

BLUEFIN TUNA RESEARCH PRIORITIES AND POTENTIAL COSTS**(Submitted by the SCRS Chairman)**

In 2003, as an input to the Working Group established by [Rec. 02-11], SCRS presented the Commission with a research plan to improve knowledge on bluefin, with a special focus on mixing and movement between the two stocks (ICCAT, 2004, Col. Vol. Sci. Pap. ICCAT, 56(3): 987-1003). The various research elements are still pertinent today, although the costs are higher, considering inflation and the need for broad-scale conventional tagging and sampling programs to address these issues.

During this Commission meeting, the SCRS Chairman met with a few bluefin scientists and discussed some of the main priority items in light of the most recent SCRS advice, as well as their potential cost. These are presented below for potential consideration by the Commission. It is envisioned that such a program would last five-six years.

1. Coordinator. Priority: Highest

Cost/year:

160,000 E (includes salary, benefits and Secretariat overhead for data management)

50,000 E Travel

Total (Years 1, 2, 3, 4, 5, 6) ~ 1,260,000 E

Much of the work in different countries would be undertaken by National Scientists. But a coordinator is essential if a large-scale program is to be carried out. The Coordinator would need to start several months before the program does, and stay for one year after the program ends.

2. Large-scale Conventional Tagging. Priority: Highest

Cost/year:

Vessel Bay of Biscay: 700,000 E (includes crew and operating costs)

Vessel Mediterranean: 1,200,000 E (includes crew and operating costs)

Charter West: 500,000 E

Tags, Misc: 55,000 E

Total (Years 2, 3, 4) ~ 7,365,000 E

The aim would be to tag 10,000 fish in the eastern stock and 1,000 fish in the western stock, for each of three years. In the East, a baitboat would be chartered in the Bay of Biscay from June to August, and in the Mediterranean either a baitboat or a purse seine would be chartered from May to July. In the West, tagging would be done from rod-and-reel vessels. An important aspect of the tagging program is introducing methods to permit estimation of reporting rates across the different principal fisheries involved.

3. Biological sampling. Priority: Highest

Cost/year:

Analysis of samples (100 E per fish): 1,100,000 E

Sampler contracts and travel: 300,000 E (includes samplers in Japan and in factory vessels)

Misc: 50,000 E

Total (Years 2, 3, 4) ~ 4,350,000 E

The aim would be to collect tissue samples and otoliths as follows, per year: 1000 from Japanese markets, 1000 from western fisheries, 10000 from eastern and Mediterranean fisheries. This would involve samplers working with buyers in Japan, observers onboard fishing vessels in the various fisheries, samplers in Japanese factory ships, and other sampling. The otoliths would be used both for ageing fish and for determining stock origin from microconstituents. Genetic analyses would also be used for stock structure studies and potentially for genetic tagging through genotyping individuals.

4. Data Mining, Priority: Highest

Cost/year:

Data retrieval contracts: 200,000 E

Total (Years 1, 2, 3) ~ 600,000 E

There is an obvious and prior need to get complete and trustworthy catch and effort data from all the fisheries targeting bluefin tuna. Without such basic data, there is no way for getting trustworthy and precise stock assessment estimates. Although this information is primarily under the responsibility of the various national administrations, a European project could improve significantly basic fisheries data, through:

- A significant data mining to significantly improve the total catch, the catch composition, effort and the spatial distribution of the major fisheries operating in the East Atlantic and primarily in the Mediterranean Sea (which would imply access to information from farms, observers on board program and VMS data)
- Elaborate accurate CPUE indices for Mediterranean purse seine fleets

5. Operating modeling, Priority: High

Cost/year:

Modeling contracts = 200,000 E

Total (Years 4, 5, 6) ~ 600,000 E

The aim would be to invest in the development of methods to improve assessments that incorporate information on mixing and to simulation-test management procedures in the face of uncertainty about mixing.

6. Archival tagging, Priority: High

Cost/year:

Tags (50 in West, 100 in East) = 300,000 E

Satellite services = 10,000 E

Fish purchases = 100,000 E

Misc., Travel costs: 70,000 E

Total (Years 1, 2, 3, 4, 5) ~ 2,400,000 E

The aim would be to continue support for archival tagging in the east and the west, with 150 tags per year.

7. Larval survey in the Mediterranean, Priority: Medium

Cost/year:

3 trawling vessels for 1 month in 3 areas of Mediterranean = 600,000 E

Sorting, species ID, misc. = 50,000 E

Total (Years 2, 3) ~ 1,300,000 E

The aim would be to carry out larval surveys simultaneously in the western, eastern and central Mediterranean in order to better understand spawning distribution and potentially design a fishery-independent survey. Additionally, larvae genotyping would be used for genetic tagging studies.

8. Aerial surveys of schools. Priority: Medium

Cost/year:

3 Aircraft charters Mediterranean = 300,000 E

1 Aircraft charter Western Atl. = 100,000 E

Total (Years 2, 3, 4) ~ 1,200,000 E

The aim would be to carry out transect surveys where schools can be sighted traditionally to support development of fishery-independent indices.

Summary Costs (annual costs do not include inflation).

<i>Priority</i>	<i>Element</i>	<i>Year1</i>	<i>Year2</i>	<i>Year3</i>	<i>Year4</i>	<i>Year5</i>	<i>Year6</i>	<i>Total</i>	<i>Subtotals</i>
Highest	1. Coordination	210,000	210,000	210,000	210,000	210,000	210,000	1,260,000	
Highest	2. Conventional tagging		2,455,000	2,455,000	2,455,000			7,365,000	
Highest	3. Biological Sampling		1,450,000	1,450,000	1,450,000			4,350,000	
Highest	4. Data mining	200,000	200,000	200,000				600,000	13,575,000
High	5. Modeling				200,000	200,000	200,000	600,000	
High	6. Archival tagging	480,000	480,000	480,000	480,000	480,000		2,400,000	3,000,000
Medium	7. Larval surveys		650,000	650,000				1,300,000	
Medium	8. Aerial surveys		400,000	400,000	400,000			1,200,000	2,500,000
								19,075,000	