



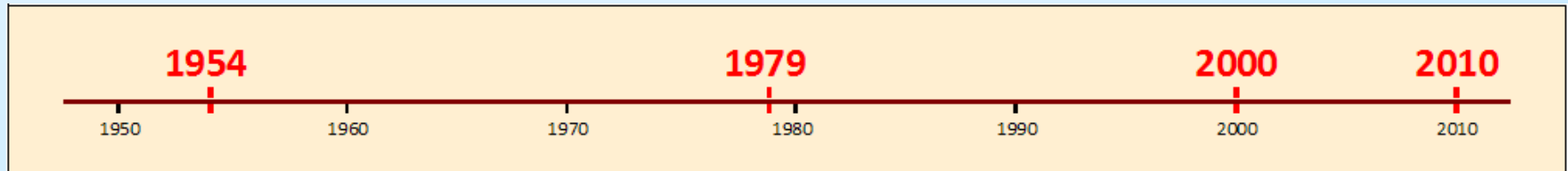
IATTC Data Collection and Database Program



IATTC Data Collection and Database Program

IATTC Database timeline

- 1954 - Tuna section data collection
 - Emphasis on tuna landings
- 1979 - Observer program data collection
 - Emphasis on marine mammal involvement in purse seine fishery
- 2000 - Database conversion
- 2010 - Establishment of single Data Collection and Database program



IATTC Data Collection and Database Program

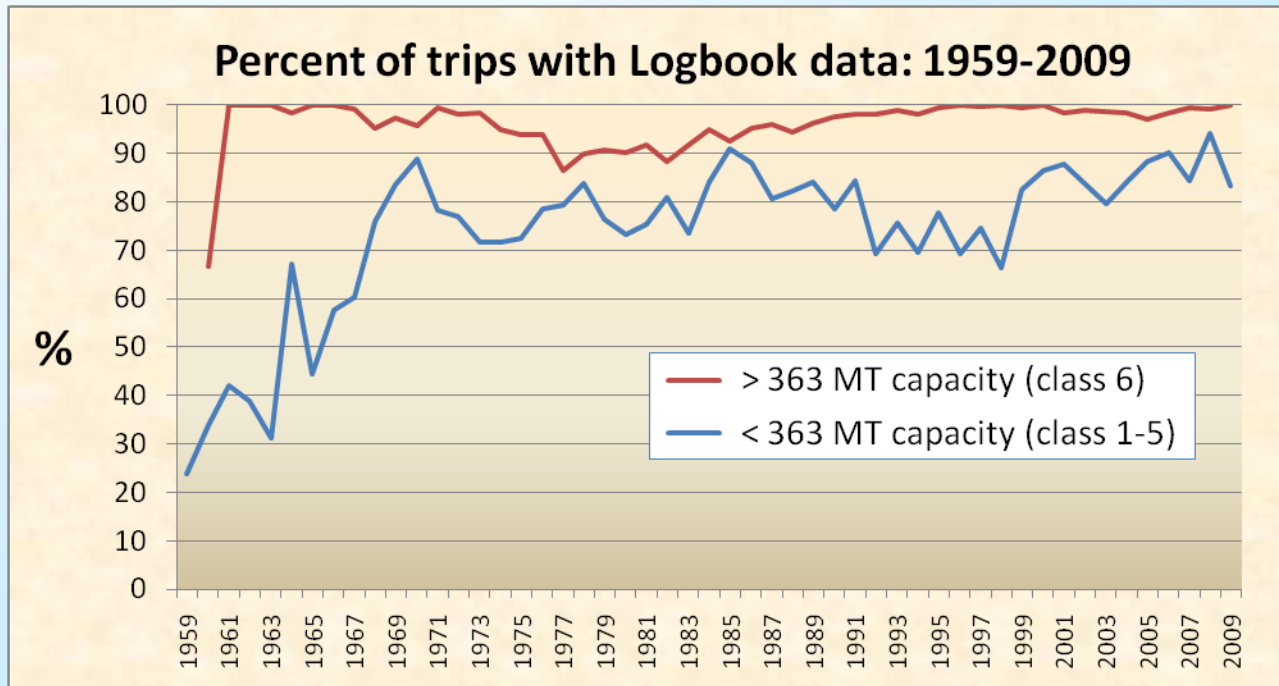
IATTC Datasets – tuna and non-tuna catch

- EPO Purse Seine Fishery
 - Tuna Length Frequency (1955 -)
 - Logbooks (1959 -)
 - Cannery Unloading (1959 -)
 - Observer (1979 -)
- Other gear
 - Longline
 - Pole and Line
 - Gillnet
 - Troll
 - Harpoon
 - Recreational

IATTC Data Collection and Database Program

Purse seine Logbook data

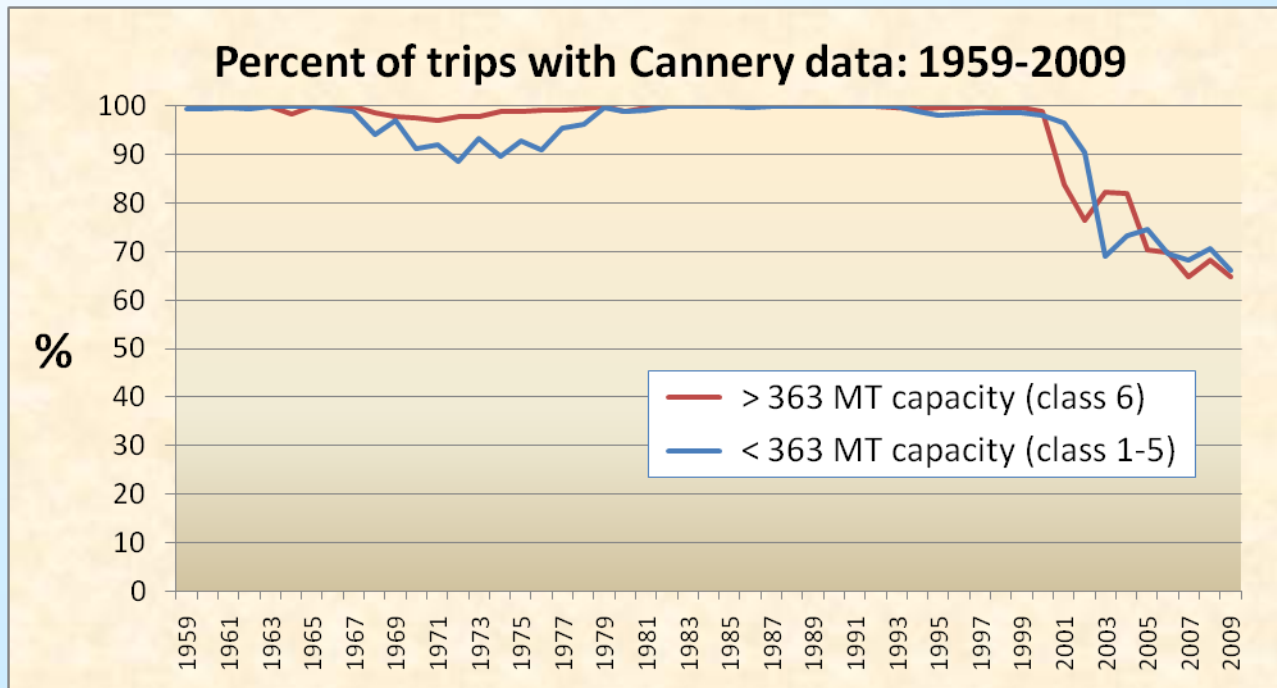
- Data collected at ports by IATTC staff
 - Fishing effort, positions, dates, times
 - Set information
 - Tuna retained catch (landed)



IATTC Data Collection and Database Program

Purse seine Cannery unloading data

- Data collected at cannery by IATTC staff, also received directly from canneries
 - Tuna unloaded species and weight

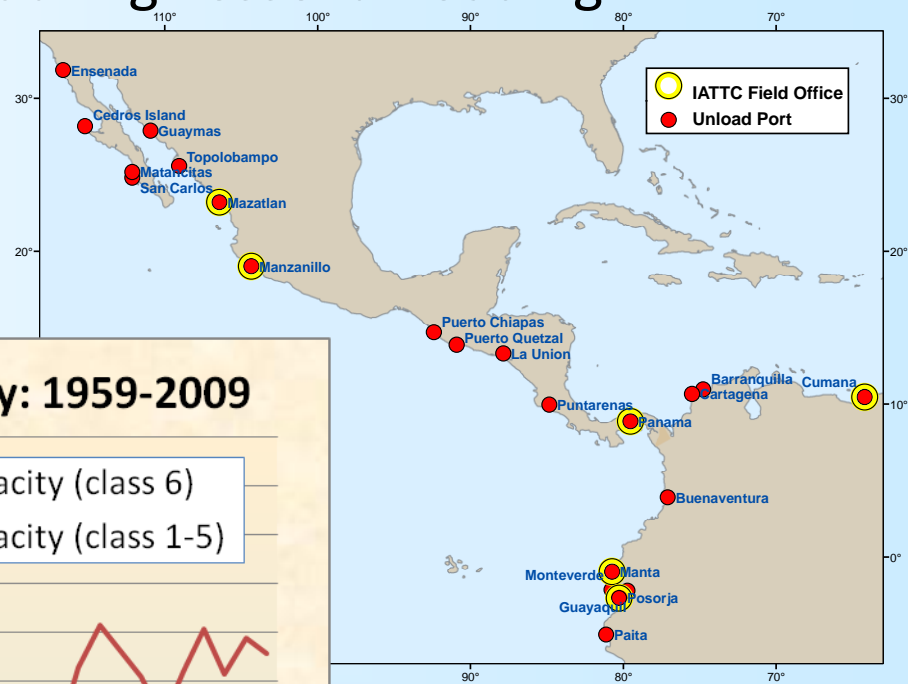


IATTC Data Collection and Database Program

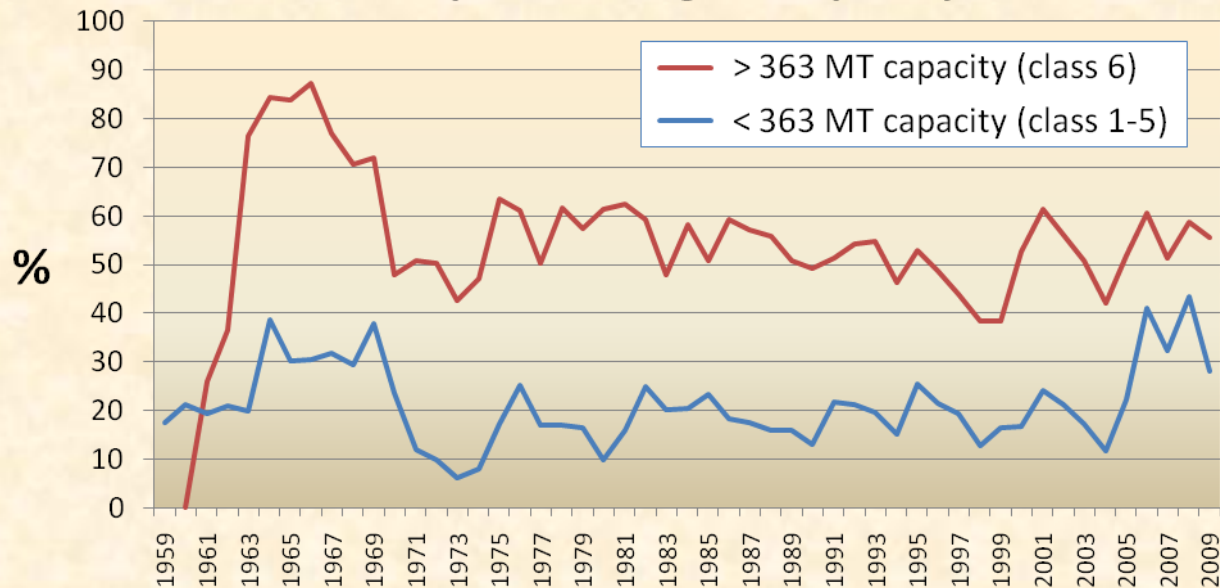
Purse seine Length Frequency data

– Data collected by IATTC staff during vessel unloading

- Predetermined number of tuna measured
- Set information
- Tuna retained catch (landed)



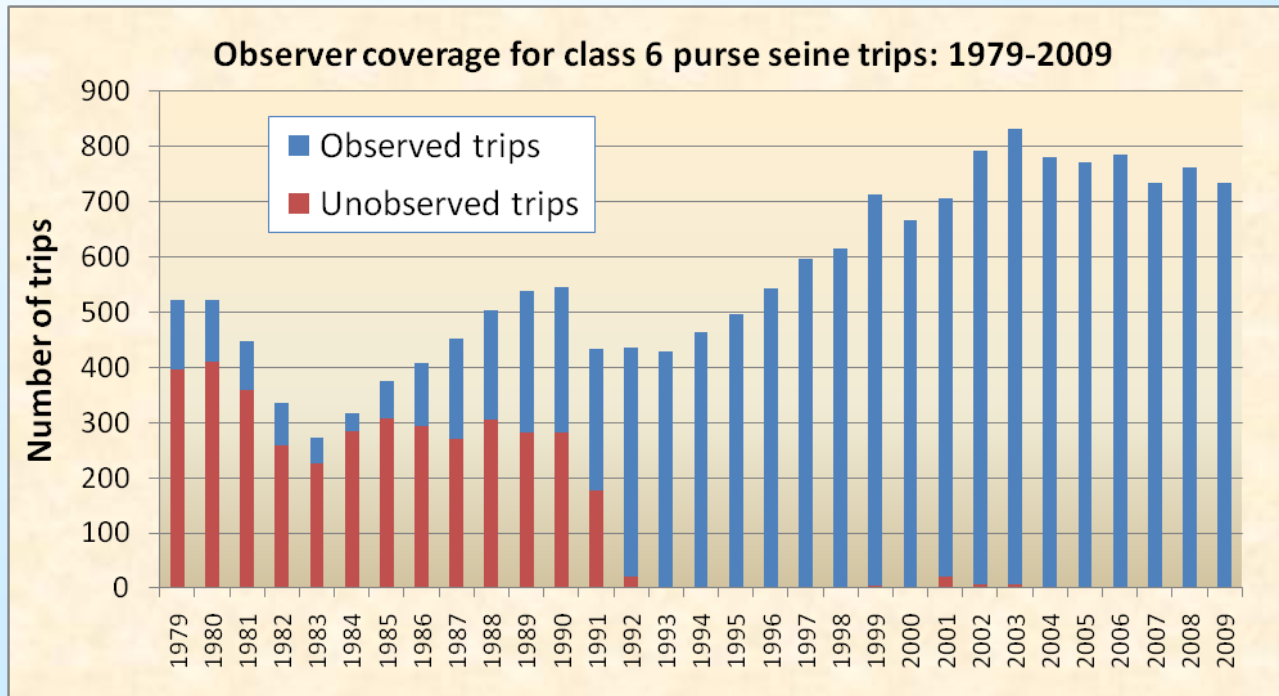
Percent of trips with Length Frequency: 1959-2009



IATTC Data Collection and Database Program

Purse seine Observer data

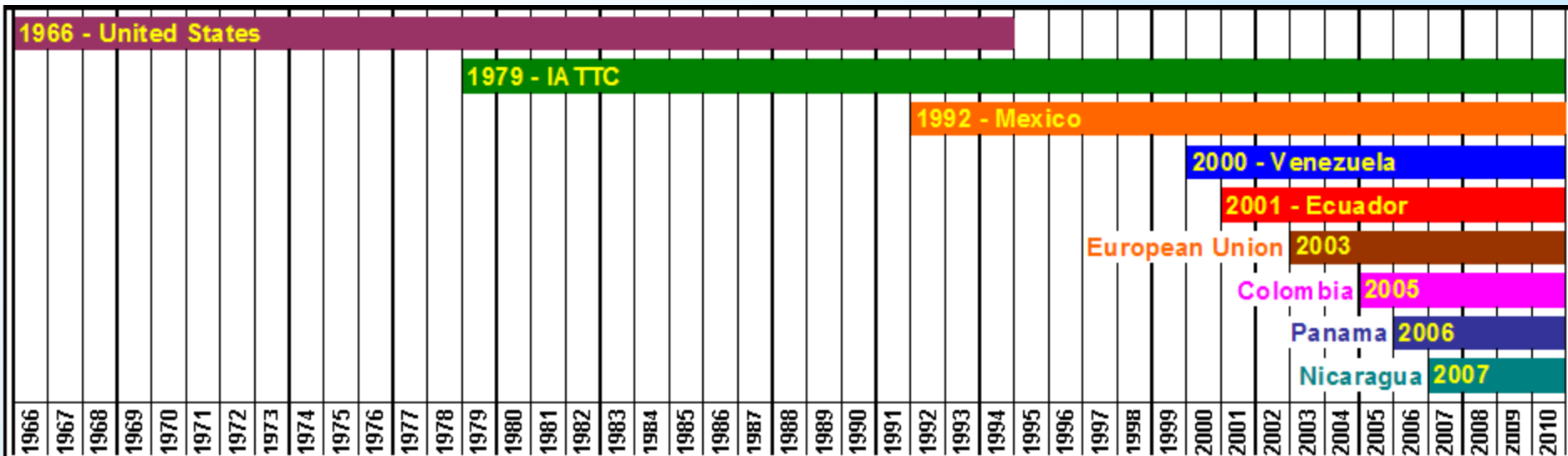
- Data collected at sea during fishing trips
 - Fishing effort, positions, dates, times
 - Tuna and non-tuna capture and discard
 - Compliance, marine mammal involvement



Observer database

IATTC and National observer programs

8 active – all using an identical database structure



1966 – United States (discontinued in 1994)

1979 – IATTC

1992 – Mexico

2000 – Venezuela

2001 – Ecuador

2003 – European Union

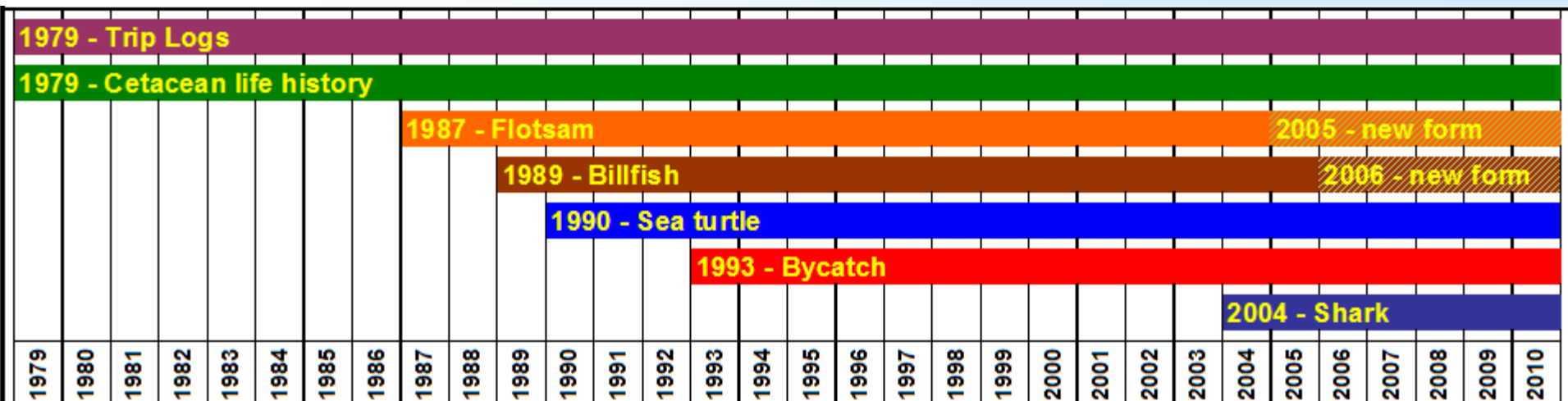
2005 – Colombia

2006 – Panama

2007 – Nicaragua

Observer database

Time frame of Observer data sets



1979 – Trip logs

1979 – Cetacean life history

1987 – Flotsam (significant redesign in 2005)

1989 – Billfish (redesign in 2006)

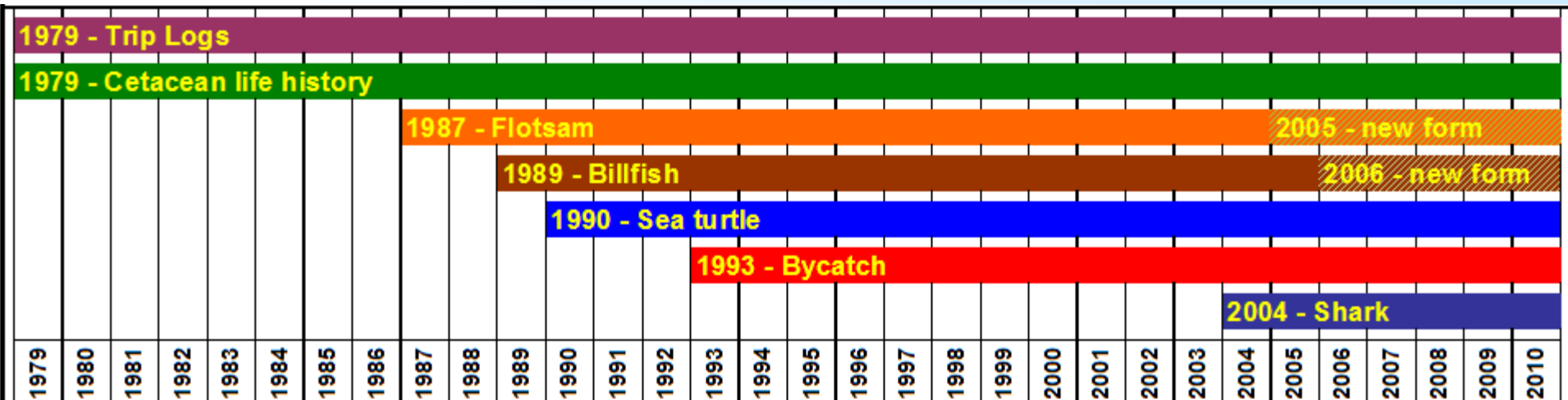
1990 – Sea turtle

1993 – Bycatch

2004 – Shark

Observer database

Time frame of Observer data sets



1979 – Trip logs

1979 – Cetacean life history

1987 – Flotsam (significant redesign in 2005)

1989 – Billfish (redesign in 2006)

1990 – Sea turtle

1993 – Bycatch

2004 – Shark

Observer database

Shark
field
form

Inter-American Tropical Tuna Commission
SHARK RECORD

Trip number	Record number	Set number	Species		Total number of sharks
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INDIVIDUAL RECORD					COLLECTIVE RECORD					
Total length (cm)	Estimation	Sex			Fate	Estimate by number of individuals				Fate
		M	F	Unk	(code)	Small < 90 cm	Medium 90 - 150 cm	Large > 150 cm	Total	(code)

FATE CODES








1 - Human consumption


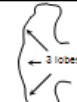
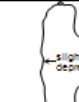
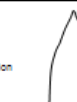


2 - Discarded





3 - Released alive

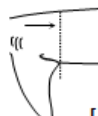
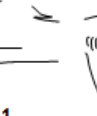


4 - Other

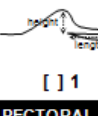

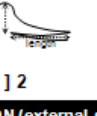
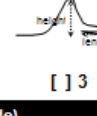
5 - Unknown



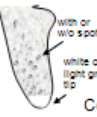


CAUDAL FIN SHAPE				
 [] 1	 [] 2	 [] 3	<p>Dorsal view of head</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  [] 3.1 </div> <div style="text-align: center;">  [] 3.2 </div> </div> <p>Neither of these [] 3.3</p> <p>Could not determine [] 3.4</p>	
None of these [] 4	Could not determine [] 5	<p>Flank coloration</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  [] 3.1 </div> <div style="text-align: center;">  [] 3.2 </div> </div> <p>Neither of these [] 3.3</p> <p>Could not determine [] 3.4</p>		



HEAD SHAPE							
 [] 1	 [] 2	 [] 3	 [] 4	 [] 5	 [] 6	None of these [] 7	Could not determine [] 8

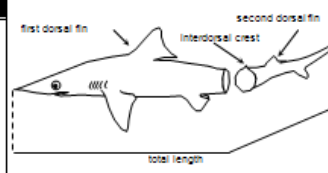
FIRST DORSAL FIN SHAPE					
 [] 1	 [] 2	 [] 3	 [] 4	None of these [] 5	Could not determine [] 6

DISTANCE BETWEEN FIRST DORSAL FIN AND PECTORAL FIN					
Very separate  [] 1	Slightly separate  [] 2	Equal  [] 3	Overlapping  [] 4	None of these [] 5	Could not determine [] 6

INTERNAL BORDER LENGTH OF SECOND DORSAL FIN					
Length is 2 or more times the height  [] 1	Length is greater than height (not 2 times)  [] 2	Length is equal to height  [] 3	Length is less than height  [] 4	None of these [] 5	Could not determine [] 6

PECTORAL FIN COLORATION (external side)				
 [] 1	 [] 2	 [] 3	None of these [] 4	Could not determine [] 5
 male		 female		

PRESENCE - ABSENCE OF INTERDORSAL CREST		
Present  [] 1	Absent  [] 2	Unsure [] 3
		Could not determine [] 4



COMMENTS:

.....

.....

.....

.....

Observer database

Billfish
field
form

(2006 version)





Inter-American Tropical Tuna Commission
BILLFISH RECORD

Trip Number	Record Number	Set Number	Species		Total number of billfishes
[]	[]	[]	[]	[]	[]

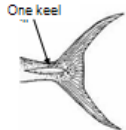

INDIVIDUAL SECTION			COLLECTIVE SECTION							
Post-orbital length (cm)	Est.	Fate (code)	Post-orbital length (cm)	Est.	Fate (code)	Estimation by number of individuals			Fate (code)	
						Small < 90 cm	Medium 90 - 150 cm	Large > 150 cm	Total	
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

FATE CODES
1- Human consumption 3- Escaped net 5- Unknown
2- Discarded 4- Other

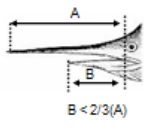
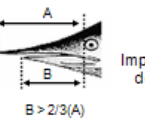
FIRST DORSAL FIN SHAPE

 [] 1	 [] 3	None of these [] 5
 [] 2	 [] 4	Impossible to determine [] 6



CAUDAL PEDUNCLE KEEL

 [] 1	 [] 2	Impossible to determine [] 3
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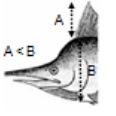
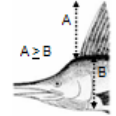
UPPER AND LOWER JAW RELATIONSHIP

 [] 1	 [] 2	Impossible to determine [] 3
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MOBILITY OF PECTORAL FINS

 [] 1	Impossible to determine [] 3
 [] 2	

BODY HEIGHT-DORSAL FIN RELATIONSHIP

 [] 1	 [] 2	Impossible to determine [] 3
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ADDITIONAL COMMENTS

Observer database

Bycatch
field
form

Inter-American Tropical Tuna Commission

MARINE FAUNA RECORD

Trip Number					Set Number				

Reasons for discard of the tuna catch:
 1 - Species/size undesirable for market 4 - Vessel full
 2 - Condition undesirable for market 5 - Well limitation
 3 - Ripped sack 6 - Other

TUNA: Use code table 2

Code	MT Capture				MT Discard to the sea				Reason 1-6
	Small <2.5 Kg	Medium 2.5 - 15.0 Kg	Large > 15.0 Kg	Total	Small <2.5 Kg	Medium 2.5 - 15.0 Kg	Large > 15.0 Kg	Total	

BILLFISH and RAYS: Use code table 13

Code	Est. by number of individuals				Destiny				Additional codes Code	
	Small < 90 cm	Medium 90 - 150 cm	Large > 150 cm	Total	S	M	L	T		

OTHER BIG and MEDIUM FISH: Use code table 13

Code	Est. by number of individuals				Destiny			
	Small < 30 cm	Medium 30 - 60 cm	Large > 60 cm	Total	S	M	L	T

SEA BIRDS: Use code table 14			OTHER FISH, INVERTEBRATES, OTHER FAUNA: Use code table 13		
Code	Number		Code	Number	Destiny

Destiny codes
 1 - Human consumption
 2 - Discarded
 3 - Mixed

Observer database - Quantity of data

Observer database record counts: 1979 through 2009

- Number of trips 11,500
- Number of sets 356,000

- Number of individual sightings in the database:
 - Marine mammals 799,000
 - Sea turtles 53,000
 - Billfish 37,000
 - Sharks 67,000
 - Rays 12,500
 - Other large fish 181,000
 - Birds 317,000
 - Floating objects 228,000

IATTC Data Collection and Database Program

IATTC Datasets – other

- Trophic Ecology Studies (various: 1955 - 2005)
 - Diet studies
 - Stable Isotope studies
- International Review Panel (1993 -)
- Achatines lab (1996 -)
 - YFT spawning investigations
- Tuna tagging (2000 -)
 - Archival time series and plastic dart tag deployment and recovery
- Tuna Tracking / Dolphin Safe Certificate program (2001 -)
- Vessel Registry (2004 -)
- EPO High seas Transshipments (2009 -)

FUTURE PLANS

Inter-American Tropical Tuna Commission

Meeting of the Scientific Advisory Committee

La Jolla, California, USA.

Aug 31st – Sep 3rd 2010

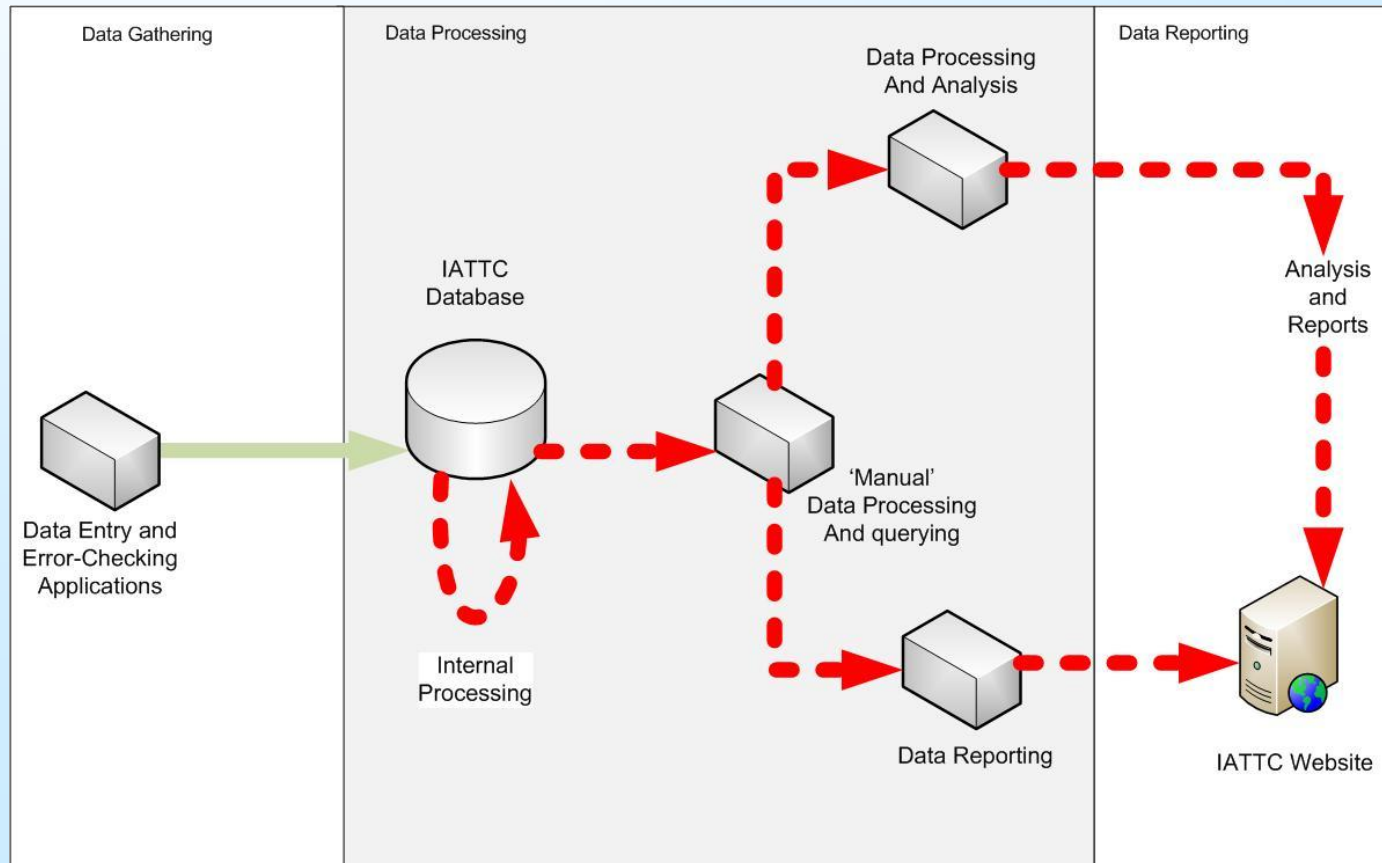
Data Life Cycle

- **Data gathering**
Sets of data reach the IATTC headquarters from different sources, usually from its field offices in numerous formats. Once at the IATTC, they are entered into the system and checked for errors using custom applications. The final product is stored in the database servers.
- **Data processing**
Data is processed to generate more useful data sets for analysis purposes.
- **Data analysis and reporting**
Processed data is used by the staff to perform analysis, generate reports, respond to data requests, etc.

IATTC Data Collection and Database Program

The current systems

- Multiple independent applications for data entry and error checking.
- A database server which holds most of the data sets in a single database. Raw and processed data are often stored together.
- Some processing tasks which are critical for analysis and reporting. (LF&SC, CAE, etc).
- A web site to publish information.



Future Plans

POINTS TO IMPROVE

- The current database, resulting from two separate programs, has increased in complexity and is often difficult to maintain and support. The structure was designed for data entry and is not optimized for analysis.
- Limited documentation makes it difficult for scientists and non technical staff to access the data.

IMPROVEMENTS

- Create separate databases oriented to each subject. These databases will be different representations of the existing data, optimized for analysis purposes.
- Create a centralized repository of information about data available, such as meaning, relationships to other data, origin, usage, and format.

Future Plans

POINTS TO IMPROVE

- There are several critical processing tasks which are costly in terms of time and effort of the data group staff.

IMPROVEMENTS

- Automate those processes where possible.
- Create new applications to manage those data sets that can not be automated.
For example: an application to manage the fleet which allows the staff to easily update the fleet database and publish its data.

Future Plans

POINTS TO IMPROVE

- There are a number of independently developed applications for data entry and data processing that are difficult to maintain and support.

IMPROVEMENTS

- Develop a team work environment to share code and libraries so that custom applications may be more easily and efficiently maintained.
- Host most of the data entry and data processing applications on the internal website. This will improve security and ease of maintenance.

Future Plans

POINTS TO IMPROVE

- The IATTC website has become the main mechanism for communication with the world. It has also grown in complexity, becoming difficult to maintain and update using the current design and software.

IMPROVEMENTS

- Develop a completely new website, based on new technology, to be able to release the information produced by the organization more efficiently. For instance: an organized search engine in a data repository to better find public domain data sets.

Summary of Projects

- Restructure and optimize the existing databases.
- Document the database contents and create the data dictionary.
- Automate critical processes such as the Length Frequency and Species Composition program and the Catch and Effort program.
- Automate data preparation for the Stock Assessments.
- Create applications to assist in managing other datasets; F.i.: Fleet management application, Unloading data managing application.
- Convert/Improve some existing applications for data management. For example the Vessel Register.
- Create a team-work environment to host and manage all of the applications.
- Create an internal portal to host all of the applications.
- Create a new updated website for the IATTC.

IATTC Data Collection and Database Program

The target

- Multiple related web based applications for data entry and error checking.
- Several database servers with specialized databases for analysis and reporting.
- Automated processing tasks critical for analysis and reporting.
- An updated web site to publish information.

