



FISHBYTES

THE NEWSLETTER OF THE FISHERIES CENTRE – UNIVERSITY OF BRITISH COLUMBIA
VOLUME 6 ISSUE 5/6 **SEPTEMBER-DECEMBER 2000**

Pink Shrimp and Golden Opportunities

By Steve Martell

The first shrimp trawl fishery began in 1952 in Stuart Channel, and up until 1972, sporadic fisheries have occurred in a number of areas, including the Strait of Georgia, and Queen Charlotte Sound. In 1972 a joint Federal/Provincial government survey helped develop the fishery in regions off the West Coast of Vancouver Island. Up until 1977 the fishing fleet consisted of 12 medium to large otter trawlers, and today there are more than 250 licensed vessels coast wide. For the past 25 years, the Department of Fisheries and Oceans has conducted annual surveys to provide unbiased indices of population abundance prior to the start of the fishery. For the past year I have been working on the dynamics of pink shrimp populations off south west coast of Vancouver Island, and recently provided scientific advice to managers responsible for this fishery.

The advice provided is based primarily on the research cruise information. Up until this year, survey indices were used to calculate total biomass estimates and fisheries managers based their information on these biomass estimates. The research surveys are designed to sample the population in a systematic manner, such that

the total area for which the stock is distributed can be estimated, and the relative density (catch/area swept) is interpolated to provide a biomass estimate. Since 1987, the DFO has used the W. E. Ricker, now a Canadian Coast Guard Vessel, to conduct trawl surveys.

A typical day for a research scientist starts with the morning "shake", usually around 5:30 am, followed by your choice of eggs benedict or pancakes with strawberries and whip cream. At 6:00 am the first net is shot off the stern, and at 6:30 am the fishing master begins to haul the net back in. The Ricker is outfitted with an otter-trawl, essentially a large net suspended between two steel doors that pull the net apart while in tow. The net opening is roughly 9 meters wide, and captures everything in its path. The job of the science crew on board is to sort and weigh the entire catch. For the most part, the catch consist of several common flatfishes, dogfish and rattfish (or selachii), the odd lingcod and rockfish species, as well as some common commercial fish and invertebrates. Often over-looked are the numerous tiny invertebrates, some so small you can never see them, but their unmistakable odour assures you that there are present. Unfortunately, the survey methods for estimating an unbiased index must remain constant over time, and during the 1970's by-catch reduction devices (BRDs) were not available; however, 100% of the commercial sector has adopted the use of BRDs. For all commercial species of shrimp captured in each tow, a 1-kg sample is taken to examine age-structure and sexual maturity in the population. A relative size index, as measured by the number of shrimp per kilo, is used to convert biomass estimates to population numbers. Length frequencies by sex are collected using carapace length, and the corresponding data are used to examine population age structure. Up until a year ago, much of these data were not

In this issue...

Life at sea

**Coastal Communities,
Coastal People**

**New cohort at the
Fisheries Centre**

**And, as always, lots of
News and Notes!**

Continued on page 2 - Opportunity knocks

Coasts Under Stress

By Marcelo Vasconcellos

The Coasts Under Stress is a major collaborative research initiative (MCRI) between several universities (University of Victoria, UBC, Memorial University of Newfoundland), First Nations and other maritime communities, federal and provincial governments and industry. Rosemary Ommer is the Principal Investigator of the project, which includes an interdisciplinary team of over 70 researchers and students. The goals are to assess how changes in society and resource extraction patterns have affected individual, family, community and ecosystem health through case studies on the east and west coast. The partners hope to use this knowledge to develop local, regional and national policy prescriptions that will promote the long term survival of communities, environment and ecosystems.

Using the metaphor of a five-armed sea star, Coasts under Stress is structured in 5 interdisciplinary 'arms' which deal with specific questions and case studies of that relate to the project goals. A team from the UBC Fisheries Centre participates in 'Arm 2' which looks at how local ecological and scientific knowledge can help us understand the ecosystem changes in ways that will support the development of strategies for future ecological

recovery. In this respect, the Fisheries Centre is testing the Back to the Future approach as a way to understand and characterize past and present ecosystem impacts of fisheries in the Hecate Strait (west coast) and Newfoundland-Labrador shelf (east coast). The objective of the BTF initiative is to construct mass-balance ecosystem models representing different historical periods of both coasts, by combining scientific and traditional ecological knowledge. These models will then be used to evaluate the changes in ecosystem characteristics between periods, and will also serve as reference points to evaluate future fisheries management policies.

The first steps in this direction were taken in September when two science workshops were held, one at UBC and one at MUN. The two-day workshops gathered scientists from local universities and government agencies (DFO, Parks Canada) to discuss past and present conditions of fisheries and marine resources in coastal BC and Newfoundland. Inputs received during the workshops are being used to update previous models of both regions at present time, and to construct models that represent the likely conditions encountered in the early 1900s and in the distant past (pre-European contact). A second step in the project, planned to start next year, will involve interviews and

community workshops on both coasts as a way to further develop the knowledge about changes in ecosystem health in collaboration with local people. The Fisheries Centre team, led by Tony Pitcher and Nigel Haggan, includes Dr Barb Neis, Dr Dave Schneider, Dr Marcelo Vasconcellos and Dr Sheila Heymans, assisted by graduate students Teresa Ryan, Dorothee Schreiber and Melanie Power.

Coasts Under Stress is made possible by grants from the Natural Sciences and Engineering and Social Science and the Humanities Research Councils with contributions from universities, and community and other partners on the west and east coasts of Canada.

For more information on Coasts under Stress and Back to the Future visit www.coastunderstress.ca and www.fisheries.ubc.ca/projects/BTF.



Dr Marcelo Vasconcellos began work as a post-doctoral fellow on the Coasts Under Stress project after receiving his PhD earlier this year. Please see Page 3 for more about Marcelo.

We've moved!

Well, not really, but our email addresses have changed.

Although fisheries.com still works, most of us at the Fisheries Centre now have email address with the domain of fisheries.ubc.ca.

Opportunity knocks - Continued from page 1

used in formal stock assessment frameworks mostly because of the lack of resources to examine the data; however, the intensive survey program continued due to the foresight that these data are essential for understanding the dynamics of pink shrimp stocks.

From a graduate student perspective, one of the most difficult challenges in his or her dissertation, is acquiring the necessary information to make strong

statistical inferences. For those of you familiar with time series analysis it is often very difficult, if not impossible, to draw any conclusions from 3 data points on a graph (the average number of years a Ph.D. student spends in the field). Therefore, when Jim Boutillier offered me an opportunity to work with 25 years of data, and eat eggs benedict or pancakes with strawberries and whip cream for breakfast (did I mention the prime rib at dinner and black forest cake for dessert?!), I jumped all over it.

Thus far the experience for me has been very rewarding and educational. Perhaps one of the greatest benefits with this collaboration is a chance to evaluate one's education and its applicability in the job market. If you were to ask me today, and I still have a long road ahead, I would say the Fisheries Centre, and the DFO, have provided me with a "Golden Opportunity".

Steve Martell is a Ph.D. student with Carl Walters.



News and Notes (Hellos and Goodbyes)

Welcome to **Emma Bredesen**, a new Masters student with Andrew Trites. Emma is from Prince Edward Island, and holds a BSc in Environmental Biology from Queen's University. Her undergraduate thesis examined the effects of forestry practices on BC lakes using paleolimnological techniques. Her graduate work will likely involve ecosystem modelling of the Antarctic.

Welcome to **Andrea Coombs**, who joins us from Ontario where she received an undergraduate degree in Environmental and Resource Science from Trent University. Her research focus will involve assessing the impacts of pollutants as they make their way through the Bering Sea food web using the Ecopath ecosystem model. Andrea will be co-supervised by Daniel Pauly and Andrew Trites.

Welcome to **Raychelle Daniel**, a new MSc (Zoology) student with Andrew Trites. Raychelle hails from western Alaska, having grown up along the Southern Bering Sea Coast. She received a BS (Biology) from the University of Alaska Southeast, in Juneau, Alaska. Most recently, Raychelle worked for the Alaska Department of Fish and Game for the harbour seal project, and her graduate research will involve the study of molting in Steller sea lions.

Welcome to **Anna Hall**, who joins Andrew Trites' research group as a Masters student. Her research will focus on the Population Dynamics of Harbour Porpoise (*Phocoena phocoena*) in the Inshore Waterways of Southern British Columbia and Development of a Small Cetacean Population Conservation Model.

Welcome to **Sheila Heymans**, now a post-doctoral fellow with the Sea Around Us project and the Coasts Under Stress project. Sheila's doctoral work, at the University of Port Elizabeth

in South Africa, involved the Network Analysis and carbon flow of the northern Benguela Ecosystem in Namibia. A citizen of Namibia, Sheila joins us following completion of post-doctoral research on the carbon flow model and Network Analysis of the graminoid marshes of the Everglades ecosystem, at the Chesapeake Biological Laboratory in Solomons, Maryland, USA.

Welcome to **Miguel Angel Martinez-Cuapio**. A Mexican, Miguel holds an BS (Biology) from the National Autonomous University of Mexico and an MSc from the CICESE-Ensenada, Baja California, Mexico. Miguel's research is funded by a Conacyt scholarship from the Mexican government. Working with Tony Pitcher, Miguel's doctoral research in zoology will examine the ecosystem of the large pelagic fisheries in the area of Baja California, Mexico.

Tom Okey has returned to the Fisheries Centre as a research associate after an eight month exploration of some of the world's coastlines. During his world tour, Tom visited 19 countries. Tom is originally from the southern coastline of Lake Ontario, he earned his BS near the southern coastline of the St. Lawrence River, and his MS while enjoying the California coastline, in addition to coastlines in Alaska, Mexico, the South Pacific, and the Indo-Pacific.

Welcome to **Richard Stanford**, who joins us from England. Earlier this year, Richard received an Oceanography degree from Southampton University. As a Masters student with Tony Pitcher, he will be modelling the English Channel fishery. In his spare time, Richard enjoys sports and is keen to find fellow squash players in Vancouver.

Welcome to **Dawit Tesfamichael**, who will be visiting at the Fisheries Centre

until the end of April, 2001. Dawit is a citizen of Eritrea, on the East coast of Africa, and is currently studying for a MSc in Fisheries at Wageningen University, in the Netherlands. While at the Fisheries Centre, Dawit will be involved in ecosystem modelling and Rapprofish appraisal for the Red Sea.

Welcome to **Dom Tollit**, who has joined the Marine Mammal Unit as a post-doctoral fellow. Dom received his PhD from the University of Aberdeen, where his research focussed on the foraging of harbour seals. At the Fisheries Centre, Dom's research will involve developing a quantified approach to assessing the biases of scat analysis using captive feeding studies of Stellers sea lions.

Farewell to **Marcelo Vasconcellos**, who will be returning to Brazil where he has accepted a position at the University of Rio Grande. Since receiving his PhD earlier this year, Marcelo has been working on the Coasts Under Stress project (see page 2) as a post-doctoral fellow. In Brazil, he will be teaching and conducting research, especially regarding Brazilian fisheries. Marcelo and his wife Daniela (a doctoral student in UBC's Resource Management and Environmental Studies) will soon be moving into their new beachfront home, currently under construction.

Guohua Zhang visited at the Fisheries Centre during the summer months. He is Associate Research Professor and Head of the Fish Ecology Group, Department of Ichthyology, Institute of Hydrobiology, Chinese Academy of Sciences. His recent work has focused on the effects of the Three Gorges' Project on fish and fisheries resources. During his time at the Fisheries Centre, Guohua worked with ECOPATH and ECOSIM models as tools to understand the Yangtze River ecosystem better and help minimise the negative impacts of the Three Gorges' Project.

News and Notes

Conference Calls

The 19th Lowell Wakefield Symposium: Crab 2001 – Crabs in Cold Water Regions: Biology, Management, and Economics – Anchorage, Alaska, January 17-20, 2001. Contact the Symposium Coordinator, Alaska Sea Grant College Program, University of Alaska Fairbanks, PO Box 755040, Fairbanks, Alaska, USA, 99775-5040, phone (907) 474-6701, fax (907) 474-6285, email FYConf@uaf.edu. More information can be found at www.uaf.edu/seagrant/Conferences/symposia.html.

The Third International Conference on Ecosystems and Sustainable Development (ECOSUD 2001) – Alicante, Spain, June 6-8, 2001. Organised by the University of Alicante, Spain, Wessex Institute of Technology, UK and Universitat Jaume I, Spain. Visit www.wessex.ac.uk/conferences/2001/ecosud01/

Putting Fishers' Knowledge to Work – to be hosted by the Fisheries Centre, August 27-30, 2001. An international conference about how fishers' knowledge can improve the management of fisheries. The meeting will be relevant to fishers, fishery managers, marine environmental researchers and social scientists. The theme of the conference revolves around the use of local knowledge and the fishing practices of traditional and commercial / industrial fishers, in the management of marine resources. A concurrent Aboriginal Fisheries Forum, focussing on TEK and local knowledge in BC and international experience, will be co-hosted by the Fisheries Centre, UBC's First Nations House of Learning, and the BC Aboriginal Fisheries Commission. The Organising Committee includes Dr Bob Johannes, Dr Barbara Neis, Prof Tony Pitcher, Nigel Haggan, Chief Simon Lucas and Arnie Narcisse (Chairs, British Columbia Aboriginal Fisheries Commission). Visit the Fisheries Centre's website for more information. More information will appear in *FishBytes* as it becomes available.

The Third International Conference on Recreational Fishing – Darwin, Australia, May 22–24, 2002, to be hosted by Australia's Northern Territory. The Conference is a forum for members of the recreational fishing fraternity including managers, researchers, policy makers, industry representatives and the angling public to discuss issues relevant to the sustainable management of recreational fishing through the new millennium. The theme of the Conference is "Regional Experiences for Global Solutions". For further information, contact John Harrison – Amateur Fishermen's Association of the Northern Territory (afant@octa4.net.au), or Anne Coleman – Fisheries Division, DPIF (anne.coleman@nt.gov.au). The Fisheries Centre's Tony Pitcher is among the members of the International Steering Committee. To register on the mailing list please contact the conference secretariat: Convention Catalysts International GPO Box 2451 Darwin, Northern Territory, Australia, 0801, phone (08) 8981 1875, international phone, +61 8 8981 1875, fax: (08) 8941 1639, international fax +61 8 8941 1639, email convention.catalysts@norgate.com.au, or visit www.conventioncatalysts.com.au or the Fisheries Centre's website. More information will appear in *FishBytes* as it becomes available.

Publications

Seafood Safety: What Consumers Need to Know, by Doris Hicks and Don Kramer. This brochure advises consumers on how to safely handle highly perishable fish and shellfish, including storing, thawing, preparing, cooking, and serving it. Contact the Alaska Sea Grant College Program, University of Alaska Fairbanks, P.O. Box 755040, Fairbanks, Alaska, US, 99775-5040, (907) 474-6707, fax (907) 474-6285, toll-free in Canada and the US (888) 789-0090, or email FYPubs@uaf.edu, or visit www.uaf.edu/seagrant.

FishBytes is the newsletter of the Fisheries Centre at the University of British Columbia, and is published six times per year. Subscriptions are free of charge.

Our mailing address is UBC Fisheries Centre, 2204 Main Mall, Vancouver, British Columbia, Canada, V6T 1Z4. Our fax number is (604) 822-8934. All contributions, queries (including reprint requests), subscription requests, and address changes should be sent to Melanie Power, *FishBytes* Editor, at the above address, or by email to FishBytes@fisheries.ubc.ca. Electronic versions of contributions are preferred.

Opinions expressed in this newsletter do not necessarily reflect those of the Fisheries Centre or its members.

Be sure to visit the Fisheries Centre's website, www.fisheries.ubc.ca, and follow the links to *FishBytes*. There, you'll also find details on Fisheries Centre projects, publications, faculty and students, as well as information on upcoming Fisheries Centre events.

