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The Macmillan Building, 4 Crinan St
 London N1 9XW, UK
 Tel: +44 (0) 20 7833 4000
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IN HOT WATER

The ocean's enormous capacity for soaking up greenhouse gases has gone some way toward softening the blow of escalating emissions; over the last century, the upper ocean has soaked up over 500 billion tonnes of fossil fuel carbon. But in acting as a buffer for the planet, the ocean itself has begun to suffer. Some of the harm is obvious; some is more obscure.

Most notably, the seas are warming, having taken up around 20 times more heat than the atmosphere since 1960. For some time, it has been realized that the ocean will also become more acidic in a carbon-rich world. Now studies show it will become saltier and, rather surprisingly, noisier too. If, as predicted under some scenarios, the ocean's pH drops 0.3 units from its current value of 8.1 units by 2050, sound waves at one kilohertz and below could travel up to 70 per cent further underwater. This, say scientists, could crank up the volume of background noise, interfering with communication signals from marine mammals (page 138).

Meanwhile, rising temperatures are making the seas around the mid-Atlantic more salty by encouraging evaporation. In a study to be published in *Geophysical Research Letters*, Peter Stott at the UK Met office and colleagues show that this trend is due to human-induced climate change and is likely to continue in the near future. Along with temperature, salinity shapes the structure of marine ecosystems, determining where ocean inhabitants reside.

Such shifts suggest that, like the rest of the biosphere, ocean species will have to adapt to a certain degree of change. This could in theory be easier for migratory species that can modify their distributions more readily than sedentaries such as corals, 71 per cent of which are deemed to be climate change susceptible (page 140).

But the ability of any species to adapt will largely depend on other pressures. Greenhouse gas emissions are the latest in a long history of human onslaughts against the ocean, felt most potently in the relentless depletion of commercial fish stocks. Continued over-harvesting leaves species lacking the necessary resilience to bounce back from environmental challenges.

With a quarter of global stocks overexploited, depleted or recovering from overexploitation, and half of all stocks fully exploited, even marine migrants will be hard hit by climate change. The only effective way to improve their chances of adapting is to alleviate pressure by reducing fishing effort. Not only will this offer the possibility of recovery for some of the most overexploited stocks, it will in itself reduce emissions (*Mar. Pollut. Bull.* doi:10.1016/j.marpolbul.2008.08.024; 2008).

Next month, the EU Fisheries Council will meet to set industry rules and quotas for the year ahead. By setting strict regulations on fishing effort for the most severely exploited stocks, the Council can help some of the ocean's most vulnerable inhabitants adapt to the expected — and the more obscure — consequences of climate change.

OLIVE HEFFERNAN, EDITOR

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