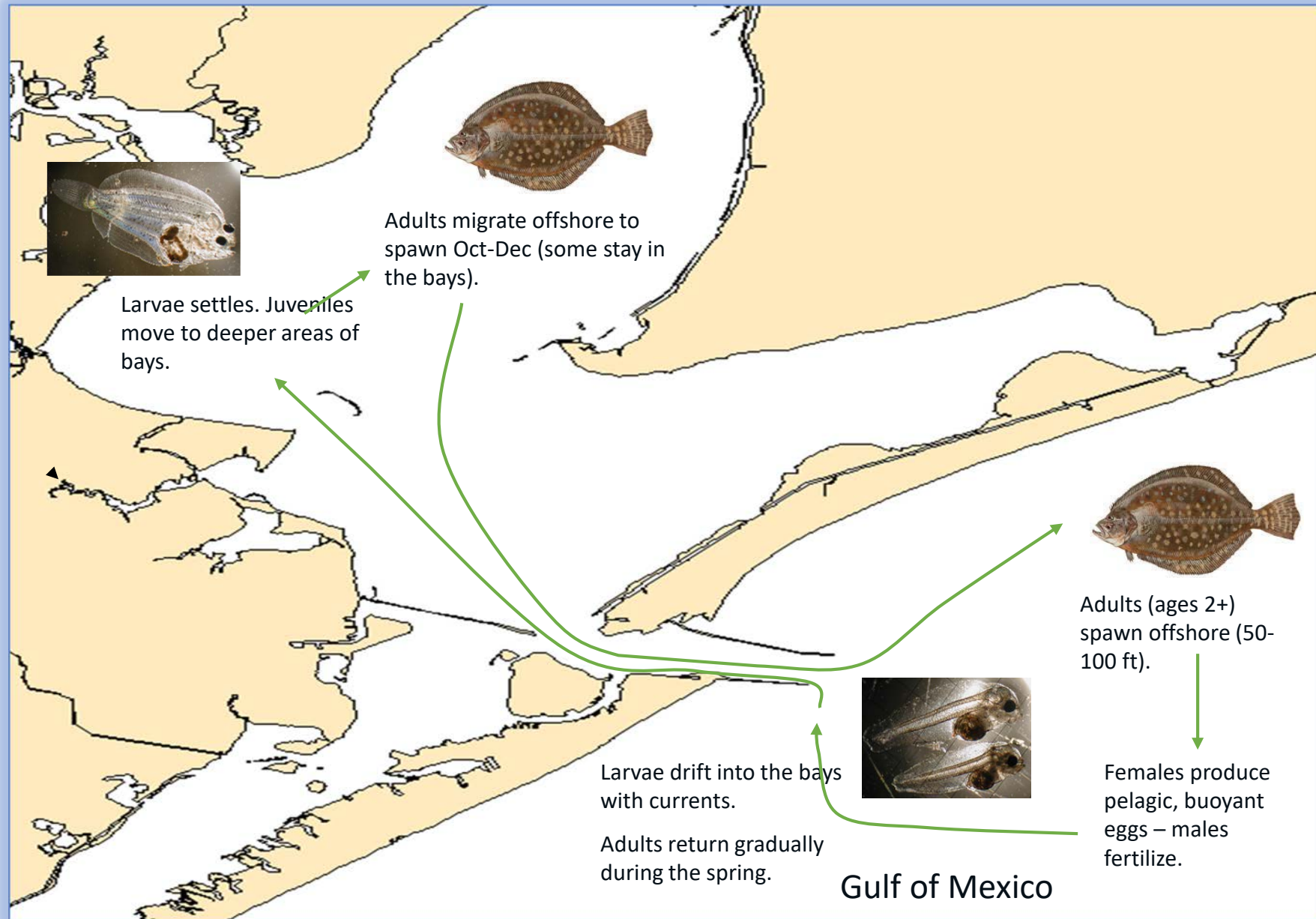


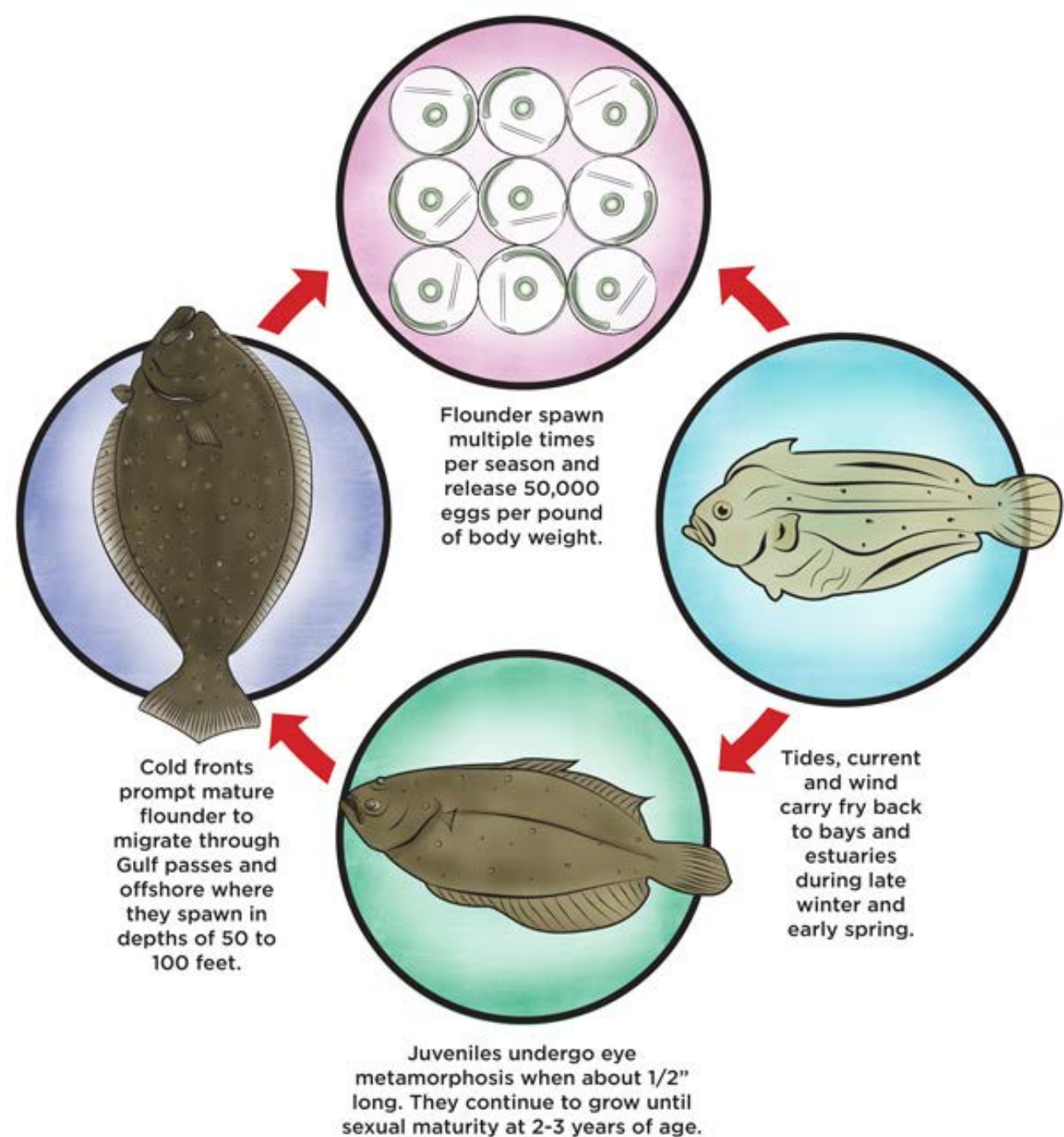
TPWD Southern Flounder Proposals

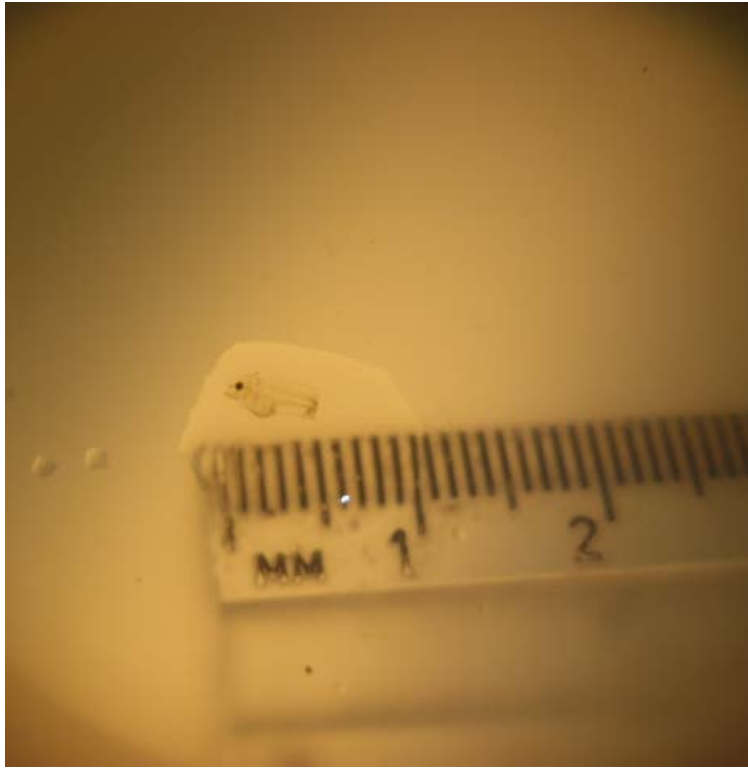
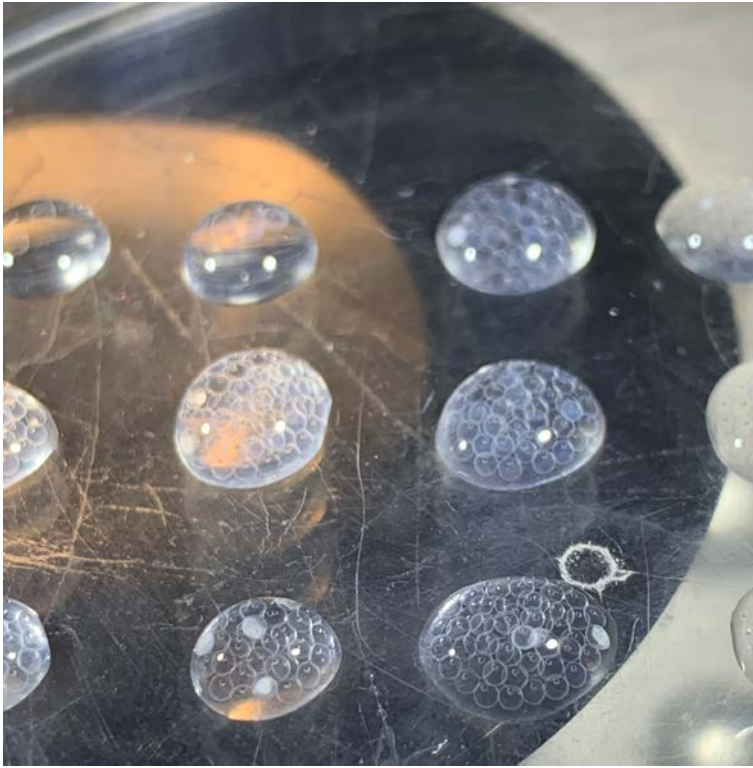
Southern Flounder Life Cycle



Life Cycle in the Fishery

- Age 0 fish show up in bag seines
- Age 1 fish show up in bay trawls
- Age 2-7 fish show up in gill nets and creel surveys
- Females live 7-8 years
- Males live no longer than 3 years and spend most adult life offshore after 1st migration event per LSU
- Male average length 10-12".



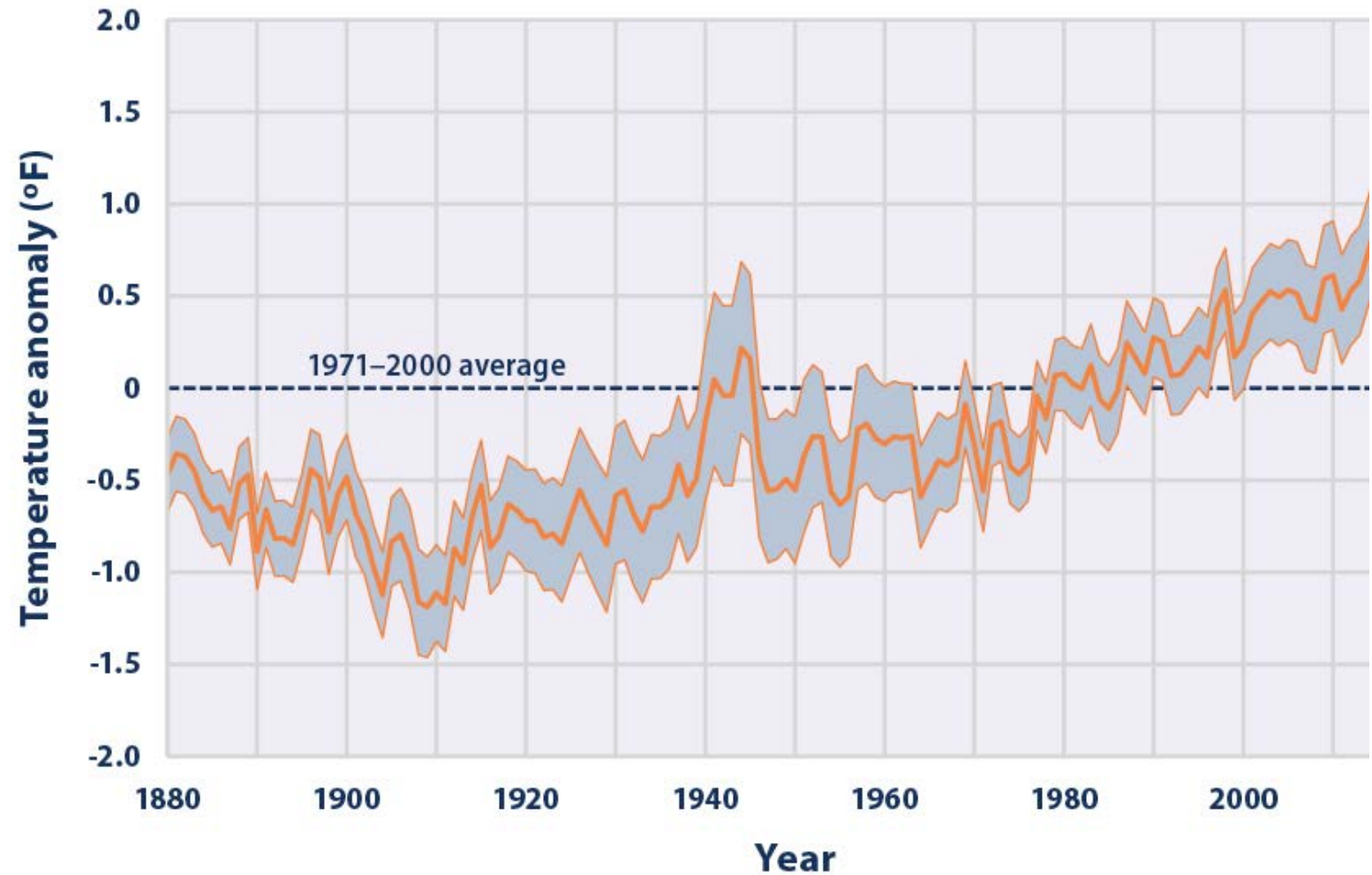


Temperature Dependency

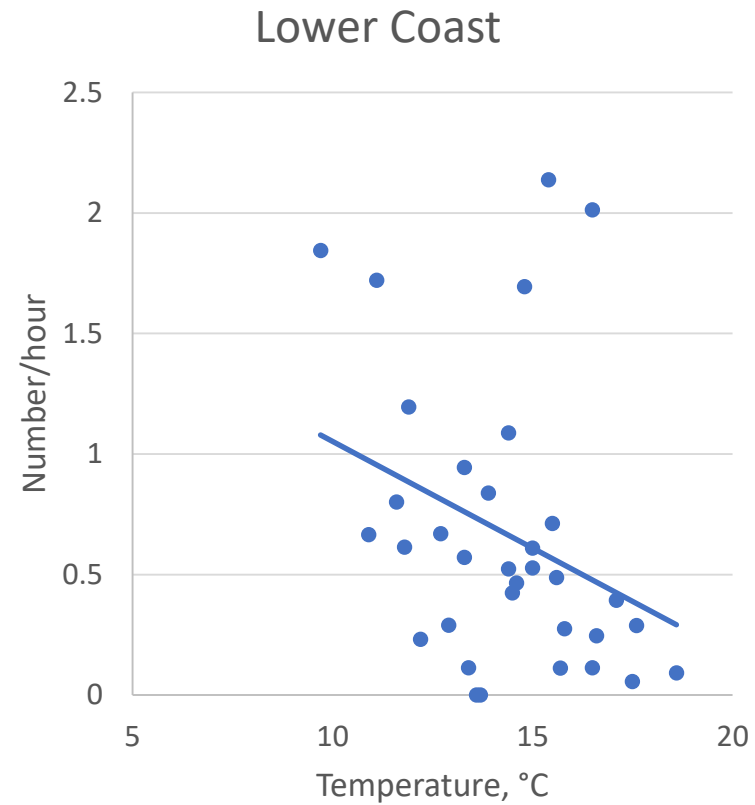
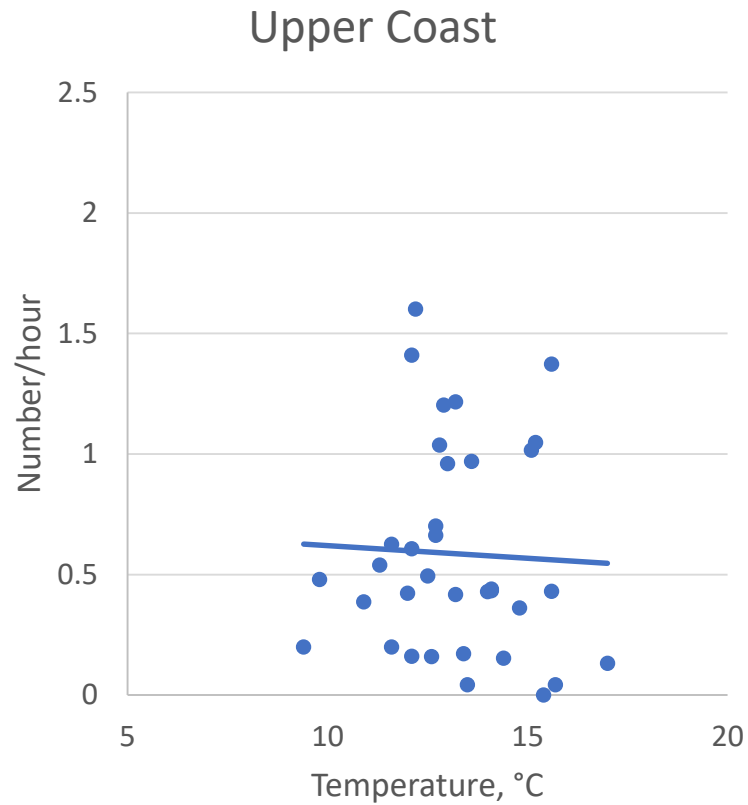
- UTMSI reports 18°C as optimal for larval survival; only a very narrow range ($\pm 2^{\circ}\text{C}$) is tolerated for the first three weeks after hatching.
- Temperature tolerance increases dramatically post metamorphosis.
- Post-Metamorphosis: 1:1 sex ratio at favorable temperatures and up to 94% males in excessive warm (71°F) or cold (57°F).

Offshore water temperature

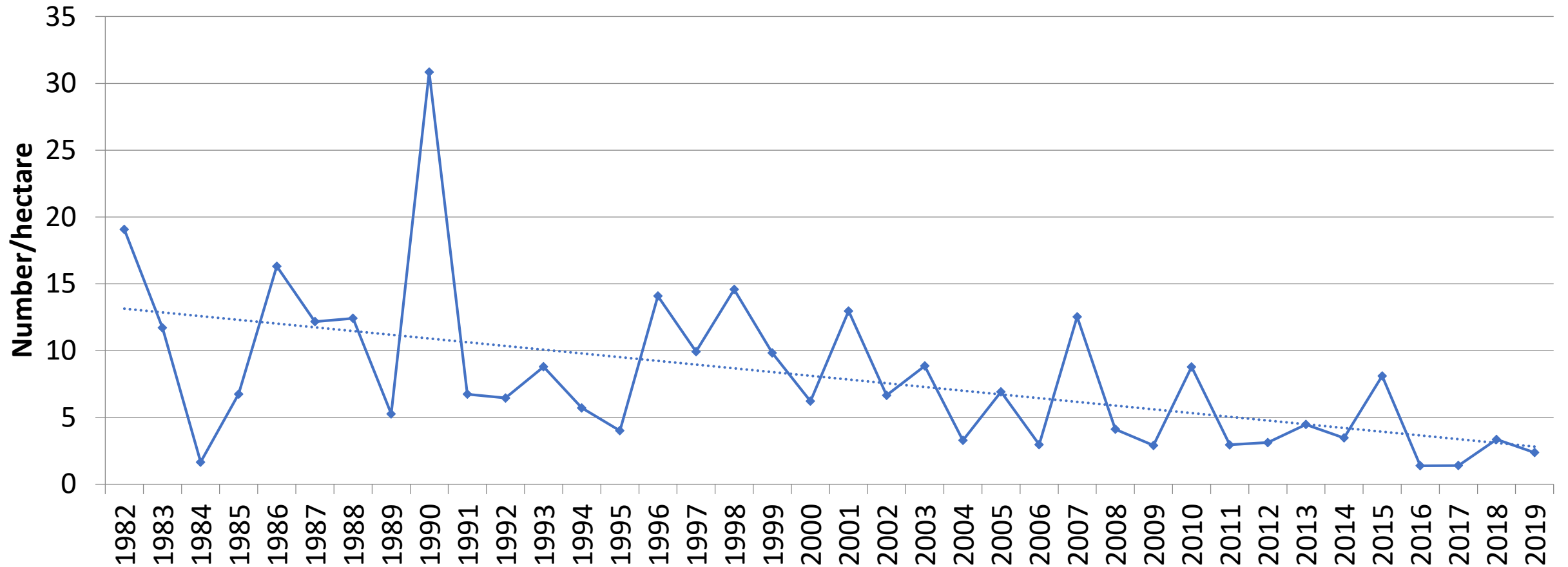
- The past five years are the top five warmest years in the ocean historically with modern instruments, and the past 10 years are also the top 10 years on record (Cheng et al 2020).



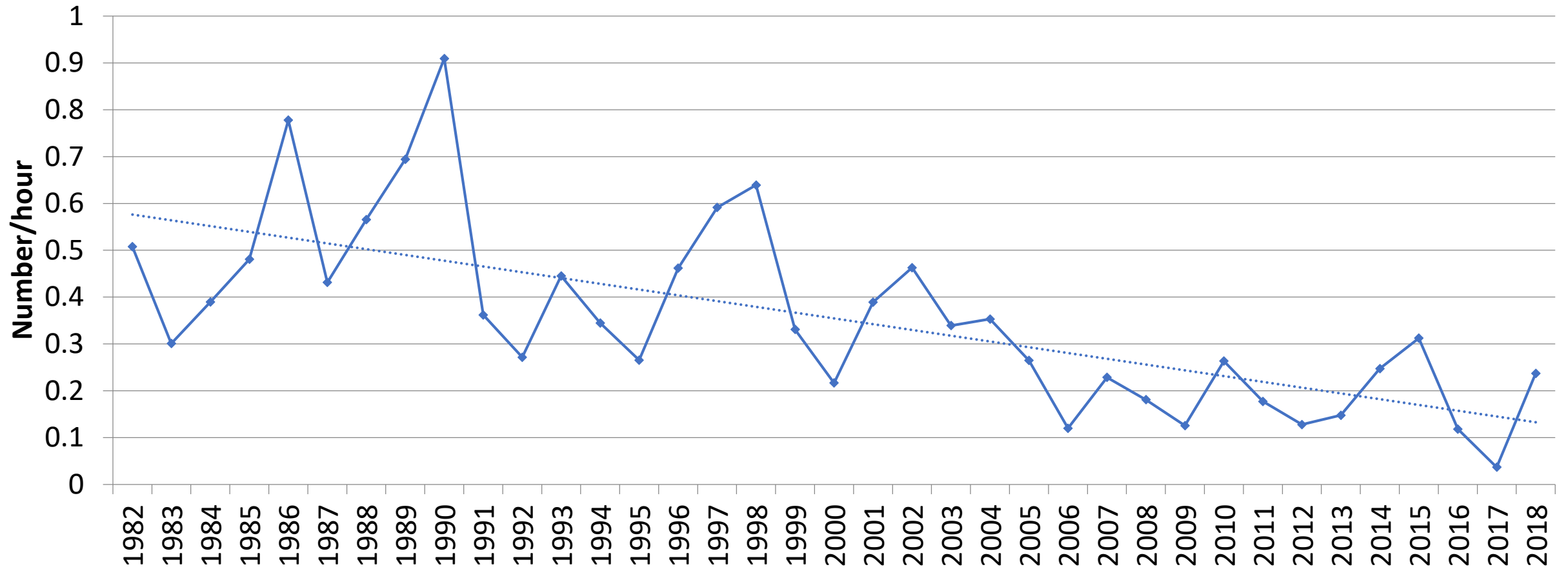
June Trawl CPUE vs January Water Temperature



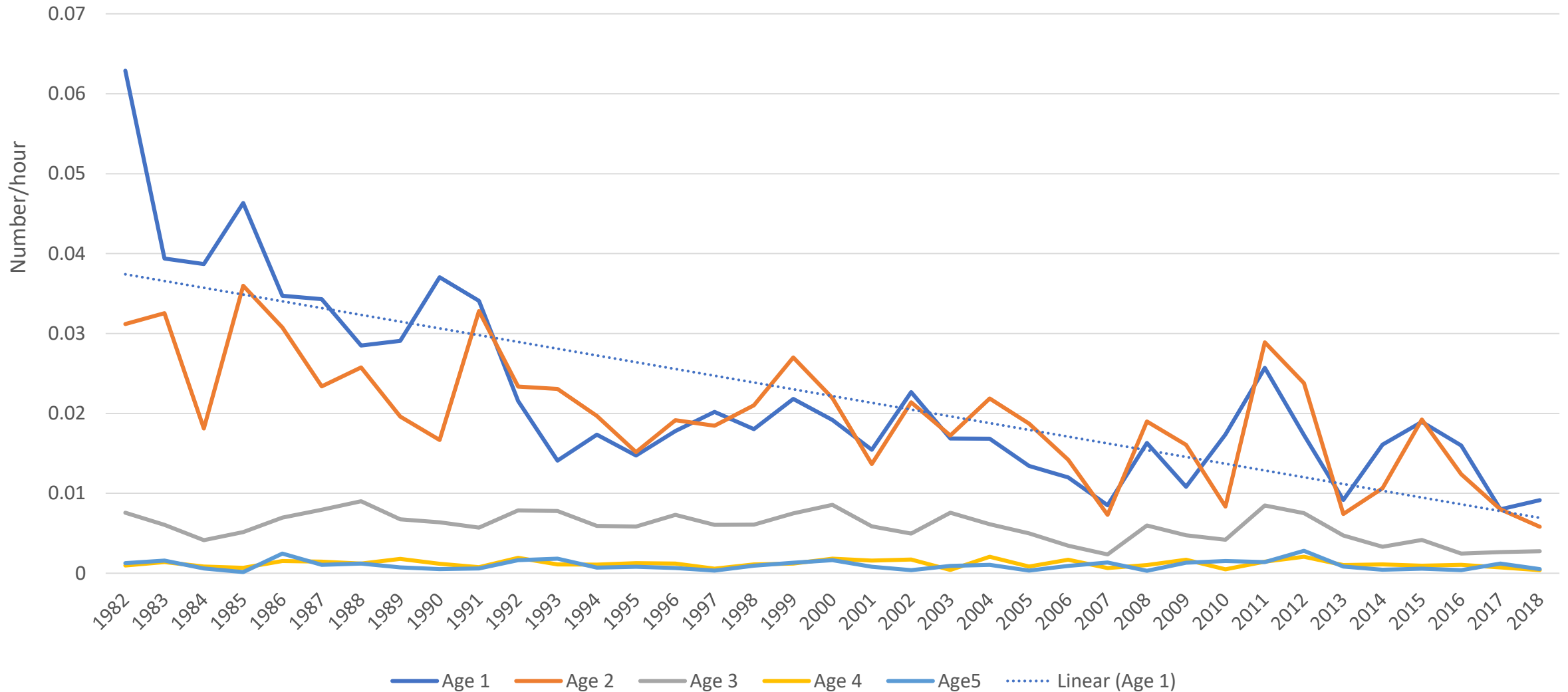
Coastwide Bag Seine CPUE, January-March



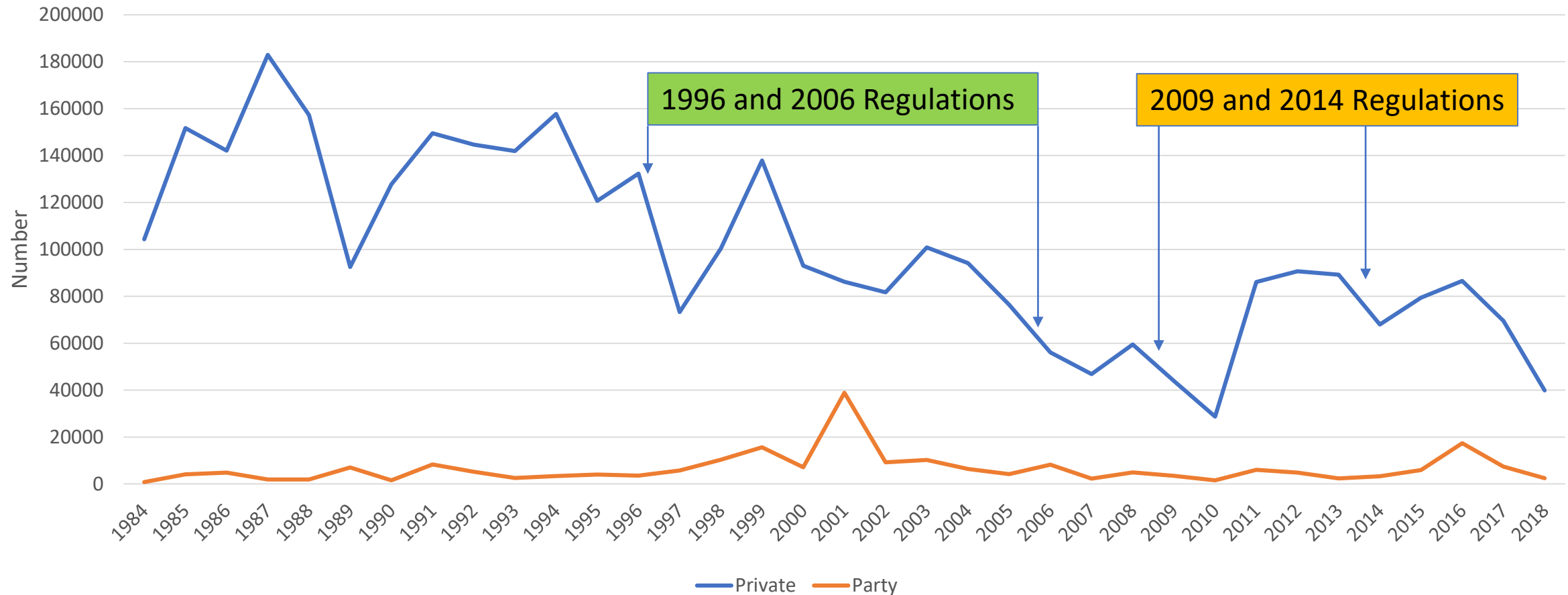
Coastwide Bay Trawl CPUE



Annual Gill Net CPUE by Age Class



Coastwide Recreational Landings



1996 – 10 fish bag/20 fish possession/14"

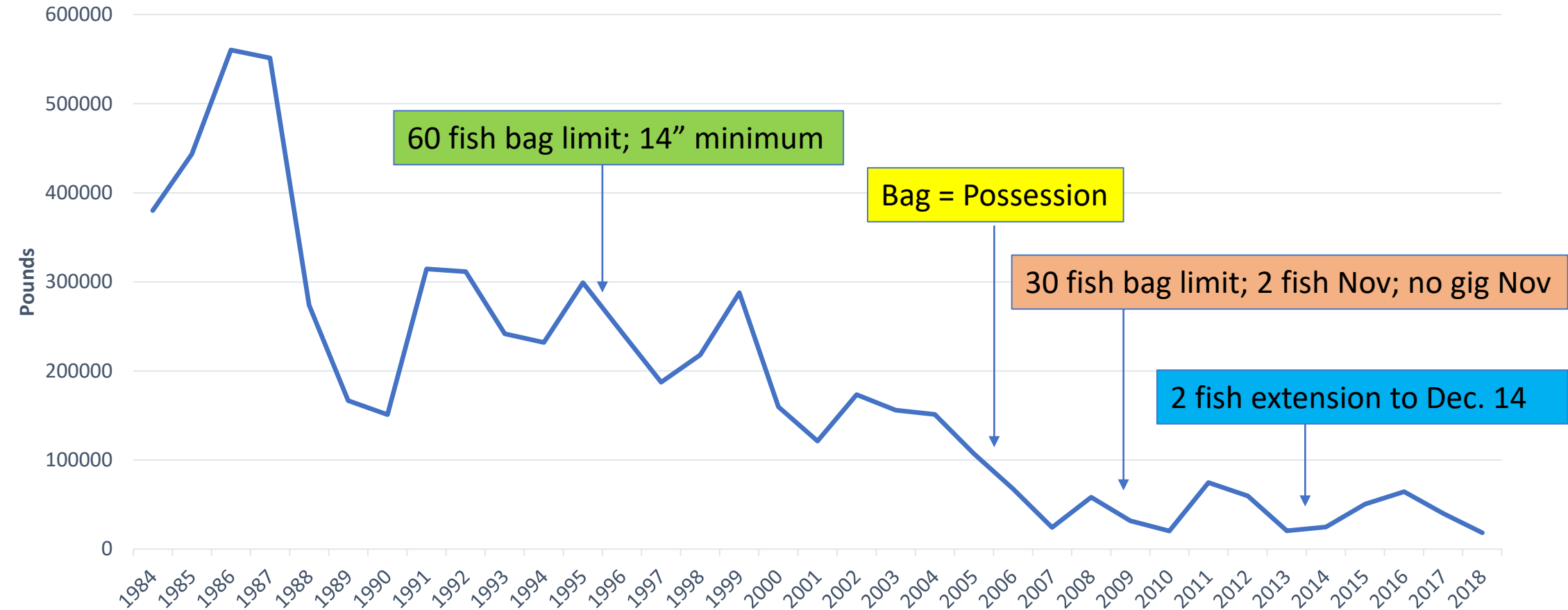
2009 – 5 fish bag limit/2 fish in November/ No gig November

2006 – Bag equal to possession limit

2014 – seasonal 2 fish bag limit extended to Dec 14th



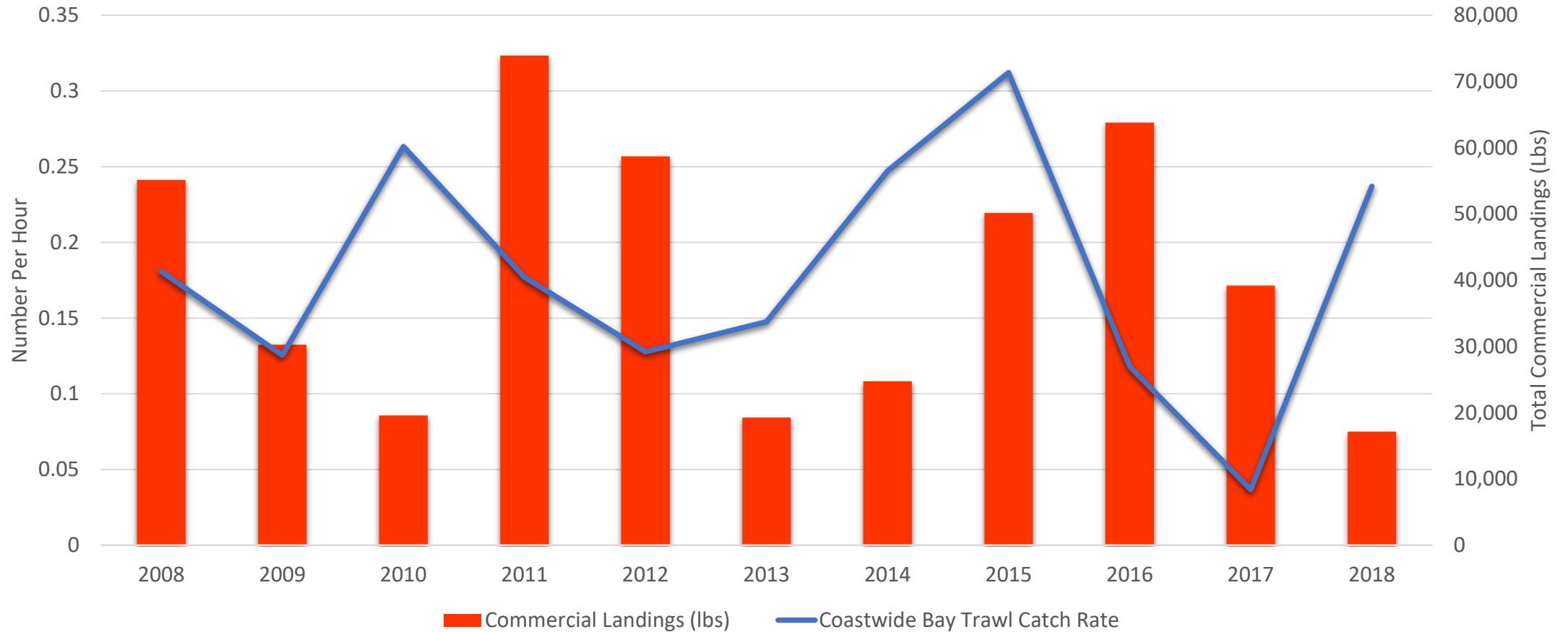
Texas Commercial Landings



Texas Commercial Landings

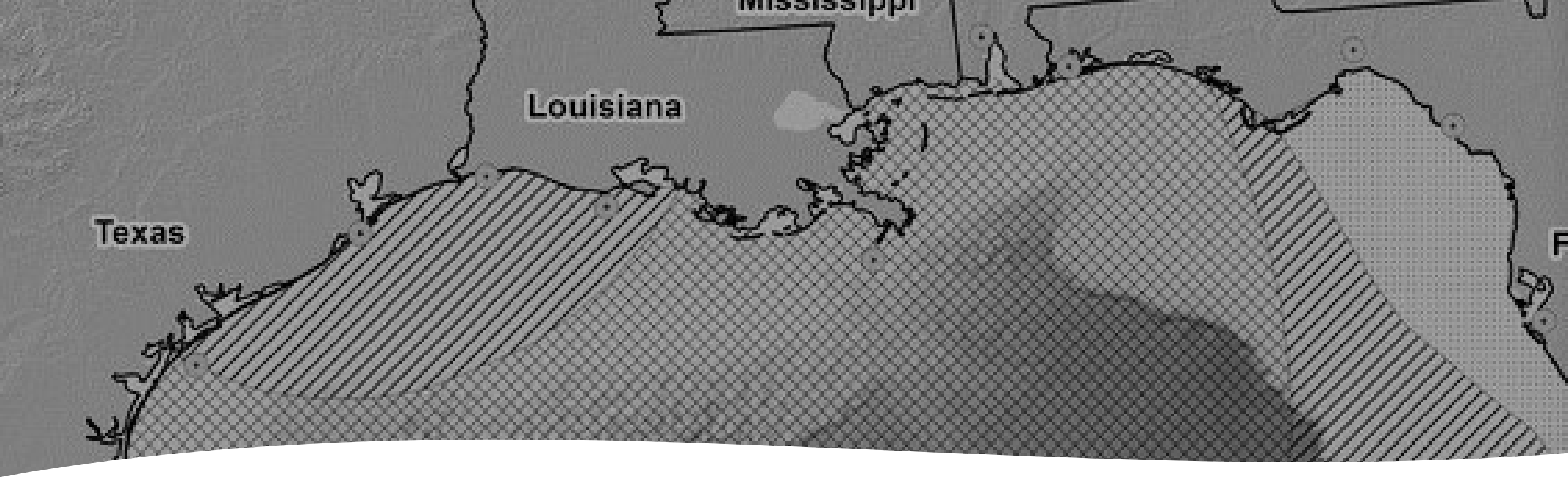
Year	Fishers	Mean Landings (lbs)	Mean Value (\$)	Max Landings	Max Value
2008	104	559	1,385	5,227	14,260
2009	77	412	1,169	3,220	10,883
2010	69	291	850	2,387	7,665
2011	96	777	2,129	5,915	17,450
2012	83	718	2,112	4,955	13,389
2013	67	306	1,088	1,599	6,397
2014	83	306	1,194	2,366	11,162
2015	93	550	2,008	4,691	19,234
2016	95	676	2,516	5,503	21,709
2017	78	511	2,097	4,039	17,919
2018	55	332	1,320	1,852	8,330
2019	81	394	1,659	2,354	9,987

TPWD Bay Trawl and Commercial Landings



State Regulations - Recreational

	Bag Limit	Minimum Size	Boat Limit/Seasonal Restrictions
Texas	5/2	14"	2-fish bag from Nov. 1-30 by pole-and-line only; and December 1-14 by any legal means
Louisiana	10	None	none
Mississippi	10	12"	none
Alabama	5	14"	Complete closure in November
Florida	10	12"	none
Georgia	15	12"	none
South Carolina	10	15"	20 fish boat limit
North Carolina	4	15"	none



Gulf States

- Louisiana – Also seeing declines from normal levels. Attempting tagging studies and conducting time series analysis of 34 estuaries in Gulf and south Atlantic to measure extent and severity of decline.
- Alabama – Stock enhancement goals of 60,000 1" fish to supplement the estimated needed 400,000 needed annual wild recruits. Recent stock assessment indicated that recruitment levels have fallen off historical levels since 2009. Most recent management changes were in 2019.

South Atlantic

- 2019 stock assessment of entire south Atlantic indicated that southern flounder are overfished and are undergoing overfishing.
- North Carolina aims to end overfishing in two years and end overfished determination in 10 years. Closed recreational season until August 16, 2020.
- South Carolina verifies their stock has been overfished for 30 years and is in process of scoping regulation changes, considering the following management tools: changes in minimum size, implementing a slot limit, decreasing bag limits, decreasing boat limits and implementing fishing seasons.



Management Options from December Scoping

Action	Increase in Spawning Biomass
Coastwide 3-fish bag limit	7.4%
15" minimum length	9.4%
5 fish boat limit	10.4%
3 fish daily bag and December closure	25.3%
November closure	38.7%
3 fish daily bag and December closure	46.8%
November and December closure	59.2%
Commercial 20 fish bag limit	4.9%
Commercial 15 fish bag limit	10.5%
Commercial 10 fish bag limit	17.9%

Texas Parks and Wildlife Department Proposal

- Increase minimum size to 15 inches.
- Close all flounder fishing (zero bag limit) from November 1 – December 15.
- Strengthen language regarding who is required to report under a commercial finfish license.
- The combination of these proposals results in a projected 58-60% increase in spawning biomass.