update

National Centre for
Aquatic Biodiversity
& Biosecurity

NIWA
Taihoro Nukurangi

protecting our natural heritage

Caught in the act

It might look cute, but the common mouse, *Mus musculus*, has been unmasked as a predator of whitebait eggs.

For the past two whitebait seasons, NIWA scientists have set up video cameras amongst intertidal vegetation where the most common whitebait species, inanga (*Galaxias maculatus*), lay their eggs, in an attempt to determine what is preying on the eggs. Previous studies have estimated that up to 80% of the eggs are removed between the time they are laid and the time they are washed out to sea (roughly one lunar month).

Last year, an intertidal mud crab (*Helice crassa*) ate all the eggs at one of the two sites studied. This year, two more sites were monitored. The video footage this season snapped a mouse repeatedly returning to the area and devouring all the eggs at both sites.

It's too soon to say whether mice are a major predator of inanga eggs, but thanks to further funding from the Foundation for Research, Science & Technology the monitoring is set to continue next season. Mice be warned: we will be watching you.

Guide to identifying freshwater pests

Over 200 freshwater plant and animal species have been introduced into New Zealand, many of which are already pests, or may become so. Today, few if any of this country's waterways contain only native species.

NIWA's new freshwater pest identification guide covers fish, invertebrates, and plants. For each species, there is at least one colour photograph, and information on the known distribution, identification features, similar species and how to distinguish them, dispersal mechanisms, and biosecurity risks.

The 94-page guide costs $33.75, including GST, postage, and packaging.

To purchase a copy, use the order form at **www.niwa.co.nz/pubs/order/**

To stop aquatic pests, take salt

NIWA scientists, working with the Department of Conservation, commercial fishers, and regional council staff, have found a salty solution to the problem of how to effectively and conveniently sterilise freshwater fishing nets.

The nets must be sterilised to ensure fishers, researchers, and water managers don't inadvertently spread pest fish and weeds. The standard method is air drying, but this usually requires nets to be laid out in a dry spot overnight – not ideal for damp conditions or when nets have to be re-used quickly.

NIWA scientists working with Auckland Regional Council staff to sterilise and clear gill nets at Lake Wainamu.

DoC and the Foundation for Research, Science & Technology commissioned NIWA to test potential alternatives on key aquatic pests. The winning treatment: soak nets for one hour in concentrated saltwater (70 grams of salt per litre, or 1 part salt to 14 parts water by volume).

Susceptible pest fish species include catfish, goldfish, koi carp, gambusia, perch, rudd, and tench; susceptible aquatic weeds include curly pondweed, elodea, egeria, hornwort, hydrilla, and lagarosiphon.

Deep-sea coral count rises

The count of octocoral species in New Zealand waters keeps climbing. Octocoral habitats range from the low tide mark to the deep sea. They are recognised by their polyps, which typically have eight tentacles.

New Zealand's fauna is proving to be among the richest in the world. Recent work has pushed the number of different octocoral species in New Zealand's Exclusive Economic Zone (EEZ) up to 243 species, only 48 of which have been named as yet. This work has also doubled the known number of bubblegum corals in the world. More than half of these are new species and are found only in New Zealand's EEZ. Bubblegum corals are some of the most impressive-looking octocorals, and include the largest seafloor invertebrate species on the planet, *Paragorgia arborea*.

The work also developed a method of estimating the age of 'bamboo'-type octocorals, which could not previously be accurately dated because their growth rings are extremely close together.

This kind of information is critical to ecosystem-based management of seamounts, and contributes to the New Zealand Biodiversity Strategy objective of improving our knowledge of marine ecosystems.

This specimen of Paragorgia arborea *(a 'bubblegum' octocoral) has a trunk 42 cm in diameter, was probably at least 7 m high, and may be 300–500 years old.*

Weeds in waiting

NIWA is testing the potential 'weediness' of plants imported for use in aquariums and ornamental ponds. Recently, we surveyed aquatic plants within the aquarium and nursery trade and found over 180 species which have not yet naturalised in New Zealand. Most are tropical plants and unlikely to survive unaided in our climate, but 73 are considered to be weeds elsewhere in the world. The trick is to work out what risk they pose here.

With funding from the Foundation for Research, Science & Technology and the Department of Conservation, NIWA has run a series of experiments in which we grow potential weeds in competition with known weeds and native plants. So far, we have evaluated *Hygrophila polysperma*, *Hydrocotyle verticillata*, *Cabomba caroliniana*, and *Saururus cernuus*. None have had a significant impact on either the native or the other introduced plants under experimental conditions.

David Burnett, a PhD student, jointly supervised by NIWA and the University of Auckland, is evaluating the influence of temperature on the invasiveness of 12 plants, using a series of specially designed, temperature-controlled tanks. The work should help us predict where the plants might grow and would be most likely to become a problem.

NIWA is also selecting and promoting alternative plants which do not have the same weedy traits and so are less likely to naturalise and harm our waterways.

NIWA assists marine pest surveys in Viêt Nam

The spread of harmful organisms by ships and other vectors has been identified as one of the four greatest threats to the world's oceans. The Global Ballast Water Management Programme (GloBallast) has been helping developing countries to manage this threat by providing technical assistance to enable them to implement the new *International Convention for the Control and Management of Ships' Ballast Water*. Biological baseline surveys of port environments, to establish the range of native and introduced marine organisms currently present in shipping areas, are an important component of this work.

A NIWA scientist, Dr Graeme Inglis, has been helping run a training workshop on port surveys in Viêt Nam, at GloBallast's invitation. The five-day workshop was in preparation for a baseline survey at the port of Nha Trang in early 2005. It covered aspects of survey design and implementation, and the context of global initiatives taken to manage threats from introduced marine species. About 20 delegates attended the workshop, including Vietnamese, Japanese, and Chinese scientists and local port authorities.

Dr Graeme Inglis outlines the dive plan for a reconnaissance survey of the port of Nha Trang to researchers from the Viêt Nam Institute of Oceanography.

This is an important time for environmental management of ports and shipping in Viêt Nam. The Vietnamese government has recently released plans for massive expansion of its shipping ports to keep pace with the country's anticipated export growth. Several new ports are planned along the coastline, including relocating the river ports of Ho Chi Minh City closer to the sea and construction of a major international transit port in Van Phong Bay, 70 km north of Nha Trang, at a cost of US$3.6 billion. The training provided at the GloBallast workshop will allow Vietnamese marine scientists to undertake baseline surveys in these other ports using an internationally consistent methodology and approach.

GloBallast is a joint initiative of the International Maritime Organisation, United Nations Development Programme, and the Global Environment Facility. (http://globallast.imo.org)

IMO

Global Ballast Water Management Programme

For more information on NIWA's National Centre for Aquatic Biodiversity & Biosecurity, contact:

Barb Hayden
Centre Leader

biodiversity-biosecurity@niwa.co.nz
0-3-343 7878

or call free on

0800 RING NIWA
(0800 746 464)