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Editor's Note:

I recently returned from my third research sabbatical leave in New Zealand where I have been investigating the social and economic effects of their quota management system (QMS) upon fisheries participants. This newsletter issue summarizes my preliminary findings from two surveys. The first is a continuation of my long-term (since 1986) case studies of 62 Auckland region fishermen and fishing companies. The second is a new survey of 17 relatively recent (since 1995) new entrants into New Zealand's QMS from the Nelson-Golden Bay area.



Leigh harbour, New Zealand. Credit: Chris Dewees

A second article describing the March 13th through 19th New Zealand Study tour will appear in our Fall issue.

Effects of New Zealand's Quota Management System on Fishery Participants: Preliminary Findings

New Zealand's QMS is based on individual transferable quotas (ITQs) that now represent a proportion of the total allowable commercial catch (TACC). These harvest rights may be held by any New Zealander and may be traded or leased. The system was implemented in October 1986. To understand the system it is important to understand a bit of history. In the early 1980s New Zealand:

- Implemented a moratorium on new fishery entrants
- Removed all part-time fishermen
- Allocated enterprise allocations for deepwater species to vertically integrated companies-- sort of a pre-test of ITQs

By the mid-1980s a "perfect storm" of events led to rapid implementation of individual transferable quotas, including:

- Widely held belief of over-fished and over-capitalized nearshore fisheries
- Strong desire to create incentives to develop the valuable deepwater fisheries domestically to maximize export earnings
- Major national economic crisis
- Complete switch of government policy

to market-based management systems with removal of subsidies.

The initial scheme was based on a harvest rights system developed by Canadian economists D.G. Moloney and P. H. Pearse. Provisional quota was allocated in weight based on catch history and the government adjusted Total allowable catch (TAC) by buying back or tendering out quota. About 20% of fishermen sold out in the first year, primarily to other industry participants. Those who remained in the fishery quickly looked for ways to add value to their limited catch by targeting new markets, new methods, new products, and reducing costs.

During the first ten years there were several major changes to the system including:

- Settlement of Maori claims based on the Treaty of Waitangi resulting in a major shift of quota rights to Maori
- Significant reductions in TACs for some valuable deepwater species
- Switch from resource rentals towards full cost recovery
- Switch to quota shares expressed as a proportion of the TACCs

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As the system matured over the past ten years we've seen:

- Increase in co-management with quota owner organizations and privatization of some major management responsibilities
- Continued aggregation of quota by vertically-integrated companies
- Passage of the Maori Fisheries Act of 2004 finalizing settlements
- Difficult economic conditions for industry due to a strong NZ dollar, rising costs, and loss of some Asian markets

Auckland Interviews

While a thorough nuanced discussion of this long-term study will have to wait until analysis and peer review of the data for publication, I thought I'd share a few general preliminary observations.

In addition to aging, what happened to my original sample of 62 fishermen and fishing companies over the 20 years under the QMS? Table 1 summarizes their status in 2006. About one-third of them are still in the fishing industry. The others are in different careers (some very pleased), retired, deceased, or non-contactable.

Table 1. Status of 1986-87 sample of 62 Auckland region fishermen and fishing companies in 2005-2006

Total Still in Industry	21
Own and fish their quota	12
Own quota, but lease it out	5
Fish quota leased from others (ACE)	4
Out of fishing Industry	41
Other Careers	12
Retired	8
Deceased	8
Out of Country	3
Unknown	10

Table 2 shows some historical trends in their quota ownership and their opinions. The sample consists primarily of small-scale fishermen, so these data reflect their perceptions. Of interest is the consistent opinion that the QMS conserves fish stocks. The other opinions appear to reflect the economic conditions in the fishery at the time of the interviews (markets, profitability, security of harvest rights, etc.).

Table 2. Historical trends in opinions of Auckland region fishermen and fishing companies, 1987 - 2005	% Agree with Statement		
	1987	1995	2005
Number of interviews	62	52	31
NZ Industry is better off with QMS	58	73	58
QMS is compatible with my fisheries management beliefs	56	73	59
QMS conserves fish stocks	56	68	75
Fishing physically suffers with QMS	39	50	32
My economic situation has improved with QMS	48	45	45
More secure about retirement with QMS	73	64	50
More difficult for young to enter with QMS	95	98	73

During 2005, several interesting issues were brought up by many interviewees including:

- Concerns about growing complexity of the system
- Concerns about high-cost recovery fees at a time of low profitability for fishermen
- 80% felt that the level of cheating had decreased in the past 10 years due to the threat of draconian penalties

When I asked interviewees for suggestions to others designing similar systems, the following ideas are listed in order of frequency mentioned:

- Take care with the initial allocation of quota
- Involve industry in system design
- Issue quota only to fishermen
- Keep administrative costs low
- Establish and enforce low aggregation limits
- Make harvest right secure
- Keep it simple
- Need good research and stock assessment
- Consider spatial issues carefully
- Incorporate recreational fisheries
- Establish mechanisms for helping new entrants

New Entrant Interviews in Nelson-Golden Bay Region

Over the past 20 years of surveying participants in individual quota programs, barriers to entry into the fishery was brought up by the large majority as an important issue. To learn more about how new entrants are faring, I added a component to my New Zealand study. With the assistance from the fishing industry and the Ministry of Fisheries, I was able to identify 21 people who had entered the fishery since 1995. I was able to complete in depth interviews with 17 of them. Some of the preliminary general findings include:

- Most come from nonfishing families; often from agriculture
- About half have bought quota; the others are only leasing quota from companies or individuals.
- Most target shellfish and inshore fishes; a few troll for tuna or longline offshore
- Most are maintaining or increasing their financial commitment to fishing
- All are vessel owners
- Primary issues are rising costs, low profitability, expense of buying/leasing quota to match catch species mix or expand business

Summary

This newsletter article is only a concise preliminary summary of what we've learned from the New Zealand QMS experience. As the detailed survey results are published in the coming months, we will inform you about the publications and their availability.

In conclusion, I have a few general observations from the New Zealand study.

- Much of the original economic theory about ITQs works in practice
- Fishery outcomes depend on a combination of specific QMS design details and outside environmental and economic changes
- Key issues are who should be allowed to own quota and limits on quota aggregation



Snapper, *Chrysophrys auratus*.
Credit: John Stumbos

- Setting fishery goals and objectives before designing the management system details is important
- To the extent feasible, incorporate non-commercial users (recreational, First Nations groups, ecosystem needs, etc) in the system; especially with the TAC and TACC setting process
- Need to consider the tradeoffs between economic efficiency and other societal goals
- Need to consider issues related to attracting talented new entrants into the fishery as current participants retire

Bob Price



Bob Price. Credit: John Stumbos

Seafood Technology Specialist (emeritus) Dr. Robert Price died June 1 at the age of 64. Bob and I were the two Sea Grant Specialists since the early 1970s and I have great memories of all the projects we did as colleagues over the decades. These projects ranged from dozens of seafood education workshops for consumers and food professionals to testing methods of chilling fish onboard fishing vessels. Locales ranged from a state mental hospital to rolling salmon trollers off the north coast. Bob was highly professional, witty, extremely bright, and focused on improving seafood quality and safety nationwide.

Bob tended to be soft spoken and concise in his writing and presentations. He was able to cut through balderdash and get to the vital issues. Cameraman Harry Stroble and I fondly recall our shooting an entire 15-minute film on canning and freezing seafood in one day in Eureka because of Bob's thorough preparation and persistence.

Bob's "super star" career accomplishments are summarized on the California Sea Grant homepage (www.csgc.ucsd.edu) in the summer issue of *Sea Grant News* and in news releases. I just wanted to add this personal message in memory of my long-time colleague.

(SGML)

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Smith River Salmon Publication

Results of Marine Advisor Jim Waldvogel's 23-year study monitoring fall-run Chinook salmon spawning escapement on a tributary of the Smith River is now available from California Sea Grant. This study provides a rare long-term glimpse into the effects of changing ocean and stream conditions on Chinook salmon survival. Copies of this 32-page report (T-060), illustrated with color photos, are available for \$10. Call (858) 534-4446 (leave a message) to order. A related reprint from the Transactions of the American Fisheries Society, "Habitat use by juvenile salmonids in the Smith River, California" by R.M. Quinones and T.J. Mulligan is also available (free) from California Sea Grant.



California Sea Grant marine advisor Jim Waldvogel observing spawning salmon.
Credit: John Stumbos

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