

Job losses feared as UK marine science centre overspends

[LONDON] Britain's Natural Environment Research Council (NERC) has discovered that one of its research centres — the Centre for Coastal and Marine Sciences (CCMS) — has overspent its budget by £2.4 million (US\$3.77 million).

A spokesman for the staff labour union, the Institute of Professionals, Managers and Specialists, says representatives from the staff and management will this week attempt to reduce the budget without making redundancies at the centre's three laboratories in Cheshire, Oban and Plymouth.

But observers doubt whether redundancies can be avoided. Some estimates suggest that up to 30 jobs may have to go to compensate for the overspend, which amounts to around 7 per cent of the centre's annual budget. The CCMS has already slimmed down considerably as part of a restructuring exercise one year ago.

It is unclear how or why the overspend occurred, or why the shortfall was not identified earlier. Some staff blame defective accounting software. But most agree that the centre's increasing reliance on income from short term contracts is an important factor — and needs to be reviewed.

One CCMS scientist says he believes the overspend occurred partly because of "optimistic projections" of income from contract research, which accounts for around 40 per cent of the centre's income. The rest of the income is derived from the NERC as core research funding.

This view is shared by the NERC's chief executive, Sir John Krebs. In a statement last week, Krebs said that "all NERC's centres and surveys depend to a greater or lesser extent on external funding... as a result we expect fluctuations in the level of funding, which can sometimes cause cash flow difficulties".

He added: "This is exacerbated by the move away from large, longer term strategic contracts from government departments to smaller, shorter term contracts to address specific issues. This is an issue for the science base as a whole."

But one senior NERC-funded scientist claims that the research council's policies are also partly to blame for the funding shortfall — particularly the decision to allow core funding for marine sciences to decline for many years.

In addition, the CCMS's three laboratories are all struggling to find contract research for which they have to compete with universities.

Ehsan Masood



White out: widespread coral bleaching would pose a severe threat to ecosystems and local economies.

Global warming 'could kill most coral reefs by 2100'

[SYDNEY] An Australian scientist has identified global warming as the most likely culprit for last year's widespread coral bleaching, and predicts that similar events are likely to occur annually in most tropical oceans within 30–50 years.

The warning came this week from Ove Hoegh-Guldberg of the University of Sydney, who has studied for the past 15 years how the normally brilliant colours of coral turn white. He predicts that coral reefs "could be eliminated from most areas by 2100".

The potential impact on economic activity on reefs, especially fishing and tourism, is substantial. There are also implications for policies to curb global warming. The prediction is likely to have particular impact in Australia, where the government remains sceptical of a link between increasing temperatures and environmental degradation.

Coral obtain foods through the algae that live symbiotically within them. Bleaching occurs when the algae are expelled owing to damage by light at higher than normal temperatures, leaving stark, white skeletons.

Hoegh-Guldberg and Sandra Ward of the University of Sydney, and Peter Harrison of Southern Cross University, obtained results from six tanks placed on Australia's Great Barrier Reef. Corals were studied as the temperature of the seawater was artificially increased.

Once above the ambient 26–28 °C, there was a 10 per cent decrease in the rate of fertilization. At 32 °C, the rate of reproduction dropped dramatically to 40 per cent, and at 34 °C there was almost none.

Other evidence linking warming with bleaching came from satellite measurements of the temperature of the sea surface, gathered by the US National Oceanographic and Atmospheric Administration. During last year, the worst on record for bleaching, wher-

ever the temperature was only one degree above ambient, mass death of corals occurred.

Now, in what is claimed to be the first application of computer models to coral reef research, Hoegh-Guldberg has projected how the climate will change in regions where corals grow. He claims to have shown that, unless global warming is arrested, coral bleaching will occur more frequently, and more intensely, until by 2030 it will appear every year.

Every coral reef examined showed the same drastic trend, with consistency between the major oceans, although the rate of bleaching onset differs. Caribbean and Southeast Asian reefs would be hit first with annual bleaching by 2020, whereas central Pacific reefs would not be affected for another two decades, it is predicted.

The Great Barrier Reef sits between the two extremes, with annual bleaching being predicted by 2030.

"The rapidity and extent of the changes, if realized, spell catastrophe for tropical marine ecosystems everywhere, and suggest that unrestrained warming cannot occur without the complete loss of coral reefs on a global scale," says Hoegh-Guldberg.

The study was accepted last week for publication in the Australian journal, *Marine and Freshwater Research*. The research was financed by the environmental organization Greenpeace.

Some remain sceptical about the predicted frequency of coral bleaching events on the Great Barrier Reef. "To conclude that coral bleaching is due to global warming is very speculative and highly uncertain at this stage," says Malcolm McCulloch, an Earth scientist at the Australian National University.

But Terry Done, of the Australian Institute of Marine Research, describes the report as "quite credible".

Peter Pockley