

## ***PART IV:*** ***WESTERN NORTH ATLANTIC***

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### **KEY FEATURES OF COMMERCIAL AND RECREATIONAL FISHERIES STATISTICS FROM THE US ATLANTIC COAST**

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#### **ABSTRACT:**

This contribution briefly describes the major features of the database of fisheries catches from the Eastern USA, from Maine in the North to the tip of the Florida peninsula in the South, i.e., excluding the Gulf of Mexico. The two major databases for commercial and recreational catches created by the National Marine Fisheries Service are described, along with a number of related efforts both at Federal and States' level. Also, some of the scattered contributions devoted to estimating discards, and misreported catches are discussed, with emphasis on their potential by the *Sea Around Us* project for generating high-resolution catch maps.

#### **INTRODUCTION**

The *Sea Around Us* project, through the University of British Columbia Fisheries Centre, aims to provide a broadly based integrated analysis of the impacts of fisheries on marine ecosystems, and to devise policies that can mitigate and reverse harmful trends whilst ensuring the social and economic benefits of sustainable fisheries. The North Atlantic fisheries served as our first case study. One of the project's major activity has been mapping the distribution of fisheries catches, as one step toward a transition to ecosystem-based management (Pauly and Pitcher, 2000; Watson *et al.* this volume). For this to serve any useful purpose, however, the true catches must be known or at least approximated, i.e., officially reported catches must be corrected to account for items usually not covered by national or international fisheries statistical systems. Such items include, e.g., discarded bycatch, illegal catches, the catches

of small-scale fisheries or other 'unmandated catches' (see Pitcher and Watson, 2000).

This brief account discusses key features of the statistical database of the USA, as we perceived them, both to serve as background to the extraction and processing of US catch data by the *Sea Around Us* project, and to guide the steps we still have to implement.

#### **NMFS'S DATABASE OF COMMERCIAL FISHERIES LANDINGS**

The database of commercial landing statistics for the Eastern USA was created by the National Marine Fisheries Service (NMFS; Fisheries Statistics and Economics Division, Silver Spring, Maryland, USA), a part of the National Oceanic and Atmospheric Organization. Here are its key features:

- 1) The database covers all commercial fisheries in US waters, i.e., from the inshore waters (i.e., including States' landings) to the outer limits of the US Exclusive Economic Zone (EEZ);
- 2) Discards are not included (see below);
- 3) The temporal coverage of the database extends from the late 1940s to the present, and hence the database is compatible with the FAO database, and that of the *Sea Around Us* project, which both start in 1950;
- 4) Most of the content of the database is available online at [www.st.nmfs.gov/st1/commercial](http://www.st.nmfs.gov/st1/commercial), and can be downloaded.

With regards to (1), we should note that data on foreign fishing in the US EEZ are available from the Fisheries Statistics of the US 1981-1995 (NMFS, 1981-1995). Records were not kept before this time. Foreign fishing ended with enactment of the Magnuson-Stephens Act (1976) and establishment of the 200-mile EEZ. These days, vessels fishing within the US EEZ must have at least 50% US national ownership.

#### **FISHING EFFORT AND LOCATION STATISTICS FOR U.S. EAST COAST**

Fishing effort is only collected on a fishery-by-fishery basis, through logbook programs, and the results are generally not in the public domain. Moreover, access is limited by resources (time spent on assembling data). Further, contact with the different State Governments would be required for information about their inshore state-managed fisheries (largely for

invertebrates). Issues of confidentiality and resources (to do the compilations) restrict what can be accessed. The data are summarized for stock assessments and may be found in highly aggregated form in published reports. The data are also provided to the Regional Management Councils, as needed.

Examples of fisheries for which logbook programs exist are:

- bluefin tuna (in NE);
- large pelagics (swordfish, sometimes tuna and pelagic sharks);
- sharks (when caught by midwater or bottom longline);
- snapper/grouper complex;
- coastal pelagic (king and Spanish mackerel);
- Gulf of Mexico reef fish (same species as snapper/grouper complex);
- wreckfish (small fishery);
- Golden crab (off Florida).

Another group of fisheries are required to provide detailed Vessel Trip Report (VTR), which include information on catch composition and fishing location, time of the day, etc. VTRs are provided by the fisheries exploiting the multispecies complex in the Northeast such as scallop, squid, butterfish, Summer flounder, and others.

The logbook data are mostly supplied to the NMFS Fisheries Science Centre in Woods Hole and used for stock assessments, and/or forwarded to the relevant Regional Fisheries Management Council.

#### **NMFS'S DATABASE OF RECREATIONAL FISHERIES CATCHES**

NMFS's database of recreational fisheries is unique in the world, and reflects the huge economic (and hence political) importance, in the US, of this segment of the fisheries sector, compared with the commercial sector.

The database, which is based mainly on extensive phone interviews, is considered largely complete for the 1980s and 1990s, except for 'headboat' catches from the 'South Atlantic' [headboats carry a number of heads, i.e., angling tourists]. Caution must be exercised when combining catches in this database with those of the above mentioned database, as the (common) names used for species identification are not fully standardized. Most angling records enumerate the catch and an average weight must be assumed to calculate the

weight of landings. The database can be accessed at [www.st.nmfs.gov/st1/recreational/data.html](http://www.st.nmfs.gov/st1/recreational/data.html)

Catches for the period prior to the 1980s could possibly be reconstructed (albeit with less temporal and spatial resolution) by accessing a number of unpublished reports on US recreational fisheries available in the NMFS archives held at its Silver Spring headquarters.

#### **THE ATLANTIC COASTAL COOPERATIVE STATISTICS PROGRAM (ACCSP)**

The ACCSP is often mentioned as a potential data source when discussing US Atlantic fisheries. The ACCSP is a joint effort of NMFS, the US Fish and Wildlife Service, three regional Fisheries council (North, Mid and South Atlantic), and 15 states (see [www.accsp.org](http://www.accsp.org)).

So far, the ACCSP has spent several years (and about US\$ 1.5 million per year) "developing standards" and designing an extremely complex and detailed database to which (maybe) all US Atlantic states will later contribute catch and fleet data. Presently, however, the ACCSP has access to only two large data sets, the commercial and recreational catch databases created by NOAA and mentioned above. By the program's director's own reckoning, it will take up to five years before ACCSP will have a system in place that includes new data. Moreover, the ACCSP will not attempt to reconstruct past series, nor analyze their own data.

We note, as an aside, that U.S. states bordering the Gulf of Mexico (but not Texas) are developing a data base similar to ACCSP, and have in fact adopted some of their standards (contract: Gulf States Fisheries Commission).

#### **BYCATCH AND DISCARD STATISTICS**

It is now widely recognized that bycatch can have severe impacts on exploited or protected populations and should be included in stock assessments.

While the USA has no procedure for systematic capture and documentation of bycatch or discard data comparable to that for commercial or recreational landings, numerous (mainly federal) initiatives exist which deal with this issue. These have led to a number of important contributions, notably: Alverson *et al.* (1994), Cramer (1996), Murawski (1996), and Crowder and Murawski (1998), and others. Most of these are based on

observer data. However, not all fishing vessels are required to maintain a federally funded onboard observer. Thus, the manager of the Observer Program attempts to sample representative subsets of particular fisheries dependent on anticipated needs for data on particular bycatch species, often marine mammals or birds, and, more recently, some groups such as sharks.

On the other hand, due to the *ad hoc* nature of the Observer Program and the absence of reporting standard, a federal database does not exist that collates the available bycatch data. Thus, an external group— such as the *Sea Around Us* project attempting to deal with the bycatch issue on a broad basis, e.g., along the entire US Atlantic coast – would have to create the required database, based on data extracted from scattered reports, and/or assembled from a variety of smaller databases.

#### USE OF DATA

Data from US commercial and recreational fishing have already been incorporated into a number of ecological models representing the East coast of the US prepared at the Fisheries Centre. These data are currently being enriched by documented additions of bycatch and discards reports. Once complete, this dataset will be used to represent US catches along the East Coast within the context of the global dataset being compiled by the project from a number of sources, principally the capture dataset made available by the Food and Agriculture Organization of the United Nations (FAO).

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#### LITERATURE CITED AND GENERAL REFERENCES

- Alverson, D.L. (1998). Discarding Practices and unobserved fishing mortality in marine fisheries: An update. Washington Sea Grant Publication No. WSG98-06.
- Alverson, D. L., Freeburg, M. H., Murawski, S. A. and Pope, J.G. (1994). A Global Assessment of Fisheries Bycatch and Discards. FAO Fisheries Technical Paper 339.
- Commission on Geosciences, Environment and Resources, National Research Council (CGER, 1994). Improving the Management of U.S. Marine Fisheries. Washington, DC: National Academy Press, Inc.
- Cramer, J. (1996). Recent trends in the catch of undersized swordfish by the US pelagic longline fishery. *Marine Fisheries Review*, 58(3), 24-32.
- Crowder, L. B. and Murawski, S. A. (1998). Fisheries bycatch: Implications for management. *Fisheries*, 23(6):8-17.
- Marine Fish Conservation Network. (1999). *Lost at Sea: A Review of National Marine Fisheries Service Implementation of the sustainable Fisheries Act*. Washington, DC: Marine Fish Conservation Network.
- Murawski, S. A. (1996). Factors influencing by-catch and discard rates: Analysis from multispecies/multifishery sea sampling. *Journal of Northwest Atlantic Fishery Science*, 19:31-39.
- National Marine Fisheries Service (NMFS). (1998). *Managing the Nation's Bycatch*. National Oceanic and Atmospheric Administration, US Department of Commerce, Washington, DC.
- National Marine Fisheries Service (NMFS). (1981-1995). *Fisheries of the United States, 1981-1985, 1986-1990, 1991-1995*. National Oceanic and Atmospheric Administration, US Department of Commerce, Washington, DC.
- Pauly, D. and T.J. Pitcher. 2000. Assessment and mitigation of fisheries impacts on marine ecosystems: a multidisciplinary approach for basin-scale inferences, applied to the North Atlantic. p. 1-12 In: Pauly, D. and T.J. Pitcher (eds.). *Methods for Evaluating the Impacts of Fisheries on North Atlantic Ecosystems*. Fisheries Centre Research Reports 8(2).
- Pitcher, T. and Watson, R. (2000). The Basis for Change 2: Estimating total fishery extractions from marine ecosystems of the North Atlantic. In: Pauly, D. and Pitcher, T. (eds) *Methods for evaluating the impacts of fisheries on the north Atlantic ecosystems*. Fisheries Centre Research Reports 8(2): 40-53.
- Seawatch (2000). Fisheries Observer Program Workshop, St. John's, Newfoundland, Canada. Proceedings of the First Biennial Canada/US Observer Program Workshop, March 10-12, 1998, Seattle WA. [www.seawatch2000.nf.ca/workshop1.htm](http://www.seawatch2000.nf.ca/workshop1.htm)
- Watson, J., Foster, D., Nichols, S., Shah, A., Scott Denton, E. and Nance, J. (1999). The development of bycatch reduction technology in the Southeastern United States shrimp fishery. *Marine Technology Society Journal*, 33(2):51-56.
- Witzell, W. N. (1999). Distribution and relative abundance of sea turtles caught incidentally by the US pelagic longline fleet in the western North Atlantic Ocean, 1992-1995. *Fisheries Bulletin*, 97: 200-211.