



Partners Newsletter

Keeping you informed

Spring 2019



Annual Partnership Meeting 2019

The 2019 Partnership meeting focussed on getting effective in regional marine biosecurity.

The first part of the meeting involved sharing the current situation to bring everyone to a common understanding of the issues and opportunities.

- Katie Lubarsky of Biosecurity NZ let us know what's happening at the border and showed that our country is leading the world in managing risks associated with fouled vessels.
- Jono Underwood described how programmes to reduce regional risk have developed over the last 10 years and how the rules have changed in Marlborough.
- Oli Floerl set out the current state of the science and emphasised the way that emerging technologies can be applied to better understand and manage biosecurity threats.
- Peter Lawless gave details of the summer survey results over the last four years and emphasised that changing boater behaviour remains the key challenge to reducing marine biosecurity risk in the region.

Small groups developed more detail on:

- Surveillance
- Management/Eradication
- Compliance control (e.g. Ballast Water Management Convention, compliance monitoring)
- Information exchange.

More Info

Full meeting notes and all presentations are available here:

<http://www.marinebiosecurity.co.nz/news/tos-partnership-meeting-august-2019/280043>



eDNA sampling for Mediterranean fanworm



In June-July this year, a large-scale eDNA sampling campaign was conducted in 13 areas across Tasman Bay and Port Nelson to update information on the presence and distribution of the Mediterranean fanworm *Sabella spallanzanii*.

In total, 250 plankton net tow samples were collected by TDC and NCC staff accompanied by a Cawthron Scientist and analysed using droplet digital Polymerase Chain Reaction (ddPCR).

The ddPCR technology allows high-precision, real-time molecular assays of the target DNA sequence by partitioning the samples into many thousands of reaction compartments, reducing the competition from background DNA for improved sensitivity.

No positive ddPCR signals were detected in any of the sampling areas. To explore probabilities of non-detecting a sparsely distributed *S. spallanzanii* population in the region, a simulation model was run for the applied sampling design. The simulation results suggested high confidence of no established *S. spallanzanii* populations in the surveyed areas and are consistent with current diver surveys, which have not detected any established *S. spallanzanii* populations in the greater Tasman Bay area since 2018.

It should be noted though that the survey sampled discrete areas over a relatively large geographic domain and the presence of individual *S. spallanzanii* specimens within the study region cannot be completely excluded. Therefore, ongoing *S. spallanzanii* surveillance efforts complemented with ddPCR assays using eDNA extracted from water are advisable as part of routine biosecurity monitoring.

Further development of eDNA-based surveillance techniques is currently focused on optimising sample collection and eDNA isolation from water to equip end-users with user-friendly, robust and cost-effective complimentary monitoring tools.

For more information contact Anastasija Zaiko at the Cawthron Institute (anastasija.zaiko@cawthron.org.nz).

eDNA sampling around Tasman Bay



Managing risks at the border

Legal requirements about hull fouling for vessels coming through our national border have been in force in New Zealand for over a year now. Katie Lubarsky of Biosecurity New Zealand reported on progress at our annual Partnership meeting.

She said “The legal requirement is the Craft Risk Management Standard for Biofouling (CRMS). It was put in place in May 2014 with a four year voluntary implementation period, and came into force on 15 May 2018. The intent of the Standard is to reduce the biosecurity risk associated with vessel biofouling by requiring operators to take preventative measures to manage biofouling before arriving into New Zealand.” Under the CRMS, all vessels must arrive in New Zealand with a “clean hull.” The definition of a “clean hull” varies based on the vessel’s intended itinerary in New Zealand, as indicated below.

In order to show that these “clean hull” thresholds have been met, vessels must provide evidence that one of the three measures outlined in the standard have been undertaken:

- The vessel has been maintained following best practices (for example, the IMO Biofouling Guidelines); or
- The vessel has been fully cleaned within 30 days prior to arrival in New Zealand; or

The vessel is booked for haul out and cleaning at an MPI-approved facility within 24 hours of arrival in New Zealand.

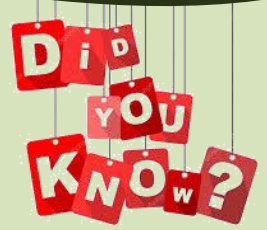
Biosecurity New Zealand undertakes *risk profiling and verification*. The way this works is that vessels submit pre-arrival documents and on the basis of what they report they are assessed as having low, medium, or high risk indicators. A percentage of vessels from each risk category is selected for audit of documentation (100% of vessels with high risk indicators and less for the other categories). If the vessel passes audit- it is deemed to meet the requirements and no further action is taken. When a vessel fails the audit- it is referred to border staff for verification (i.e. on-board audit, hull inspection) and/or action.

The action taken is based on level of fouling (biosecurity risk) and can include: hull inspection, issuing educational material, itinerary restrictions, or a direction to leave New Zealand Territorial limits.

In the last year 2,555 commercial vessels arrived and of these 491 were audited and 12% failed the audit. Most of those that failed had errors in their paperwork or minor issues and 68% were dealt with by way of education while 19 vessels

546 yachts arrived in New Zealand from 15 May 2018- 24 February 2019 and only two of those were found to be non-compliant with CRMS Biofouling. During the summer yacht season, 75% of yachts arriving in Opuia were physically verified using a pole camera, in addition to a traditional audit of documentation.

Biosecurity New Zealand is continuing to upgrade the system by increasing verification capabilities, conducting research on biofouling management, and engaging with international regulators. New Zealand is a world leader in biofouling regulation, as we are currently the only country in the world with a national biofouling standard.



Committee member profile



Oli Floerl

Oli is a senior scientist in Cawthron Institute's Biosecurity Team, which he joined in 2014. Originally from Germany, he completed an undergraduate degree in marine biology at Bangor University (Wales), followed by a PhD at James Cook University in Australia. His doctoral research was one of the first projects globally that examined biofouling development and transport on recreational vessels. His principal research interest is the development of practical tools for understanding and managing biosecurity pathway risks, and to lessen the impacts of biofouling organisms on maritime industries.

Over the past 18 years Oli has worked on a wide range of science and technology development programmes relating to biosecurity and biofouling management in New Zealand and abroad, and provided consultancy services to local and central government agencies, maritime industries (shipping, ports and marinas, aquaculture, oil and gas) and conservation groups. Oli is a Science Adviser for SINTEF Ocean (Norway) and a Research Associate at the University of Auckland.

He is a keen outdoorsman and particularly passionate about mountain biking, paddle-boarding, skiing and sailing - ideally with his wife and two young boys (aged 8 and 4).

Oli (left) and a colleague examining biofouling accumulation on ecologically enhanced bioplastics surfaces.



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