

# Call to map sea species



**FOCUS:** Tarooma High citizen scientists, front from left, James Doyle, Angus Davison, Katherine Tucker and Maddie Crowden, with teacher Jamieson Smalley, back left, and REDMAP designer Gretta Pecl. Picture: ROGER LOVELL

Citizen scientists get on board a project to provide early warning of the warming of Tasmanian waters, writes **Gill Vowles**

**C**ITIZEN scientists will be frontline weapons in a bid to save Tasmania's lucrative fishing industry from climate change.

From next month professional and recreational fishermen will join members of the community in collecting data for the REDMAP project.

REDMAP, the Coastal Climate Change Range Extension Database and MAPping project, an initiative of the Tasmanian Aquaculture and Fisheries Institute, is an interactive website enabling anyone to report sightings of marine species which may be moving due to ocean warming.

Marine biologist and REDMAP designer Gretta Pecl said the project, which will map changes in marine species in Tasmania's coastal waters, would also provide an early warning signal for the world.

"Coastal waters at Maria Island are warming at more than three times the average global warming rate," Dr Pecl said.

"So Tasmania will be the first to see any impacts on marine environments and any we find will be an early warning for the rest of the world."

Dr Pecl said there was very little monitoring of the Australian coastline or information on the marine environment in the southern hemisphere.

Because Tasmania had a large commercial fishing community and high participation in recreational fishing, there was a huge body of people using marine waters, she said.

"These individuals potentially provide many more observations than the best research or monitoring team, at a fraction of the cost," Dr Pecl said.

So far OceanWatch, the Tasmanian Seafood Industry Council, TARFish, Fish Care, several Hobart schools and diving clubs have agreed to participate in REDMAP.

Dr Pecl said Tasmania's rock lobster fishery, the state's second most important industry, worth \$60 million a year, would probably be one of the first to be affected by climate change.

"As the water warms, there will be an expansion of the long-spined sea urchin which eat kelp and marine plants, creating urchin barrens — and rock lobsters don't like living in those barrens," she said.

"That is why REDMAP is so important — we need to know how our marine communities are changing, so we can manage the impacts."

Dr Pecl said in the case of sea urchin expansion, one management strategy could be the establishment of high numbers of very large lobsters.

"Large rock lobsters eat the urchins so if we have management practices that encourage a high number of really large lobsters on inshore areas, we at least have a chance of alleviating some of the barren formation," she said.

"If we are forewarned, we can be forearmed."

**Lemons:** During the Age of Exploration European mariners planted citrus trees along the trade routes in order to have fruit to prevent scurvy. Scurvy killed more sailors than any other peril of the high seas until 1700 when it was discovered that the juice of lemons cured and prevented scurvy, after which English sailors became known as limeys.

In the Californian gold rush, miners quickly succumbed to scurvy too, until the word got out that the fruit prevented the illness. Miners were willing to pay \$1 each - \$17 in

A lemon provides high levels of folic acid and decreases the risk of stroke by 30 per cent.

In cooking, the tart fresh lemon juice and zest added to recipes can reduce the amount of salt needed to enhance the flavors while adding no fat and negligible calories.

Choose citrus fruit that feels heavy for its size, an indication of its juiciness. The skin should be wrinkle-free and the fruit should smell fresh. Fruit that you can squeeze, but is not soft, will yield more juice.