

Media Statement

New Zealand Freshwater Sciences Society and New Zealand Marine Sciences Society – Key closing messages

A combined meeting of the New Zealand Freshwater Sciences Society (NZFSS) and the New Zealand Marine Sciences Society (NZMSS) held in Hamilton last week identified a critical gap relating to research and management of estuaries. NZFSS and NZMSS are professional bodies that support science for management of New Zealand's freshwater, coastal and deep ocean systems. The theme of the conference was "Aquatic Science at the Interface" and the opening plenary speaker, Dr Clive Howard-Williams, Chief Scientist of Freshwater and Estuaries at NIWA, set the scene with a focus on New Zealand's 300 estuaries which lie at the interface of rivers and lakes with the sea.

Estuaries are important: they are nurseries for fish, they filter out contaminants and are a 'hot spot' for wildlife and ecosystem services. Estuaries also lie at a critical point between land and sea where growing pressures from urbanisation, intensive lowland agriculture and rising sea levels collectively impact on their health and well-being. Examples include Tauranga and Porirua harbours which are adjacent to large population centres, and the New River Estuary in Southland which is being degraded by sediments and nutrients from agricultural sources.

Dr Howard-Williams pointed to the major effects of excessive levels of nutrients and to estuary health generally. He also identified a key gap in knowledge about how estuaries function. This is partly because scientists have tended to specialise into freshwater or marine systems rather than both. Insufficient attention has been paid to link research into estuarine management. This link has become more critical as contentious issues arise such as mangrove management, opening of coastal lakes, and excessive sedimentation.

Delegates at the conference reinforced just how important estuarine management will become as the national Freshwater Reforms are developed. A key tenet of the Freshwater Reforms is to implement a limits-based approach for contaminants, known as the National Objectives Framework. Managing to limits may be extremely difficult to achieve in estuaries, which have traditionally acted as a sink for excessive levels of contamination arising from multiple inputs, sometimes across several catchments. Members of the two societies continually emphasised the need for a fully integrated approach to managing estuarine health, involving improved agricultural practice and better management of urban stormwater and wastewater, underpinned by inter-disciplinary research across the freshwater-marine space.

Estuaries across the globe are also particularly vulnerable to invasive species because they are often the first point where trans-ocean ships dock. Plenary speaker Lindsay

Chadderton, from The Nature Conservancy of the Great Lakes in the United States, described his seven years of experience in trying to limit the spread of invasive freshwater mussels and fish such as Asiatic carp, into the Great Lakes region. Economic costs from these invasions run to hundreds of millions of dollars a year and eradication of the most environmentally damaging invaders looks to be impossible given the extent of spread of these species and the ease of new incursions or re-introductions. There are important biosecurity lessons here for New Zealand in terms of surveillance and early, pro-active management of invaders to avoid much more costly controls after there has been extensive environmental damage.

The two societies consider that, without urgent action, estuary health will be at severe risk from accelerated eutrophication, sedimentation and invasive species. The societies recommend that

- (1) Research be better coordinated among freshwater and marine scientists so that estuaries do not “fall between the cracks”.
 - Critical research areas relate to the sustainability of fish habitat, seagrasses and shellfish, as well as aquaculture in estuaries.
 - Estuary research needs to be included as a theme within at least one of the Ten Science Challenges.
- (2) Radical improvements be made to reduce sediment and nutrient loads to estuaries, particularly from areas of intensive lowland agriculture but also from urban areas.
- (3) The government speed up the implementation of a National Objectives Framework for freshwater management, and adopt all of the recommendations arising from the third report of the Land & Water Forum,
- (4) Estuaries be included in the National Objectives Framework.
- (5) Improved and comprehensive biosecurity plans are made as soon as possible so that procedures for detection, control and eradication of invasive species in estuaries are well established.

Last year NZFSS issued a statement about the perilous state of freshwaters of New Zealand and the need to implement limits-based management. This year both NZFSS and NZMSS are urging the government to act with decisiveness and urgency so that New Zealand’s international environmental reputation is not eroded by the state of its estuarine ecosystems.

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Abbreviated Statement

New Zealand Freshwater Sciences Society and New Zealand Marine Sciences Society – Key closing messages

Estuaries in New Zealand are under threat from excessive levels of sediments and nutrients from urban and intensively-farmed agricultural areas. The New Zealand Freshwater Sciences Society (NZFSS) and the New Zealand Marine Sciences Society (NZMSS) have made a collective statement about the pressures on New Zealand's 300 estuaries. They have made recommendations to reduce the risks and impacts from eutrophication, sedimentation and invasive species. Estuaries are important: they are nurseries for fish, they filter out contaminants and are a 'hot spot' for wildlife and ecosystem services.

The societies recommend that:

- (1) Research be better coordinated among freshwater and marine scientists so that estuaries do not "fall between the cracks".
- (2) Radical improvements be made to reduce sediment and nutrient loads to estuaries, particularly from areas of intensive lowland agriculture but also for urban areas.
- (3) The government speed up the implementation of a National Objectives Framework for freshwater management, and adopt all of the recommendations arising from the third report of the Land & Water Forum,
- (4) Estuaries be included in the National Objectives Framework.
- (5) Improved and comprehensive biosecurity plans are made to reduce risks of invasion and establishment of exotic species that could severely degrade estuarine health.

NZFSS and NZMSS are urging the government to act with decisiveness and urgency so that New Zealand's international environmental reputation is not eroded by the state of its estuarine ecosystems.

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