

FISHBYTES

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The Fisheries Economics Research Unit

“Reconciling economically viable fisheries with the conservation of aquatic life”

By Ussif Rashid Sumaila

The Fisheries Economics Research Unit (FERU) has been established at the Fisheries Centre to reinforce work in this field and to continue the long tradition of fisheries economics research at UBC, pioneered by world leaders in the field, such as Anthony Scott, Colin Clark and Gordon Munro. FERU continues and extends the works of these and other leaders in the field by seeking to address a fundamental question in economics and management: namely, how can aquatic ecosystems be managed to provide sustainable and equitable economic and social benefits for both present and future generations, while maintaining ‘healthy’ levels of biodiversity and ecosystem services. From an economic perspective, fishery re-

sources, along with accompanying resources in the marine/freshwater ecosystems, are valuable assets, which, if properly managed, are capable of yielding a stream of benefits (both market and non-market) to society, both now and on into the indefinite future.

FERU fosters economic research to address this fundamental question with respect to both



FISHERIES
ECONOMICS
RESEARCH
UNIT

The new Fisheries Economics Research Unit logo, capturing the balance between harvesting and preservation. Designed by Mary Boone, designer of the Fisheries Centre and the Sea Around Us logos.

capture fishery resources, including related resources in the marine and freshwater ecosystems, and aquaculture resources. The unit's research is local, regional, national and international in its scope. The study of these resources is interdisciplinary by nature. Therefore the unit works with partners and colleagues from both within and outside of UBC. Within UBC, FERU works with colleagues in the Department of Economics, the Faculty of Agriculture and the Faculty of Forestry, as well as with colleagues in the Fisheries Centre. Outside UBC, it works with partners from government, such as DFO, the fishing communities, First Nations, the fishing industry, NGOs, international institutions such as the Food and Agricultural Organization of the United Nations, the World Bank and the OECD, foundations, universities and research institutions from all over the world, interested in the long term sustainability of global fisheries.

The unit's areas of current research interest include (i) the ecological, economic and social impacts of subsidies to the fishing sector, (ii) economics of shared fish stocks, (iii) globalization, fish trade and marine ecosystem sustainability,

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(iv) valuation of benefits (both market and non market) from marine ecosystems, (v) developing a global price database, (vi) economics of aquaculture, (vii) analysis of the performance of different sectors, e.g., small versus large scale fishing gears, (viii) economics of marine protected areas, and (ix) constructing value maps for the world's oceans. Cutting-edge research in these areas is in high demand by governments, NGOs, foundations, fishing communities and the fishing industry. In summary, there is a lot of scope for FERU to contribute to the reputation of the Fisheries Centre as an institute leading the way in new, creative policy, relevant to fisheries research.



Marine Stewardship Council certifies its 100th product

The international charity, the Marine Stewardship Council (www.msc.org), has announced the 100th seafood product to carry its "sustainable seafood" label, just two years after the first product was certified. Young's *Fish For Life* Alaska Salmon, with a lemon and dill crust, has met with MSC's environmental standards for well-managed and sustainable fisheries. The MSC is seen by many as a positive multi-stakeholder solution to the problem of unsustainable fishing, which benefits consumers, industry and the marine environment alike. MSC eco-labelled products are increasing in popularity, reflecting a trend in responsible retailing that has recently been seen in the growing number of restaurants boycotting Patagonian toothfish.

The Fisheries Centre helped to found the MSC, but *FishBytes* readers will remember that we withdrew our overt support last year over the issue of transparency of evaluations. After recent changes at MSC we are reconsidering our position so watch this space!

The Norway-FAO Expert Consultation on the Management of Shared Fish Stocks

Bergen, Norway, October 7-10, 2002

By Gordon Munro

The FAO, in cooperation with the government of Norway, recently held an Expert Consultation on practical issues surrounding the management of "shared" fishery resources. The Expert Consultation focused on fishery resources shared between and among neighbouring coastal states, e.g. Pacific salmon, and "straddling" fish stocks. That is, those stocks (other than highly migratory stocks) crossing the boundary of the coastal state EEZ into the adjacent high seas, such as groundfish stocks on the Nose and Tail of the Grand Banks of Newfoundland.

An FAO *expert* consultation is one in which all participants are technically there in a private capacity, which means, in turn, that government participants need have no concern that their remarks will commit, or embarrass, their respective governments. The advantage is that there can be unimpeded discussion and a "frank" exchange of views. Some of the exchanges at the Consultation were very frank indeed.

At this Consultation there was representation from a wide range of both developed, and developing, countries/entities. Among the developing countries, there was representation from countries in Asia, the South Pacific, Latin America, Africa, and the Middle-east.

Both Rashid Sumaila and I participated actively in the Expert Consultation. I had worked with the FAO over the preceding year and half in the planning and development of the Consultation, and presented an

overview paper in Bergen. Rashid participated as a co-author of a case study on Namibian fisheries. In many ways, this was an example of the recently established FERU in action.

Both Rashid and I found the Consultation gratifying in that many of the points that we have been trying to make, over the years, in our theoretical and empirical work on the management of shared, or trans-boundary, fishery resources are beginning to gain acceptance among policy-makers. Game theory is no longer dismissed as academic esoterica, but is now accepted as an appropriate framework within which to analyze the policy issues surrounding the management of these resources. Conclusions arising from this game-theoretic analysis, such as the folly of nations that share fishery resources rejecting cooperation and attempting to go it alone in managing their respective shares of the resources; and the desirability of countries/entities engaging in cooperative resource management to broaden the scope for bargaining through the use of so called "side payments", were accepted and found their way into the Expert Consultation final report.

The final report of the Expert Consultation will be presented to the FAO Committee on Fisheries, at its next meeting in February 2003. That report, and the papers presented at the Expert Consultation, have now been posted to the FAO Fisheries Department website (www.fao.org).



Tough question from the Prince: “Do you have any fish left?”

By Eny A. Buchary

The Royal Visit by Her Majesty, Queen Elizabeth II and His Royal Highness, Prince Philip the Duke of Edinburgh to UBC on October 7th, 2002 marked their fourth visit to UBC - this time as part of the Golden Jubilee celebrations commemorating the Queen's 50-year reign.

As part of the tour itinerary, twenty students from the Institute of Resources, Environment and Sustainability (IRES) were selected to give brief presentations on current environmental research to Prince Philip at the Koerner Library.

Prince Philip has an active interest in marine and environmental issues. He was the first President of World Wildlife Fund - UK (WWF) from its formation in 1961 to 1982, and International President of WWF (later the World Wide Fund for Nature) from 1981 to 1996. He is now President Emeritus of WWF.

Student presentations reflected both the terrestrial and marine research scopes of IRES, captured in four different group presentations: 1) Ecosystem management - a new approach to fisheries science; 2) Eco-tourism; 3) GIS-based research on human impacts on a rapidly growing and expanding urban region; and 4) Emerging research on coastal ecosystems – contaminant accumulation in marine mammals. Of the IRES students selected, six were from the Fisheries Centre: Cameron Ainsworth, Yvette Rizzo, William Cheung and myself (Group 1) and Andrea Coombs and Amy Poon (Group 4).

The royal preparations began for the students in August, with

security screening by the RCMP, preparing and sending individual biographies to the Palace, media training, and preparing presentations. Each group had about 5 minutes to present their research and interact with the Prince but spent weeks in preparation time. The joys of con-



Images from the Duke's visit: Andrea Coombs (top) and Eny Buchary (above) show their posters to Prince Philip.

densing your research into a 5 minute presentation!

During Prince Philip's visit to see the presentations, he showed genuine interest and concern over the contamination problem facing marine mammals on the West Coast. Andrea Coombs presented her group's poster on Persistent Organic Pollutant (POP) contamination in marine mammals and told him that killer whales in the Strait of Georgia were among the most contaminated in the world. Containing up to five times the level of polychlorinated biphenyls (PCBs) recorded in the St. Lawrence beluga whales, these animals would need to be treated as toxic waste if found beached or stranded along our

shores! Asked if she thought there was any hope for them, Andrea enthusiastically responded, “Absolutely, we're all rooting for them and we're doing our best to solve the problem”. POP contamination is not solely a West Coast issue but is a long-term and worldwide problem for both humans and wildlife.

The Prince was also briefed on the need to shift from using single-species approaches to ecosystem-based approaches in fisheries management. Using an Ecosim simulation of the Hecate Strait ecosys-

tem model, I showed him an illustration of the 1970s collapse of Pacific herring and its subsequent recovery following a reduction of the herring seine fishery. Concerned with the state of many fish stocks globally, he asked me an unexpected question, “Do you have any fish left?”.

Had it not been for all the media with their glaring cameras and ‘listening’ tape recorders eager to record any contentious comments made about British Columbia's fisheries, I would have been more than happy to answer his question straightforwardly. Instead, I just gave him a meaningful smile.

Ten days later, I came across an article by Quirin Schiermeier published in *Nature* (Volume 419: pp 662-665; see also this month's issue of the *Sea Around Us* newsletter, Issue 14, p6) entitled “How many more fish in the sea?” I told myself, “This article would make a very nice little gift for the Prince!”. As you read this, that article from *Nature* will already be on its way to the Prince at Buckingham Palace.



With age comes wisdom

Did you think this card comes from WWF or Greenpeace? Wrong! It is a 100th birthday card for ICES (International Council for Exploration of the Sea), which was founded in 1902. The fish is an orange roughy (*Hoplostethus atlanticus*), a very long-lived, deep-water fish inhabiting cold waters over steep continental



slopes, ocean ridges and sea-mounts that has been seriously overexploited throughout the world.

Congratulations ICES: with age has come wisdom! Not long ago ICES assessment results were revealed

only to initiates, and attendance at ICES meetings was almost impossible for those outside of government institutions. Moreover many saw ICES as working primarily to support the fishing industry and to have little concern for conservation, like many national agencies and FAO in former times.

Phew! All this has changed. ICES assessments are freely available on the web –our students use them all the time – and all can freely attend ICES meetings. By putting that orange roughy on their birthday card ICES has signalled a fresh era of transparency and ecological awareness. Long may it thrive!

Baby recipe bucks trend!

Scottish fishermen have been invited by a major seafood processing company to taste what happens to their catch once it enters the processing chain, reports *IntraFish*, the Norwegian Fishing Industry newsletter (*IntraFish*, 10th October, 2002). The article quotes the managing director of the processing company, as saying, "Thanks to increased stocks in the sea, the availability of smaller haddock not suitable for traditional fillets, has increased this year. After a period of scarcity this is good news for consumers. Through this event we want to demonstrate to the fishermen the range and diversity of tasty dishes that we can produce using the small haddock that they've caught." Are we alone in our concern about this new product? Good news for consumers but maybe not for haddock stocks?

ICES puts seamounts on the agenda

By Telmo Morato Gomes

One hundred years ago, on July 22 1902, a group of European marine scientists met in Copenhagen for the inaugural meeting of the International Council for the Exploration of the Sea (ICES). A century later, ICES acts as a meeting point for a community of more than 1600 marine scientists from 19 countries around the North Atlantic. ICES coordinates and promotes marine research in the North Atlantic and adjacent seas such as the Baltic and North Sea, and is the prime source of advice on fisheries management to governments and international regulatory bodies that manage the area. ICES plans and coordinates marine research through a system of committees, working groups, symposia, and an Annual Science Conference.

This year, the ICES Annual Science Conference took place in Copenhagen from October 1-5 and, for the first time, a session totally dedicated to seamounts was included in the program. Most of the presenta-

tions at this session focused on the ecology, biology, and taxonomy of target and non-target species as well as the links between hydrographic, oceanographic and biological processes on and around seamounts.

Seamount communities are highly susceptible to overfishing because of the extremely low productivity of many species and because many are dependent for food on meso- and bathypelagic organisms that drift past. There was therefore concern about the sustainability of seamount fisheries at the session. For example, it was reported that catch rates of orange roughy (pictured above) have declined to 25% of their initial values in the North Sea in just four years. In light of these concerns, ICES has suggested that there should be an immediate reduction of fishing pressure on deep-sea stocks and there has been a suggestion that all seamounts should be designated as fishery "no-take" zones.

The Fisheries Centre partici-

pated in this meeting through my presentation of a preliminary theoretical model of a seamount. This work is being done by myself and Tony Pitcher in collaboration with Ricardo S. Santos (University of the Azores, Portugal). Our talk discussed the problems associated with modelling seamount ecosystems using the Ecopath-with-Ecosim framework, and we proposed modelling approaches to seamount processes that include the influences of peculiar current patterns on the seamount system, complex food web structure depending on advective food supplies, predation by transient visitors like tuna and whales, and the integration of different environmental compartments stratified by depth.

Considering the history of serial depletion that has occurred on many seamounts, we are using the model to ask what types of fisheries might be sustainable. We hope there will be a seamount session at the next Annual Science Conference at which we can present our findings.



Cecil and Kathleen Morrow Scholarship

The Fisheries Centre is very pleased to announce that the winner of this year's Cecil and Kathleen Morrow Scholarship is Hector Lozano. The scholarship is the result of an endowment by Cecil B. Morrow and is awarded to the student with the best academic proposal for travel for research work using techniques developed at the Fisheries Centre. It is worth \$2,700 and has been awarded annually to graduate students of the Fisheries Centre since 2000. Last year's winner was Tom Okey, who travelled to the Okhotsk Sea in Russia's far east (see next issue of *FishBytes*). Hector is PhD student with Tony Pitcher and his project proposal is outlined below.

Historical modelling of the Colorado River Delta after a century of change

By Hector Lozano

This project will combine scientific information, traditional knowledge of aboriginal communities and information from industrial and artisanal

fisheries to reconstruct past abundance and diversity of one of the most productive marine areas in the world, the Upper Gulf of California (UGC) and Colorado River Delta (CRD), located in the north-west of Mexico.

The CRD exemplifies

human effort to divert and control the major rivers of the world. In 1908, the U.S.A. initiated a series of dams and irrigation projects (the giant Hoover Dam was completed in 1935) with the intention to divert water flow from the Colorado River. This resulted in a dramatic decrease in nutrient and sediment flows into the delta and triggered the collapse of its ecosystem.

The huge reduction of freshwater and nutrients is the most likely cause for the dramatic drop in population levels of the clam, *Mulina coloradensis*, which, once extremely

abundant, has nearly vanished from the delta. Also, major changes have been documented in the fisheries since the days of the 1940's, when the

totoaba (*Totoaba macdonaldi*) and shark (*Nasolamia velox*) reigned in the gulf. After severe depletion of these stocks, fishers turned to shrimp (*Lyptopenaeus stylirostris*) then to chano (a croaker: *Micropogonias*

megalops) and today the Gulf curvina (a scianid fish: *Cynoscion reticulatus*) and mollusks.

The change in the environment and fauna of the CRD and UGC, caused by the diversion of freshwater for

human uses, is my principal motivation for constructing mass balanced ecosystem models of the region, using the ECOPATH suite of modelling software developed at the Fisheries Centre. Models will be constructed of the present-day ecosystem and compared with models of the ecosystem that existed before the river diversion (1900's). Although the original conditions in the delta can probably never be restored, it is imperative to research links connecting the U.S. dams with habitat alterations in Mexico.

The modelling work will be

achieved using the *BACK TO THE FUTURE* approach developed by Dr Tony Pitcher at the Fisheries Centre, UBC. The approach combines ecological, economic and social information in order to reconstruct past ecosystems, so that patterns of change in marine ecosystems can be explored. A vital element of the approach is Traditional Ecological Knowledge (TEK). TEK can greatly assist with the building of past ecosystems when very little other information exists and can provide insights into our understanding of ecosystems.

Traditional ecological knowledge of the aboriginal *Cucupa* community (700 people), which historically has lived and fished in the delta, will be used to estimate past abundances of species and to identify historical areas that were of particular importance. This information will be combined with that provided by the industrial fisheries and government.

This project represents the first attempt to reconstruct a past marine ecosystem in Mexico. While we know that the original conditions of the Colorado river discharge will probably never be restored, it is imperative to evaluate the impacts of such anthropogenic activities on delta ecosystems so that impacts might be mitigated in other, similar, areas.

Watch this space for news about the recent Back to the Future workshop in La Paz!



Map of the study area, showing the major ecological sites in the Upper Gulf of California (Mexico). White diamond represents the area where the Cucupa community is located.



In Memoriam: Dr Peter Hochachka

We were saddened to hear that Peter Hochachka, Professor of Zoology at UBC, died at his home in Vancouver on Sept. 16, 2002. Professor Hochachka was a friend and colleague of many members of the Fisheries Centre and will be sadly missed. In his memory, we would like to share with you this tribute by Dr David R. Jones, Professor of Zoology at UBC and long-time friend and colleague of Dr Hochachka's.

Peter Hochachka OC, PhD, LL.D, FRSC died at his home in Vancouver on Sept. 16, cared for by those he loved the most: his wife Brenda and his children, Claire, Gail and Gareth. With his family's unfailing support, Peter had waged a gallant battle against cancer with a fortitude and good humour that was an inspiration to his many friends and colleagues. Peter was born in Bordenave, Alberta in 1937 and was introduced to the wonders of nature by his father and grandfather. He credited his grandfather with teaching him "to see nature" and his father with teaching him "to understand it." We are all the beneficiaries of the fruit of these childhood experiences.

Peter became Canada's foremost zoologist, and one of those most fortunate of scientists able to weld a research career with a national and international career in science, communication and service. For this he received many awards, but two were especially dear to his heart: the Fry medal from the Canadian Zoological Society and the Order of Canada. Peter was the father of the field of adaptational biochemistry, which was described in a Science review of his recent book with George Somero (Biochemical Adaptation) as "how molecules make organisms work best within their own specific environmental conditions." Adaptational biochemistry is Peter's legacy to science, Canada and the world.

Peter was one of a kind. Life was an adventure and cancer was a new challenge, ultimately leading Peter to acknowledge his future assignments in a farewell to his colleagues: "to check out the concept of parallel universes and the implications of entanglement." That was Peter, and he will be sorely missed.

David R. Jones

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Pew Fellows swing into action

By Amanda Vincent

The Pew Marine Conservation Fellows are recipients of the world's only award for applied marine conservation. Each year we are spirited off to some glorious corner of the world, to think great thoughts and have a lot of fun. "We" includes Daniel Pauly (member of the Advisory Committee), Carl Walters (Fellow 2001) and me (Fellow 2000). This year's magical location was Bonaire, Netherlands Antilles (in the Caribbean). We suffered. Apart from the diving. And the sun.

We always spend the four days of the Pew meeting deep in marine conservation chatter or busy planning joint research or management. This time, however, I was also co-ordinating (with Helene Marsh from James Cook University) the Pew Fellows inaugural *Action for the Ocean*.

Sadly, our first challenge lay just

over the local reef. The Lieutenant-Governor and people of Bonaire asked for our urgent help in order to reduce the threat that their offshore fishing rights would be sold to foreign fleets. The Fisheries Centre's Daniel Pauly was particularly wonderful in alerting them to the dangers and offering case studies to bolster their position. Pew Fellows wrote an official letter to support the Bonairians in their efforts to raise support for offshore fishery protection. Some Pew Fellows will now continue their involvement in marine protected areas and fisheries management in Bonaire.

As our second challenge, Pew Fellows decided to respond to the fisheries and marine agreements reached at the World Summit on Sustainable Development in Johannesburg. Governments had committed (a) to restore most of the major global fisheries to commercial viability

by 2015, aiming at levels where Maximum Sustainable Yields (MSY) could be taken indefinitely and (b) to establish a representative network of marine protected areas by 2012. Resisting temptations to be cynical, the Pew Fellows drafted statements (based on technical expertise and information) on how best to achieve progress in fisheries management and in the establishment of no-take zones. Once these are polished, we will release them on the unsuspecting world, challenging policy-makers to accept our recommendations. The Pew Fellowship will welcome all suggestions as to how best to promulgate our messages.

For Daniel Pauly's perspective on the Bonaire meeting, see this month's issue of the Sea Around Us newsletter (Issue 14, p 1-3).



News and Notes

Congress

Ambassador named for Fourth World Fisheries Congress

The Honourable John A. Fraser has been named as the Congress Ambassador for the Fourth World Fisheries Congress (to be held in Vancouver, BC, May 2004). Dr Fraser spent 21 years as a member of the Canadian Parliament, during which time he held important positions, including Minister for the Environment and Minister of Fisheries. In 1994, he became head of the Fraser River Sockeye Public Review Board, investigating the salmon fishery. After this, he became Canada's Ambassador for the Environment and, in 1998, he was appointed Chair of the Pacific Fisheries Resource Conservation Council. For more about the 4th World Fisheries Congress please visit www.worldfisheries2004.org/home.htm

Ecosystem Modelling in New South Wales, Australia

The Fisheries Centre has signed a new Memorandum of Agreement with NSW Fisheries, the state fisheries body of New South Wales, Australia. As Australia moves towards introducing ecosystem-based management into its legislation, this project aims to build spatial ecosystem models of the NSW coast and estuaries, with special attention to the thirty new areas that have just been closed to commercial fishing and set aside as 'Recreational Fishing Havens'. Chief investigator on the project is Prof Tony Pitcher of the Fisheries Centre, UBC, in collaboration with Dr Steve Kennelly (Chief Scientist, NSW Fisheries) and Dr James Scandol (NSW Fisheries). The project will form the basis of the thesis of Fisheries Centre student, Robyn Forrest.

Welcome

This month we welcome a new associate and the staff and students of Project Seahorse to the growing Fisheries Centre team!

Welcome to Douglas Harris, a new Fisheries Centre associate member, from the Faculty of Law, UBC. Mr Harris is a practicing lawyer and is currently writing his doctoral dissertation, a study of the legal constructions of land and territory in the conflict over fish between First Nations and the state in British Columbia. He is author of several articles on the legal relations between a settler society, its state, and indigenous peoples in British Columbia, and of a book, *Fish, Law, and Colonialism: The Legal Capture of Salmon in British Columbia* (Toronto: University of Toronto Press, 2002). He also plays field hockey, and represented Canada at the 1988 Olympic Games, in three Pan American Games, and the 1991 World Student Games.

PROJECT SEAHORSE

Jonathan Anticamara has been working with Project Seahorse since 1997, and is currently a PhD student, looking at the re-assembly of fish communities in over-fished areas turned into Marine Protected Areas in Bohol, central Philippines.

Janelle Curtis is a PhD student studying the effects of exploitation on the population structure and reproductive ecology of two European seahorses in the Ria Formosa lagoon, southern Portugal.

Sarah Foster is a research assistant. The main focus of her work is to acquire and disseminate knowledge of syngnathid biology. Sarah also coordinates an international network of syngnathid researchers, and the volunteers for various Project Seahorse research efforts.

Brian Giles is currently a research assistant. While the rest of the Project Seahorse team are out in exotic, sunny locations, Brian can be found basking in the glow of his computer screen. His major responsibilities include data analysis, technical support and editorial review.

Eulalio R. Guieb III is working on his PhD in Anthropology. His research looks into the cultural basis of Marine Protected Areas in Bohol, central Philippines.

Sara Lourie is working on her PhD on the phylogeography (biogeography at the genetic level) of Indo-Pacific seahorses.

Dale Marsden started work as a research assistant with Dr Vincent at McGill in 1999. His focus has been home range behaviour of seahorses, but he has also worked with other PS team members on topics such as seahorse biology and ecology, the trade in aquarium fishes, and IUCN Red Listing of aquatic species.

Sian Morgan, a PhD student, is conducting research on movement and dispersal of seahorses, based in the central Philippines.

Marivic Pajaro started working with Project Seahorse in 1993 as national coordinator in the Philippines. She is currently a PhD student, doing research on the socio-economic aspects of Marine Protected Areas in Bohol, central Philippines.

Rhea Ravanera is the Project Seahorse Operations Assistant. She handles the project's operational finances and personnel coordination, as well as all the other tasks that keep Project Seahorse moving smoothly forward.



News and Notes

Congratulations

Congratulations to Richard Stanford who has successfully defended his Master's thesis entitled *The English Channel: a mixed fishery, but which mix is best?* Richard came to the Fisheries Centre after completing his Bachelor of Science at the University of Southampton, England, in 2000. His thesis involved building ecosystem models of the English Channel so that he could study the effects of climate and different fishing policies on the species composition of the region. Richard has returned to England and will be preparing his thesis for publication. Watch the *Fisheries Centre Research Reports* on the Fisheries Centre website (www.fisheries.ubc.ca) for more on Richard's work.



Sixth Larkin Lecture and Fisheries Centre open house

The sixth Larkin Lecture will be held at UBC on February 20, 2003. The lecture, "Trouble on the reef: tackling a vulnerable and undervalued fishery", will be given by Dr Yvonne Sadovy, Department of Ecology & Biodiversity, University of Hong Kong. On the same day, the Fisheries Centre will hold a public Open House as part of the review week with our International Advisory Council (18-21 February). This is expected to run from 12.30 pm to 5.00 pm, after Kevern Cochrane's morning presentation and before the Larkin Lecture by Yvonne Sadovy. We plan to include posters, exhibits, and interactive activities. So please spread the word, invite your colleagues and friends, and offer us your fun ideas.

For more information about the Larkin Lecture Series, please visit www.fisheries.ubc.ca/events/lectures.

Conferences

Modelling Antarctic Ecosystems: A UBC Fisheries Centre workshop, April 14-17th, 2003. The Fisheries Centre announces a workshop focused on modelling Antarctic ecosystems. Sessions planned include capturing critical features of Antarctic ecology in models, forecasting impacts of fisheries and climate change on Antarctic ecosystems, management issues for Antarctic fisheries and mapping the status of Antarctic ecosystems. The focus will be on krill, fish, marine mammals and seabirds. Interested parties should contact events@fisheries.ubc.ca. Please watch our website for more information: www.fisheries.ubc.ca/events/workshops/antarctic.php.

Deep Sea 2003: 1-4 December 2003, Queenstown, New Zealand. Organised by the Ministry of Fisheries, New Zealand; the Department of Agriculture, Fisheries and Forestry, Australia; and the Fisheries Research and Development Corporation, Australia, with technical co-operation from the FAO. The purpose of the conference is to identify and discuss issues relating to the present and future needs for science, governance and management of slope and deep sea fisheries. For further information contact Eidge Sharp-Brewer at eidge.sharp-brewer@fish.govt.nz or register interest at www.deepsea.govt.nz.

Send us your link!

We are in the process of updating our website (www.fisheries.ubc.ca) to include links to our "sister" newsletters at other institutions. If you would like us to include a link to your newsletter, please send the URL and the name of your institution and department to FishBytes@fisheries.ubc.ca, with the words *Newsletter Links* in the subject heading. We think this is a great way to keep our colleagues around the globe connected and we look forward to hearing from you!

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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 Robyn Forrest, *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.

