## Research

## Smart fishing sets a standard in NZ



A fine king crab, caught during an AFL survey trip. Mark Soboil, AFL

New Zealand has a regulatory framework to protect the marine environment against human assaults and is now using a unique management model developed by Aotearoa Fisheries Limited to construct a sustainable crab fishing industry from scratch.

During the 1976-1984 'crab rush' years in Alaska, king crabs, 10 times the size of other species and found in the chilly arctic depths, were a golden prize for those who could heave 300 kilogram pots about a slippery, rolling deck in gale force winds, freezing rain and monstrous waves. But there was a flipside for the boatcrews who earned up to US\$200 000 a day at the height of the rush. Capsizings, collisions and men overboard were not uncommon - the death toll was appalling. And after the boom years, the inevitable crash came.

The kiwi ocean crab industry won't be going the same way as Alaska's 'boom and bust' experience. In 1986 New Zealand was the first country to introduce Individual Transferable Quotas (ITQs) to address depleting fish stocks and secure a sound economic and environmental base for its fisheries

'The main commercial species were targeted first, but there's been a push to target the by-catch too. That's meant a big increase in new species introduced into the quota system,' says Craig

owners to work together to reduce costs. They established the holding company CrabCo Limited, to manage the fishery from 'go to whoa', identifying four key services essential for sustainable catches: science, harvesting technique, processing and marketing, with each service being independently tendered and contracted.

Mark Soboil, a marine biologist and economist who

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Lawson, Manager of policy and operations at Aotearoa Fisheries Limited (AFL), the largest Maori-owned fisheries company in New Zealand.

Among the new ones introduced in 2005 were three ocean crab species. Deliberately low quota levels provided an incentive for crab quota has studied the impact of different fisheries management systems on the East Coast of North America, was brought in by AFL to help develop an economic model for sustainable fishing. He's a firm believer in both ITQs and market forces.

'It's not perfect, but if rights are assured and valued, then it

is a safe bet that someone will look after them. And, once you know what assets you've got, they can be upped in value,' he points out.

That's easier said than done. The sea is notoriously stubborn when it comes to disclosing its secrets, especially if they're a thousand metres deep. 'It's a hugely complex and time-consuming process to first map and then estimate the biomass abundances and use these to set the sustainable catch limits,' says Soboil.

Scientists at the National Institute of Water and Atmospheric Research have established that the Chaceon bicolor (red) and king crabs are widely distributed around New Zealand at depths of up to a thousand metres, while the giant spider crab inhabits shallower but even less inviting sub-Antarctic waters around the southern tip of the South Island. Their predictions, as well as equipment, are now being put to the test.

Last month a converted longliner, the Perseverance, began a series of exploratory trips off the eastern coast of the North Island with crew learning to handle the hydraulically controlled 3000-metre 'backbones' from which 60 crab pots hang at depths of between 500 and 1000 metres. By accurately locating and monitoring the crabs, and matching the catch to the market, much of the guesswork and risk is taken out. It's a win-win situation for the industry and the environment.

'In future contact, fishermen will be told exactly where the catch is and how much to harvest, while knowing there'll be the right storage and transportation facilities to get it to a guaranteed market, year after year,' says Soboil. That's smart fishing.

## Marilyn Head

More information: Aotearoa Fisheries Limited: http://afl.maori.nz