

FISHBYTES

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International Symposium on Advances in Fish Tagging and Marking Technology Auckland, New Zealand, February 2008

by Erin Rechisky

Auckland, New Zealand, is an unimposing, medium-sized city surrounded by ocean, islands, ferries and sailboats - not unlike Vancouver. Auckland was the location of the International Symposium on Advances in Fish Tagging and Marking Technology, held in February 2008 and jointly organized by the American Fisheries Society (AFS), the Australian Society for Fish Biology and the New Zealand Marine Sciences Society. Delegates from more than 20 countries



Auckland Harbour - a short walk from the meeting venue at the University of Auckland.
Photo by I. McCulloch.

advances in tagging over the past 20 years have been fueled by the advances we have seen in computing technology. Thus, the tools in the tagging toolbox have become more diverse and more sophisticated and have allowed biologists to gain a broader range of information on the biology and ecology of marine animals.

In the proceedings from the 1988 symposium (Fish Marking Techniques, AFS Symposium 7), the movement from external "batch" tagging of fish to tagging fish

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(including myself, Mike Melnychuk and Nathan Taylor from the Fisheries Centre) gathered to present research demonstrating the advances that have been made in fish marking and, particularly, in electronic fish tagging, since the first international "fish marking" meeting in Seattle in 1988.

The technological

internally with unique codes to identify individuals (i.e., passive integrated transponder tags, PIT tags) was recognized as a major development, which has since been widely implemented in fisheries research. Biological and chemical markers, gene tagging, coded wire tags and radio telemetry were all also in use two decades ago. The forthcoming proceedings of the recent second symposium will add genetic tags using microsattellites; archival tags that log ambient environmental data; and satellite telemetry of large pelagic fish - all new technologies. Acoustic telemetry has also been extensively applied. Transmitters have become miniaturized to fit smaller marine animals and stationary receivers have allowed us to collect data on individuals for months or years. Acoustic receivers such as these make up recently-developed large scale acoustic arrays such as the Pacific Ocean Shelf Tracking Project (POST) located in the northeastern Pacific Ocean (*FishBytes* Vol. 11 Issue 5) and the Ocean Tracking Network (OTN), a network of POST-like arrays presently being

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deployed worldwide. These arrays are designed to track highly migratory marine animals that utilize continental shelves as part of their migration pathway.

I presented some results of this work at the Auckland symposium. For my PhD, I am using the POST array to estimate survival of out-migrating Chinook salmon smolts from the Columbia River Basin. Smolts were surgically implanted with acoustic transmitters and released up to 850

km upstream of the river mouth. As these fish migrate toward the ocean, they pass through multiple detection sites in the river. Once they reach the ocean, they migrate north through detection sites on the continental shelf and travel as far as Alaska - a distance of up to 2,500 km. Technological advances such as this have made it possible to estimate early marine survival, determine migration pathways and migration rates, and make comparisons among stocks and species of Pacific salmon.

At the 2008 meeting Ray Hilborn reiterated his words and those of Carl Walters and Douglas Jester from two decades previously: that fish marking and tagging is one of the most valuable tools in fisheries management.

I was fortunate to be able to present my work in New Zealand thanks to a number of contributors, including the Fisheries Centre Pacific Fishery Biologists award, the organizers and sponsors of the meeting, a UBC Graduate Studies Travel Award and my PhD advisor Dr Carl Walters.



The privilege to tuna

by Mimi E. Lam

What do you get when you mix *The Privilege to Fish* with *Last Best Chance for Tuna: Lessons from the Cod Collapse*? You guessed it: *The Privilege to Tuna*! At the American Association for the Advancement of Science (AAAS) Annual Meeting, 14 –



Panelists at The Privilege to Fish AAAS Symposium, 16 February 2008, Boston, MA (L to R): Russ Jones, Andrew A. Rosenberg, Homalco Chief Darren Blaney, Seth Macinko, Josh Eagle, D. Bruce Johnsen, Jon G. Sutinen, Daniel Pauly, and U. Rashid Sumaila. Photo by M.E. Lam

18 February 2008, in Boston, MA, the UBC Fisheries Centre was well-represented. Two symposia were organized by UBC FC members and featured among their distinguished panelists Professors Andrew A. Rosenberg, Daniel Pauly and U. Rashid Sumaila, and themes of *human values* of co-operation, reciprocity, and intergenerational equity.

The Privilege to Fish symposium was organized by Mimi E. Lam (UBC FC) and Meaghan E. Calcari (Gordon and Betty Moore Foundation, GBMF). It was funded by a GBMF grant to Lam that covers conference participant travels, author honoraria, and publication costs for an upcoming Special Feature with *Ecology and Society*. Fisheries scientists, policy analysts, economists, lawyers, a First Nations resource manager and a First Nations chief debated the 'privilege' versus the 'right' to fish. In the process, they shared perspectives on what is needed to design effective socio-economic incentives in fisheries management and policy.

Last Best Chance for Tuna: Lessons from the Cod Collapse was organized by Katharine Newman (World Wildlife Fund, WWF) and U. Rashid Sumaila (UBC FC). It was one of the record seven marine science symposia selected for this year's AAAS press briefings. The symposium was followed by a tuna management workshop, and both were sponsored by the WWF. Panelists addressed the need to balance diverse economic and social trade-offs, while accounting for the needs of present and future generations, in designing a management plan to save the world's tuna populations.

To avert future fisheries collapses, we must transform the perceived fishing right to a *privilege*, granted by society. But how can the power unleashed by fishing be merged, operationally, with the conditional responsibilities to sustain and conserve marine resources? How can we reconcile the competing interests of individuals and society, present and future generations, and people and fish? Do fishers, societies, or governments bear these responsibilities? Can ecosystem-based management and new ocean governance balance multiple human uses of shared marine resources?

A National Research Council book, *How People Learn: Brain, Mind, Experience, and School*, recounts a tale, *Fish is Fish*, of a fish that befriends a tadpole, who grows into a frog. With his out-of-water experience, the frog returns to the pond to tell his fish friend of the amazing worlds both on land and in air. But, for the fish that has not left the water, she can only adapt what she has known and experienced, her pre-cognition, to these new descriptions. So she imagines people as fish walking on tailfins and birds as fish flying with wings.

Until we truly imagine our lives without fish, we will never have the will to restrict our catches - and our appetites - to conserve and sustain fish as living treasures. We *can* learn a lesson from cod and adapt our thinking and behaviour to avoid oceans without tuna. The tragedy of the commons can be solved by a change in cognitive perspective: from human ownership of and rights over fish to valuing and privileging our neighbours, both humans on land and fish in oceans. Sound fishy? Perhaps, but it may be the last best chance for tuna and us.

Reflections on a too-brief sabbatical visit at the UBC Fisheries Centre

by *Les Kaufman*

Through April into early May my wife (Prof. Jackie Liederman, a brain scientist) and I had the good fortune of being hosted at the Fisheries Centre by Prof. Amanda Vincent and Project Seahorse. The basic scientific problem to be solved was that I missed my UBC colleagues. This was easily addressed in that both Amanda Vincent and Rashid Sumaila are co-PIs in the Marine Management Area Science Program at Conservation International (www.conservation.org/mmms), and Rashid is also on the MMAS Science Advisory Committee, which I chair. We had plenty of work to do together. All that was necessary then was to justify my travelling north - exactly the wrong direction - for a project that lay entirely in the tropical south: a piece of cake, given the Fisheries Centre's global engagements.

Being at the Fisheries Centre was like camping out in a candy store, and being in Vancouver during a spate of mostly gorgeous spring weather an incredible joy. While I pursued piscian proclivities, Jackie managed from room 240 her work as part of a giant study of how the brain learns. Besides the sabbatical luxury of sitting around listening to colleagues and staring down Main Mall at the mountains, some good stuff got done.

In the centre ring, our Philippine work with Project Seahorse deals with how social and ecological processes interact in the development of marine reserve systems. We are particularly fascinated by a puzzling gap that can emerge between actual reserve effects and the stakeholders'

perceptions of them. We outlined and made good progress on the planned series of papers, and while the manuscript notes were all spread on the same table, they set about propagating and begat at least two more incipient papers. There was also a small frenzy of project linkage and short-circuiting between the work of Amanda and Rashid's groups, and a productive visit by Mike Jones and Gretchen Anderson, collaborators from Michigan State University. Mike is no stranger to the Centre - he was Carl Walters' student! Carl was missed but not mourned during our visit, for we knew that he was most likely hooking huge snook every morning in Florida. The greatest, though, was time spent with Fisheries Centre graduate students from both the 2nd and 3rd floor domains. They are an incredible and gifted bunch. I got to work particularly closely with Project Seahorse post-doc Mai Yasue and doctoral student Jonathan Anticamara - an entirely delightful experience. Catch-ups with Villy Christensen, Tony Pitcher, Dolph Schluter and Dirk Zeller were also very rewarding.

It was great to connect with a host of colleagues in the Centre, the UBC Zoology Department, the Vancouver Aquarium, and SFU on matters of fish evolution and aquatic conservation. Two years ago I'd promised Daniel Pauly and Rainer Froese that I would develop for FishBase a data archive for realized trophic levels of marine life based on stable isotope measurements (this means measurements of the actual position of animals in the marine food web, as opposed to estimates based

on their most recent snacks). Such a database could help in exploring basic questions about marine community dynamics and also support the development of ecosystem-based management. With the expert collaboration of Deng Palomares we actually got this going! There were also the distinct pleasures of working a bit with Sylvie Guénette on her Ecosim modelling project for coral reef communities in Puerto Rico, catching up on marine mammal trophobiology with Andrew Trites and Dom Tollit, and learning about First Nation fisheries from David Close, Nigel Haggan and Mimi Lam.

Most days Jackie and I took lunch on the 3rd floor for lively discussions of fishes, politics and the God Illusion with that wonderfully irreverent bunch. Project Seahorse people began to migrate up and the seating became competitive. Of course, when you visit another institution, you see it of a piece instead of being immersed entirely in your own work as at home. From this perspective, the Centre appears as a monolith, composed of several well-integrated and complementary research thrusts and visionary applications, all to produce the scientific basis for an improved relationship between humanity and the world's living waters. There are very few organizations capable of credibly pulling off such a mission. The Centre is a leading one, and the world desperately needs a network of them. We headed back to Boston proud of our UBC colleagues and grateful for having been received so warmly by them.



Fisheries Centre welcomes new Faculty member Dr David Close



Please join us in welcoming Assistant Professor David Close, from the Confederated Tribes of the Umatilla Indian Reservation in northeast Oregon, as the Distinguished Science Professor of Aboriginal Fisheries in Fisheries and Zoology.

Dr Close completed his PhD in Fisheries Science at Michigan State University in 2007. As principal investigator with the Pacific Lamprey Research and Restoration Project, his studies focused on stress physiology and the endocrine system in Pacific lamprey, as part of a larger project to restore this important traditional food species to the Umatilla River, in Oregon. With a background in fish physiology, endocrinology and aquatic ecology, Close will direct the Aboriginal Fisheries Research Unit at the Fisheries Centre, working in collaboration with the First Nations and Aboriginal peoples of the Pacific Northwest and internationally. This includes linking traditional knowledge, fisheries science and the study of aquatic ecosystems. Key objectives will be identification of BC Aboriginal research priorities, sources of funding, and recruiting and retaining Aboriginal students.

"Aboriginal rights drive fisheries," he says. "Fish is considered one of our important First Foods. We need to understand the biology and the environmental factors impacting the fish to restore depleted resources. We also need to preserve and restore these resources in order to use them. This is a basic right for the survival of Aboriginal peoples. Full exercise of this right and use of traditional knowledge will not leave anyone short. It will promote restoration and greater benefits for all."

For more on Dr Close's work and his appointment, see www.cfis.ubc.ca/page472.htm.

News and Notes

Congratulations

Dr Yajie Liu successfully defended her PhD thesis "An analysis of the economics and management of salmon aquaculture" on January 10, 2008. She is now working at the Department of Economics, Norwegian University of Science and Technology, located in Trondheim, Norway.

Dr Sian Morgan successfully defended her PhD thesis "The ontogenetic ecology and conservation of exploited tropical seahorses" at McGill University on April 1, 2008. Sian remained registered at McGill when she moved to UBC with Project Seahorse in 2002. During her time as a PhD student, Sian also completed significant policy work and co-ordinated the launch of SeaChoice, Canada's own sustainable seafood program for consumers.

Chiara Piroddi successfully defended her Master's thesis "An ecosystem-based approach to study two dolphin populations around the island of Kalamos, Ionian Sea, Greece" on February 26, 2008. She is currently working as a research assistant with Villy Christensen at the Fisheries Centre.

Project Seahorse is delighted to congratulate graduate student **Jennifer Selgrath** on her recent funding success. Jenny has been awarded a Fulbright Scholarship for her research in the Philippines. She also received a SPOT images grant, shared with another Project Seahorse graduate student in the UK, Nick Hill. This award will give them access to an extraordinary set of satellite images from a 20 year span that are worth about US\$145,000. Jenny will be using these images to measure long-term habitat changes in coastal regions of the Philippines.

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