The aim of the Sea Around Us Project is to quantify, in ecological and economic terms, the impact of fisheries on the marine ecosystems of the North Atlantic, and to evaluate the costs and benefits of various scenarios of mitigation, such as the status quo, rebuilding of depleted resources, and implementation of closed areas. Dealing with these issues requires a methodological package related to, but different from, that typically used in fisheries management, notably because of its ecosystem focus and the much larger temporal and spatial scales, relative to standard fisheries assessments. This paper summarises the methodology deployed by the project by introducing a suite of papers in which the rationale and details are provided.

First, we review the relationships between scale and methodology choices in marine science. Then, the principle modules of the Sea Around Us project methodology are described as follows:

1) The North Atlantic as study area, where we report a new ecosystem classification scheme that is compatible hierarchically with previous work and with all statistical divisions;

2) North Atlantic fisheries catches in time and space, where we present the project’s catch and effort database, discuss the problems in estimating total extractions, and outline methods used to overcome them;

3) Fish distribution transects, where the biology and migrations of key commercial North Atlantic species are used to link catches by shallow-water and offshore fisheries;

4) Bio-economic analyses of fisheries sectors, where the effect of competition between small and large-scale fisheries are quantified using multi-species, multi-gear yield per recruit and a bio-economic Nash equilibrium analysis;

5) Ecosystem modelling, discussing the use of ECOPATH with ECOSIM and ECOSPACE to represent present and past North Atlantic ecosystems with their embedded fisheries, to evaluate ecosystem status, and to simulate likely response to change;

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The Sea Around Us Project methodology workshop will be held at Dunsmuir Lodge on Vancouver Island during the first week of May. This is a key contract stipulation. Reviews of the original project proposal were harsh, indeed sceptical due to the newness of the approach. Rather than abandon a concept that the Pew Charitable Trusts saw as valuable, it was agreed that the North Atlantic pilot project would include a rigorous methodology review in year one.

Accordingly, the project team has been in a ferment of creative writing, with no less than 11 review papers in the last stages of gestation as this goes to press....

The Sea Around Us project newsletter is published by the Fisheries Centre at the University of British Columbia. Included with the Fisheries Centre’s newsletter FishBytes, six issues of this newsletter are published annually. 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, and our email address is SeaNotes@fisheries.com. All queries (including reprint requests), subscription requests, and address changes should be addressed to Melanie Power, Sea Around Us Newsletter Editor.

The Sea Around Us website may be found at www.fisheries.com/projects/seaup, and contains up-to-date information on the project.

The final product, due by June 30, will be a Fisheries Centre ‘Blue Book’ report edited by Daniel Pauly and Tony Pitcher. (See page one of this issue for the bibliographic details.)

The workshop agenda and a list of attendees will be posted on the website http://fisheries.com/projects/seaup/index.htm as soon as our Webmaster returns from his travels in the Philippines and Indonesia.

One way or another, it’ll be a busy little week.

Nigel Haggan is a researcher at the Fisheries Centre and Project Coordinator for the Sea Around Us project.
How Many Fish Have Been Taken from the Sea?

By Sylvie Guénette

What is the real catch of fish from the Sea? In the Sea Around Us project we have to estimate the total fish extractions so that the impact on marine ecosystems can be fully evaluated. But where do we get the data from?

The Fisheries Centre is very pleased to announce that Sea Around Us project and the Department of Fisheries and Oceans (DFO, Halifax, Nova Scotia) have signed a Memorandum of Agreement to collaborate on reconstructing the total extractions from Canadian waters. Dr Paul Fanning, (Bedford Institute of Oceanography), our contact at DFO, is facilitating access to their databases. He is also contributing his vast knowledge of the database and the fisheries system in Canadian waters.

In the last few months, we have assembled the catches of all species for the years 1960-1998, using two database sources, NAFO (Northwest Atlantic Fisheries Organisation) and DFO Zonal Interchange File (ZIFF). The most time-consuming process was to encode and verify for data consistency, especially for rare species and gears that are infrequently used. Compatibility with on-board vessel observer data was taken into account in building the new database structure. The observer data is now being analysed to estimate discard rates for each type of fishery, e.g. groundfish trawl, pelagics midwater trawl. Changes in skippers’ behaviour and hence discard rates in the absence of on-board observers would likely be the next source of adjustments.

Sylvie Guénette is a post-doctoral fellow with the Fisheries Centre’s Sea Around Us project.

The SAU Puzzle

In this issue, the Sea Around Us project proudly presents our new logo (shown opposite, on page 2, in the information box). The new logo, designed by Ms Mary Boone (who also designed the Fisheries Centre logo, shown on the back page of FishBytes), consists of three segments representing marine life - fish, mammals/reptiles, and plants. The fish segment is moving toward the other three puzzle pieces, and the counterclockwise motion represents rebuilding.

In full colour, the fish segment is in UBC Gold, as a metaphor for the lasting value of fish. The remaining segments are in marine blue. These colours are also present in the Fisheries Centre’s logo.

Methods - Continued from page 1

6) Evaluating alternative ecosystem-based management regimes to quantify the benefits of different ecosystem-based management scenarios;

7) Energy consumption and the ecological footprint of North Atlantic fisheries, to contrast the energy incorporated in landed fishes to that required to catch them;

8) Rapid interdisciplinary appraisal of fisheries status and compliance analyses using RAPFISH, to compare and characterise North Atlantic fisheries in terms of their sustainability (in ecological, economic technological and social fields), analysis of their ethical status, and to score their compliance with the FAO Code of Conduct for Responsible Fisheries, together with the compliance of North Atlantic countries vis-à-vis their internationally agreed commitments.

9) Mapping the fate of fisheries landings from the North Atlantic, to identify possible pressure points for intervention by fish product consumers;

We anticipate that the synthesis to emerge from integrating the results of these modules will contain many surprises, both in terms of the ecological damage and economic waste presently generated by the North Atlantic fisheries, and in clarifying the foregone benefits that could be regained, were these economic and ecological issues to be addressed.

Figure 1 (page 4) presents a schematic of the approach being taken in the Sea Around Us project.

Daniel Pauly is Project Leader for the Sea Around Us Project. Tony Pitcher is Chair of the project’s Steering Committee.
Figure 1 - Key elements of the Sea Around Us project, with basic data on top, and derived elements further down.