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NEW ENGLAND FISHERY MANAGEMENT COUNCIL

ICCAT Report

I. STATUS

Meetings: The 2013 annual full Commission (ICCAT) meeting was held in November in Capetown, South Africa. There were intense negotiations on a U.S. proposal to maintain the status quo western Atlantic bluefin tuna (WBFT) quota at 1750 mt until 2016, in order to include a planned 2015 full stock assessment, and an opposing Japanese/Canadian proposal to increase it by 245 mt (to 1995 mt) immediately. The dispute was resolved by extending the 1750 mt quota for one year only, with the U.S. subquota remaining at 948.7 mt. As for North Atlantic swordfish (NSWO) the existing 13,700 mt quota was extended for three years, 2014-2016, as was the U.S. base quota.

The ICCAT Advisory Committee held its 2014 spring meeting of species working groups in late April in Rockville, MD. Reports were presented on recent research into otolith residues of stable isotopes and environmental chemicals in bluefin tuna. Over the past decade or so this new level of data has revolutionized our understanding of spawning as well as cross-ocean migration and stock mixing, and will require fundamental changes in our management and research protocols. NEFMC recommendations proposed in this report for U.S. positions on WBFT should reflect these changes.

The ICCAT Advisory Committee will hold its fall meeting October 9 – 10, 2014 in Silver Spring, MD. Recommendations from the New England Fishery Management Council, to be finalized at its September meeting, will be presented at that time. The IAC will then formulate and render its advice on appropriate U.S. positions to the U.S. delegation to the annual full Commission meeting to be held the following month in Genoa, Italy.

New England Council Interest: Of the 30 species managed by ICCAT, both swordfish and bluefin tuna have supported important fisheries in New England (up to $32M ex-vessel for the latter, plus a substantial recreational component), while yellowfin tuna has supported a much smaller but locally significant fishery. Management of these species within U.S. waters is governed by the Atlantic Tunas Convention Act of 1975 et.seq. (ATCA) and administered by the HMS Division of NOAA Fisheries. Section 971b of the ATCA requires the establishment of an Advisory Committee that will include representation by the New England, Mid-Atlantic, South Atlantic, Caribbean, and Gulf Fishery Management Councils. This representation is similar to the legally mandated consultative role the Council has taken in several recent habitat issues, and allows New England a direct voice in the management of these important species.

II. COUNCIL ACTION

At its September/October 2014 meeting the Council should adopt position recommendations for the management of bluefin tuna and swordfish to be transmitted to the U.S. delegation to ICCAT.

III. INFORMATION

Western Atlantic bluefin tuna: A longstanding local, small-boat, hook and harpoon fishery on mostly juvenile WBFT along the northeast coast of the U.S. and Canada suddenly expanded manyfold in the early sixties with the arrival of large Pacific purse seiners and the construction of several canneries. By the early seventies juvenile recruitment fell rapidly and then stabilized at a much lower level. By the late seventies new Asian demand for high-quality adult fish led to a further expansion of the fishery and an apparently impending stock collapse. This was followed by a series of increasingly severe TAC reductions on all age classes that have continued to the present.

In 1998, ICCAT began a rebuilding program to return WBFT to MSY in twenty years through TAC adjustments. A key factor in estimating MSY-related benchmarks has been the highest level of recruitment that can be achieved in the long term. Assessments of future stock productivity have been based upon two hypotheses about future recruitment: a 'high recruitment scenario" in which future recruitment has the potential to achieve levels that occurred in the early 1970s and a "low recruitment scenario" in which future recruitment is expected to remain near present levels (even if stock size increases). The long term implications for future biomass are different between the two hypotheses and the issue of distinguishing between them remains unresolved. The "low recruitment scenario" suggests that biomass is currently sufficient to produce MSY, whereas the "high recruitment scenario" suggests that SSBMSY has a very low probability of being achieved within the rebuilding period. Despite this large uncertainty about the long term future productivity of the stock, under either recruitment scenario current catches (1,750 t) are projected to allow the biomass to continue to increase. Analyses have also predicted that maintaining catches of 1,750 t could allow the more correct recruitment scenario to be identified by 2024 (six years after the rebuilding horizon) while reducing the catch to 1,000 t or less could allow the spawning biomass to rebuild enough to do so by the end of the rebuilding period (2018). Unresolved is the question of why stock rebuilding and answers to recruitment questions have remained elusive in more than three decades of severe TAC constraints. The following table summarizes the current status under both recruitment scenarios.

WEST ATLANTIC BLUEFIN TUNA SUMMARY (Catches and Biomass in mt)

Current (2012) Catch (including discards) 1,750 mt

Assumed recruitment	Low potential	High potential
MSY	2,634 (2,452-2,834)	6,472 (5,736-7,500)
SSBMSY	12,943 (12,717-13,268)	93,621 (77,288-116,679)
SSB2011/SSBMSY	1.4 (1.14-1.72)	0.19 (0.13-0.29)
FMSY	0.17 (0.14-0.19)	0.064 (0.056-0.074)
F2008-2010/FMSY	0.61 (0.49-0.74)	1.57(1.24-1.95)
Stock status	Overfished: NO Overfishing: NO	Overfished: YES Overfishing: YES

Over the past decade and a half new research tools have rapidly advanced our understanding of Atlantic/Mediterranean bluefin tuna biology, migration, and stock structure. Pop-up and archival tagging,

satellite tracking, DNA analyses, as well as comparisons of both stable isotopes and environmental residues in the annular rings of otoliths, have enabled us to address and, in some cases to answer, questions that had remained intractable for many decades.[1]

Among the newly supportable conclusions are the following:

1. Atlantic BFT exhibit fidelity to spawning areas in the Gulf of Mexico (western stock) and the Mediterranean Sea (eastern stock).[2]
2. Biomass productivity and potential stock size of the eastern stock exceeds that of the western stock by an order of magnitude or more.[3]
3. Stock mixing is both widespread and complex, and may produce several substocks and metapopulations. In both numbers and biomass, migration of juveniles from east to west dwarfs migration of juveniles in the opposite direction.[4]
4. Eastern stock year classes <age 5 migrate west in large numbers and make up more than 50% of the exploitable bluefin population along the east coast of the U.S., while most of the west to east migration is made up of eastern stock year classes >age 5 returning to the Mediterranean to spawn.[5]
5. Because of the enormous differences in biomass productivity, stock size, and migration, EBFT fisheries are not impacted by WBFT stocks. For the same reason, WBFT fisheries are conducted on a mixed stock and are both linked to and dependent upon EBFT stocks.[6]
6. Rebuilding of WBFT stocks is unlikely to be successful without consideration of EBFT mortality and joint management of the two stocks.[7]

Atlantic swordfish: The TAC for the North Atlantic during the 2007 to 2009 period was 14,000 t per year. The reported catch during that period averaged 11,969 t and did not exceed the TAC in any year. In 2010, the TAC was reduced to 13,700 t, compared with 2012 catches of 13,972 t. A TAC of 13,700 t would have an 83% probability of maintaining the stock and fishing mortality at a level consistent with the Convention objective over the next decade while maintaining nearly level biomass. TACs up to 14,300 t would still have a higher than 50% probability of maintaining the stock in a rebuilt condition by 2021 but would be expected to lead to greater biomass declines.

ATLANTIC SWORDFISH SUMMARY

MSY	13,660 t (13,250-14,080)
TAC (2012)	13,700 t
Yield (2012)	13,972 t
BMSY	65,060 (54,450-76,700)
FMSY	0.21 (0.17-0.26)
B2011/BMSY	1.14 (1.05-1.24)
F2011/FMSY	0.82 (0.73-0.91)
Stock Status	Overfished: NO Overfishing: NO

Decreased stock abundance and increased operating costs led to a decline in both U.S. landings and the U.S. swordfish fleet, with the lowest catches reported in 2006 (2,057 mt). As stocks recovered, the U.S. implemented measures to revitalize the U.S. swordfish fleet, as summarized below:

- Re-opened NED closed area to pelagic longline vessels in 2004.
- Authorized 'buoy gear' in 2006.
- Relaxed longline vessel upgrading restrictions in 2007.
- Increased commercial and recreational swordfish retention limits in 2007.
- Relaxed some permit conditions in 2008, allowing certain pelagic longline permits that had previously been expired to be renewed.
- Modified incidental retention limits for *Illex* squid trawl vessels in 2011 to reduce regulatory dead discards of swordfish.
- Implemented an alternative swordfish minimum size measurement in 2012 to allow landing of legal-sized fish that would previously have had to be discarded.
- Implemented a new open access commercial vessel permit in 2013 to retain and sell a limited number of swordfish caught on rod and reel, handline, harpoon, greenstick, and bandit gear.

Due to stock recovery and industry revitalization efforts, the U.S. swordfish fishery has shown an increasing trend in catch. U.S. swordfish catches in 2012 were at the highest level since 2000, and more than 70 percent higher than in 2006.

Table 1. Change in U.S. Swordfish Catch Since 2006

Year	U.S. Catch (mt)	+/- Tonnage relative to 2006	% Change Relative to 2006
2006	2,058	--	--
2007	2,683	+625	30.34%
2008	2,592	+534	25.95%
2009	2,878	+820	39.85%
2010	2,412	+354	17.20%
2011	2,773	+715	34.74%
2012 (preliminary)	3,651	+1,593	77.40%

Economics:

Average ex-vessel price per pound, bluefin tuna, New England:

2005	2006	2007	2008	2009	2010	2011	2012
5.54	7.68	8.31	8.31	7.06	8.38	10.21	11.57

Average ex-vessel price per pound, swordfish, New England:

2005	2006	2007	2008	2009	2010	2011	2012
3.69	3.65	4.11	4.20	3.49	4.61	4.22	4.49

Total U.S. sales Atlantic bluefin tuna 2012: $11,100,750
Total U.S. sales Atlantic swordfish 2012: $24,534,334 (up each year from low in 2006 of $10,639,324)
Employment in New England: 6,656

IV. PROPOSED MOTIONS:

1. **The New England Fishery Management Council recommends that the management of Atlantic bluefin tuna be based upon the linkage of quotas between the western stock area and the eastern stock area to allow for the effects of migration and the difference in productivity and stock size between the two.**

2. **The New England Fishery Management Council recommends that research priority be given to refining our understanding of Atlantic bluefin tuna migration patterns, spatial structure and mixing, and recruitment among the various stocks and substocks.**

3. **The New England Fishery Management Council recommends that the U.S. delegation to the 2014 annual meeting of ICCAT continue to place the highest priority on maintaining the U.S. quota share of the northern stock of Atlantic Swordfish at 29.00% of the total quota.**

V. REFERENCES:

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5. Rebecca M. Dickhut et.al. (2009) Atlantic Bluefin Tuna (*Thunnus thynnus*) Population Dynamics Delineated by Organochlorine Tracers. *Environ Sci Tech 43:8522-8527.*
6. ICCAT (2013) Report of the Standing Committee on Research and Statistics (SCRS)
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Note: Tuna research has expanded both widely and deeply since the beginning of the current century, and this is but a tiny sample of the large body of work being done. Council member Dr. Michael Sissenwine has been an important force in setting both the direction and the quality of this work.