For the Pacific Environmental Security Forum, May 2019

Compliance monitoring of sustainable coastal management of offshore islands with support from NZDF and other maritime agencies

Marine management in the Kermadec and Subantarctic Islands

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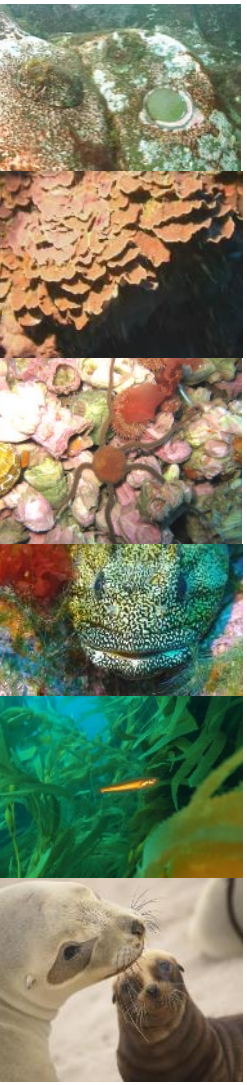
Kermadec and Subantarctic Islands

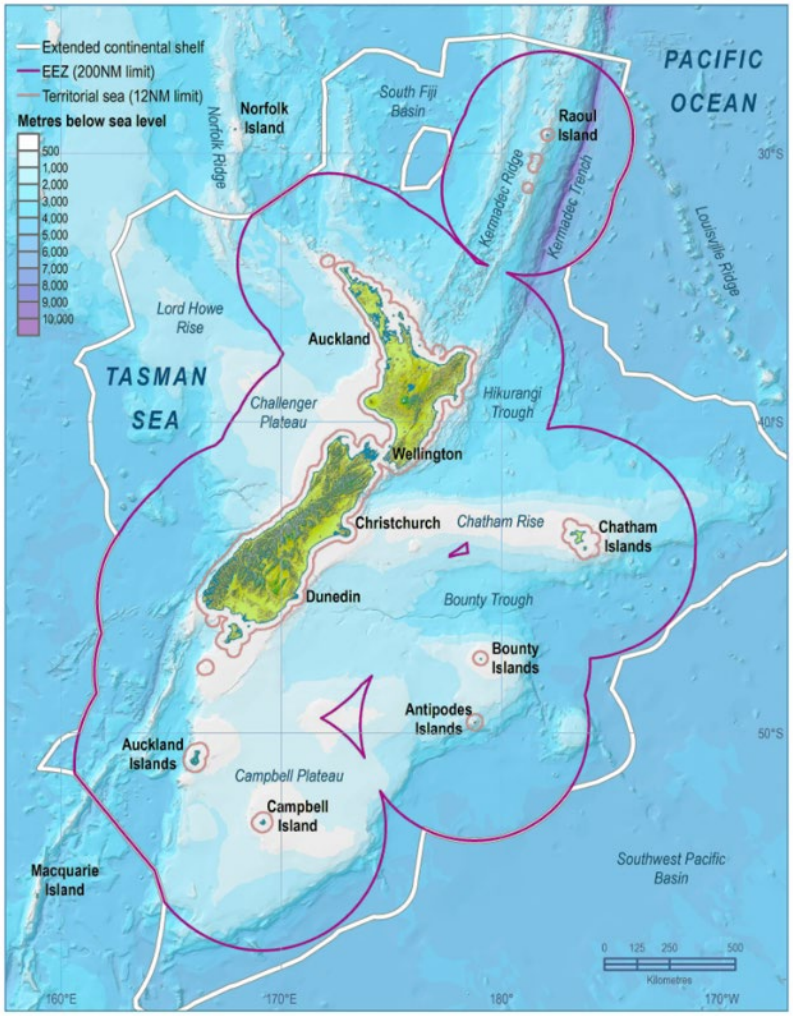


Kermadec Islands

- Raoul, Curtis, Macauley, Cheeseman, L'Esperance Rock, Havre Rock
- 800 -1000 km from NZ mainland
- Volcanic tops rising from the Kermadec Ridge
- Unique assemblages of tropical Indo-Pacific, subtropical and endemic taxa
- Marine Reserve for entire territorial sea
- Refuge for seabirds of International significance – estimated populations 10-15 million
- Remote

Subantarctic Islands

- Snares Islands, Auckland Islands, Campbell Island, the Bounty Islands and Antipodes Island
- 200-860 km from NZ mainland
- Marine Reserves at all but Snares Is.
- UNESCO World Heritage Area
- Distinct biogeography, significant local endemism
- Large numbers of endemic and threatened species



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Existing uses & pathways for invasive species

Expedition/ecotourism cruise vessels

- Mostly small – medium sized vessels (~150 passengers)
- Predominantly summer season
- Short stay anchorages (~24 hrs)

Deep sea fisheries (Subantarctics)

- Scampi, Squid, Ling, Hoki and Orange Roughy - $486 m
- Seasonal (scampi – autumn to winter)
- At sea 5-6 weeks (2-6 days turnaround in port)
- Rough weather anchorage

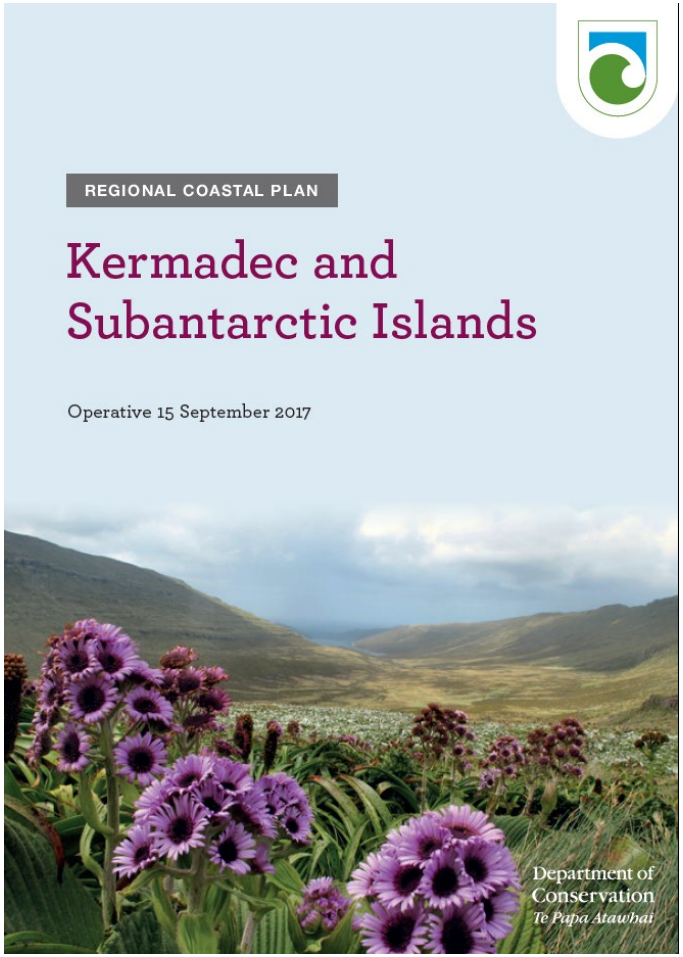
Conservation, Research & Education

- Predominantly summer season
- Sheltered anchorage

Opportunistic private craft

- Yachts travelling to/from Pacific Islands
- Sheltered anchorage

Regional Coastal Plan: Kermadec and Subantarctic Islands



Developed under NZs Resource Management Act 1991.

The Minister of Conservation has the functions and powers of a local authority for these two groups of islands.

Key issues for the islands include:

- Oil spills
- Biosecurity breaches – marine and terrestrial

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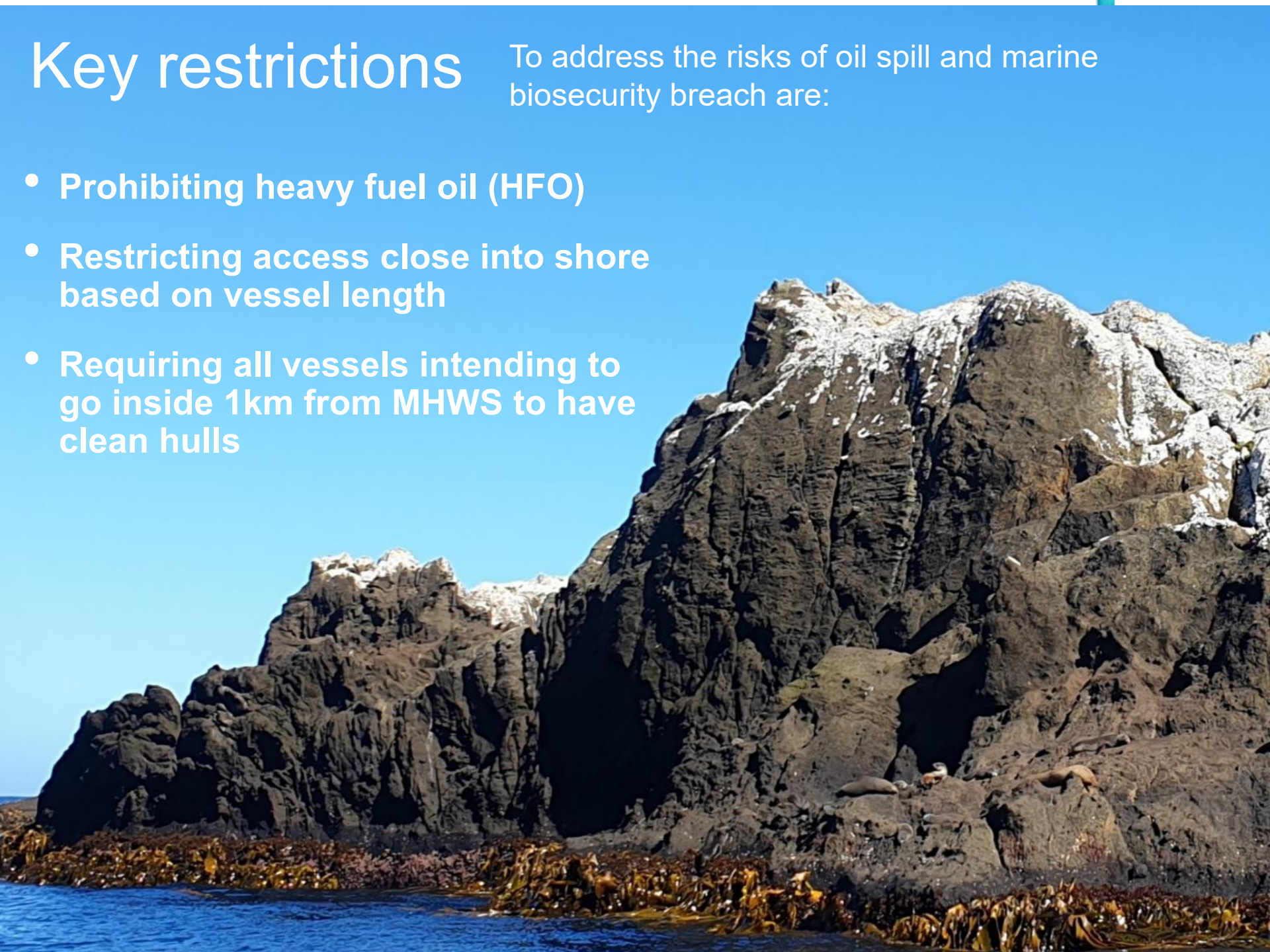
Key restrictions

To address the risks of oil spill and marine biosecurity breach are:

- **Prohibiting heavy fuel oil (HFO)**
- **Restricting access close into shore based on vessel length**
- **Requiring all vessels intending to go inside 1km from MHWS to have clean hulls**



Access restrictions for the Islands:

To reduce the risk of incidents that could result in oil spills and/or biosecurity breaches

- Zones (or distances from shore) of restricted access relative to vessel length – used as a proxy for the many factors that could influence a vessels risk profile.
- Defined anchorages to concentrate the adverse effects of anchoring.
- Exemptions for vessels involved in management work for DOC – including the NZ Navy – and research vessels

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Carnely Harbour Auckland Island

Distance to MHWS (metres & nautical miles)	Vessel Class (metres)			
	Ancillary Craft	Up to 30 m	Between 30 - 125 m	Large (> 125 m)
Up to 300 m (0.162 nm)	Permitted	Discretionary	Discretionary	Prohibited
300 m to 600 m (0.162 nm - 0.324 nm)	Permitted	Permitted	Permitted	Prohibited
600 m to 1000m (0.324 nm - 0.540 nm)	Permitted	Permitted	Permitted	Discretionary
Excess of 1000m (0.540 nm)	Permitted	Permitted	Permitted	Permitted

NOT TO BE USED FOR NAVIGATIONAL PURPOSES *MHWS: Mean High Water Springs

The master of any vessel entering any of the Subantarctic Islands needs to take particular account of the effect of strong winds.

Anchorages

Vessels may anchor within 300m from the MHWS in the designated anchorage locations (Anchor at own discretion)

- 30 For Vessels up to 30 metres
- 75 For Vessels up to 75 metres
- 42 For Vessels up to 42 metres
- 75 For Vessels up to 75 metres (if wind speed is <35 knots)

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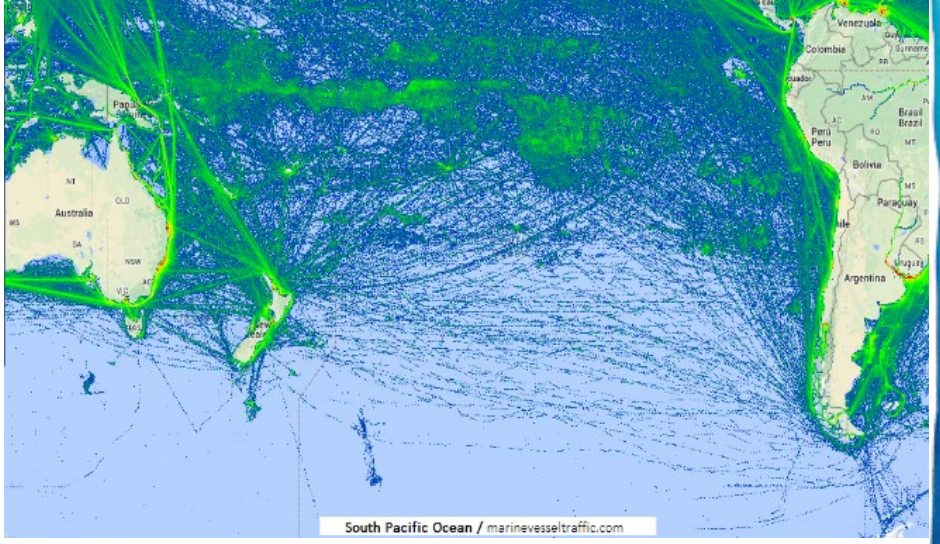
What is biofouling

- The growth of organisms (both plant and animal) on submerged objects
- Poorly managed vessel hulls can accumulate a high biomass of fouling and transport these communities to new areas
- The more fouled a vessel is the higher the risk it will have invasive species



Most of the >200 marine invasive species established in New Zealand waters are thought to have arrived on the hulls of ships, a pattern reported from locations around the world (Floerl et al. 2010).


Image: Diving Services NZ Ltd


Image: MPI

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What is biosecurity?

- *Biosecurity* is keeping out, eradicating, or managing introduced pests and diseases that could harm the environment
- We do this by:
  - Trying to **prevent** invasive species and diseases from arriving
  - **Monitoring** to detect new arrivals
  - Managing established invasive species and diseases to **reduce the spread**

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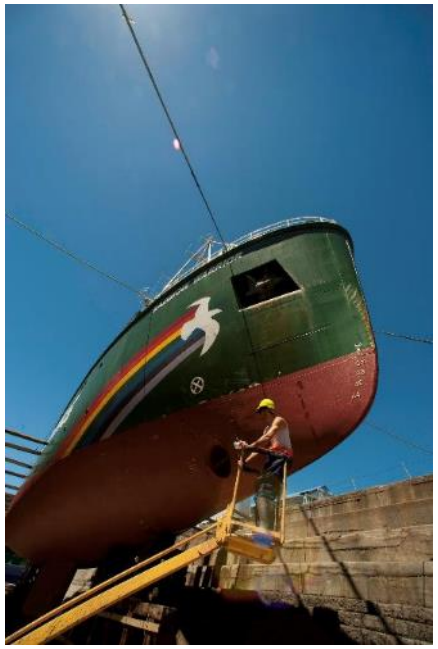
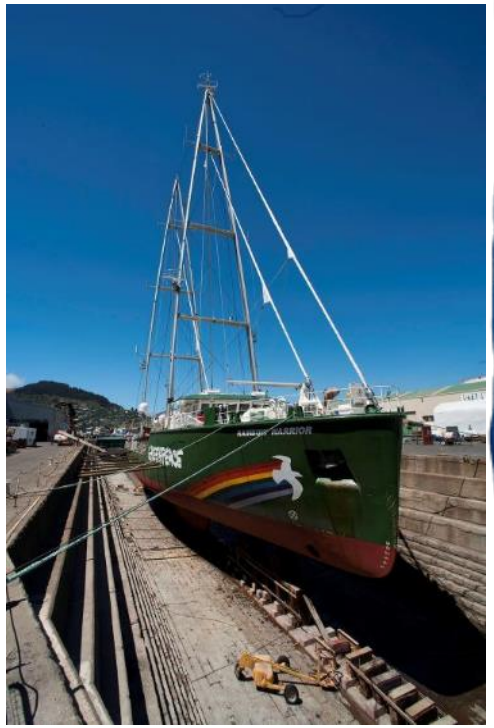
What is Anti-fouling?

- Anti-fouling is applying a system to the vessels hull and niche areas to prevent biofouling
- Anti-fouling coating is usually applied to the hull – can be divided into:
  - **Biocidal coatings** release chemicals such as copper compounds that aim to prevent settlement or survival of aquatic organisms.
  - **Biocide-free coatings** do not depend on chemicals or pesticides for their anti-fouling properties, instead relying on their physical nature.

It is not possible to prevent biofouling – the process begins as soon as a newly anti-fouled vessel returns to the water.





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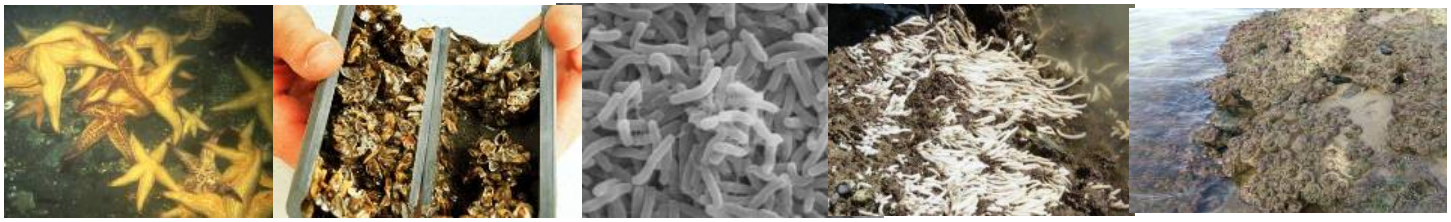
Impacts of invasive species

- **Ecological:** Competition and/or Predation on native species, altering habitats and coastal processes, biodiversity or nutrients
- **Economic:** Impacts on fisheries and aquaculture, Infrastructure damage, Impacts on tourism, Costs of management
- **Human Health:** Toxic species, pathogens
- **Socio-cultural:** Amenity, employment, damage to culturally important species or food sources, recreation sports and hobbies, enjoyment of the marine environment



A precautionary approach focused on preventing introductions of invasive species is required because of the significant costs involved in eradication attempts and their limited success rate.

Biofouling rules in the coastal plan

Apply to all vessels going closer than 1000m from shore
No exceptions – DOC and Navy included

Vessels must have an anti-fouling system
The plan requires proof of anti-fouling system, when it was applied and how long is effective for.

Vessels are required to have inspections
The plan sets out who can do the inspections and how they must be done.

Fouling threshold for inspections
Vessel biofouling must not exceed micro-fouling (slime layer) and/or goose barnacles.

NZ Sealion - endangered

Auckland Islands Teal – Threatened

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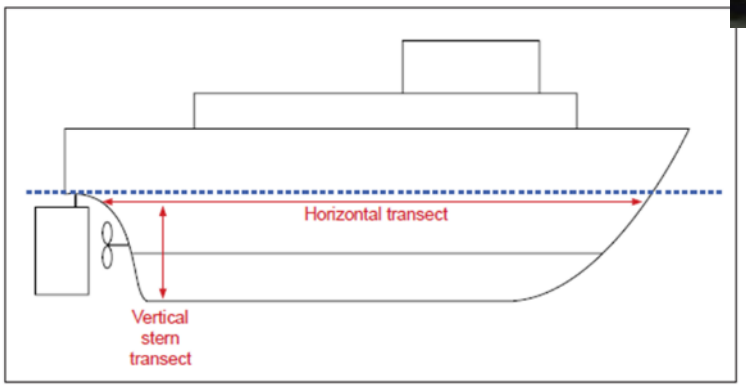
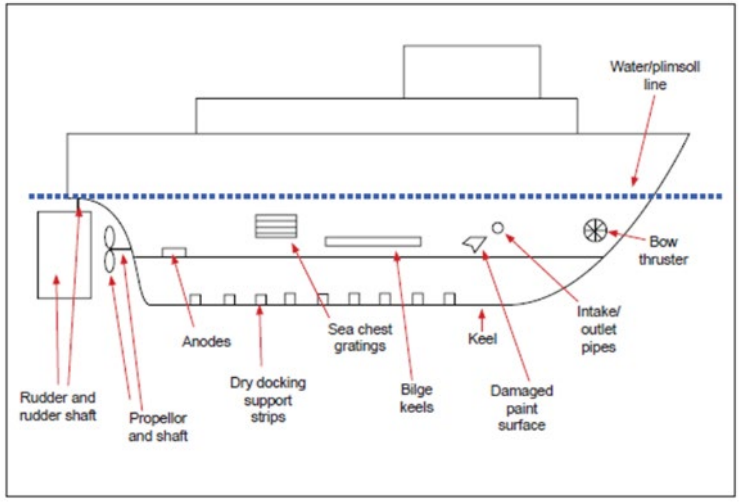
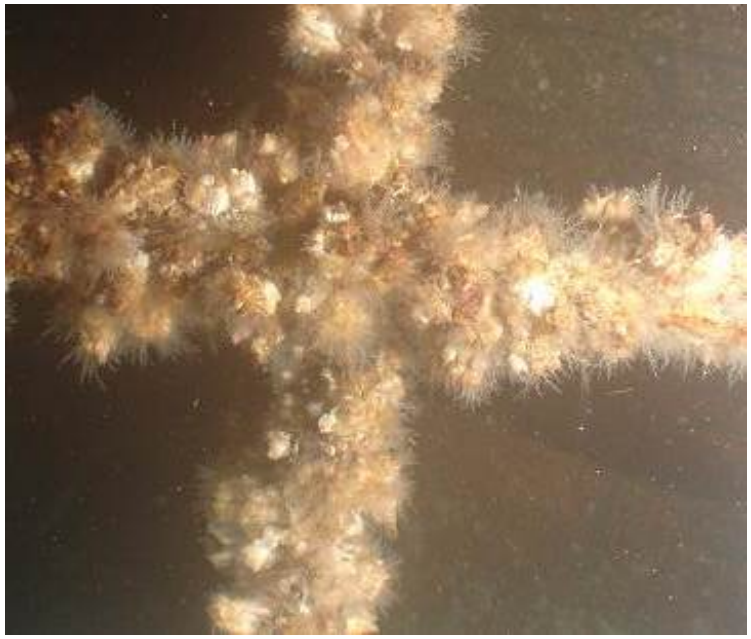
Biofouling inspections





Niche areas are high risk areas because they are not subject to water drag and can be hard to get to



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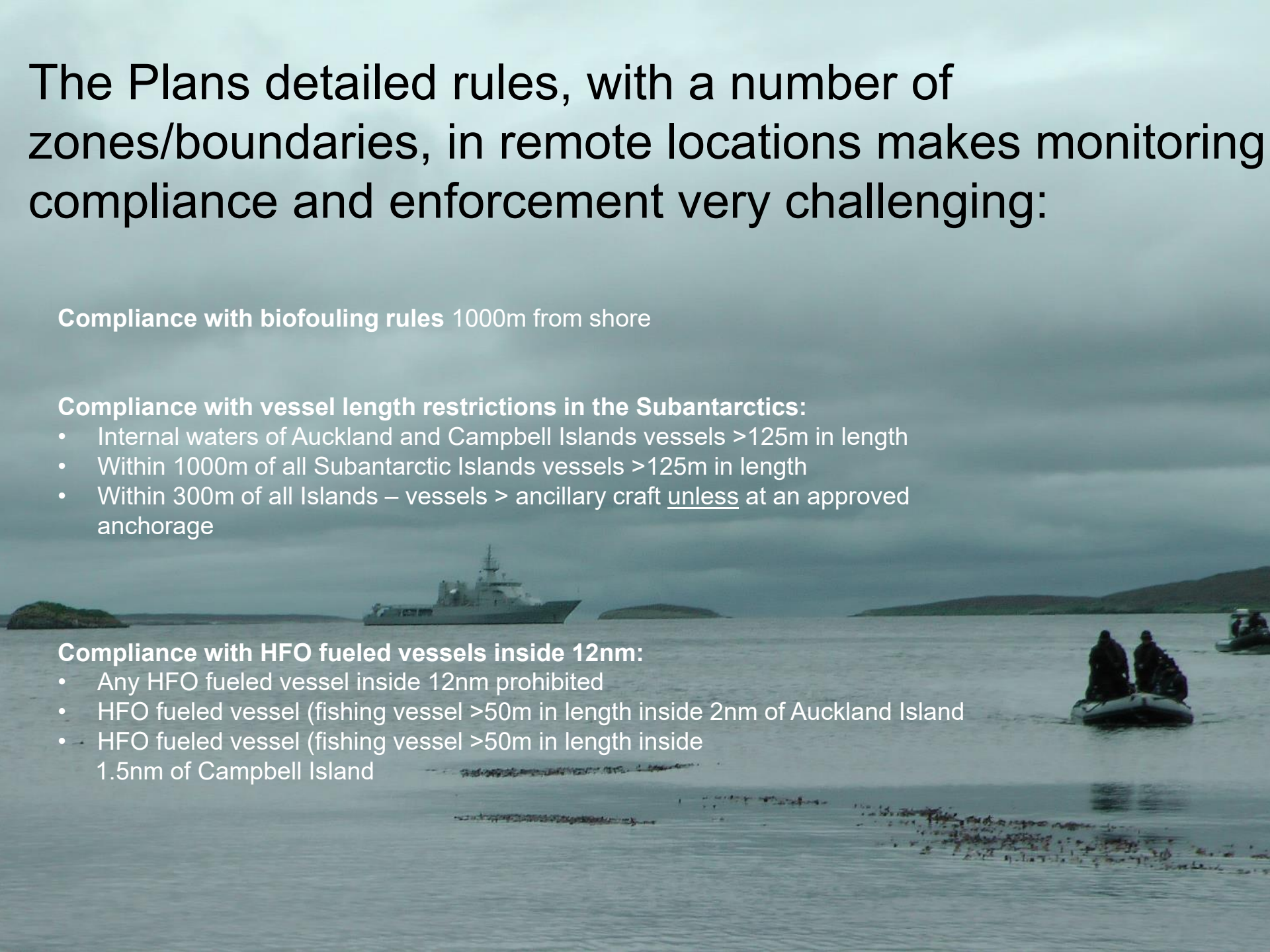
The Plans detailed rules, with a number of zones/boundaries, in remote locations makes monitoring compliance and enforcement very challenging:

Compliance with biofouling rules 1000m from shore

Compliance with vessel length restrictions in the Subantarctics:

- Internal waters of Auckland and Campbell Islands vessels >125m in length
- Within 1000m of all Subantarctic Islands vessels >125m in length
- Within 300m of all Islands – vessels > ancillary craft unless at an approved anchorage



Compliance with HFO fueled vessels inside 12nm:

- Any HFO fueled vessel inside 12nm prohibited
- HFO fueled vessel (fishing vessel >50m in length inside 2nm of Auckland Island
- HFO fueled vessel (fishing vessel >50m in length inside 1.5nm of Campbell Island

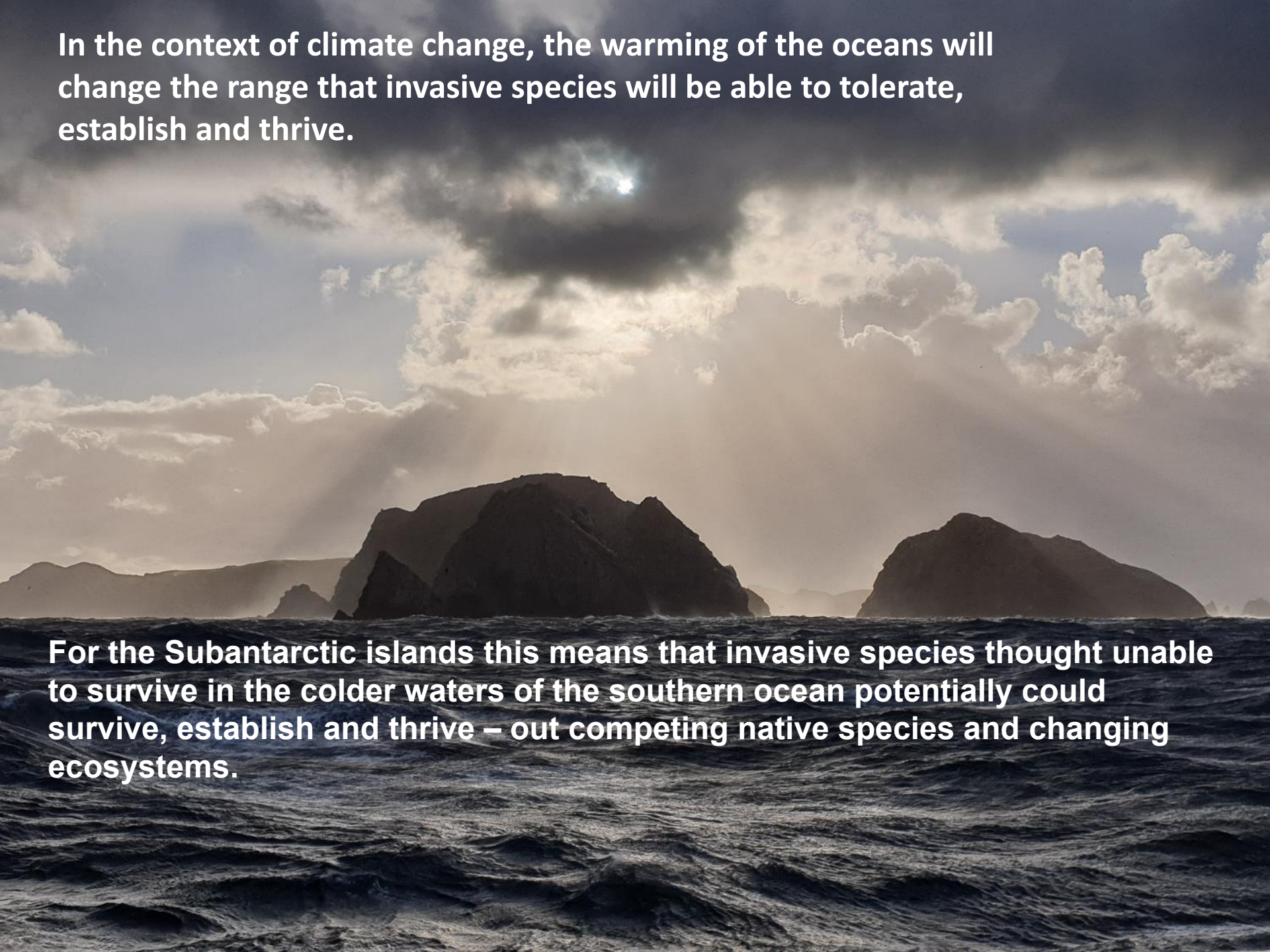
To date, monitoring compliance and enforcement has only been successful due to the collaboration and support of NZ Defence Force and other agencies with a maritime interest:

- NZ Customs
- Ministry for Primary Industries
- Maritime New Zealand.

Those agencies and DOC work closely with the NMCC.

The NMCC coordinates the provision of a maritime picture to agencies.

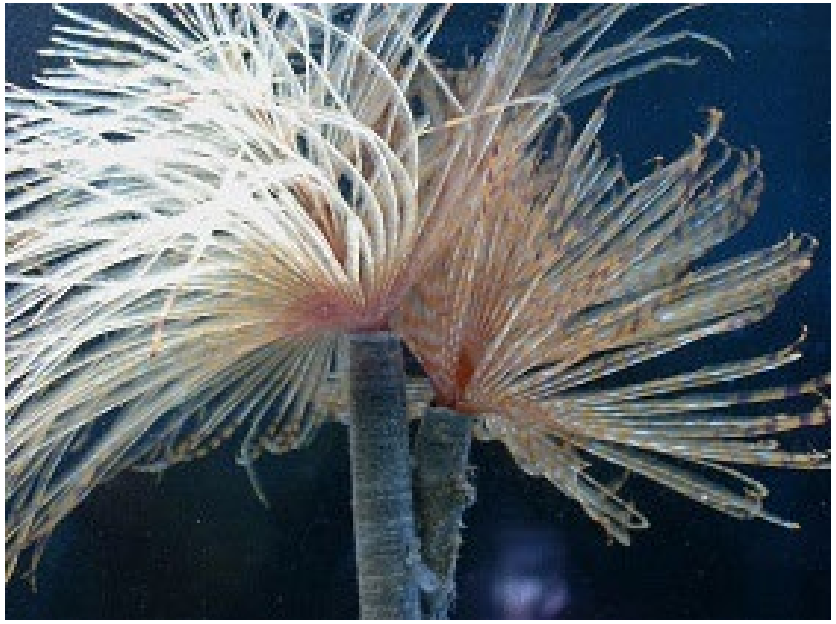
Through the NMCC DOC also has access to the use of New Zealand's maritime patrol platforms



In the context of climate change, the warming of the oceans will change the range that invasive species will be able to tolerate, establish and thrive.

For the Subantarctic islands this means that invasive species thought unable to survive in the colder waters of the southern ocean potentially could survive, establish and thrive – out competing native species and changing ecosystems.

Sabella spallanzii – Mediterranean fan worm



Source: Geoffrey Read, NIWA

Has established in a number of places in NZ – in both the North and South Islands

The Mediterranean fanworm can form dense colonies of up to 1000 individuals per square metre - excluding the settlement of other organisms.

It has a high filtering ability that could impact planktonic communities and abundance of some species. For example, it can compete for food with other filter feeders such as mussels or oysters.

The Mediterranean fanworm can attach to equipment, structures, vessels or hard substrate.

Source: Marine biosecurity Porthole NZ - https://www.marinebiosecurity.org.nz/

Thank you

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