

Recreational vessels

- Numerous in TOS
- Prone to fouling by marine pests
- Fouling survives at slow voyage speeds
- Often visit high-value coastal areas





Recreational vessel work package

- Aim to understand vessel risk, boater habits & practices, raise awareness of biosecurity to reduce risk
- 2013 & 2014: surveys of boats in vessel hubs
- 2016 & 2017: surveys of boats and boat owners by travel-lift operators
- **2016 & 2017: regional surveys of boats and associated moorings outside the main vessel hubs**
 - collect info on boater practices (e.g. antifouling)
 - in-water check of fouling

Level of fouling (LOF) assessment

| LOF | Description | Macrofouling cover (%) |
|-----|--|------------------------|
| 1 | Slime layer fouling only. Submerged hull areas partially or entirely covered in biofilm, but absence of any macrofouling | Nil |
| 2 | Light fouling. Hull covered in biofilm and 1-2 very small patches of macrofouling (may be only one species) | 1 – 5 |
| 3 | Considerable fouling. Presence of biofilm, and macrofouling still patchy but clearly visible and often one or several different species | 6 – 15 |
| 4 | Extensive fouling. Presence of biofilm, and abundant fouling assemblages usually consisting of many species | 16 – 40 |
| 5 | Very heavy fouling. Diverse fouling covering most of visible hull surfaces | 41 – 100 |

Increasing likelihood of marine pest



Target fouling pests

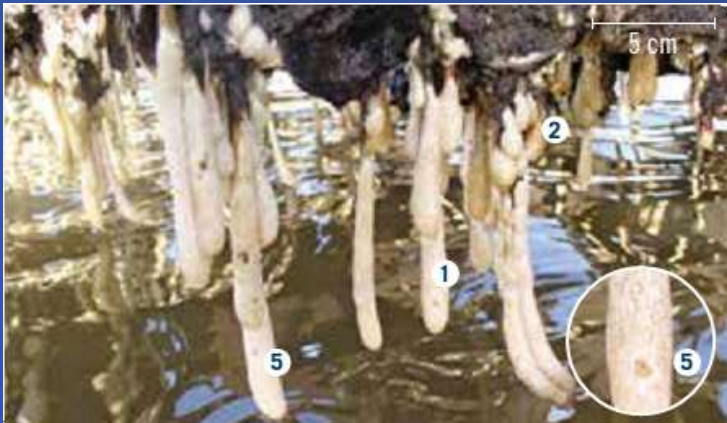
Styela clava
(clubbed sea squirt)



Sabella spallanzanii
(Mediterranean fanworm)



Eudistoma elongatum (droplet tunicate)

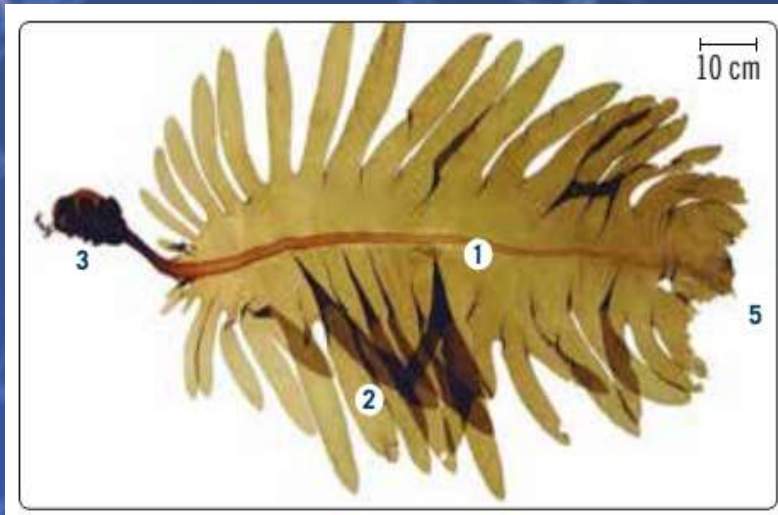


Pyura doppelgangera



Other pests of interest

Undaria pinnatifida (Asian kelp)

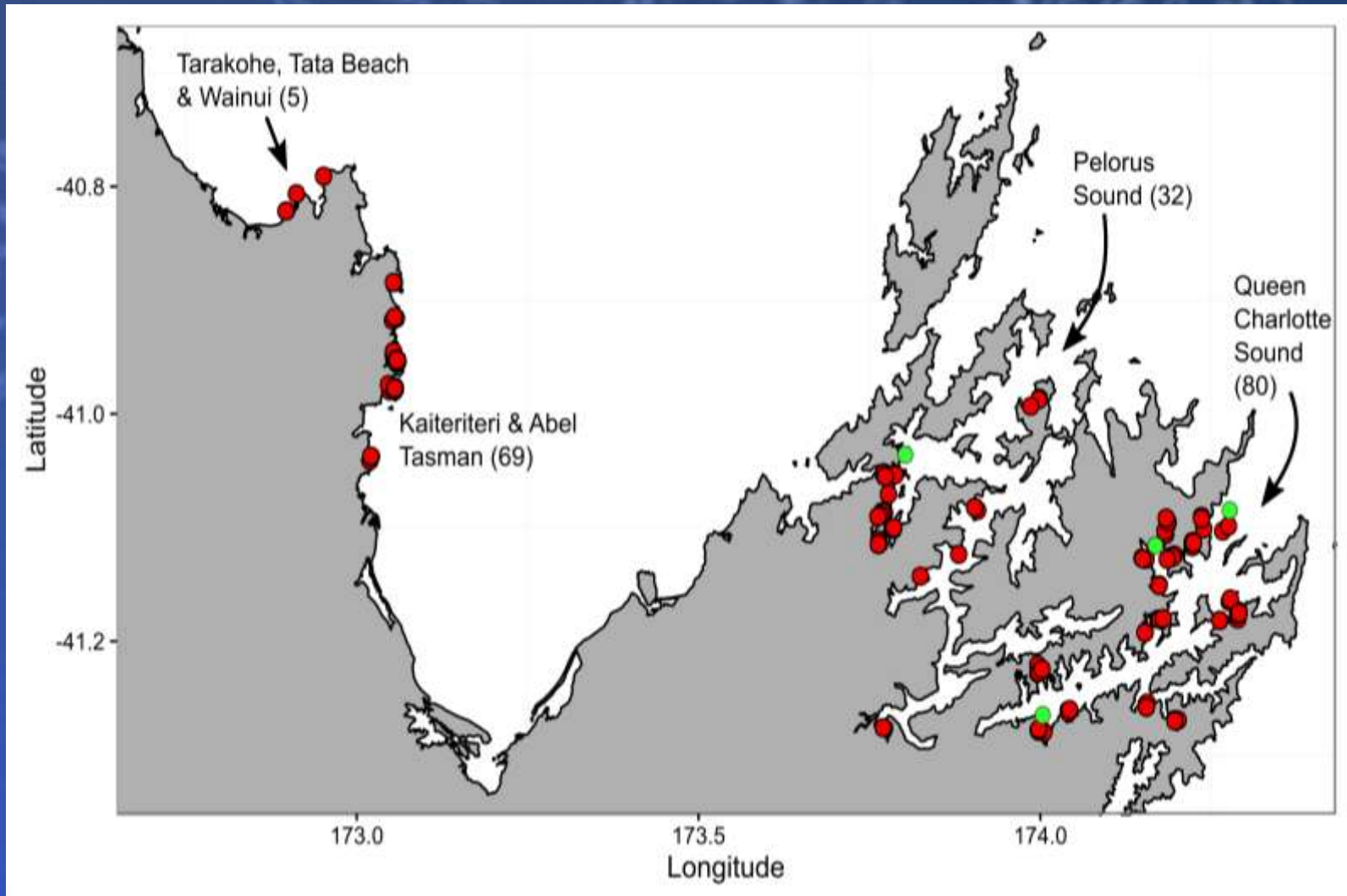


Didemnum vexillum (sea squirt)



Summer survey 2016/17

- Checked 186 boats, 73 associated moorings, and coastal structures

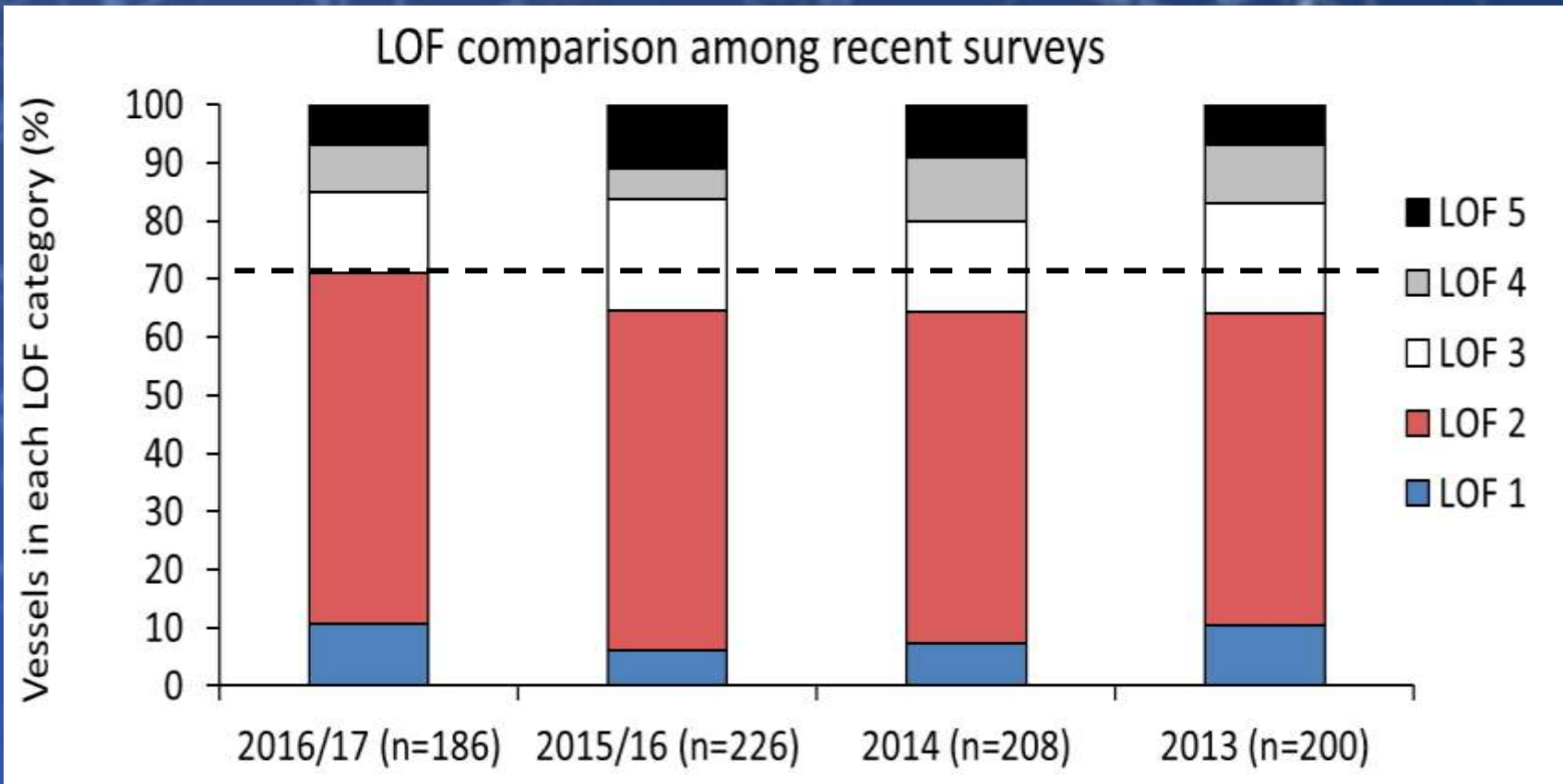




Boat origin

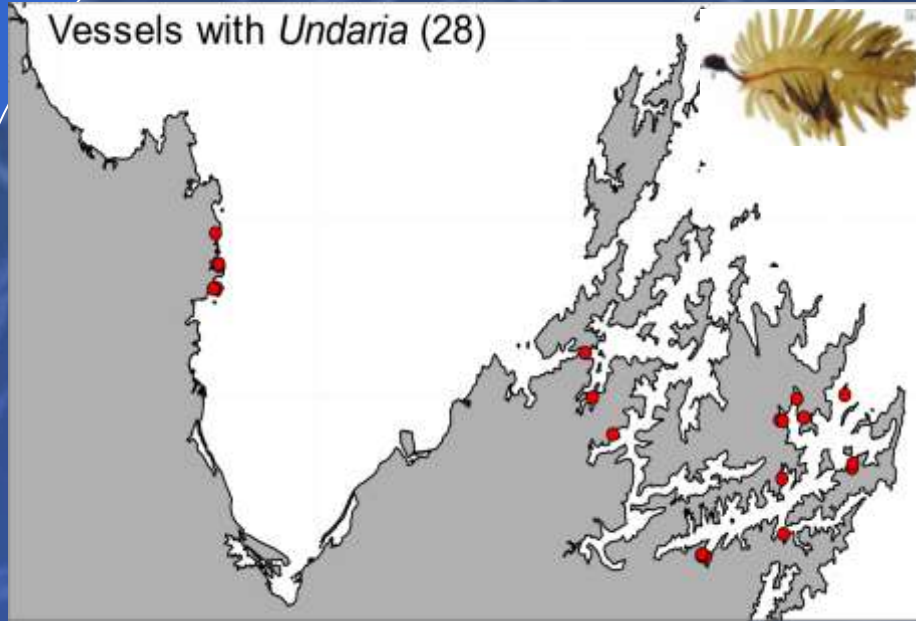
| General home port location | No. boats | % Boats (n=141) |
|--------------------------------------|-----------|-----------------|
| TOS | | |
| Golden Bay | 3 | 2 |
| Tasman Bay (including Nelson) | 44 | 31 |
| Pelorus Sound | 16 | 11 |
| Queen Charlotte Sound | 43 | 30 |
| <i>Total boats from TOS</i> | 106 | 75 |
| Elsewhere in New Zealand | | |
| Auckland | 5 | 4 |
| Wellington | 25 | 18 |
| Lyttelton | 2 | 1 |
| Otago | 2 | 1 |
| <i>Total boats from elsewhere NZ</i> | 34 | 24 |
| International | | |
| Belgium | 1 | 1 |

Boat levels of fouling



Target pests

Vessels with *Undaria* (28)

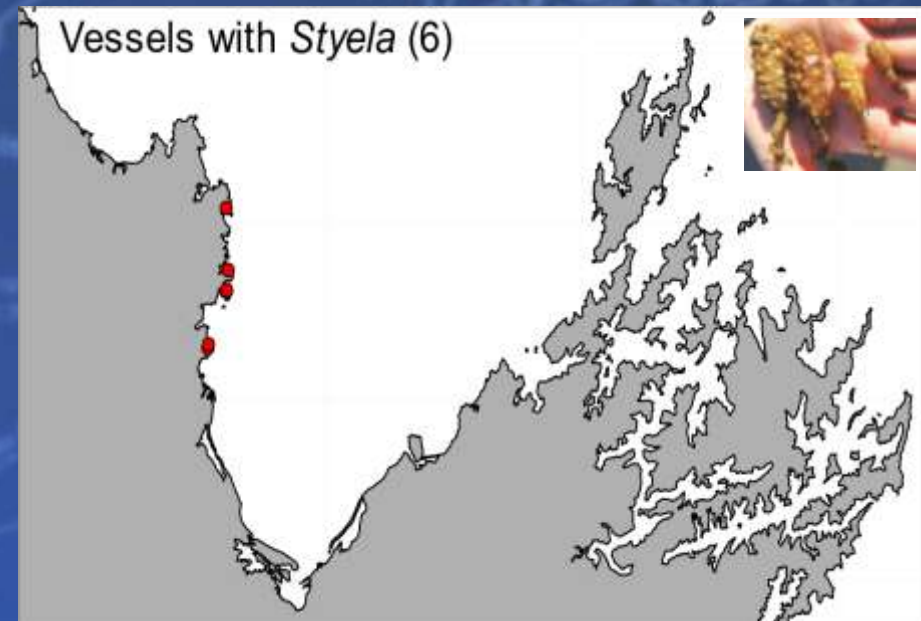


Vessels with *Didemnum* (13)



- 19% of boats had at least one target pest
- No new pests or fanworm
- 6 Nelson boats with sea squirt *Styela*

Vessels with *Styela* (6)



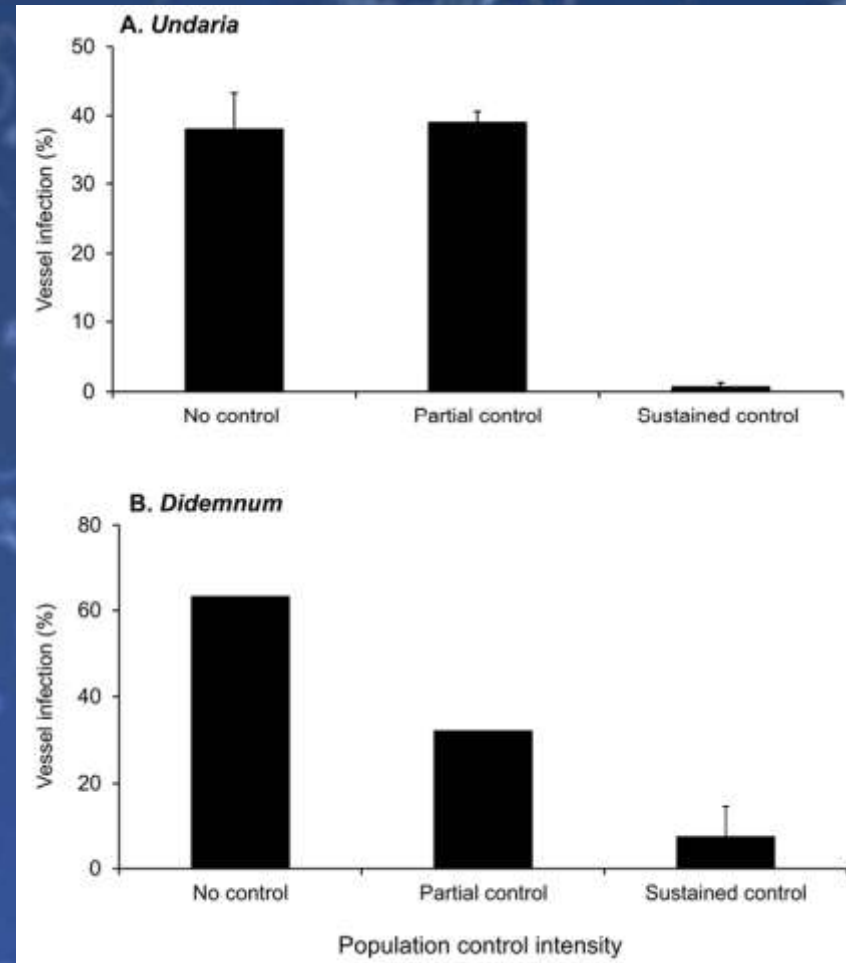
Population vs pathway control

Intensive pest control:

- Decreases number of infected boats
- With present methods, benefits limited to: (i) target pests and (ii) vessels in controlled hubs
- Takes responsibility and cost away from vessel owner

Pathway management:

- Potentially effective against all species and all vessels
- Puts onus on vessel owner → non-compliance likely



Forrest & Hopkins. 2013. Management of Biological Invasions 4: 317-326.



Need to address niche area issue

Pests present on keels of boats with clean hulls; e.g. *Styela*



Recently arrived pests are spreading

Abel Tasman National Park:



Fanworm on mussel lines, Hauraki Gulf (Photo Kathy Walls, MPI)



Sea squirt *Styela* on mussel lines, Eastern Canada



Synthesis and way forward

- Recreational boats (still) pose a high risk to many of the locations with important values in the TOS
- Intensive population control for target pests appears effective, but needs to go hand-in-hand with pathway control
 - Need knowledge/guidance (e.g. on in-water cleaning pros and cons) and infrastructure to support pathway control
 - Need focus on good antifouling practices
- Intensive checks of 'satellite' hubs for target pests worthwhile (e.g. boat anchorages, small regional marinas) → informs management
- Increased focus on, and coordination with, regions outside the TOS, including ongoing work with Wellington
 - Manage TOS 'border'
 - Consistency in standards and guidance among regions



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