

# **EVALUATING POTENTIAL BIAS IN THE LARGE PELAGIC SURVEY FOR THE BAYS ATLANTIC TUNA FISHERY**

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And

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# Project Objectives

- Quantitatively, compare the results of the LPS (BAYS tunas) with other existing data sources;
- Integrate a variety of data sources, including those from the recreational fishing community;
- Develop recommendations for improvements.

# “Pilot Study Area”

- North Atlantic – Massachusetts, Connecticut/Rhode Island, New Jersey, New York
- South Atlantic/Caribbean: South Carolina, Puerto Rico
- Gulf of Mexico: Alabama, Louisiana, Texas

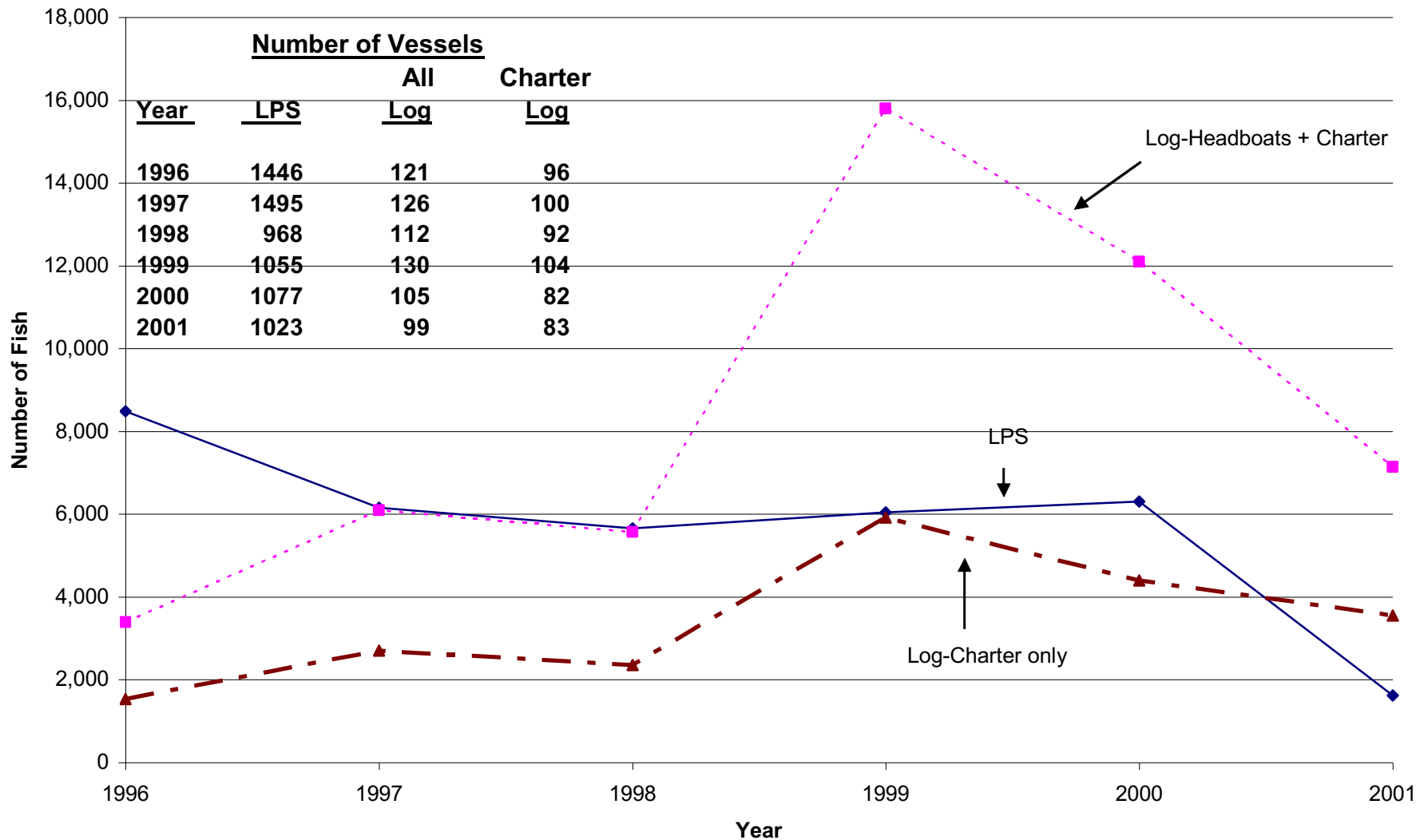
# Project Approach

- Project start: October 7, 2002
- Identify Sources of data
- Collect data
  - Charter logs from captains
  - Northeast Multi-species logbook data
  - Recreational Billfish Survey
  - For-hire estimates from SC
  - NMFS Southeast headboat survey
  - New Jersey historical data
  - Anecdotal information: Personal interviews, vessels logs, etc.
- Compare/analyze data – “Art as much as Science.”

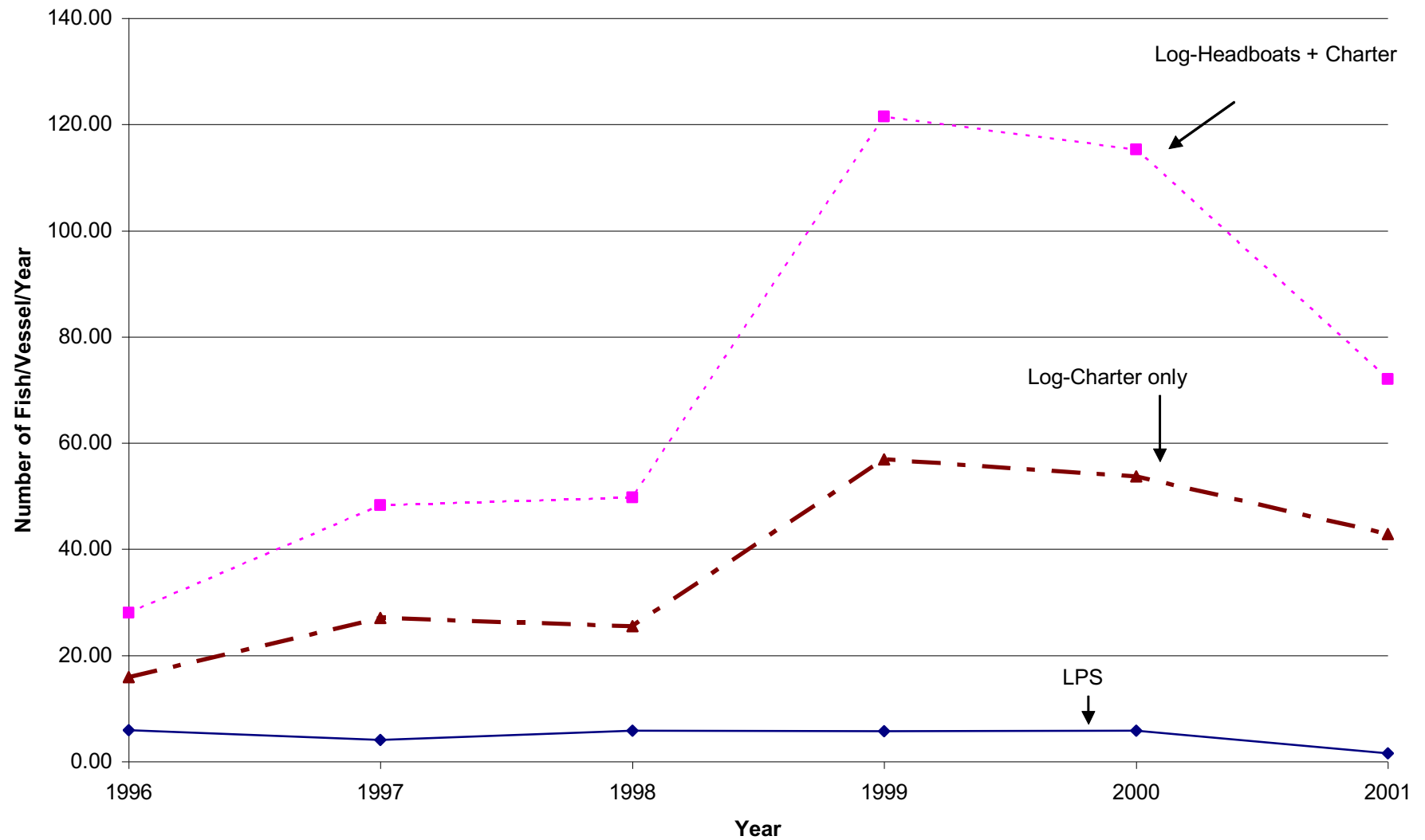
# -- Summary of Results --

- Northeast
- South Carolina/Caribbean
- Gulf

**Comparison of LPS Estimates and NE Logbook Totals**  
**Yellowfin Tuna**  
**New Jersey, New York, Connecticut/Rhode Island, Massachusetts**



**Comparison of LPS and NE Logbook  
Annual Catch Per Vessel of Yellowfin Tuna  
New Jersey, New York, Connecticut/Rhode Island, Massachusetts**



# Apply CPV to Those Vessels Fishing for Yellowfin or Albacore

<b>YEAR</b>	<b><u>Total Boats</u></b>	<b>Percent of Boats Reporting Yellowfin</b>	<b><u>Percent of Boats reporting Albacore</u></b>
1996	328	32	18
1997	335	34	14
1998	352	29	24
1999	326	39	13
2000	296	34	27
2001	295	33	22



## SUMMARY OF CALCULATIONS

Harvest= CPV x YellowfinFishers x % Active Fishers x LPS Frame

Where:

- Harvest=estimated harvest calculated from logbook catch rates.
- CPV=Average annual catch-per-vessel reported by vessels harvesting yellowfin in logbooks.
- YellowfinFishers=percentage of vessels reporting any HMS permitted species harvest in the logbook that reported harvesting yellowfin.
- 
- % Active Fishers=percentage of HMS-permitted vessels that are assumed to have fished in a given year.
- LPS=number of for-hire permits reported in the LPS sampling frame.

Table 7. Potential difference in yellowfin tuna landings between NMFS Large Pelagic Species Survey and NMFS Northeast Multi-Species Logbook, Massachusetts through New Jersey. Logbook estimates include those reported as “kept” while LPS estimates are those landed plus those reported as discarded dead.

YEAR	LPS FOR-HIRE	LOGBOOK CHARTER	LOGBOOK HEADBOAT	TOTAL LOGBOOK	DIFFERENCE (# OF FISH)	DIFFERENCE (PERCENT)
1996	8,483	2,429	1862	4,291	-4,192	-49
1997	6,156	4,542	3378	7,920	1,764	29
1998	5,650	2,366	3224	5,590	-60	-1
1999	6,047	7,722	9878	17,600	11,553	191
2000	6,303	6,486	7699	14,185	7,882	125
2001	1,622	4,769	3581	8,350	6,728	415

**1** Logbook charter projections assume that only 1/3 of HMS-permitted vessel fish in a given year.

**2** A negative number indicates LPS-reported harvest was greater than Logbook projections.

# South Carolina, Yellowfin.....

- Missing much of the private boat catch
- MRFSS may be over estimating charter catch

Year	South Carolina Charter Logbook	MRFSS Charter	MRFSS Private Boat Catch
1996	553	475	-0-
1997	266	784	-0-
1998	933	11,379	-0-
1999	1,407	2,194	-0-
2000	1,666	2,170	857
2001	1,511	2,870	818

Comparison of MRFSS yellowfin tuna harvest (A+B1) for Alabama to potential conservative estimates based on self-reported charterboat logbook results.

Year	MRFSS Charter Only	Charter Only Potential Estimate	MRFSS Charter + Private	Potential Estimate Charter + Private
1999	-0-	~3,000	-0-	~ 6,000
2000	-0-	3,230	-0-	6,544
2001	82	4,332	4,686	8,936

# Summary:

## Potential Variance in Estimation of Recreational Yellowfin Tuna Harvest For-Hire Sector

<b>Year</b>	<b>Northeast<sup>1</sup></b>	<b>South Carolina Charter<sup>2</sup></b>	<b>South Carolina Tournament<sup>3</sup></b>	<b>Puerto Rico</b>	<b>Gulf<sup>4</sup></b>
1996	-1,101 to -4,192	78	181+	40-550?	?
1997	7,546 to 1,764	-518	153+	40-550?	?
1998	2,952 to -60	-10,446	178+	40-550?	6,917+
1999	21,382 to 1,553	-787	528+	40-550?	7,500+
2000	16,136 to 7,882	-504	322+	40-550?	8,300+
2001	12,797 to 6,728	-1,359	247+		8,100+

Note that a negative number indicates an over reporting of catch in the NMFS estimates

<sup>1</sup> New Jersey, New York, Connecticut, Massachusetts, Rhode Island

<sup>2</sup> Note that there was no private boat catch recorded for South Carolina from 1996-99

<sup>3</sup> Tournament catches only, includes charter and private boat catch

<sup>4</sup> Alabama and Louisiana

# Summary

- Overall, HMS estimates for BAYS tunas seem to be underestimating actual catch.
- These results provide an indication of where NMFS should be directing attention (research, surveys, etc.) to fill these gaps.
- A comprehensive survey frame for all areas and times should be developed.
- We believe that the most accurate recording for headboats is achieved through logbooks.

# Other Issues

- Refinements in the MRFSS for-hire framework for the Northeast may rectify many of the sampling errors of the past.
- However, the For-Hire survey must be ground-truthed with other data, such as logbooks.
- Same issues may exist with private-boat catch.
- For allocation purposes, should HMS be only harvest (landings + dead discards) or should it include overall catch?

Full Report Available at:

[www.andrewloftus.com](http://www.andrewloftus.com)



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