



International experts study global bio-invasion hotspots



Leading scientists from around the world met recently in Sydney to begin an international research project looking at the long-term changes in marine ecosystems caused by non-native species.

The worldwide spread of harmful non-native marine species has accelerated in recent decades with the rapid increase in global trade and shipping that has occurred since the 1950s. Coastal cities with major shipping ports, like Auckland, Sydney and San Francisco, have experienced a succession of invasions by non-native species, many of which have since become dominant components of the local marine flora and fauna.

The Sydney workshop, convened by scientists from Cawthron Institute, National Institute of Water & Atmospheric Research and University of Waikato and hosted at Sydney Institute of Marine Science, put a spotlight on these global 'hotspots' for bio-invasions with the aim of understanding how invaders have changed the ecology of the ecosystems over time.

As the marine environments of major coastal cities are under pressure from a range of stressors, including habitat loss, coastal development, over-fishing, sedimentation and pollution, a key question for the meeting was to devise ways of measuring how much invaders are contributing to long-term changes in marine ecosystem dynamics.

"The 2-day workshop was a fantastic way to kick-start this new project and we're lucky to be collaborating with more than a dozen world-renowned invasion scientists who all bring unique data, perspectives and skill sets to the table," Cawthron Institute senior scientist Dr Oliver Floerl says.

At the workshop, fourteen experts from New Zealand, Australia, USA, Canada, Italy, Finland, Brasil, Estonia, and Israel reviewed information and data on global bio-invasion hotspots and formulated a framework for comparing ecological changes among the hotspots.

The workshop participants will now set out to explore whether marine biological invasions cause changes in the relative abundance of important functional traits that are indicators of valued ecosystem services. And, if they do, are there consistent patterns across a range of global "invasion hotspots"?

"It's a great opportunity to be able to conduct this study at a global scale, and we hope it will lead to future

collaborations with our international colleagues," Dr Floerl says.

The international collaboration is part of a 4-year research programme funded by the Ministry of Business Innovation and Employment to study the impacts of non-native marine species in New Zealand's marine ecosystems.