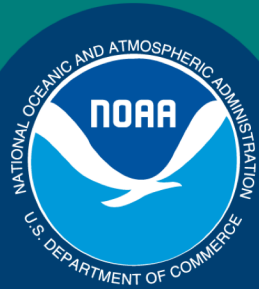


Science, Service, Stewardship



Gulf of Mexico Gray Snapper Benchmark Assessment

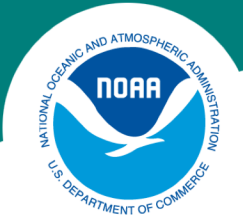
Review Workshop: Data



Jeff Isely
SEFSC Miami

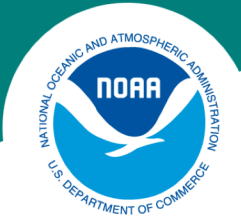
**NOAA
FISHERIES
SERVICE**

NOAA



Data File

- Landings
 - Error
 - Fleets
- Indices
- Discards
- Length Composition

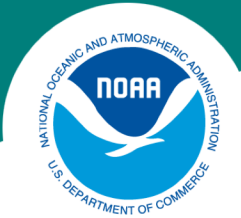


Landings

```

1945      #_styr
2015      #_endyr
1         #_nseas
12        #_months_per_seas
1         #_spawn_seas
6         #_Nfleets
8         #_Nsurveys
1         #_N_areas
#
CHL_MC_1%CHL_nMC_2%CM_LL_3%REC_PR_4%Rec_Shore_5%Rec_HB_CBT6%
RCHL_7%MRFFS_Private_8%MRFFS_Shore_9%FWRI_Age0_10%FWRI_Age1_11%SEAMAP_Trawl_12%NMFS_FWRI_Video_13%Visual_Survey_14
#
-1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1      #_survey_timing_in_season
1 1 1 1 1 1 1 1 1 1 1 1 1 1                  #_area_assignments_for_each_fishery_and_survey
1 1 1 2 2 2                                    #_units_of_catch_1=Biomass,_2=numbers
0.05 0.05 0.05 0.10 0.10 0.10                #_se_of_log(catch)_Only_used_for_init_eq_catch_and_for_Fmethods_2_and_3
1                                                #_Ngenders
21#_Nages  **** oldestage_=_20,
0          0          0          0          0          0          #_init_equil_catch_for_each_fishery
71         #_N_lines_of_catch_to_read
#CHL_MC   CHL_nMC   CM_LL   REC_PR   REC_Shore  REC_HB+CB  year      seas
0         0         0         0         0         0         1945     1
0.5       0.5       0         10        10        2         1946     1
2.7       3.2       0         55        55        10        1947     1

```

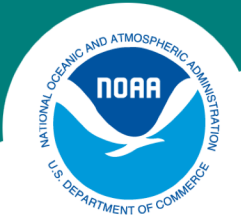


Landings

```

1945      #_styr
2015      #_endyr
1         #_nseas
12        #_months_per_seas
1         #_spawn_seas
6         #_Nfleets
8         #_Nsurveys
1         #_N_areas
#
CHL_MC_1%CHL_nMC_2%CM_LL_3%REC_PR_4%Rec_Shore_5%Rec_HB_CBT6%
RCHL_7%MRFFSS_Private_8%MRFFSS_Shore_9%FWRI_Age0_10%FWRI_Age1_11%SEAMAP_Trawl_12%NMFS_FWRI_Video_13%Visual_Survey_14
#
-1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1      #_survey_timing_in_season
1 1 1 1 1 1 1 1 1 1 1 1 1 1                  #_area_assignments_for_each_fishery_and_survey
1 1 1 2 2 2                                    #_units_of_catch_1=Biomass,_2=numbers
0.05 0.05 0.05 0.10 0.10 0.10                #_se_of_log(catch)_Only_used_for_init_eq_catch_and_for_Fmethods_2_and_3
1                                               #_Ngenders
21#_Nages  **** oldestage_=_20,
0          0          0          0          0          0          #_init_equil_catch_for_each_fishery
71         #_N_lines_of_catch_to_read
#CHL_MC   CHL_nMC   CM_LL   REC_PR   REC_Shore  REC_HB+CB  year      seas
0         0         0         0         0         0         1945     1
0.5       0.5       0         10        10        2         1946     1
2.7       3.2       0         55        55        10        1947     1

```

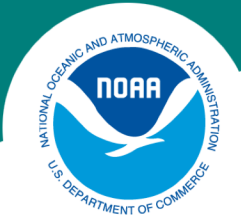
Landings

```

1945      #_styr
2015      #_endyr
1         #_nseas
12        #_months_per_seas
1         #_spawn_seas
6         #_Nfleets
8         #_Nsurveys
1         #_N_areas
#
CHL_MC_1%CHL_nMC_2%CM_LL_3%REC_PR_4%Rec_Shore_5%Rec_HB_CBT6%
RCHL_7%MRFFSS_Private_8%MRFFSS_Shore_9%FWRI_Age0_10%FWRI_Age1_11%SEAMAP_Trawl_12%NMFS_FWRI_Video_13%Vis
ual_Survey_14
#
-1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1      #_survey_timing_in_season
1 1 1 1 1 1 1 1 1 1 1 1 1 1                  #_area_assignments_for_each_fishery_and_survey
1 1 1 2 2 2                                    #_units_of_catch_1=Biomass,_2=numbers
0.05 0.05 0.05 0.10 0.10 0.10                #_se_of_log(catch)_Only_used_for_init_eq_catch_and_for_Fmethods_2_and_3
1                                                #_Ngenders
21#_Nages  **** oldestage_=_20,
0          0          0          0          0          0          #_init_equil_catch_for_each_fishery
71         #_N_lines_of_catch_to_read
#CHL_MC   CHL_nMC   CM_LL   REC_PR   REC_Shore  REC_HB+CB  year      seas

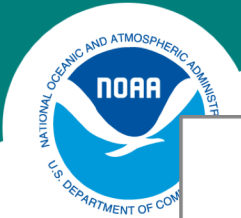
0          0          0          0          0          0          1945      1
0.5        0.5        0          10         10         2          1946      1
2.7        3.2        0          55         55         10         1947      1

```

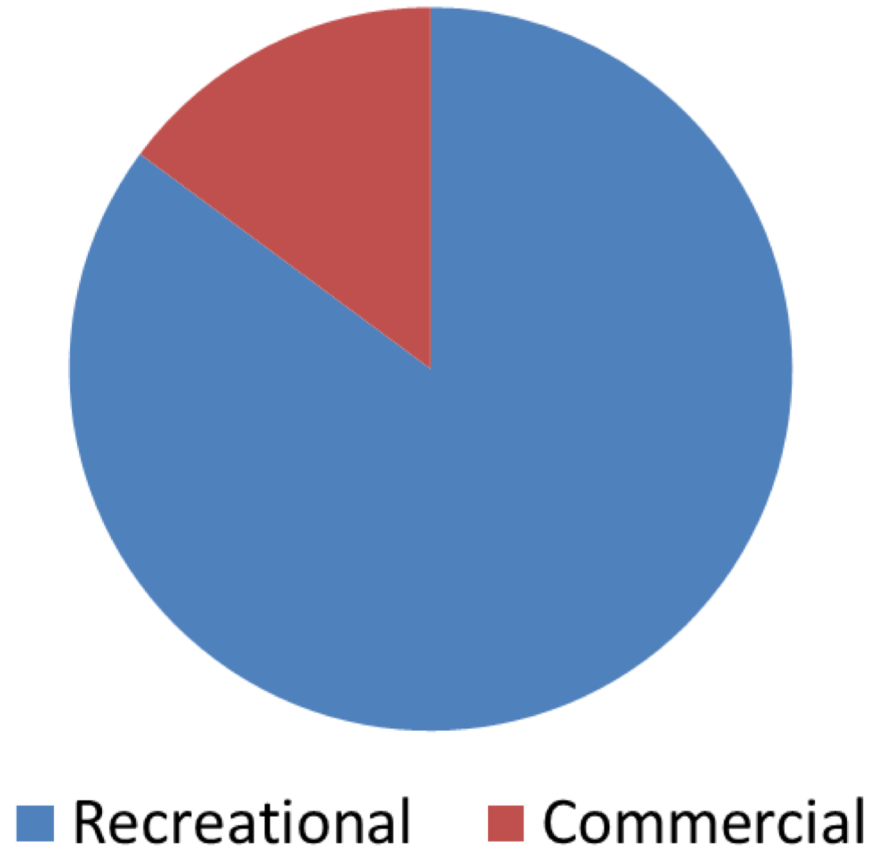


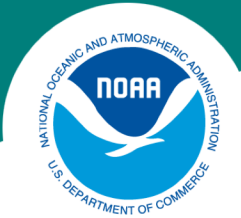
Landings

- Recreational data 1981-2015
- Commercial data 1962-2015
- Historic data (1945-1961 commercial, 1945-1980 recreational)
 - Use effort series from US Fish and Wildlife Service Survey of Hunters and Fishers
 - Every 5 years
 - Adjust effort to 1981 or 1962 value.
 - Use proportion of landings based on effort.
 - Assumes constant CPUE

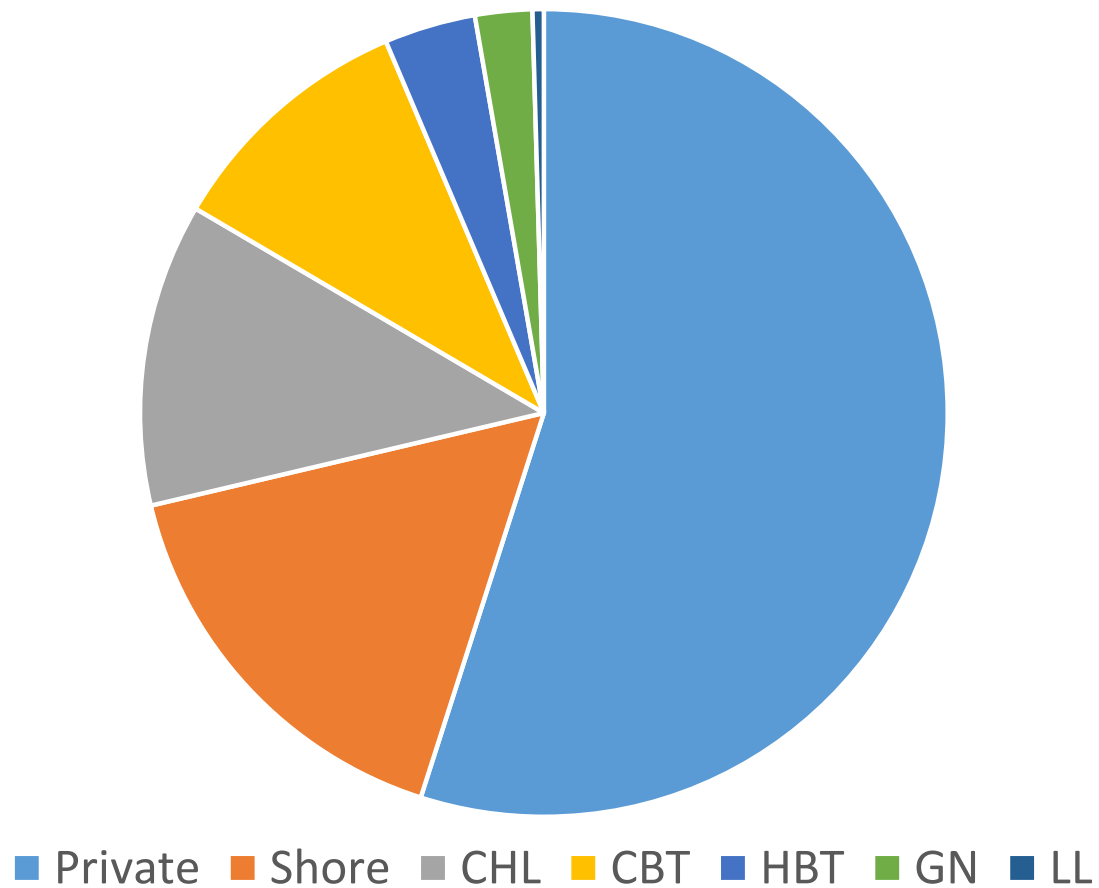


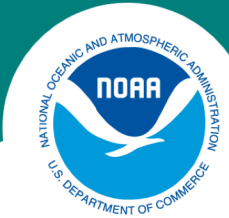
Total Landings 1981-2015 (Pounds Whole Weight)



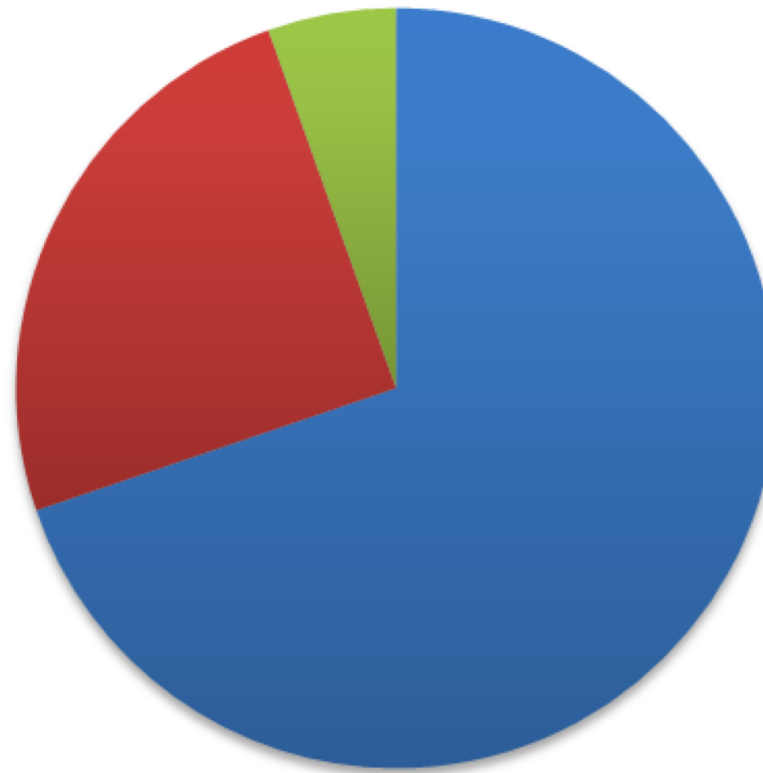


Pounds Whole Weight Recreational and Commercial 1981-2015

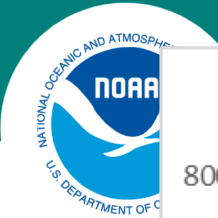




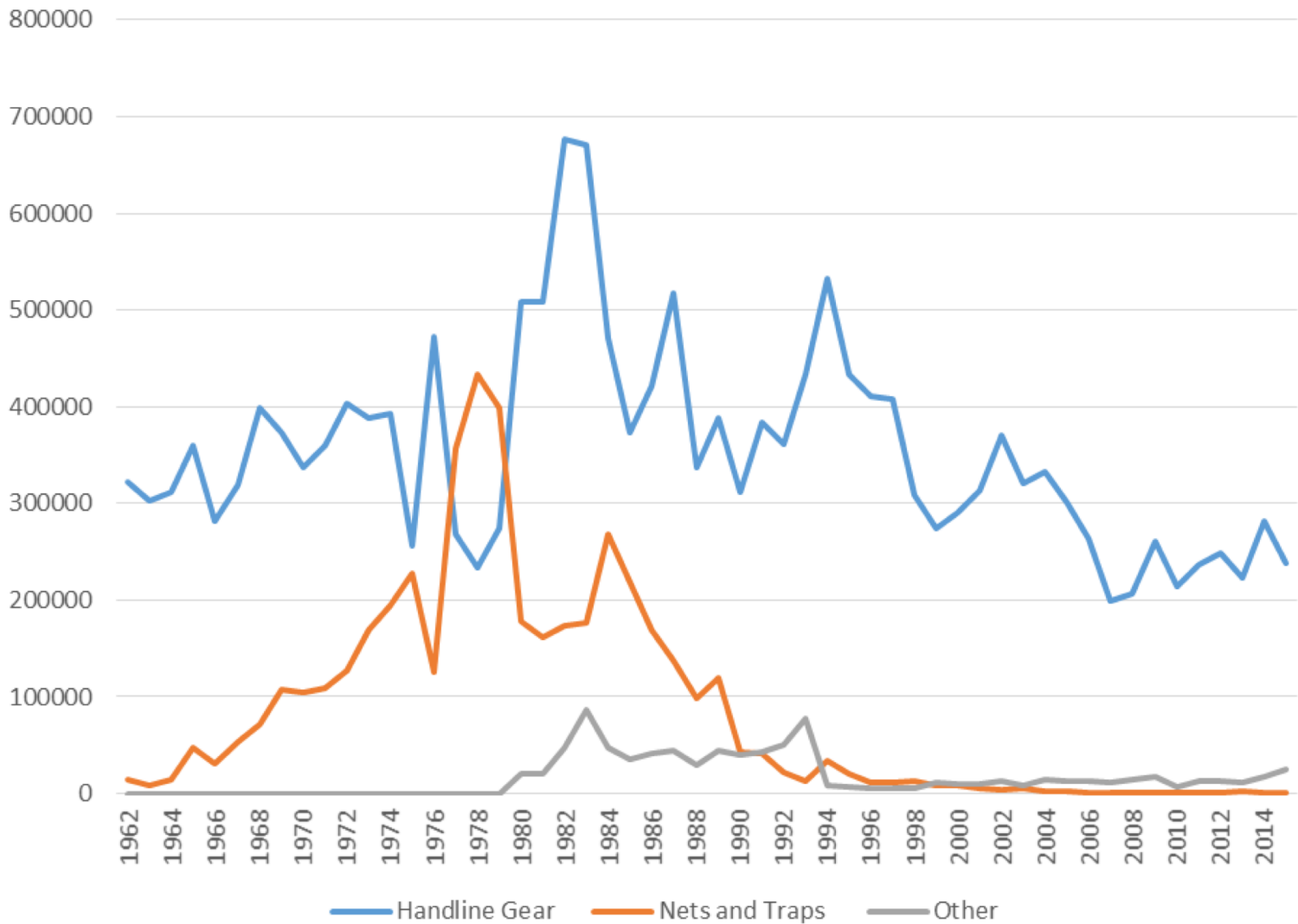
Total Commercial Landings 1962-2015 (Pounds Whole Weight)

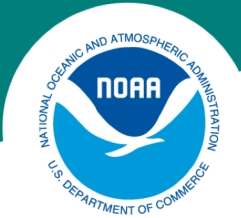


■ HANDLINE+ ■ NETS_TRAPS ■ LONGLINE+

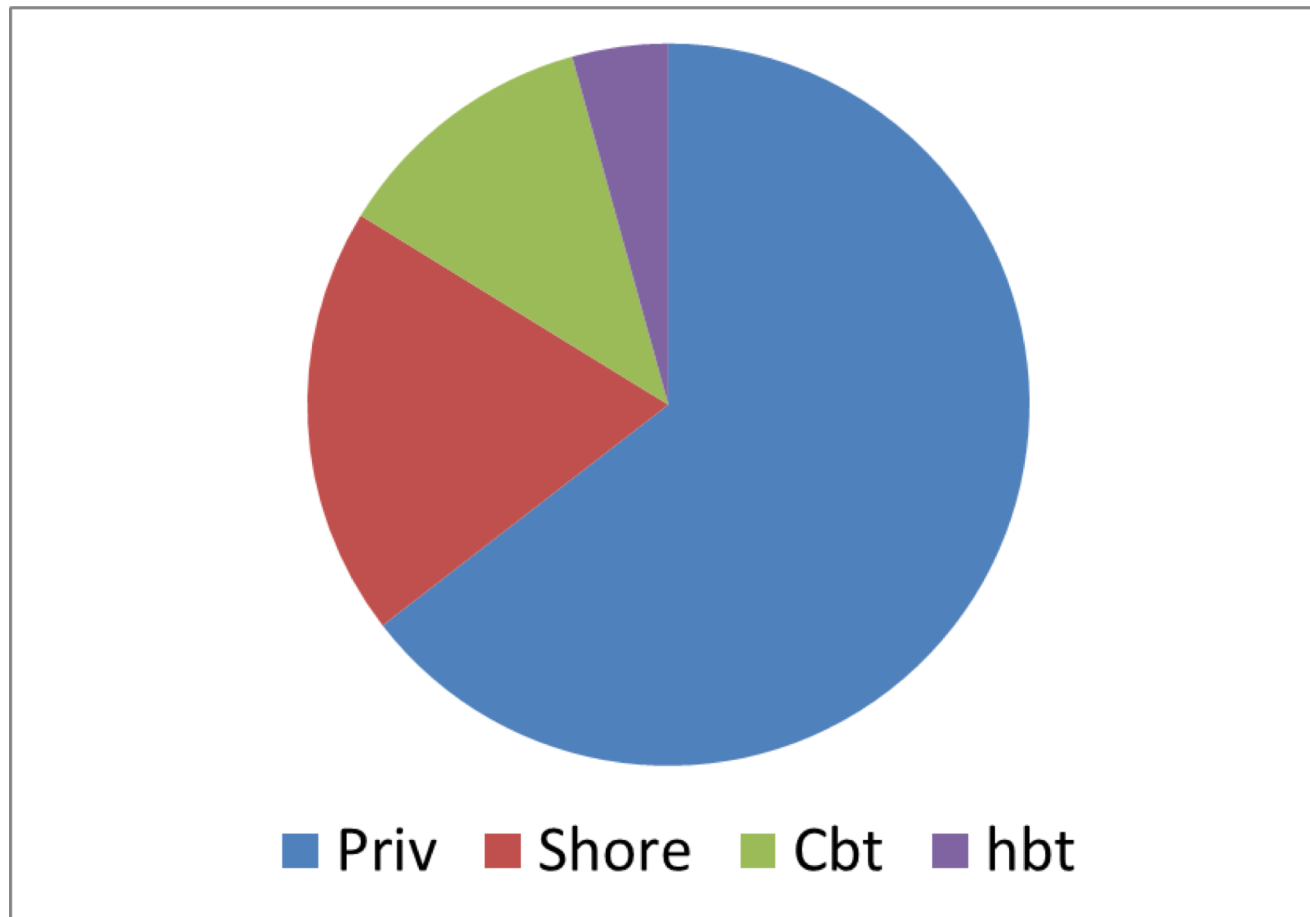


Commercial Landings by Gear Group

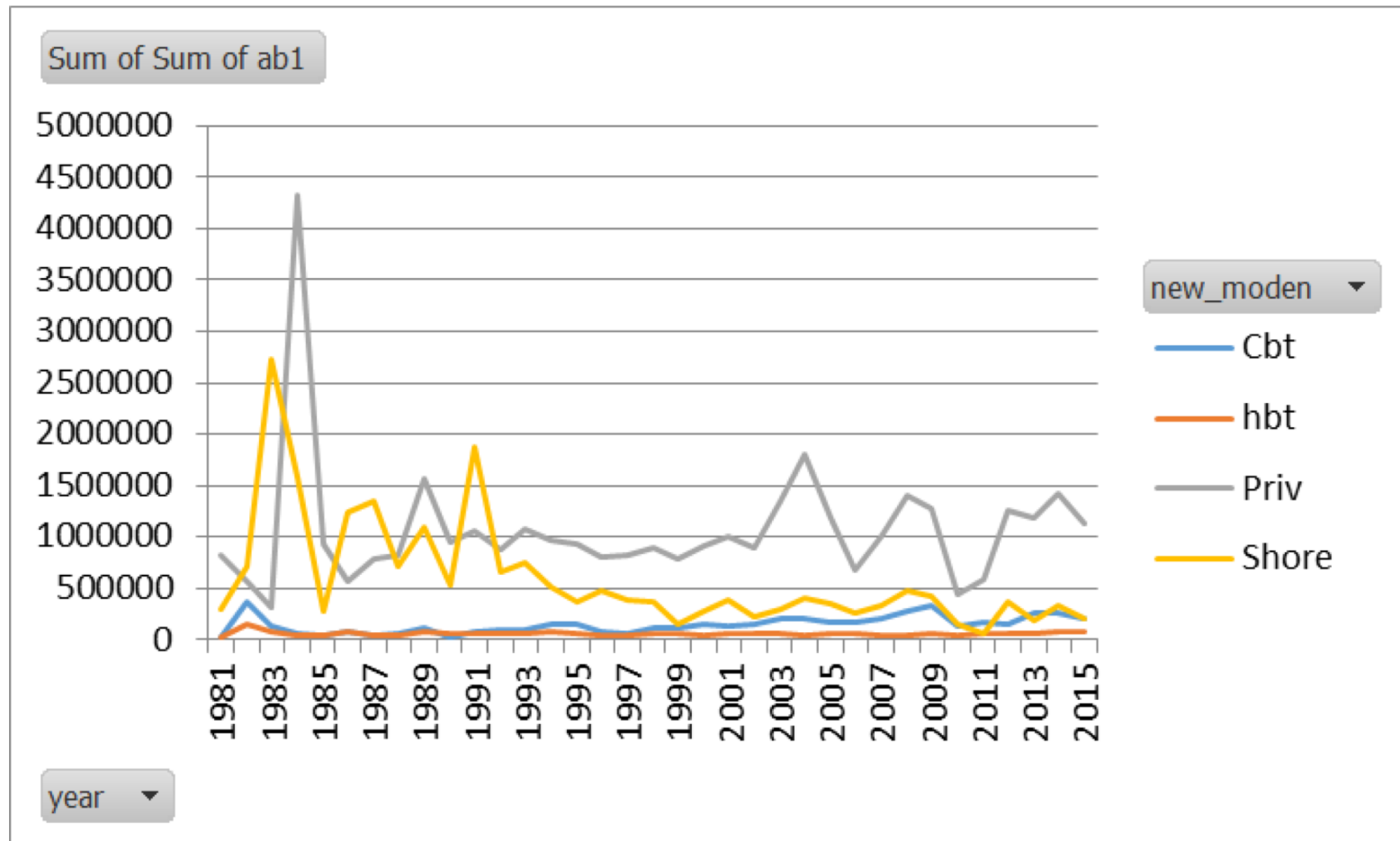


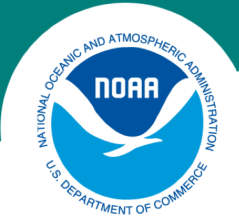


Recreational Total Landings 1981-2015 (Pounds Whole Weight)

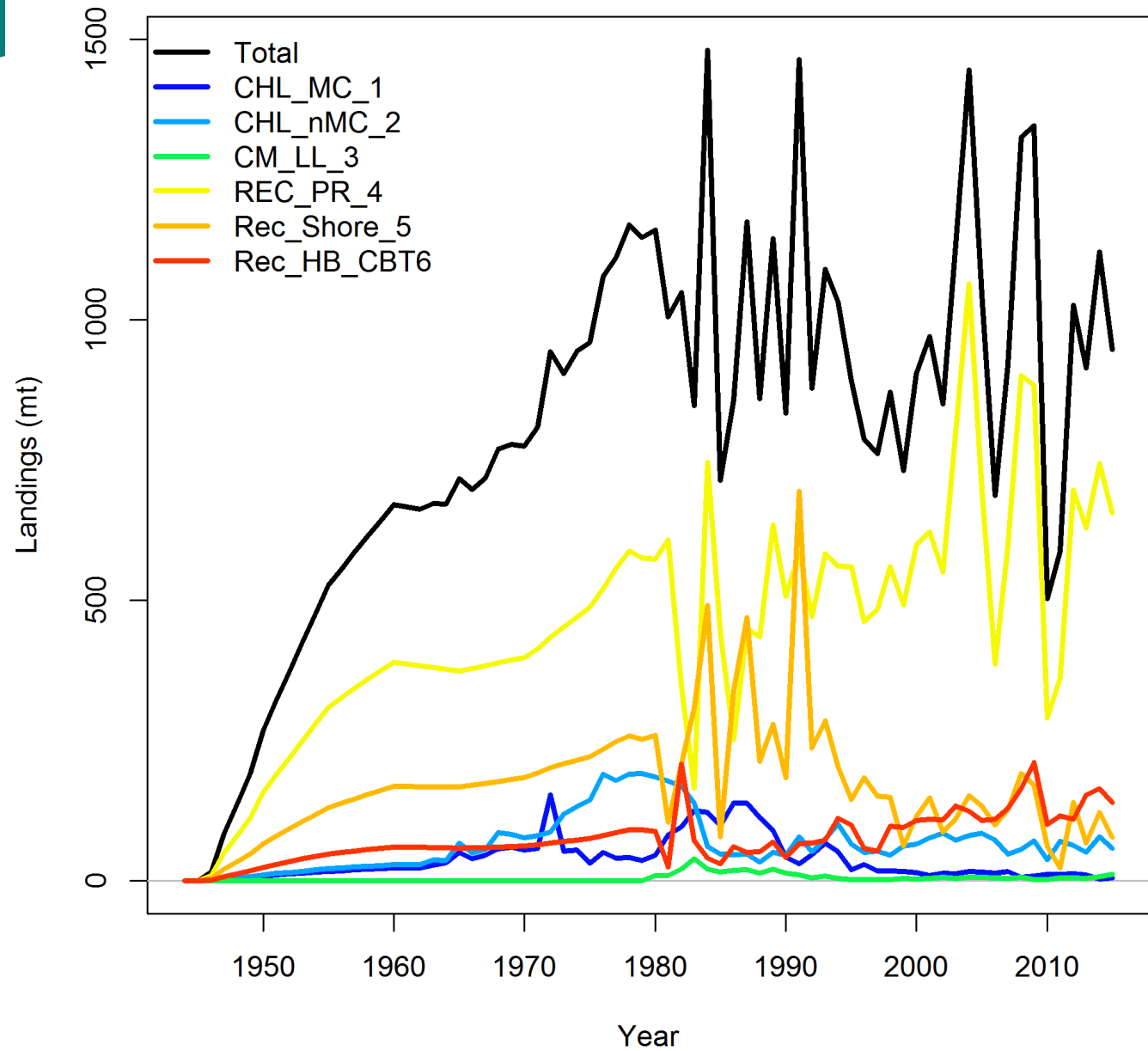


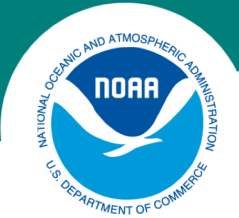
NOAA FISHERIES SERVICE



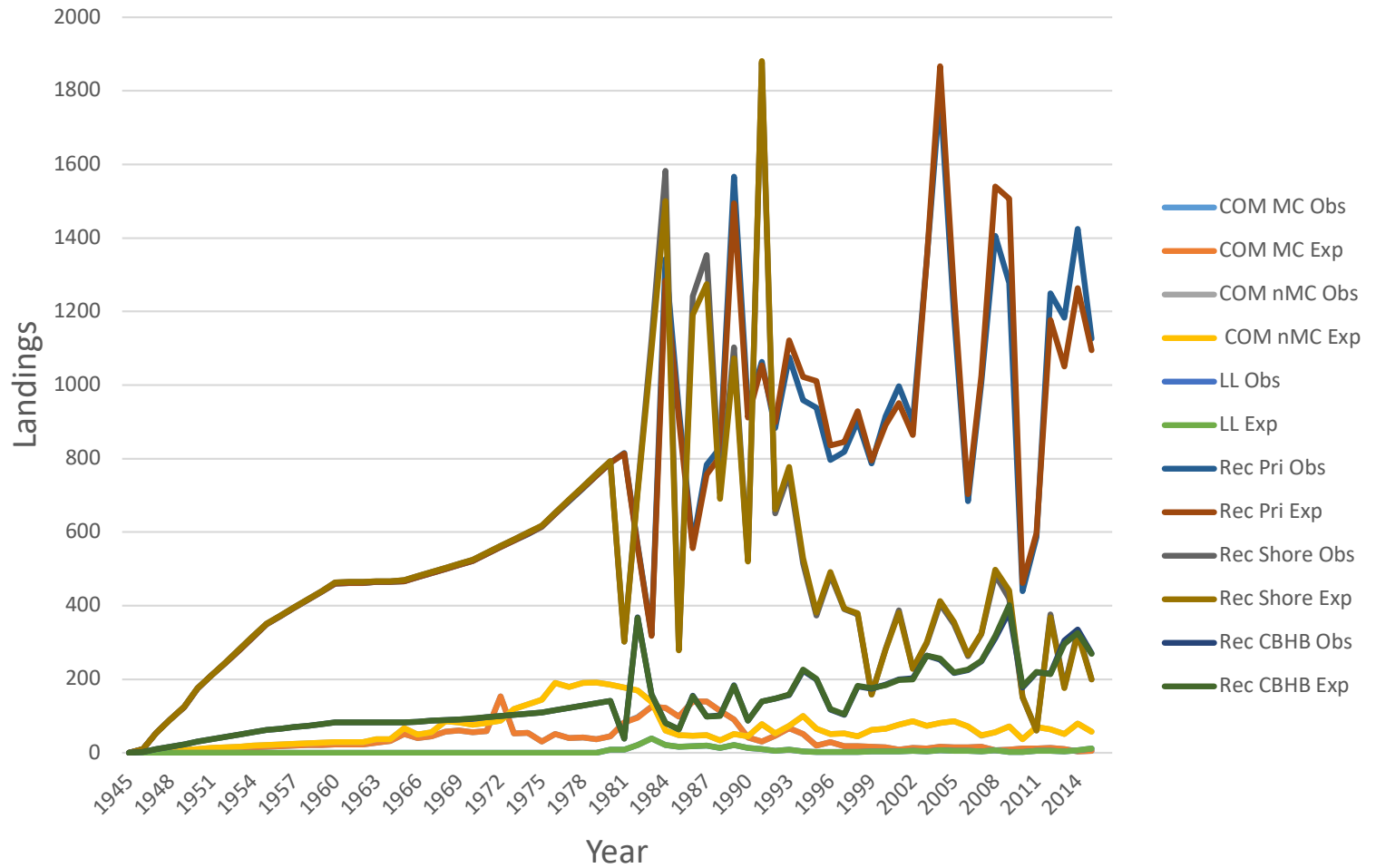


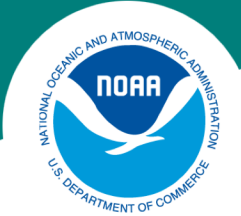
Landings





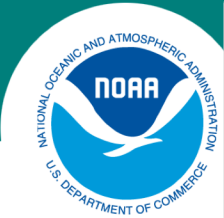
Obs vs Pred Landings



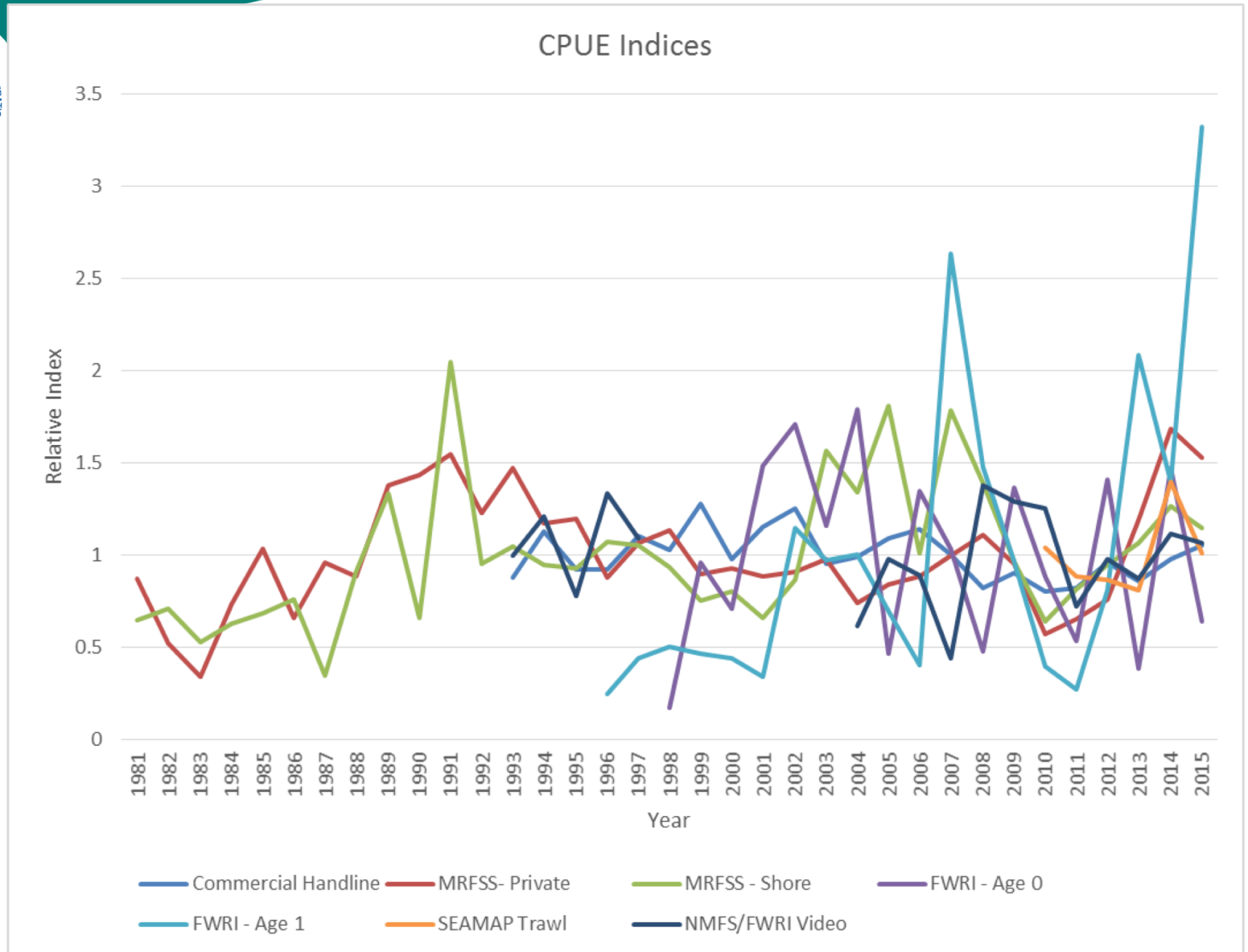


Indices of Abundance

- 8 Indices
 - 3 Fishery dependent
 - 5 fishery independent
 - 3 trawl
 - 2 Visual
- Adjusted CV = $(CV/\text{meanCV}) * 0.20$
- Puts all errors on same scale.
- Reduced weighting of fishery dependent indices

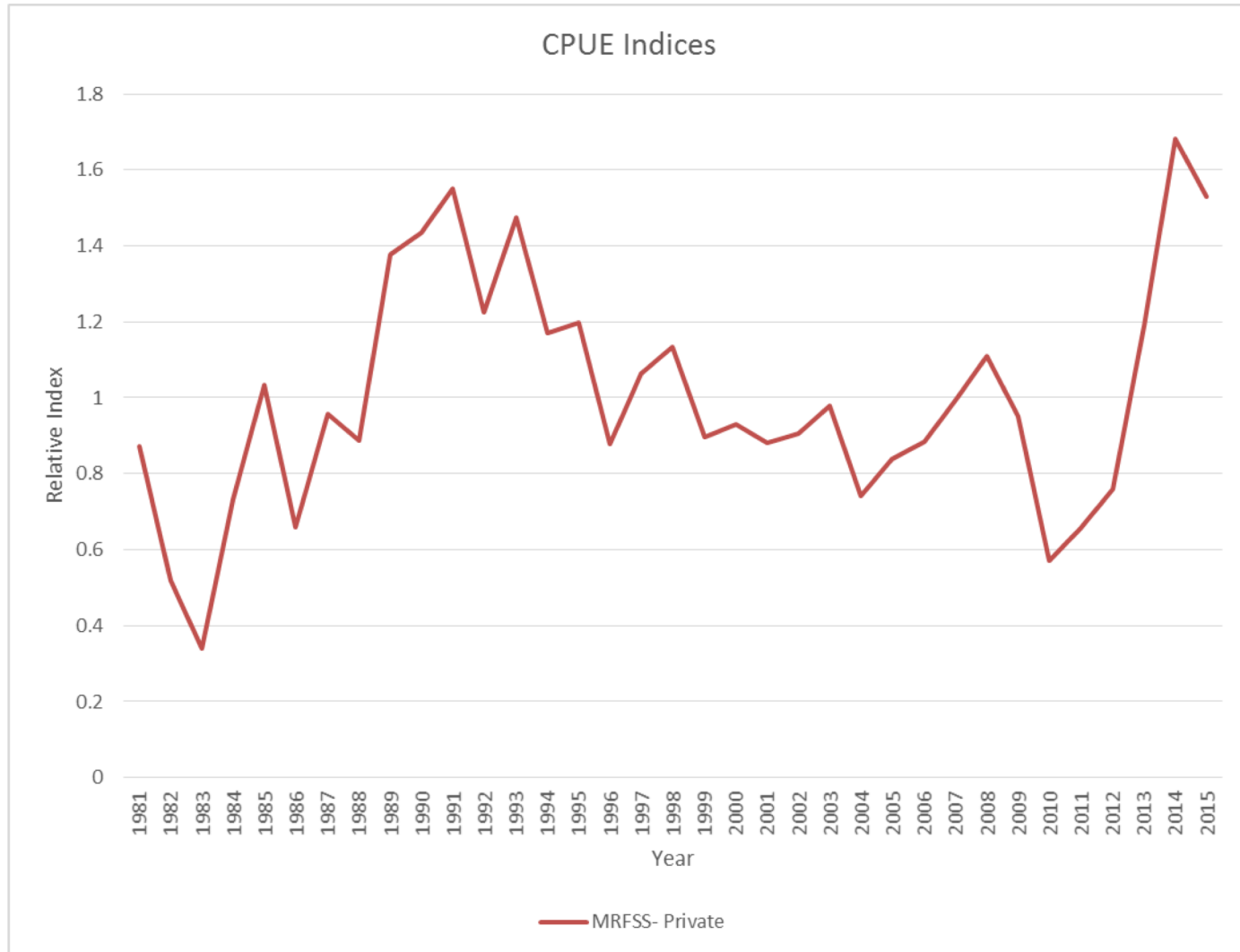


All CPUE Indices



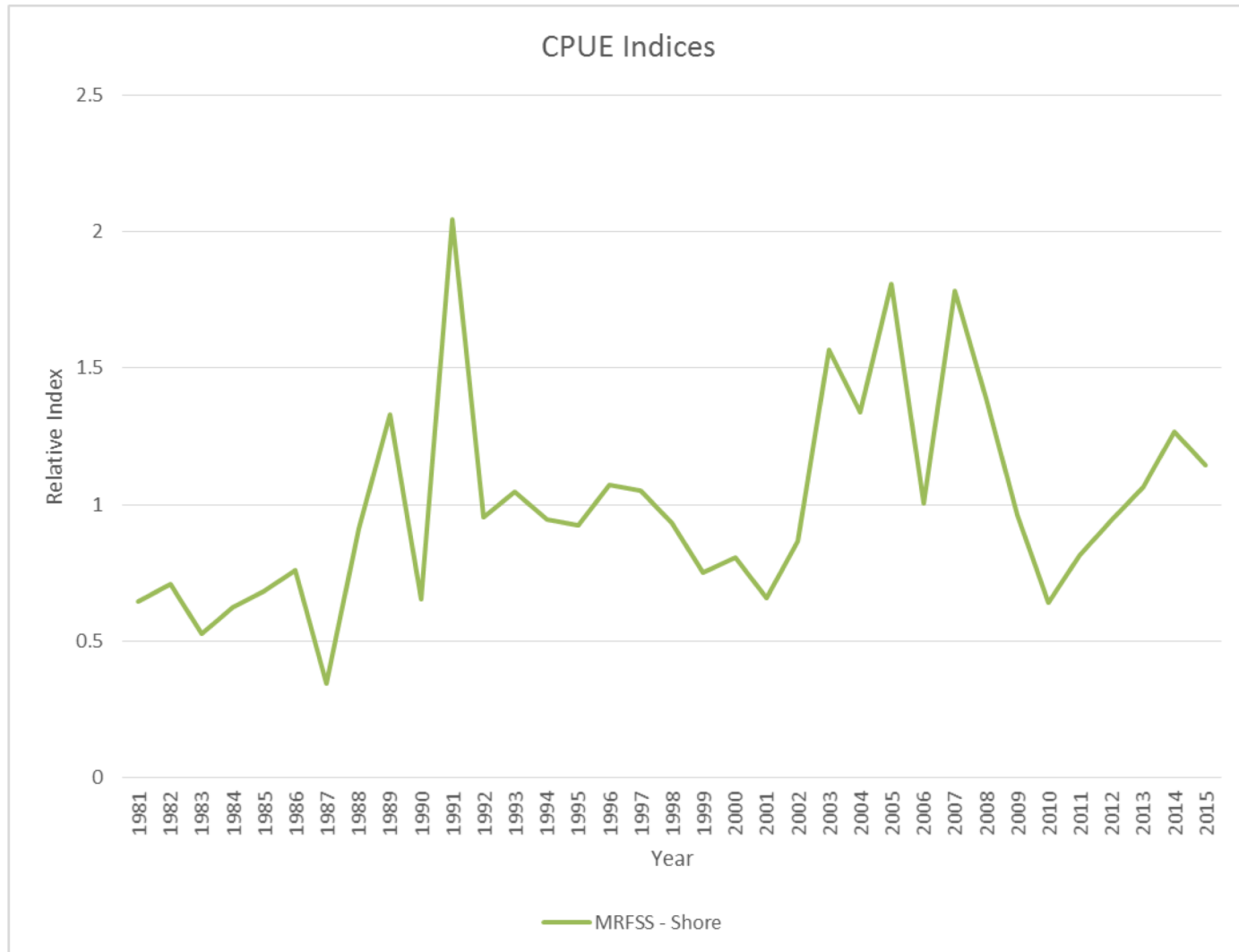


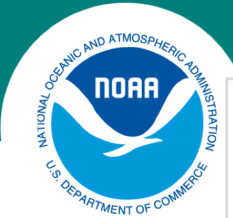
MRFSS Private



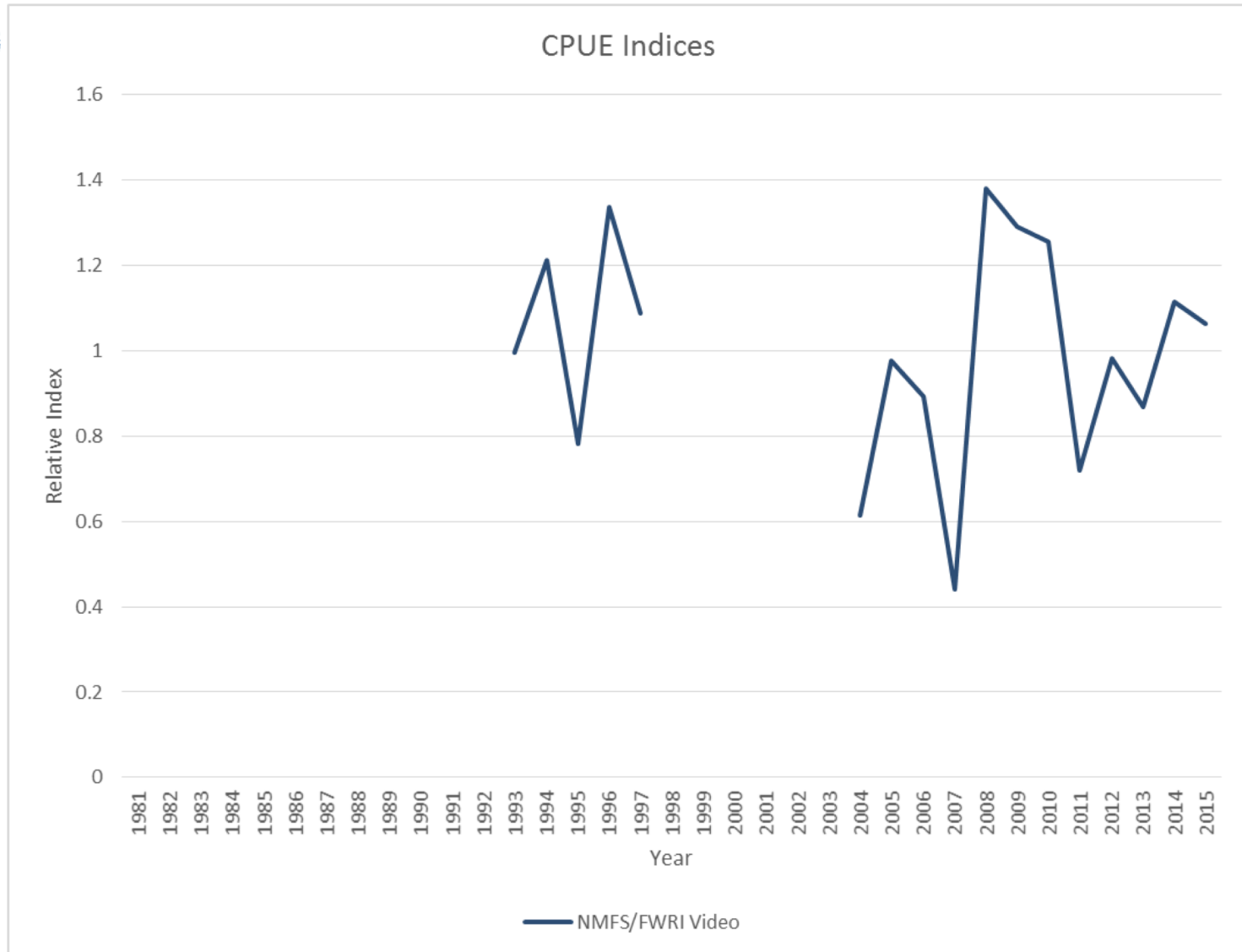


MRFSS Shore



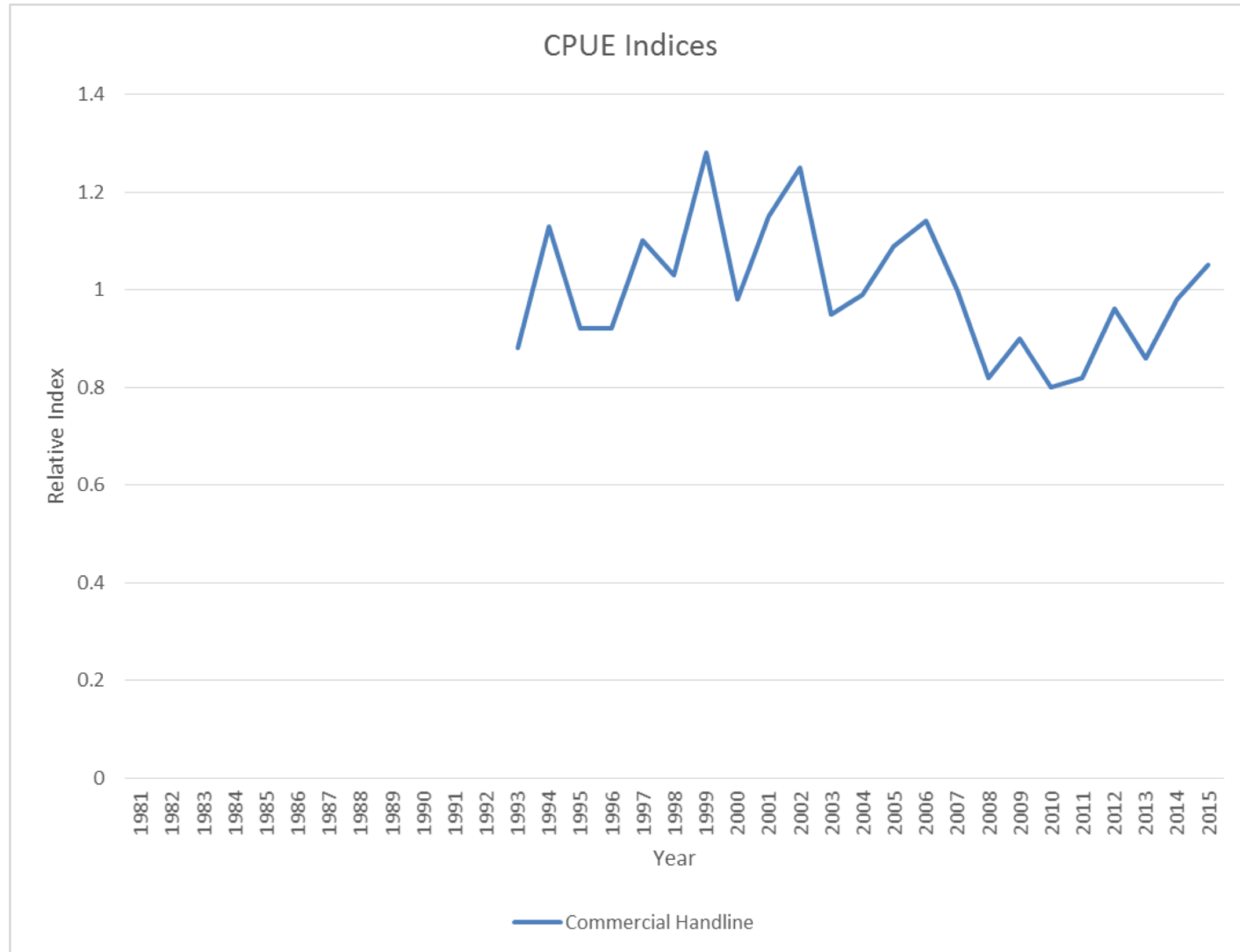


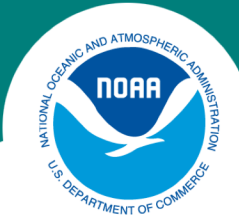
NMFS/FWRI Video



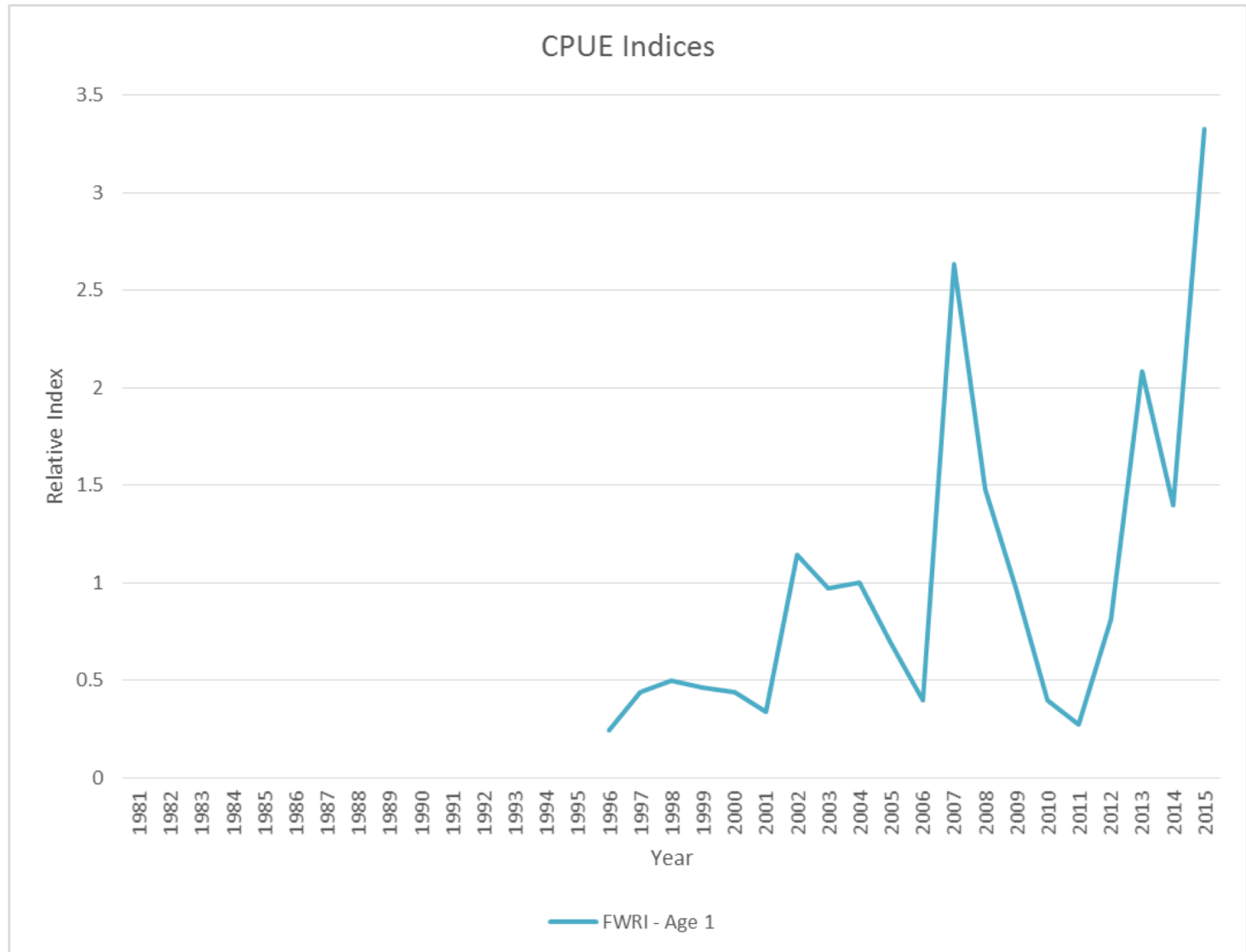


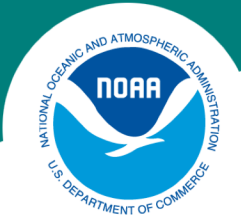
Commercial Handline



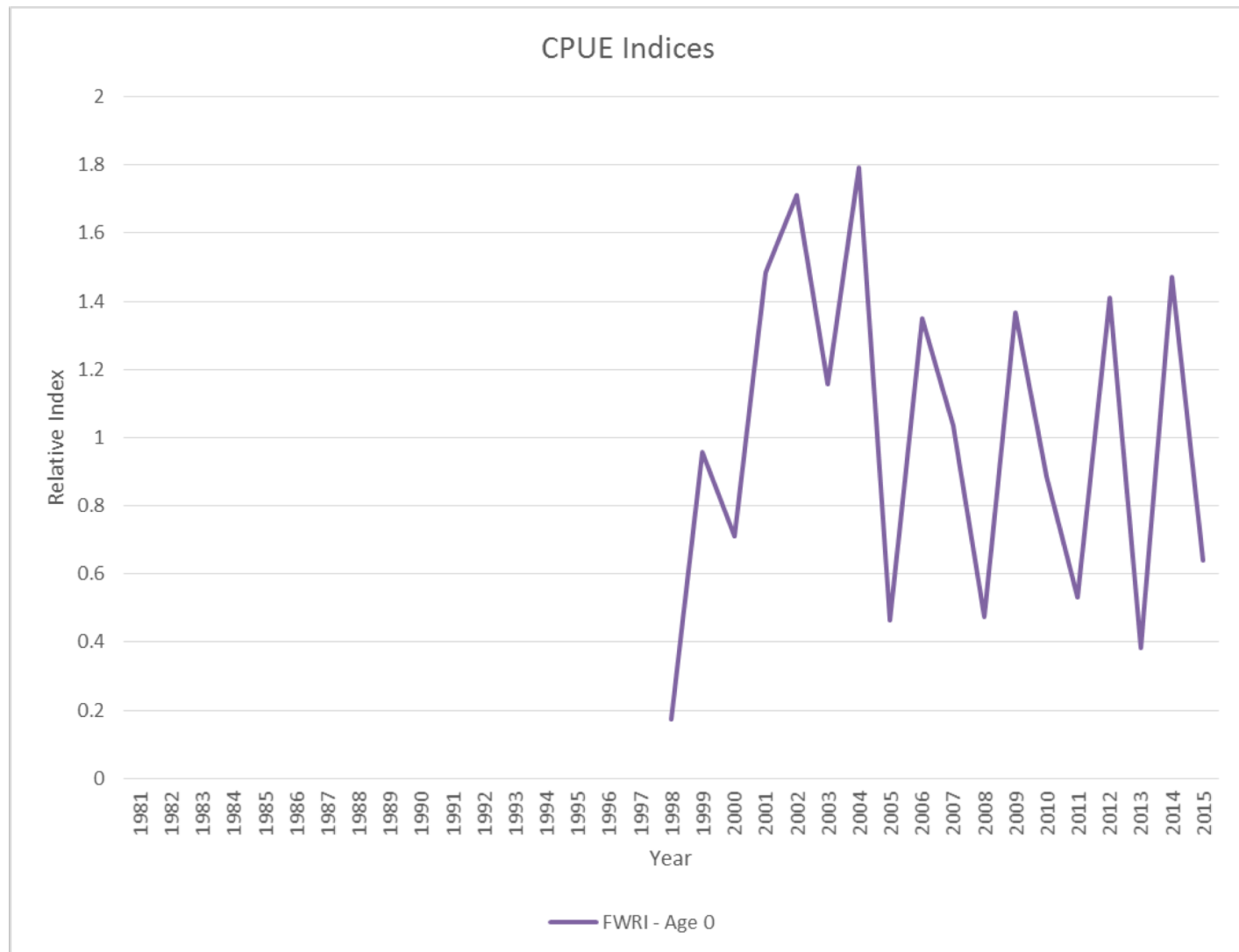


FWRI Age 1



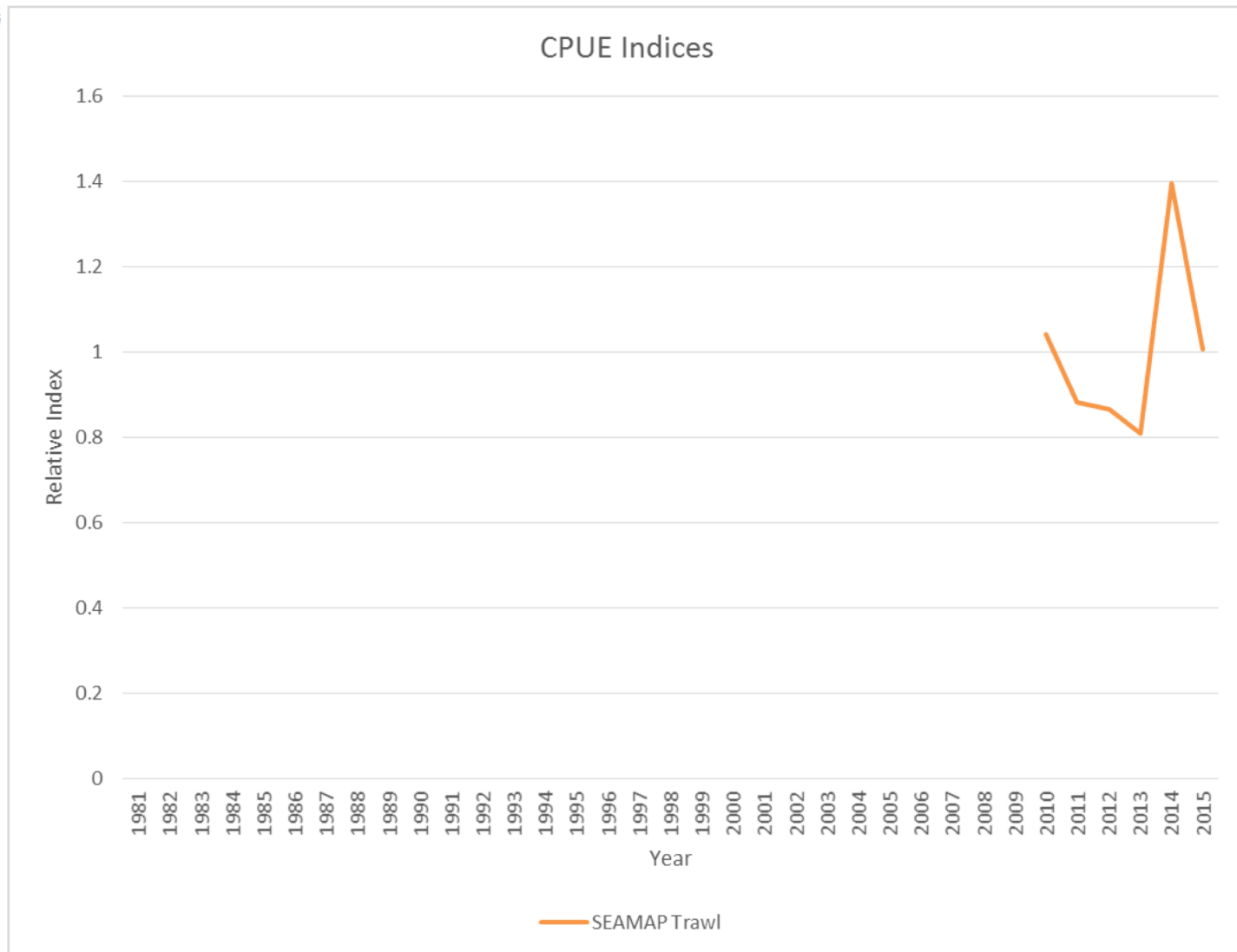


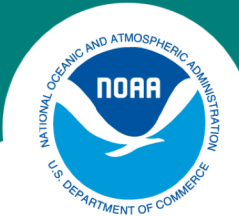
FWRI Age 0





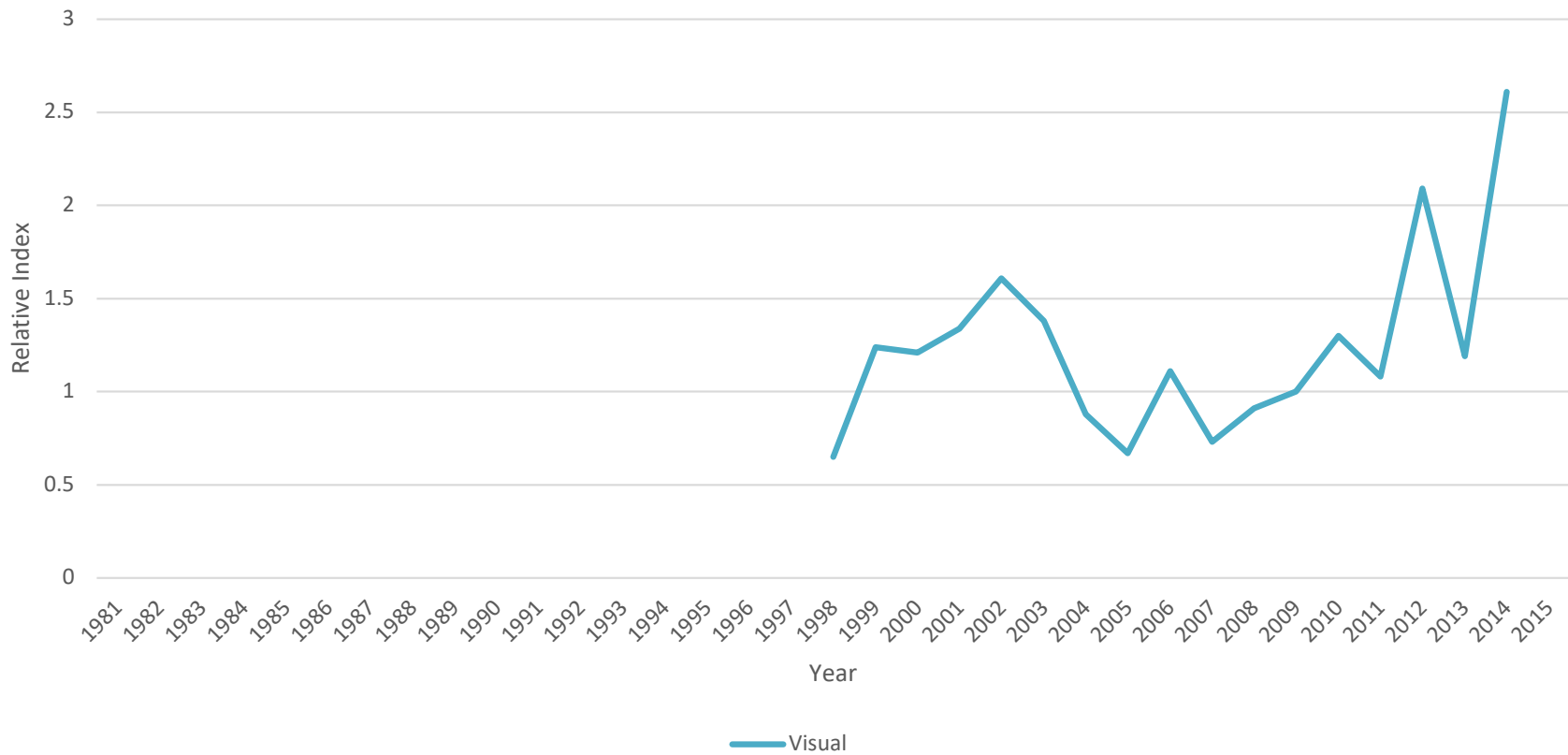
SEAMAP Trawl

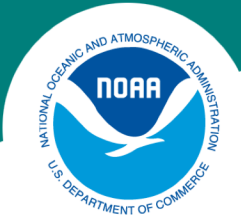




Visual

CPUE Indices





Discards

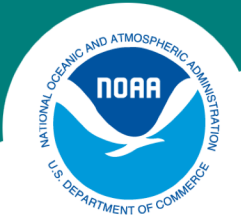
5 #_N_discard_fleets
 #_discard_units_(1=same_as_catchunits(bio/num);_2=fraction_of TOTAL
 (AB1B2)_landings;_3=numbers_regardless of landings units)
 #_discard_errtype:_>0_for_DF_of_T-dist(read_CV_below_0_for_normal_with_CV;_-1_for_normal_with_se;_-
 2_for_lognormal)

#_Fleet	units	err type
1	2	0
2	2	0
4	2	0
5	2	0
6	2	0

#151 # with fleets 1, 2, 4, 5 and 6

151#

Yr	Seas	FLEET	Discard	Std
#COM_Mon				
1993	1	1	0.380014966	0.3
1994	1	1	0.492963552	0.3
1995	1	1	0.679761189	0.3
1996	1	1	0.507477563	0.3

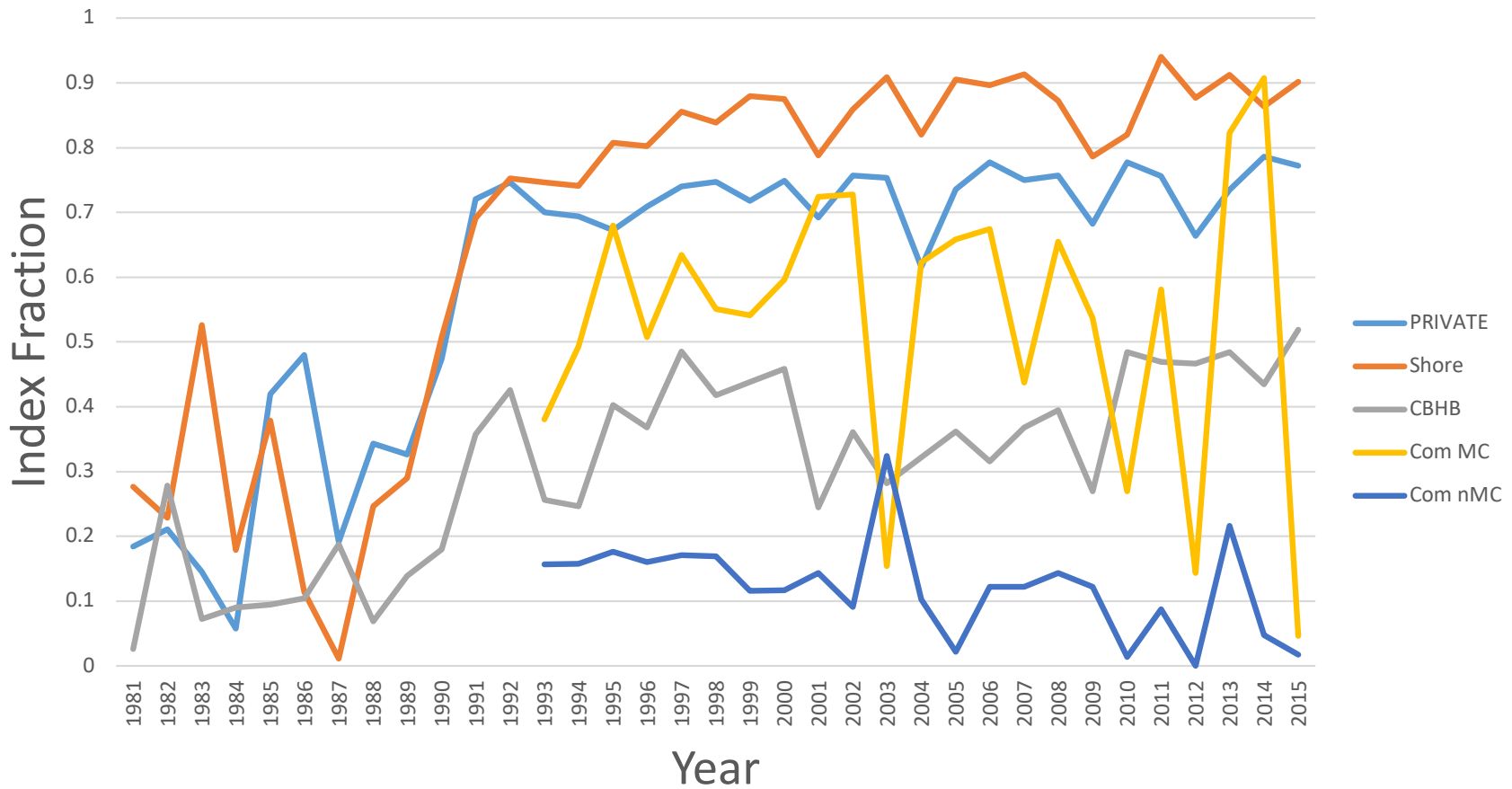


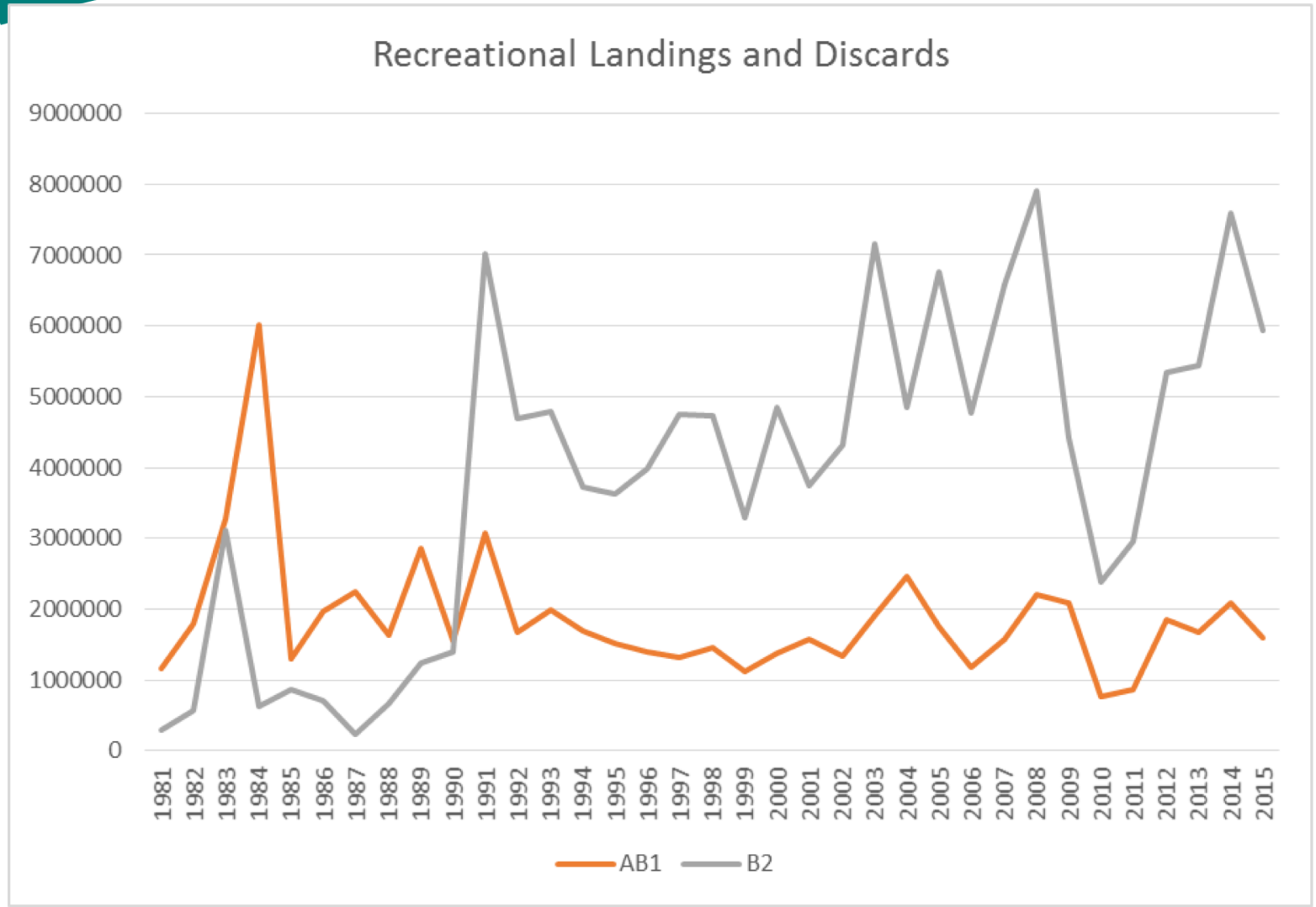
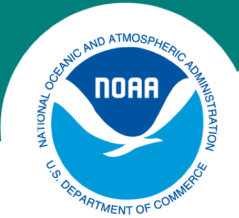
Discards

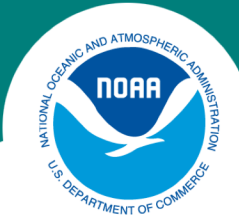
- User Reported
 - Logbook (Commercial)
 - Dockside intercept (Recreational)
- Some Commercial Observer data (~2%).
- Some Recreational Observer data (headboat) but no observed discards
- No length data
- Entered as fraction of total catch (landings + discards)



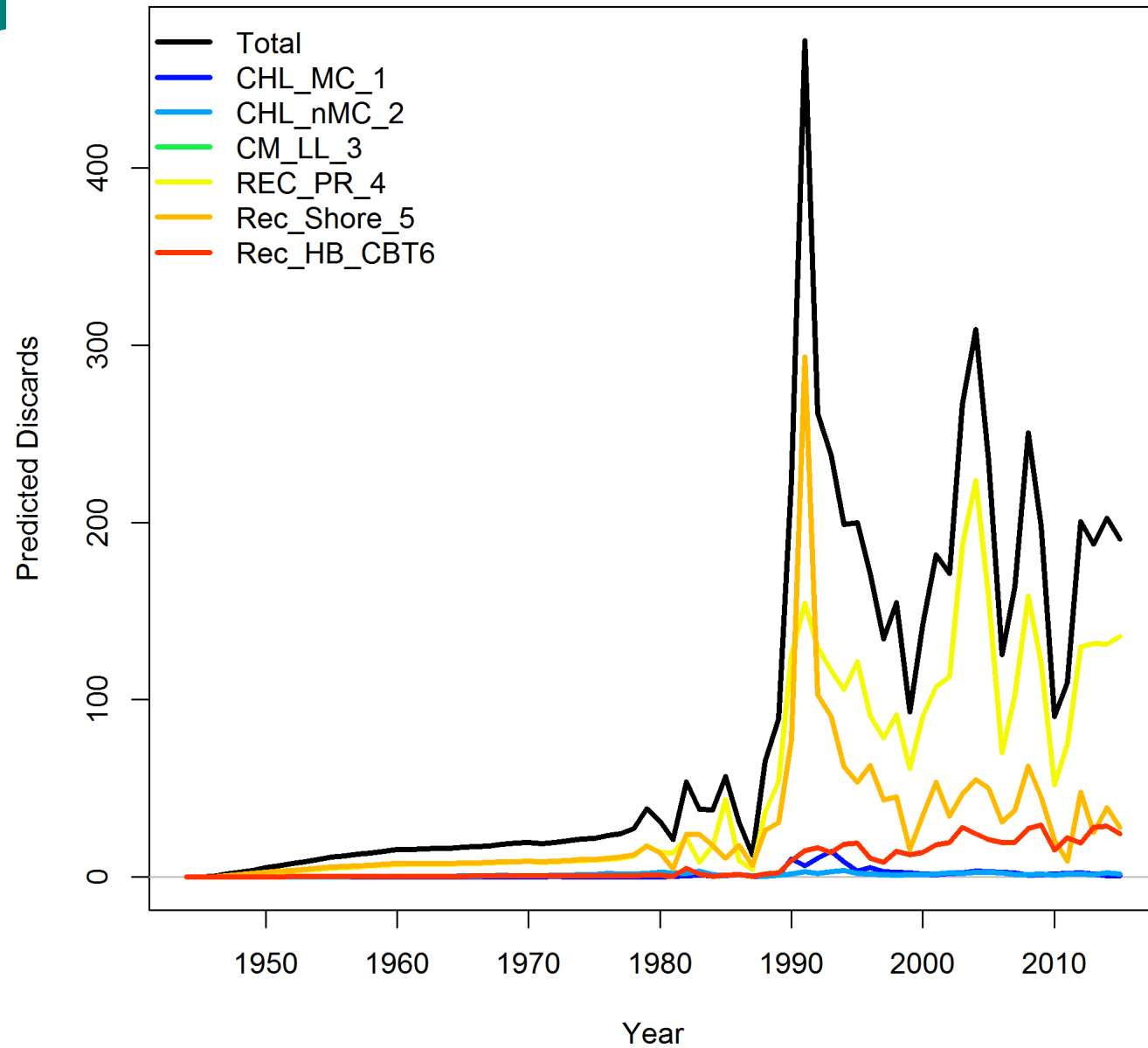
Discard Fraction







Predicted Discards





Length Composition

```

0      #_N_meanodywt
30     #_DF_for_meanbodywt_T-distribution_like
1      #length bin method:1=use databins;          2=generate from binwidth,min,max below; 3=read vector
-0.001 #_comp_tail_compression
1.00E-07 #_add_to_comp
0      #_combine males into females at or below this bin number
36     #_N_lbins
  
```

#_lbin_vector

10	12	14	16	18	20	22	24
26	28	30	32	34	36	38	40
42	44	46	48	50	52	54	56
58	60	62	64	66	68	70	72
74	76	78	80				

191 #_N_Length_comp_observations

#CHL_MC

Plus_Group_+51_and_over 1 total

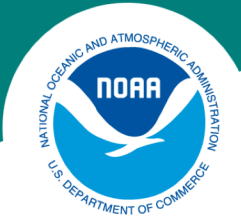
10	12	14	16	18	20	22	24
26	28	30	32	34	36	38	40
42	44	46	48	50	52	54	56
58	60	62	64	66	68	70	72
74	76	78	80				

Year

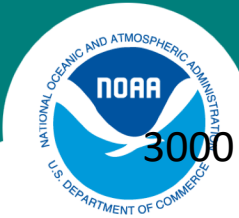
1987

Season	Fleet/Suvey	Gender	Part	Nsamp			
1	1	0	2	100	0	0	0
0	0	0	7	22	49	85	97
60	54	57	39	20	27	33	19
14	13	4	1	1	0	0	0
0	0	0	0	0	0	0	0
0							

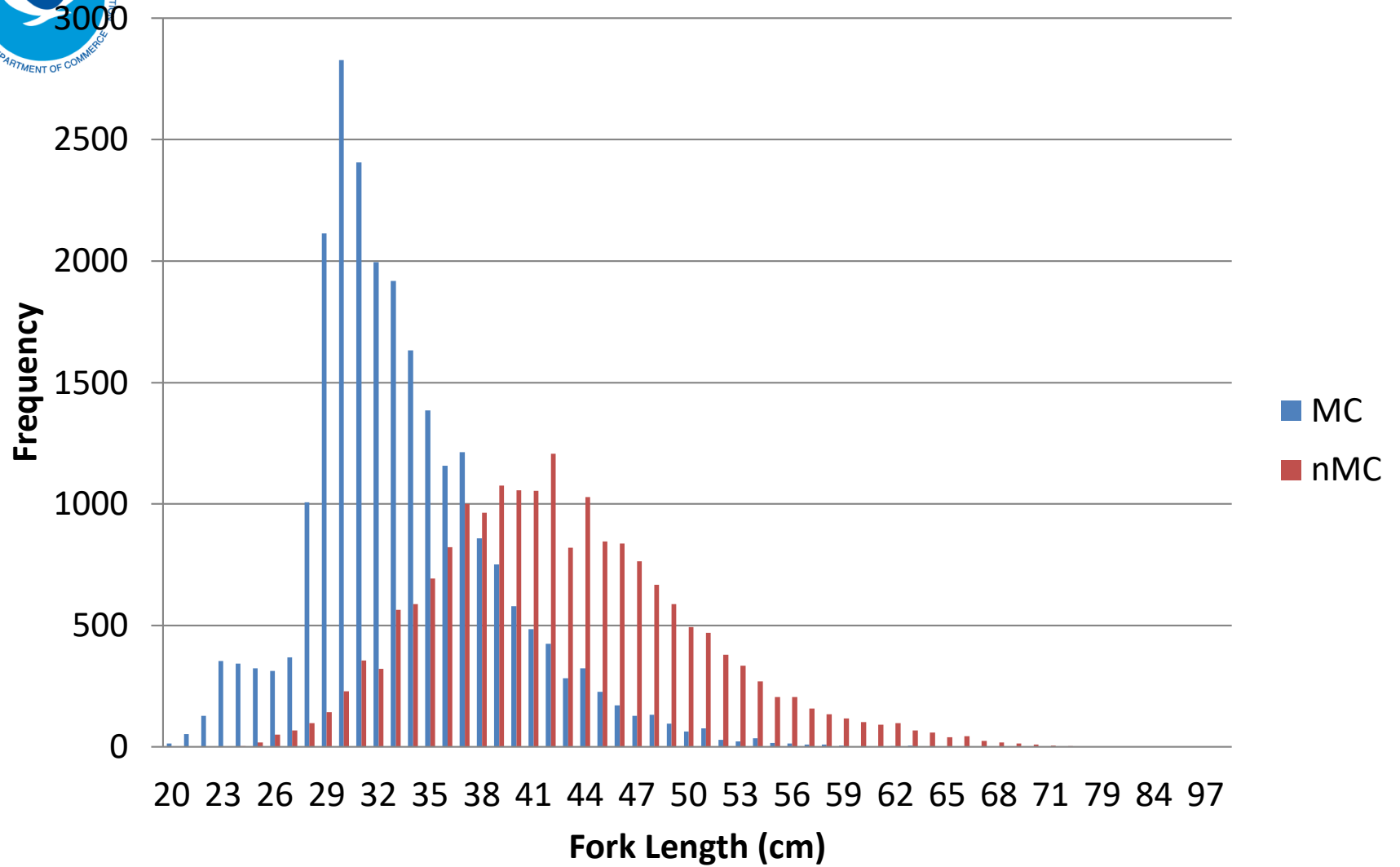
NOAA FISHERIES SERVICE

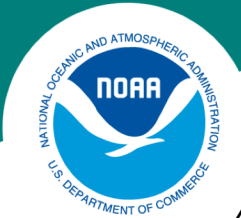


- 10 – 80 mm by 2 mm bins
- Regulations in inches total length converted to mm fork length
 - 10 inches TL State waters (24.2 mm fork length)
 - Recreational fleets
 - 12 inches TL Federal waters (28.8 mm fork length)
 - Commercial fleets

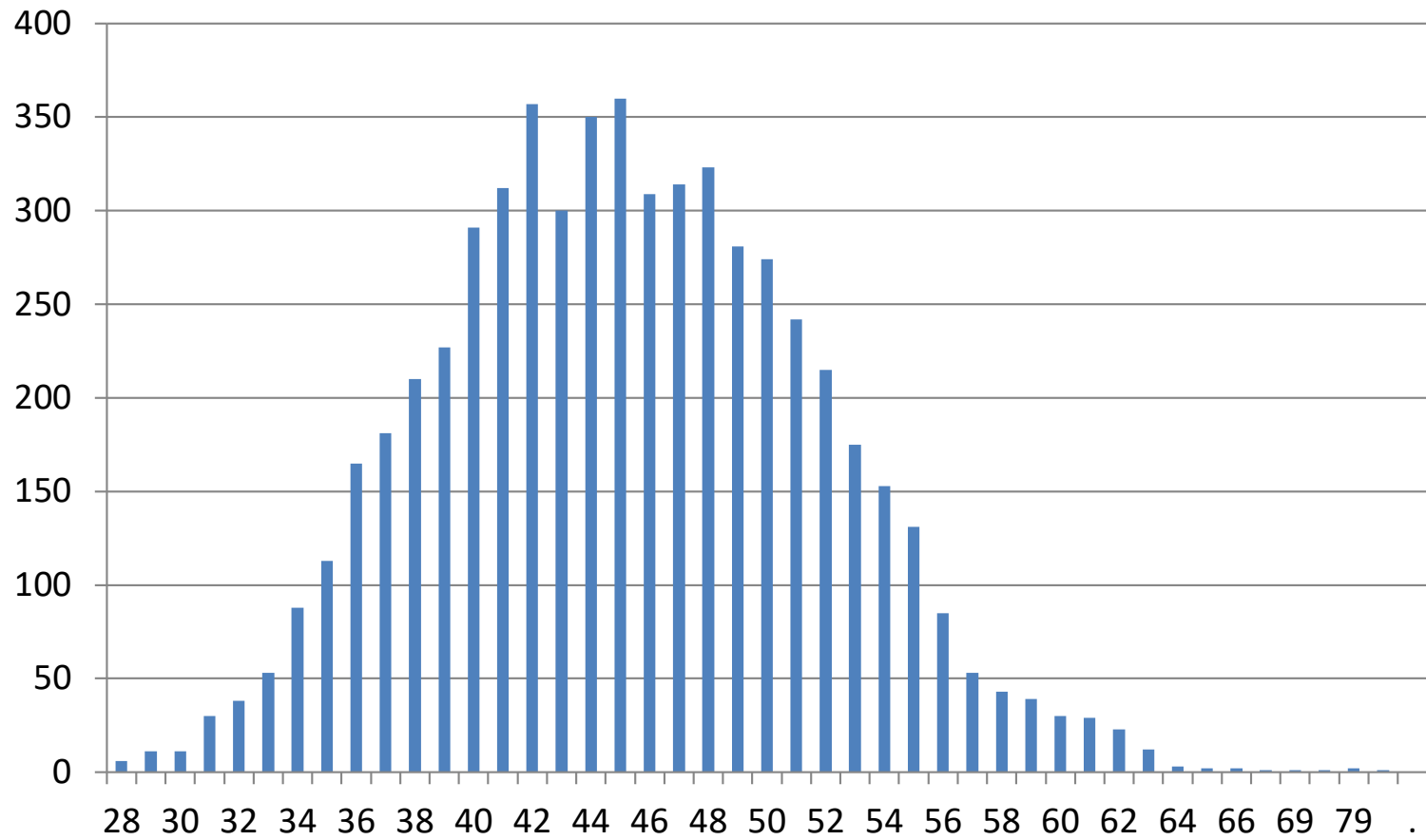


HLMC- HLnMC



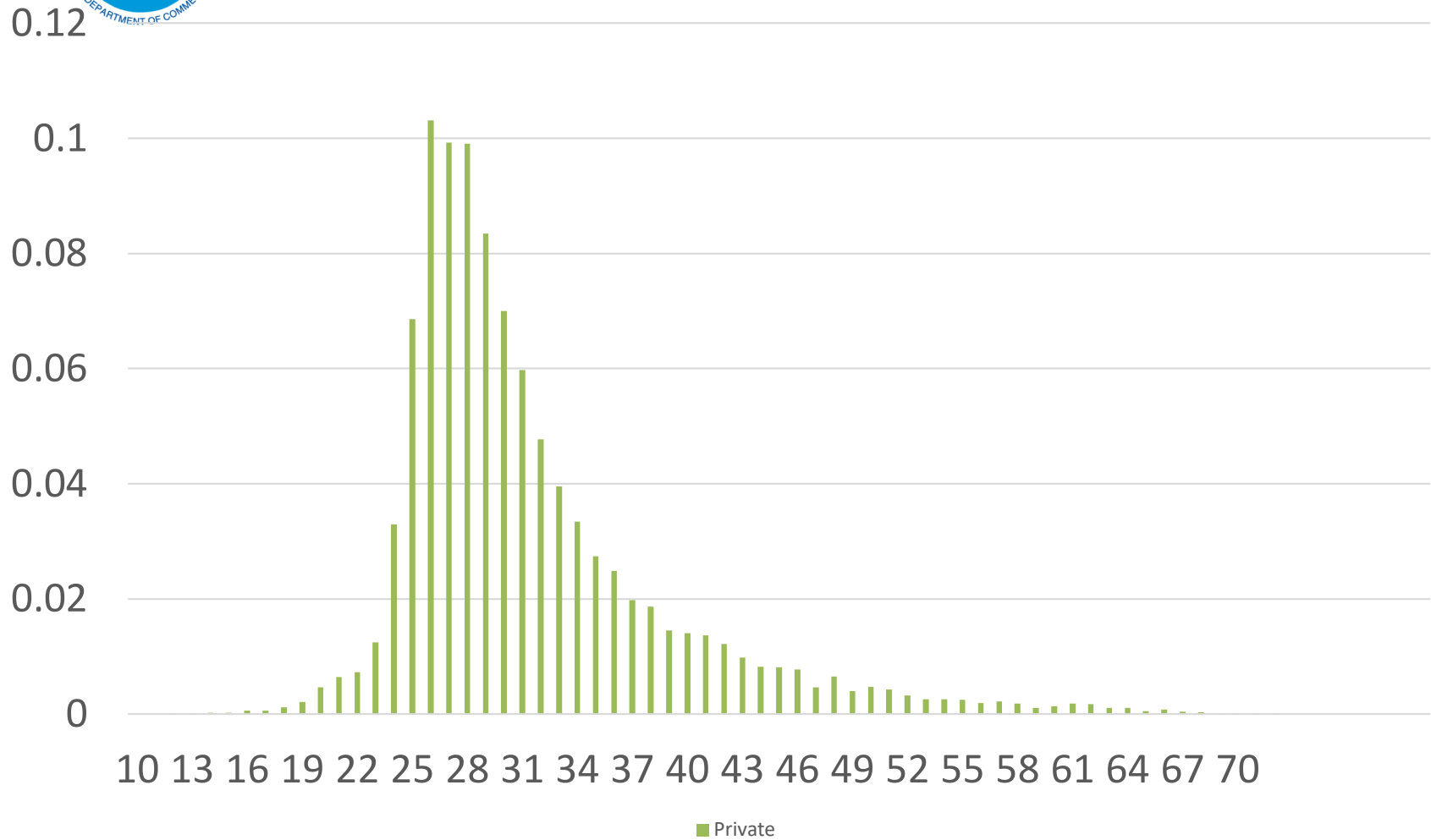


Longline



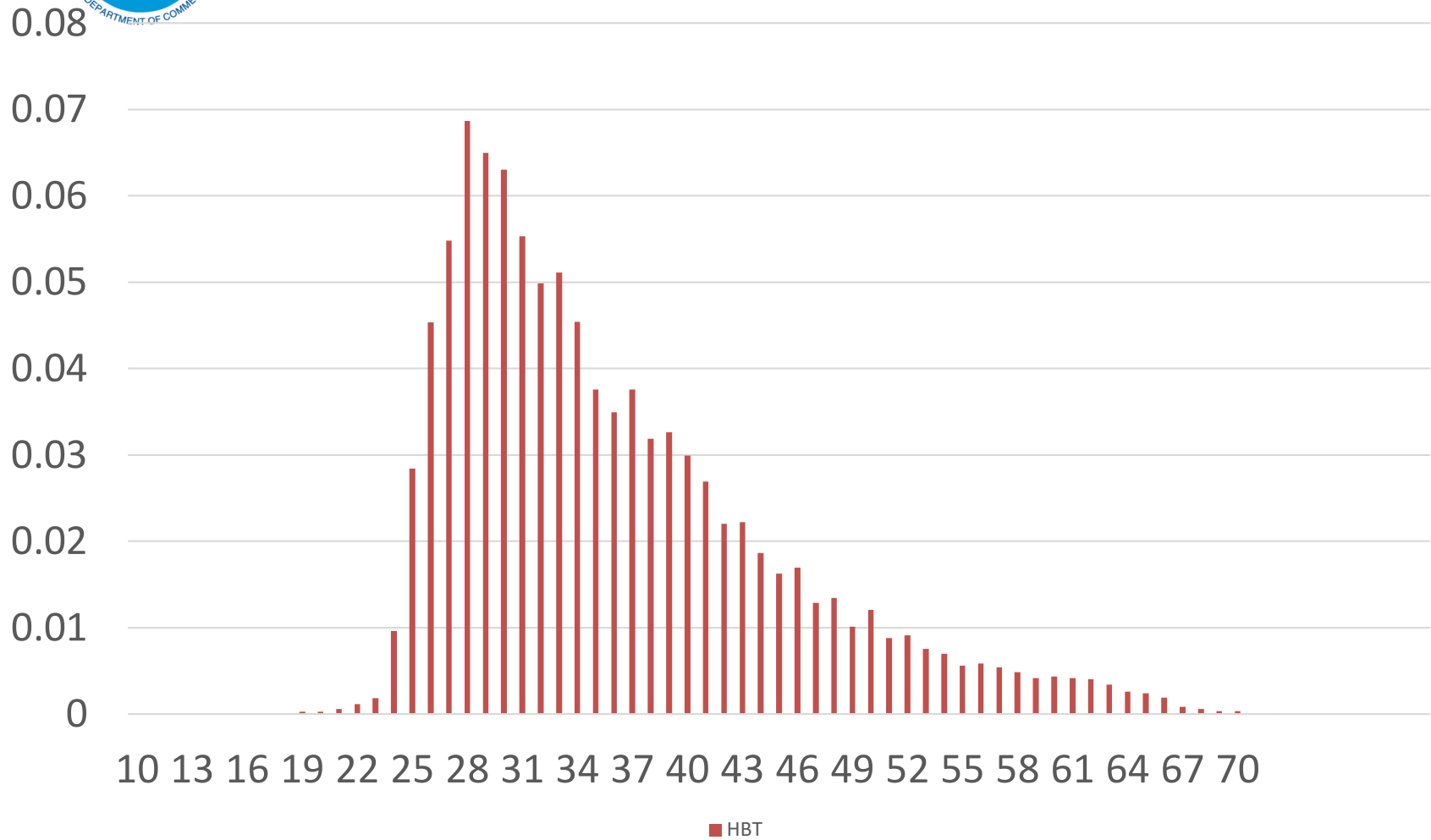


Private



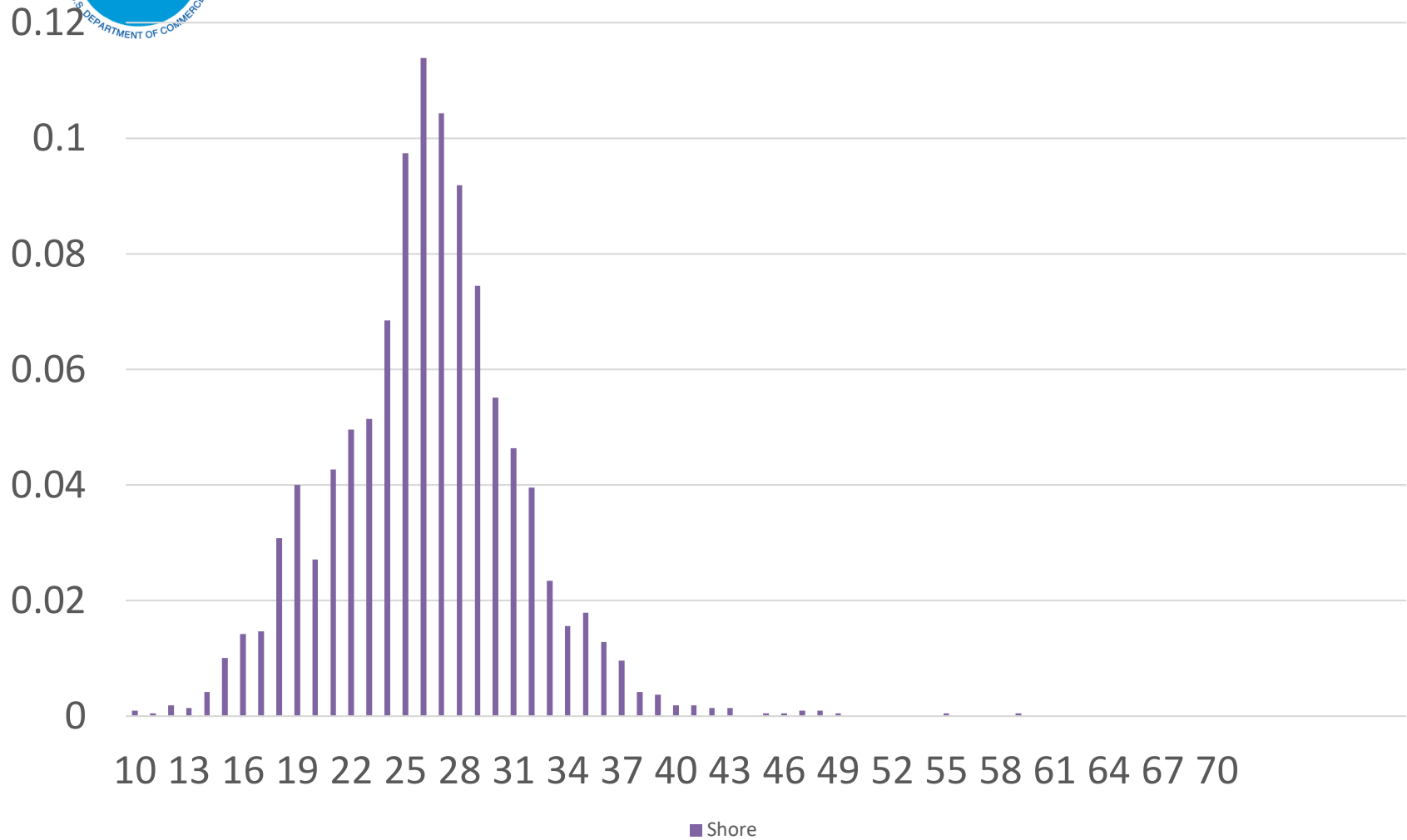


HBT

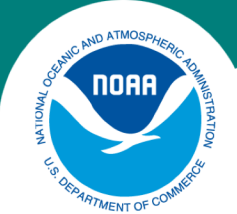




Shore

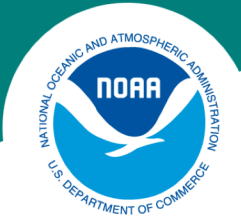


**NOAA
FISHERIES
SERVICE**



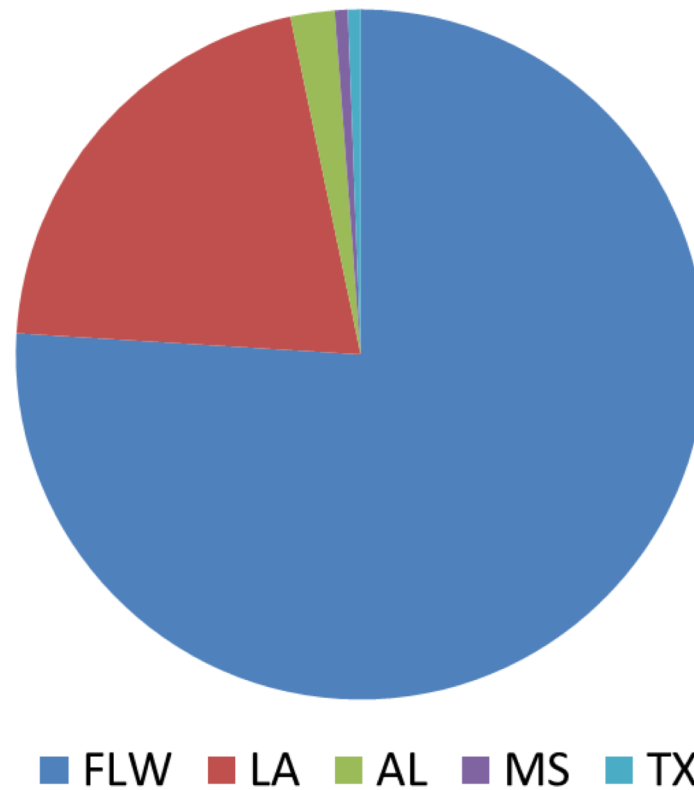
**NOAA
FISHERIES
SERVICE**

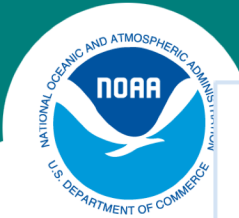




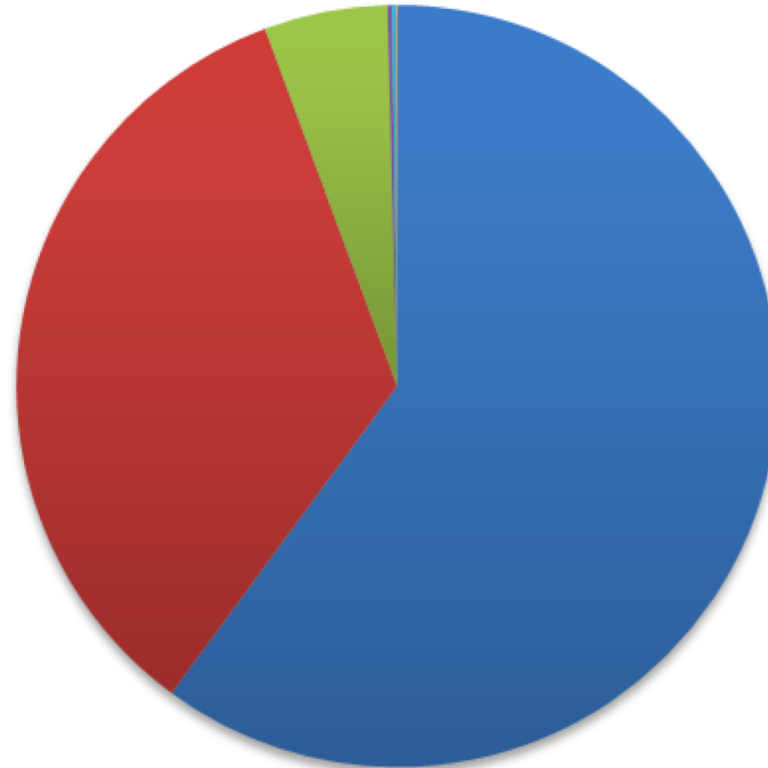
Recreational Landings By State

**Total Landings 1981-2015
(Pounds Whole Weight)**

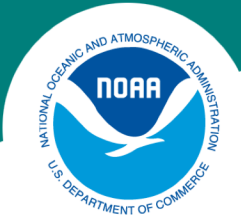




Total Commercial Landings 1962-2015 (Pounds Whole Weight)



■ WFL ■ MONROE ■ LA ■ AL ■ MS ■ TX



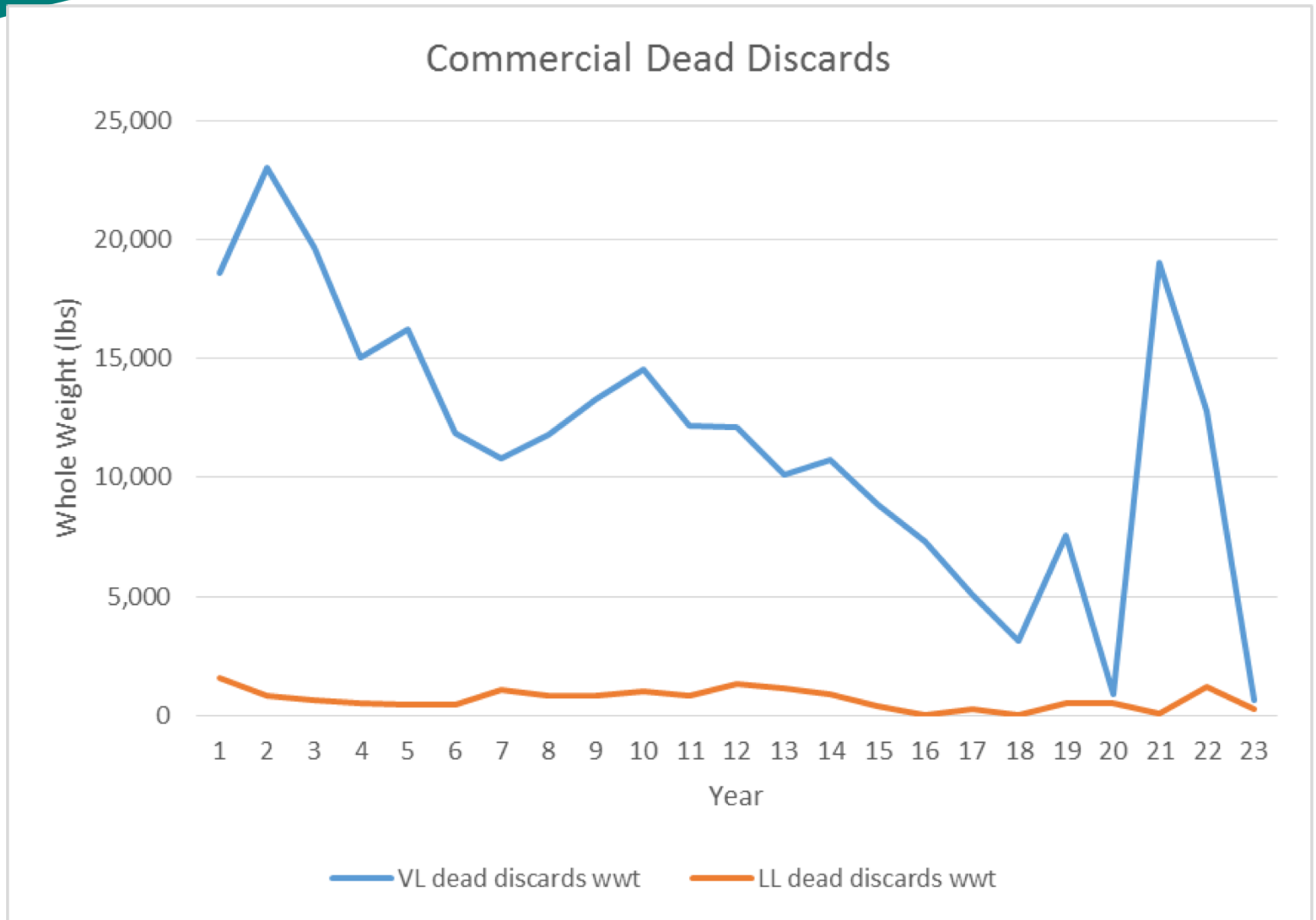
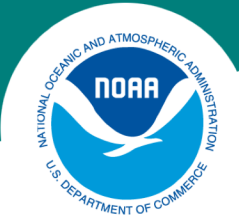
Indicies

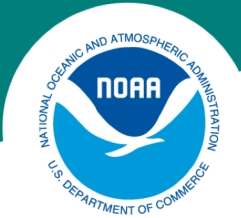
171	#_N_lines_cpue		Units_0_numbers,_1_lbs	
	#_Fleet	Units	Errtype	
	1	1	0	#_CHL_MC
	2	1	0	#_CHL_nMC
	3	1	0	#_CM_LL
	4	0	0	#_Rec_PR
	5	0	0	#_Rec_Shore
	6	0	0	#_Rec_HB_CBT
	7	0	0	#_CHL
	8	0	0	#_MRFSS_Private
	9	0	0	#_MRFSS_Shore
	10	0	0	#_FWRI_Age0
	11	0	0	#_FWRI_Age1
	12	0	0	#_SEAMAP_Trawl
	13	0	0	#_NMFS/FWRI_Video
	14	0	0	#_Visual_Survey

#Year	Season	FLEET	INDEX	SE_LOG	Label
#_Commercial_Hand_Line		#se	#	CV	
1993	1	1	0.88	0.232828166	
1994	1	1	1.13	0.203800699	
1995	1	1	0.92	0.203800699	
1996	1	1	0.92	0.203800699	

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Numbers at age

Middle of year expected numbers at age in thousands (max=18545.1)

