

ICCAT ENHANCED PROGRAMME FOR BILLFISH RESEARCH
(*Expenditures/Contributions 2015 and Programme Plan for 2016*)

Summary and programme objectives

The ICCAT Enhanced Programme for Billfish Research (EPBR) continued its activities in 2015. The Secretariat coordinates the transfer of funds and distribution of tags, information and data. The overall programme coordinator during 2014 was Dr David Die (USA); Dr Eric D. Prince (USA) was coordinator for the western Atlantic Ocean, and Mr. Paul Bannerman (Ghana) coordinated activities for the eastern Atlantic Ocean. In 2015, Dr John P. Hoolihan (USA) assumed the role of overall coordinator and western Atlantic coordinator, while Dr Fambaye Ngom Sow (Senegal) assumed the role of coordinator for the eastern Atlantic.

The original plan (1986) for EPBR included the following objectives: (1) to provide more detailed catch and effort statistics, particularly for size frequency data; (2) to initiate the ICCAT tagging programme for billfish; and (3) to assist in collecting data for age and growth studies. During past Billfish Species Group meetings, the Billfish Species Group requested that the objectives of EPBR expand to evaluate adult billfish habitat use, study billfish spawning patterns and billfish population genetics. The Billfish Species Group believes that these studies are essential to improve billfish assessments. Efforts to meet these goals during 2014-2015 are highlighted below.

The programme depends on financial contributions, including in-kind support, to reach its objectives. This support is especially critical because the largest portion of billfish catches in recent years comes from countries that depend on the support of the programme to collect fishery data and biological samples. ICCAT has provided financial support in recent years, while annual contributions have been made from Chinese Taipei since 2009.

2015 activities

Venezuela (INIA/IOV-UDO) continued at-sea sampling activities through 2014 at the port of Cumaná, where industrialized longline vessels targeting yellowfin tuna and swordfish also catch billfish; and, the smaller artisanal drift-gillnet vessels targeting billfish. There were a total of six at-sea observer trips accomplished between August 2013 and December 2014. Most trips were on industrialized small to mid-size longline vessels out of Cumaná port. Shore-based sampling of size frequency data in Venezuela continued in the last part of 2013 through December 2014, with port sampling in Playa Verde and Cumaná. In the port of Playa Verde (off La Guaira, central Venezuela) a total of 3,746 daily trips targeting billfish were recorded in 2014, and 1,341 daily trips from August-December 2013. Biological sampling for sailfish tissue sampling for genetic studies were completed. No catch and effort data from sport fishing tournaments were available for the period 2013-2014, it is presumed that there were very few than three tournaments due to economic circumstances. A major effort to obtain reports of tag recaptured billfish continued during 2014, with the recovery of 12 tags from August 2013-December 2014, which included four blue marlins and one small tuna in 2013 and six blue marlins and two white marlins in 2014.

The EPBR supported characterization of billfish catches on-board small scale vessels in Brazil, tissue sampling for genetic identification in Brazil and Uruguay and biological sampling for reproduction and growth in Venezuela.

Uruguay collaborated in research conducted by Bernard *et al.* (2014) on the comparative population genetics and evolutionary history of two commonly misidentified billfishes (*Tetrapturus georgii* and *Kajikia albida*) of management and conservation concern.

In West Africa the programme continued to support the collection of billfish landing data in Côte d'Ivoire, Ghana, São Tomé and Príncipe and Senegal. Senegal provided 50 sailfish tissue samples to Brazil for genetic analyses. There has been a focus on biological sampling of blue marlin in Côte d'Ivoire, blue marlin being the most common landed billfish species of the artisanal fishery. Improvements of catch and effort records from these countries are reflected in the Task I tables for billfish that were used in the recent marlin assessments 2011 and 2012.

Genetic sampling kits were distributed to a number of fleets to help identify the percentage of white marlin, longbill spearfish and roundscale spearfish in the mixture of landings that represent these three species.

Sampling kits have been distributed to longline fleets in Mexico, Morocco, Portugal Senegal, Spain and Venezuela and to purse seine fleets in Ghana and Spain. Collected samples are transferred to Nova Southeastern University in Florida (USA) for processing. To date, surface mucous samples for genetic analyses have been provided by Portugal (n = 39) and Spain (n = 1) longline fleets fishing in the eastern central Atlantic. Of these, 36 were identified as white marlin and one sailfish, while three could not be identified due to mold contamination.

More details on the aforementioned activities are available in the documents SCRS/2015/084, SCRS/2015/085 and SCRS/2015/205 that were produced with the benefit of direct or indirect support of the EPBR.

2016 plan and activities

The highest priorities for 2016 are to support the objectives established by the billfish work plan, with specific emphasis on the preparation of information required for the next sailfish assessment and the collection and preparation of data relevant to the identification of white marlin and spearfishes and the collection of biological data on spearfishes:

- support the collecting and processing of samples of billfish for genetic studies;
- support the monitoring of the Brazilian, Uruguayan and Venezuelan longline fleets through onboard observers, reporting of conventional tags and biological sampling;
- support the collection of biological samples in West Africa and;
- support the monitoring of billfish catches from West African artisanal fishing fleets;
- investigate possible unreported important billfish catches in the Caribbean and take steps to develop capacity building where feasible.

All these activities depend on successful coordination, sufficient financial resources and adequate in-kind support. Details of EPBR funded activities for 2016 are provided below. Some of these will complement general improvements in data collection made with the support of the ICCAT data improvement programme and the new Japanese capacity building programme that are especially relevant to the collection of billfish statistics from fleets from West Africa and the Caribbean.

Shore-based sampling

Sampling of artisanal and small scale fisheries to support the estimation of catch and effort statistics will be focused on fleets contributing the largest parts of the catch and/or those having traditionally provided the higher quality data in the past, to ensure the preservation of an uninterrupted time series of catch and relative abundance indices.

West Atlantic

Sampling at landing sites will be conducted for gillnet landings off central Venezuela.

Eastern Atlantic

Monitoring and sample collection will be supported for the artisanal fisheries of Ghana, Côte d'Ivoire, São Tomé and Senegal.

At-sea sampling

West Atlantic

Continued support will be provided to the sampling made onboard the Venezuelan, and Brazilian vessels.

Tagging

The programme will need to continue to support the conventional tagging and recapture reporting conducted by programme partners.

Biological studies

The biological and genetic sampling programmes, particularly for white marlin and spearfish, will continue in 2016. This programme aims to determine the ocean-wide ratio of white marlin to roundscale spearfish and longbill spearfish, including how this ratio changed over time.

For determination of sailfish stock structure using genetic analyses, tissue samples from both recognized stocks were collected during 2015. Additional samples from both eastern and western fisheries with important billfish catches are needed for analysis prior to the next stock assessment meeting. Brazilian scientists will conduct the genetic analyses of sailfish samples.

Efforts to collect biological samples for reproduction, age and growth studies requires EPBR support to facilitate cooperation from fleets that are monitored with EPBR funds. In preparation for the next sailfish assessment, emphasis will be placed on biological sampling for age, growth and reproductive studies of sailfish and spearfishes.

Coordination

Training and sample collection

Programme coordinators need to travel to locations not directly accessible to promote EPBR activities and ICCAT data requirements regarding billfish. This includes travel to West African countries, as well as the Caribbean and South America by the general coordinator and the coordinator from the west. Coordinated activities between EPBR, JCAP and ICCAT data fund will continue to be required.

Programme management

Management of the EPBR budget is assumed by the programme coordinators, with the support of the Secretariat. Reporting to the SCRS is a responsibility of the coordinators. Countries that are allocated budget lines for programme activities need to contact the respective programme coordinators for approval of expenditures before the work is carried out. Invoices and brief reports on activities conducted need to be sent to the programme coordinators and ICCAT to obtain reimbursement. Funding requests need to follow ICCAT protocol for the use of funds (2011 SCRS Report, Appendix 7, Addendum 2).

2015 budget and expenditures

This section presents a summary of the contributions and expenditures for the ICCAT EPBR during 2015. The Billfish Working Group developed a budget of €69,747.44 for the EPBR. The contributions made to the EPBR for the 2015 programme were €31,836.24 from the regular ICCAT budget and €3,000 from Chinese Taipei. Carryover funds remaining from previous year were €34,911.20 thus total funds available for 2015 were €9,747.44 (**Table 1**). Expenditures to date in 2015 have been €3,069.00, with an additional €43,600.00 committed to other activities that have either taken place during January-September 2015 or are anticipated during October-December 2015. One of the main reasons for the smaller expenditures has been the delay in receiving adequate numbers of genetic samples for processing. The estimated balance of EPBR funds at the end of 2015 is €18,078.44 (**Table 1**).

In-kind contributions to the programme continued to be made during 2015. INIA and the University of Oriente (Venezuela), *Universidad Federal Rural de Pernambuco* (Brazil), and *Instituto Dirección Nacional de Recursos Acuáticos* (Uruguay) have provided personnel time and other resources as in-kind contributions to the at-sea biological sampling programme, thereby reducing the amount of funds needed for this activity from the ICCAT billfish funds. Some of the travel costs and personnel time of the programme coordinators were absorbed by the U.S. National Marine Fisheries Service, University of Miami, Department of Fisheries of Ghana and by the ICCAT Data fund.

2015 budget and requested contributions

The proposed 2016 budget, totaling €52,578.44 is detailed in **Table 2**. The programme is predicted to have a balance of €18,078.44 by the end of 2015 and therefore requests the Commission to provide a contribution of €31,500.00 for 2016. The requested contribution from ICCAT is necessary to fully implement the EPBR 2016 working plan. To achieve all its objectives in 2016 the programme will continue to require contributions of €3,000.00 from other sources, such as those so generously provided lately by Chinese Taipei.

The consequence of the programme failing to obtain the requested budget will be to stop or reduce programme activities for 2016 including: (1) collection and processing of genetic samples, collection and processing of age and growth samples, (2) at-sea observer trips in Venezuela and Brazil, (3) biological sampling and collection of statistics of catches from fleets in the western and eastern Atlantic, (4) promotion of conventional tagging activities, including distribution of tag recovery incentives. All these activities are critical to continue the improvement of the information available to the SCRS for the assessment of billfish, including the preparation for an anticipated sailfish assessment in 2016.

Conclusion

The EPBR is an important mechanism towards completing the goal of having the highest quality information to assess billfish stocks. The EPBR has been credited for major improvements in the data supporting the last ICCAT billfish assessments. The EPBR is the only programme that focuses exclusively on billfish. Therefore programme continuation is paramount to facilitate the collection of biological and fishery information on billfish species. The EPBR will continue to require support from ICCAT and other sources to operate and address the needs of the Commission.

Table 1. Detailed 2015 expenditures.

Income		Euros (€)
	Balance transferred from 2014	34,911.20
	ICCAT Commission	31,836.24
	Chinese Taipei	3,000.00
	Total income	34,836.24
Total Budget		69,747.44
Expenditures		
	Sampling - Senegal	3,000.00
	Sampling - Ghana	3,000.00
	Sampling - São Tomé	2,000.00
	Travel by coordinator	
	Bank charges	69.00
	Current expenditures Jan-Sep 2015	8,069.00
Funds obligated until end of the year	Sampling - Venezuela	(6,000.00)
	Sampling - Brazil	(5,000.00)
	Sampling - Côte d'Ivoire	(3,000.00)
	Tagging rewards	(500.00)
	Collection of genetic samples*	(2,000.00)
	Mailing genetic samples*	(1,000.00)
	Processing genetic samples*	(22,000.00)
	Coordination travel	(4,000.00)
	Bank charges	(100.00)
	Obligated expenditures Oct-Dec 2015	(43,600.00)
Total Expenditures for full year		51,669.00
Estimated year-end balance		18,078.44

* Number of samples collected and processed will depend on the final budget of the programme.

Table 2. Detail of proposed expenditures for 2016.

Income		Euros (€)
	Balance transferred from 2015 (tentative)	18,078.44
	ICCAT Commission	31,500.00
	Chinese Taipei	3,000.00
	Total income	34,500.00
Total Budget		52,578.44
Planned Expenditures		
	West Atlantic shore-based sampling:	
	Venezuela	(6,000.00)
	West Atlantic at-sea sampling:	
	Venezuela	(6,000.00)
	Brazil	(5,000.00)
	Barbados	(3,000.00)
	Trinidad	(3,000.00)
	Other fleets ¹	(3,000.00)
	East Atlantic shore-based sampling:	
	Senegal	(3,000.00)
	Ghana	(3,000.00)
	São Tomé	(2,000.00)
	Côte d'Ivoire	(3,000.00)
	Other fleets ¹	(3,000.00)
	Collection of genetic samples ²	(2,000.00)
	Mailing genetic samples ²	(1,000.00)
	Processing genetic samples ²	(2,000.00)
	Lottery rewards - billfish tagging	(500.00)
	Coordination travel ¹	(6,500.00)
	Bank charges	(300.00)
Total Expenditures		(52,300.00)
Estimated year-end balance		278.44

¹ Expenditures contingent on available funds.² Number of samples collected and processed will depend on the final budget of the programme.