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Fishing for the future

Health of marine environment at risk, scientists say Fisheries urged

to make ecosystem concerns a priority

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TANNIS TOOHEY/TORONTO STAR
A pile of red snapper await customers in Kensington Market.

OTTAWA—A rising chorus of people anxious about the fate of 70 per cent of the planet is calling for radically different means to reach a traditional end — commercial fisheries that are nonetheless environmentally and economically sustainable.

Instead of the current approach of managing individual species of fish and largely ignoring the bigger picture, these campaigners want priority placed on the health of the whole marine ecosystem with any specific quotas set inside that framework.

Without a switch to such an ecosystem-based fishery management, they warn, the fraying strands of the marine food web could snap entirely.

If it looks and smells like red snapper...

"We have to manage the system in different ways or we're heading for disaster. There is no reason to repeat the experience with Atlantic cod in other parts of the world," says Joshua Reichert, director of environmental programs for the Pew Charitable Trusts.

The Philadelphia-based Pew Trusts are one of the largest U.S. philanthropies, funding several major environment programs. The trusts began focusing on the oceans because the ecological threats were so immense and so little was being done.

"Of all the problems plaguing the marine environment, the single most significant one is the amount of living things we take out of it," says Reichert.

Canadian scientists have been in the forefront of studies documenting the near-

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catastrophe from the over-harvesting that exploded with the industrialization of fishing around the world. In 1998, Daniel Pauly of the University of British Columbia, demonstrated that commercial fishing was drawing creatures from lower and lower on the marine food web because the giant nets and fish-finding sonar had virtually exterminated the original target species.

For a while Pauly joked that soon these vast fleets would be chasing jellyfish because that's the only marine life that would remain in some regions. Jellyfish fisheries are currently under serious study off Alaska and Newfoundland.

Then last year, Ransom Myers and Boris Worm from Dalhousie University in Halifax shocked even the most battle-hardened fish biologists with evidence that the stocks of all ocean fish greater than 30 centimetres, predominately predators, were now only 10 per cent of the levels in 1950.

Meanwhile, commissions and panels in various countries have been urging a switch to an ecosystem-based approach, but without spelling out exactly how this would work. Finally, this week, the influential U.S. journal *Science* published a preliminary blueprint for this new fisheries management, based on research financed by the Pew Trusts.

Seventeen marine biologist (none of whom are from Canada, home to the world's longest coastline) have submitted a proposal that makes clear that an ecosystem approach means short- and medium-term pain in return for long-term gain for the fishing community, and for anyone who cares about the survival of the oceans.

The oceans within 200 nautical miles of shore — where most fish live — would be zoned for use, just like the land. Some areas might be closed permanently to fishing, others open only under certain circumstances, others with restrictions on the type of gear that could be used.

The size of fishing fleets could be slashed through buyouts or through an across-the-board reform of the quota system, as already implemented in New Zealand. Less damaging fishing technologies would be substituted for the indiscriminate gear that now results in discarding, as unwanted bycatch, an estimated 27 million tonnes, one-quarter of the world's annual marine fish catch.

The overall goal would be to ensure that the total mass of living material fished from any ecosystem wasn't more than the system's productivity could bear. And the new equation would have to include considerations not part of existing fishery management — the bycatch threat to other fish and to protected species, depleting species that other fish eat and endangering key habitats.

"We're not anti-fishing. We're not trying to turn the whole ocean into marine parks," says the study's chief author Ellen Pikitch, a marine researcher with the Pew Institute of Ocean Science, a New York outpost of the University of Miami.

The blueprint calls for the "judicious use of a precautionary approach," a nuanced invocation of a principle embraced by environmental activists but shunned by business and conservative policy-makers in both the U.S. and Canada.

The *Science* paper continues: "This means erring on the side of caution in setting management targets and limits when information is sparse or uncertain. Greater uncertainty would be associated with more stringent management measures.

"Ideally, [ecosystem-based fishery management] would shift the burden of proof so that fishing would not take place unless it could be shown not to harm key components of the ecosystem."

Such hopes seem far removed from the political realities that allowed cod fishing to continue in the Atlantic provinces despite strong evidence from the federal government's own scientists of real harm.

Pew's Reichert acknowledges that many policy-makers look little further than the next election but says this short-sightedness could be countered by improved projections of the dollars-and-cents payoff to coastal regions in 20 and 30 years from curtailing overfishing now.

"Fish are a public resource. They don't belong to the people who make a living from them and we have a responsibility to manage those resources in ways that make sense over the long term," he said.

While the *Science* paper is currently in the publicity spotlight, other fish experts have also been examining the ecosystem approach to fisheries, and not always positively.

Pamela Race, from New Zealand's fisheries ministry, castigates scientific colleagues for ignoring success stories in fisheries management, exaggerating the severity and hopelessness of overfishing and condemning single-species quotas in favour of some "ill-defined" ecosystem approach.

""If one of the major failings of single-species management has been the lack of political will to curtail allowable catches, what is the basis for thinking that there will be greater political will to implement probably even more restrictive limits on catches, in addition to other management measures?" she writes in an article published last month in *Marine Ecology Progress Series*, a scientific journal from Germany.

Race singles out Jeff Hutchings, a fish scientist at Dalhousie University, as alarmist for declaring that there is little evidence for rapid recovery of marine fish stocks from prolonged declines. As counter-evidence, she offers a list of more than 30 species that have come back from the brink in waters off North American, Europe and New Zealand over the past 10 to 15 years.

One dramatic example is the recovery of scallops from Georges Bank, a rich Atlantic fishing area that straddles the U.S.-Canada offshore economic zones. Between 1991 and 2002, the estimates of total biomass of scallops increased more than 20 times, presumably due to new management measures that reduced the annual scallop catch on the bank by a third.

The measures included closing half of the scallop fishing area, a 41 per cent cut in fishing days, similar drops in crew size on scallop boats and more stringent gear regulations to reduce catches of young scallops. If that's needed for just one species, then ecosystem-based fishery management faces a long, hard haul.

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