

8.8 SAI – SAILFISH

Sailfish has a pan-tropical distribution. ICCAT has established, based on life history information on migration rates and geographic distribution of catch, that there are two management units for Atlantic sailfish, eastern and western (**SAI-Figure 1**). The first successful assessment that estimated reference points for eastern and western sailfish stocks was conducted in 2009 (Anon. 2010a).

SAI-1. Biology

Larval sailfish are voracious feeders initially feeding on crustaceans from the zooplankton but soon switching to a diet of fish larvae. Temperature preferences for adult sailfish appear to be in the range of 25-28°C. A study undertaken in the Straits of Florida and the southern Gulf of Mexico indicated that habitat preferences from satellite tagged sailfish were primarily within the upper 20~50 m of the water column. The tag data also indicated common short-term movements to depths in excess of 100 m, with some dives as deep as 350 m. Sailfish is the most coastal of all billfish species and conventional tagging data suggest that they move shorter distances than the other billfish (**SAI-Figure 2**). Sailfish grow rapidly and reach a maximum size of 160 cm for males and 220 cm for females, with females reaching maturity at 155 cm. Sailfish reach a maximum age of at least 17 years. A new L50 has been estimated for West Atlantic female sailfish (146.12 cm LJFL), the previous L50 value used for western males remains at 135.7 cm LJFL. No values are currently available for eastern Atlantic sailfish.

Sailfish spawn over a wide area and year around. In the North, evidence of spawning has been detected in the Straits of Florida, and off the Venezuelan, Guyanese and Surinamese coasts. In the southwest Atlantic, spawning has been confirmed by genetic identification of larvae present off the southern coast of Brazil between 20° and 27°S. Additional spawning areas occur in the eastern Atlantic off Senegal and Côte d'Ivoire. Timing of spawning can differ between regions. From the Florida Straits to the areas off Guyana sailfish spawn in the second and third quarter of the year, while in the southwestern Atlantic they spawn during the austral summer.

SAI-2. Fisheries indicators

Sailfish are targeted by coastal artisanal and recreational fleets and, to a less extent, are caught as by-catch in longline and purse seine fisheries (**SAI-Figure 1**). Historically, catches of sailfish were reported together with spearfish by many longline fleets. In 2009 these catches were separated by the Committee (**SAI-Table 1**). Historical catches of unclassified billfish continue to be reported to the Committee making the estimation of sailfish catch difficult. Catch reports from countries that have historically been known to land sailfish continue to suffer from gaps and there is increasing ad hoc evidence of unreported landings in some other countries. These considerations provide support to the idea that the historical catch of sailfish has been under-reported, especially in recent times where more and more fleets encounter sailfish as by-catch or target them.

Reports to ICCAT estimate that the Task I catch for 2014 was 786 t and 666 t for the East and West stocks, respectively (**SAI-Figure 3**). Task I catches of sailfish for 2014 are preliminary because they do not include reports from all fleets.

SAI-3. State of the stocks

ICCAT recognizes the presence of two stocks of sailfish in the Atlantic, the eastern and western stocks. There is increasing evidence, based on spawning activity, that suggests an alternative stock structure splitting the western stock north and south should be considered. Assessments of stocks based on the alternative stock structure option have not been done to date; however, conducting them should be a priority for future assessments.

In 2009 ICCAT conducted a full assessment of both Atlantic sailfish stocks (Anon. 2010a) through a range of production models and by using different combinations of relative abundance indices (**SAI-Figure 4**). It is clear that there remains considerable uncertainty regarding the stock status of these two stocks, however, many assessment model results present evidence of overfishing and evidence that the stocks are overfished, more so in the east than in the west. Although some of the results suggest a healthy stock in the west, few suggest the same for the east. The eastern stock is also assessed to be more productive than the western stock, and probably able to provide a greater MSY. The eastern stock is likely to be suffering stronger overfishing and most probably has been reduced further below the level that would produce the MSY than the western stock. Reference points obtained with other methods reach similar conclusions.

Examination of trends in abundance suggests that both the eastern and western stocks suffered their greatest declines in abundance prior to 1990. Since 1990, trends in relative abundance conflict between different indices, with some indices suggesting declines, other increases and others not showing a trend (**SAI-Figure 4**). New available CPUE indices for west sailfish appear to fluctuate without trend after the last sailfish stock assessment, although some show a declining trend in the last few years of the series (**SAI-Figure 5**), this may be a reflection of the steady decline in total catches for west sailfish. Examination of available length frequencies for a range of fleets show that average length and length distributions do not show clear trends during the period where there are observations. A similar result was obtained in the past for marlins. Although it is possible that, like in the case of the marlins, this reflects the fact that mean length is not a good indicator of fishing pressure for billfish it could also reflect a pattern of high fishing pressure over the period of observation.

SAI-4. Outlook

Both the eastern and western stocks of sailfish may have been reduced to stock sizes below B_{MSY} . There is considerable uncertainty on the level of reduction, particularly for the West, as various production model fits indicated the biomass ratio B_{2007}/B_{MSY} both above and below 1.0. The results for the eastern stock were more pessimistic than those for the western stock in that more of the results indicated recent stock biomass below B_{MSY} . Therefore there is particular concern over the outlook for the eastern stock.

SAI-5. Effect of current regulations

No ICCAT regulations for sailfish are in effect, however, some countries have established domestic regulations to limit the catch of sailfish. Among these regulations are: requirement of releasing all billfish from longline vessels, minimum size restrictions, circle hooks and catch and release strategies in sport fisheries.

SAI-6. Management recommendations

The Committee recommends that catches for the eastern stock should be reduced from current levels. It should be noted, however, that artisanal fishermen harvest a large part of the sailfish catch along the African coast.

The Committee recommends that catches of the western stock of sailfish should not exceed current levels. Any reduction in catch in the West Atlantic is likely to help stock re-growth and reduce the likelihood that the stock is overfished. It should be noted, however, that artisanal fishermen harvest a large part of the sailfish catch of the western sailfish stock.

One approach to reduce fishing mortality could be the use of non-offset circle hooks as terminal gear. Recent research has demonstrated that in some longline fisheries the use of non-offset circle hooks resulted in a reduction of istiophorid mortality, while the catch rates of several of the target species remained the same or were greater than the catch rates observed with the use of conventional J hooks or offset circle hooks. Currently, four ICCAT Contracting Parties (Brazil, Canada, Mexico, and the United States) already mandate or encourage the use of circle hooks on their pelagic longline fleets. The Committee considers the use of non-offset circle hooks can reduce billfish mortality in most fisheries and recommends the Commission consider this approach. In addition, the Commission should consider actions to reduce fishing mortality of sailfish from non-industrial fisheries.

The Committee is concerned about the incomplete reporting of sailfish catches, particularly for the most recent years, because it increases uncertainty in stock status determination. The Committee recommends all countries landing or having dead discards of sailfish, report these data to the ICCAT Secretariat.

ATLANTIC SAILFISH SUMMARY

	West Atlantic	East Atlantic
Maximum Sustainable Yield (MSY)	600-1,100 t ¹	1,250-1,950 t ¹
2014 Catches (Provisional)	666 t	786 t
B_{2007}/B_{MSY}	Possibly < 1.0	Likely < 1.0
F_{2007}/F_{MSY}	Possibly > 1.0	Likely > 1.0
Stock Status	Overfished: Possibly Overfishing: Possibly	Overfished: Likely Overfishing: Likely
2008 Replacement Yield	Not estimated	Not estimated
Management Measures in Effect	None ²	None ²

¹ Results from Bayesian production model with informative priors. These results represent only the uncertainty in the production model fit. This range underestimates the total uncertainty in the estimates of MSY.

² Some countries have domestic regulations.

SAI-Table 1. Estimated catches (t) of Atlantic sailfish *Istiophorus albicans*) by area, gear and flag. (v2, 2015-09-25)

			1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
TOTAL			3475	2591	3105	3093	2231	2358	2923	2500	2709	2724	3798	4480	4294	3943	3984	3629	2997	3837	3734	3498	2553	2053	2036	1515	1452	
	ATE		2315	1476	1780	1815	1172	1234	1881	1337	1362	1342	1978	2761	2313	2625	2587	2194	1901	2542	2196	2062	1797	1238	1131	900	786	
	ATW		1160	1115	1325	1278	1059	1124	1041	1163	1346	1382	1820	1719	1981	1318	1397	1435	1096	1295	1537	1437	756	815	905	615	666	
Landings	ATE	Longline	109	47	104	256	151	189	196	206	275	273	195	269	354	322	261	294	566	555	596	555	483	454	485	431	458	
		Other surf.	1249	1000	983	1111	954	910	1504	644	859	883	1231	1725	1862	2022	2106	1756	1289	1798	1488	927	871	643	583	348	318	
		Sport (HL+RR)	957	429	692	448	67	135	182	488	228	186	551	767	98	282	219	143	46	189	113	580	443	141	58	117	9	
	ATW	Longline	316	159	357	484	346	338	260	323	499	533	1097	1245	1265	873	747	1062	646	830	1018	965	658	694	711	510	540	
	Other surf.	514	521	599	498	468	410	482	433	553	615	602	402	603	440	642	368	442	452	502	457	92	101	154	86	106		
	Sport (HL+RR)	267	371	333	233	217	348	230	350	267	163	76	60	106	0	0	0	0	2	6	7	4	2	10	19	7	9	
Discards	ATE	Longline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	1	
	ATW	Longline	62	64	36	63	28	29	69	57	27	72	45	11	7	5	7	3	5	8	9	10	4	10	20	13	11	
		Other surf.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
Landings	ATE	Belize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	
		Benin	21	20	21	20	20	19	6	4	5	5	12	2	2	5	3	3	4	0	0	0	0	0	0	0	0	
		Cabo Verde	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		China PR	0	0	0	0	3	3	3	3	5	9	4	5	11	4	4	8	16	8	1	4	5	2	4	1	1	
		Chinese Taipei	5	4	80	157	38	58	24	56	44	66	45	50	62	49	15	25	36	109	121	80	21	51	54	42	51	
		Cuba	61	184	200	77	83	72	533	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Côte D'Ivoire	58	38	69	40	54	66	91	65	35	80	45	47	65	121	73	93	78	52	448	74	0	108	192	80	99	
		EU.España	0	13	3	42	8	13	42	38	15	20	8	150	210	183	148	177	200	192	206	280	174	154	201	203	302	
		EU.Portugal	0	0	1	2	1	2	1	2	27	53	11	3	8	13	19	31	136	43	49	103	170	121	70	109	33	
		EU.United Kingdom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		Gabon	0	0	0	3	3	110	218	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
		Ghana	395	463	297	693	450	353	303	196	351	305	275	568	592	566	521	542	282	420	342	358	417	299	201	220	191	
		Guinea Ecuatorial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
		Honduras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Japan	31	6	15	27	45	52	47	19	58	16	26	6	20	22	70	50	62	144	199	94	115	142	157	71	59	
		Korea Rep.	12	22	2	2	5	11	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	6	10	
		Liberia	0	0	0	0	0	33	85	43	136	122	154	56	133	127	106	122	118	115	0	0	0	0	0	0	0	0
		Maroc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0
		Mixed flags (FR+ES)	595	174	150	182	160	128	97	110	138	131	353	400	365	413	336	264	274	205	251	308	265	56	0	0	0	0
		NEI (BIL)	0	0	0	0	0	0	0	0	0	0	0	28	269	408	213	55	1	105	43	20	11	0	0	0	0	0
		NEI (ETRO)	0	0	0	27	51	57	69	86	127	120	77	43	3	2	16	7	8	10	0	0	0	0	0	0	0	0
		Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Russian Federation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		S. Tomé e Príncipe	97	84	78	81	88	92	96	139	141	141	136	136	136	136	515	346	292	384	114	119	121	121	0	0	0	0
		Senegal	1040	466	860	462	162	167	240	560	260	238	786	953	240	673	567	463	256	737	446	630	484	174	247	165	37	0
		Sierra Leone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
		South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		St. Vincent and Grenadines	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	5	0	0	0	0	0	0	0
		Togo	0	0	0	0	0	0	0	9	22	36	23	62	55	95	135	47	31	71	0	0	0	0	0	0	0	0
U.S.A.	0	2	4	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U.S.S.R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
ATW	Aruba	13	9	5	10	10	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Barbados	45	29	42	50	46	74	25	71	58	44	44	42	26	27	26	42	58	42	0	0	18	36	36	39	44		
	Belize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	12	0	0	52	8	0	4	0		
	Brazil	301	90	351	243	129	245	310	137	184	356	598	412	547	585	534	416	139	123	268	433	78	137	108	25	57		
	China PR	0	0	0	0	3	3	3	3	3	9	4	3	1	0	1	0	0	1	2	1	1	1	0	0	1		
	Chinese Taipei	42	37	17	112	117	19	19	2	65	17	11	33	31	13	8	21	5	14	10	11	6	9	26	6	9		
	Cuba	126	83	70	42	46	37	37	40	28	196	208	68	32	18	50	72	47	56	0	0	0	0	0	0	0	0	
	Curaçao	10	10	10	15	15	15	15	15	15	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Dominica	0	0	0	0	0	0	0	0	0	0	0	5	3	0	1	0	3	3	4	2	0	2	0	0	0	0	
	Dominican Republic	40	31	98	50	90	40	40	101	89	27	67	81	260	91	144	165	133	147	0	0	0	0	0	0	0	0	
	EU.España	0	8	13	13	19	36	5	30	42	7	14	354	449	196	181	113	148	248	393	451	306	233	239	229	244		
	EU.Portugal	0	0	0	0	0	0	0	0	0	0	7	0	2	12	12	110	19	53	101	48	19	9	4	0	0		
	Grenada	218	316	310	246	151	119	56	83	151	148	164	187	151	171	112	147	159	174	216	183	0	0	0	0	0	0	
	Japan	12	27	0	1	8	2	4	17	3	10	12	3	3	10	5	22	4	1	33	43	36	13	16	7	11		
	Korea Rep.	16	1	2	3	4	4	12	4	0	0	0	0	0	0	0	0	0	0	0	1	0	45	4	1	1		
	Mexico	0	0	0	2	19	19	10	9	65	40	118	36	34	45	51	55	41	46	45	48	34	32	51	63	42		
	NEI (BIL)	0	0	0	0	0	0	0	0	0	0	0	297	268	0	0	0	0	68	81	252	17	0	0	0	0	0	

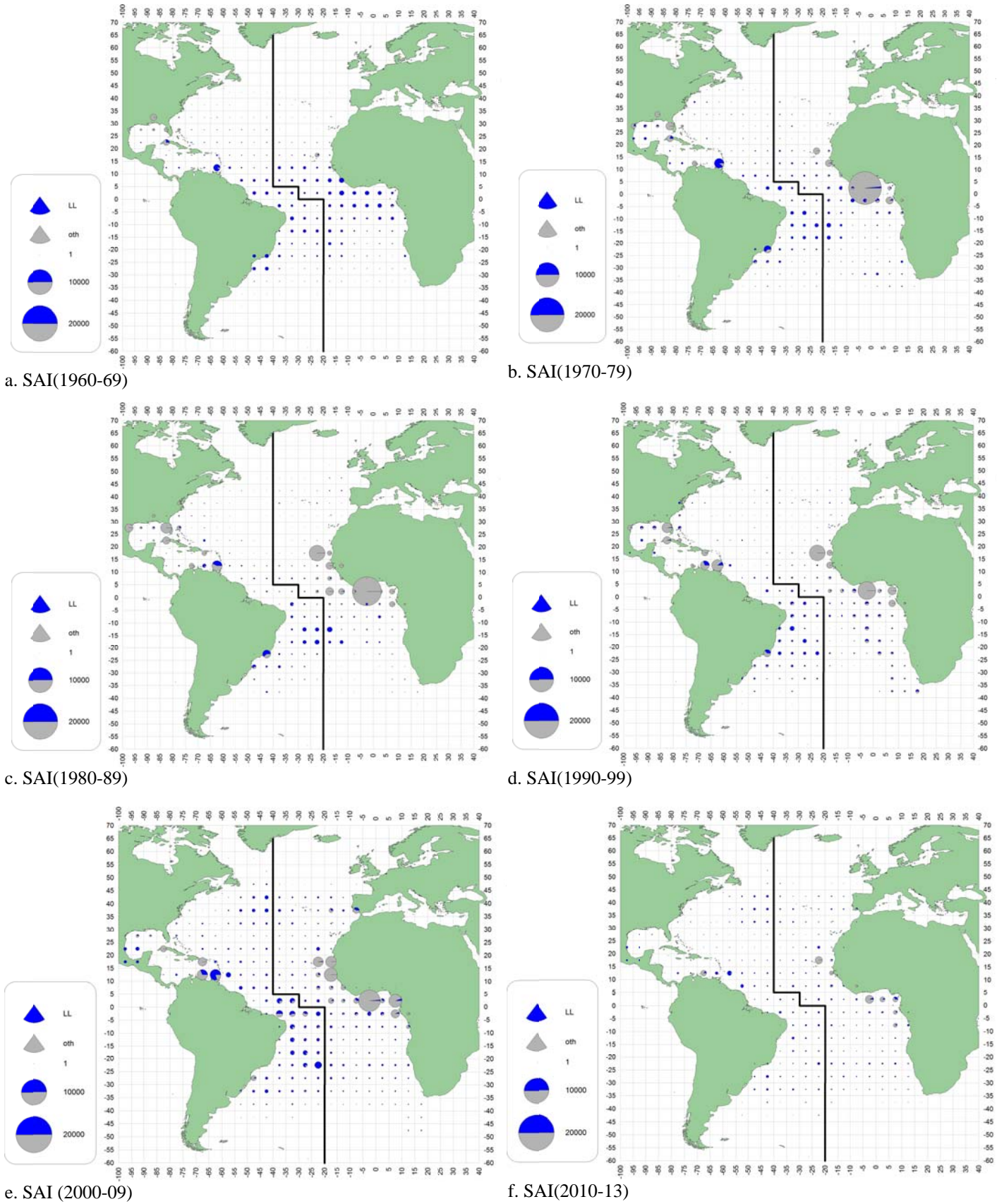
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	NEI (ETRO)	0	0	0	15	27	30	36	46	67	64	41	23	1	1	9	4	4	6	0	0	0	0	0	0	0
	Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Seychelles	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	St. Vincent and Grenadines	2	1	4	4	4	2	1	3	0	1	0	2	164	3	86	73	59	18	13	8	7	4	4	3	4
	Sta. Lucia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	2	3	2	3
	Trinidad and Tobago	7	3	3	1	2	1	4	10	25	37	3	7	6	8	10	9	17	13	32	16	16	38	72	34	29
	U.S.A.	242	343	294	202	179	345	231	349	267	163	76	58	103	0	0	0	0	0	3	3	0	0	7	3	2
	UK.British Virgin Islands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Venezuela	24	65	71	206	162	93	155	175	248	169	83	126	159	133	158	178	184	248	154	162	178	235	314	186	210
Discards	ATE																									
	Chinese Taipei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	1
	Korea Rep.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ATW																									
	Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Chinese Taipei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
	Korea Rep.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	U.S.A.	62	64	36	63	28	29	69	57	27	72	45	11	7	5	7	4	5	7	10	10	4	10	19	11	11

1. Brazilian Task I catches from 2012 to 2014 are preliminary and under revision

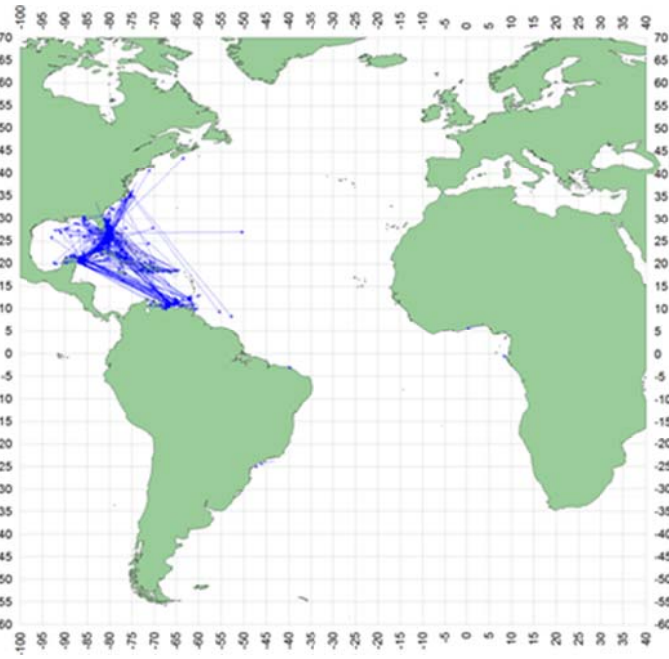
SPF-Table 1. Estimated catches (t) of longbill spearfish (*Tetrapturus pfluegeri*) by area, gear and flag. (v2, 2015-09-25)

			1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
TOTAL			481	214	273	540	320	240	165	201	266	306	278	188	179	133	188	169	340	167	166	140	245	147	229	134	71	
	ATE		417	131	255	419	198	207	128	194	192	255	178	79	84	50	51	68	75	66	60	78	110	66	169	95	16	
	ATW		64	83	19	121	122	33	37	7	74	51	100	110	95	84	137	101	265	102	106	62	135	81	60	39	55	
Landings	ATE	Longline	44	24	163	307	100	129	69	126	106	174	118	78	84	50	51	68	75	66	60	78	110	66	169	95	15	
		Other surf.	373	107	92	112	98	78	59	68	86	81	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ATW	Longline	64	83	19	121	122	26	34	7	74	51	100	110	95	84	137	101	265	102	106	62	135	81	60	39	48	
		Other surf.	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Sport (HL+RR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
Discards	ATE	Longline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	ATW	Longline	0	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Landings	ATE	China PR	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Chinese Taipei	8	6	135	263	63	97	41	94	73	112	75	52	62	25	15	25	37	22	2	6	15	7	6	1	1	
		EU.España	0	0	0	12	0	5	1	1	9	29	14	7	5	0	0	3	3	0	2	7	29	19	17	8	13	
		EU.Portugal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	8	2	6	25	9	18	0	0	
		Japan	32	10	27	31	36	26	25	30	22	33	29	20	16	25	36	40	21	36	53	59	35	31	127	85	2	
		Korea Rep.	4	8	1	1	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Mixed flags (FR+ES)	373	107	92	112	98	78	59	68	86	81	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Senegal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
		South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		St. Vincent and Grenadines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		ATW	Belize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	3	0	0
			Brazil	0	0	0	0	0	0	0	0	0	0	27	56	39	3	0	0	5	4	0	0	0	24	4	11	6
			Chinese Taipei	41	36	16	111	116	19	18	2	64	16	11	24	39	12	11	20	17	20	0	0	6	14	3	0	20
	EU.España		0	0	0	5	0	1	0	0	0	24	50	22	5	25	0	5	14	0	2	5	3	4	3	10	11	
	EU.Portugal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	15	44	10	10	0	3	0	0	
	Japan		13	46	1	1	2	3	4	1	8	11	11	3	12	40	41	58	54	25	45	26	71	20	19	3	2	
			Korea Rep.	9	0	1	2	4	4	10	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Mexico	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			St. Vincent and Grenadines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	0	135	23	13	7	8	5	4	3	3
		Trinidad and Tobago	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		U.S.A.	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Venezuela	0	0	0	1	0	0	1	0	1	0	0	4	0	3	3	17	5	15	3	14	24	12	24	11	13	
Discards	ATE	Chinese Taipei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	ATW	Chinese Taipei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		U.S.A.	0	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

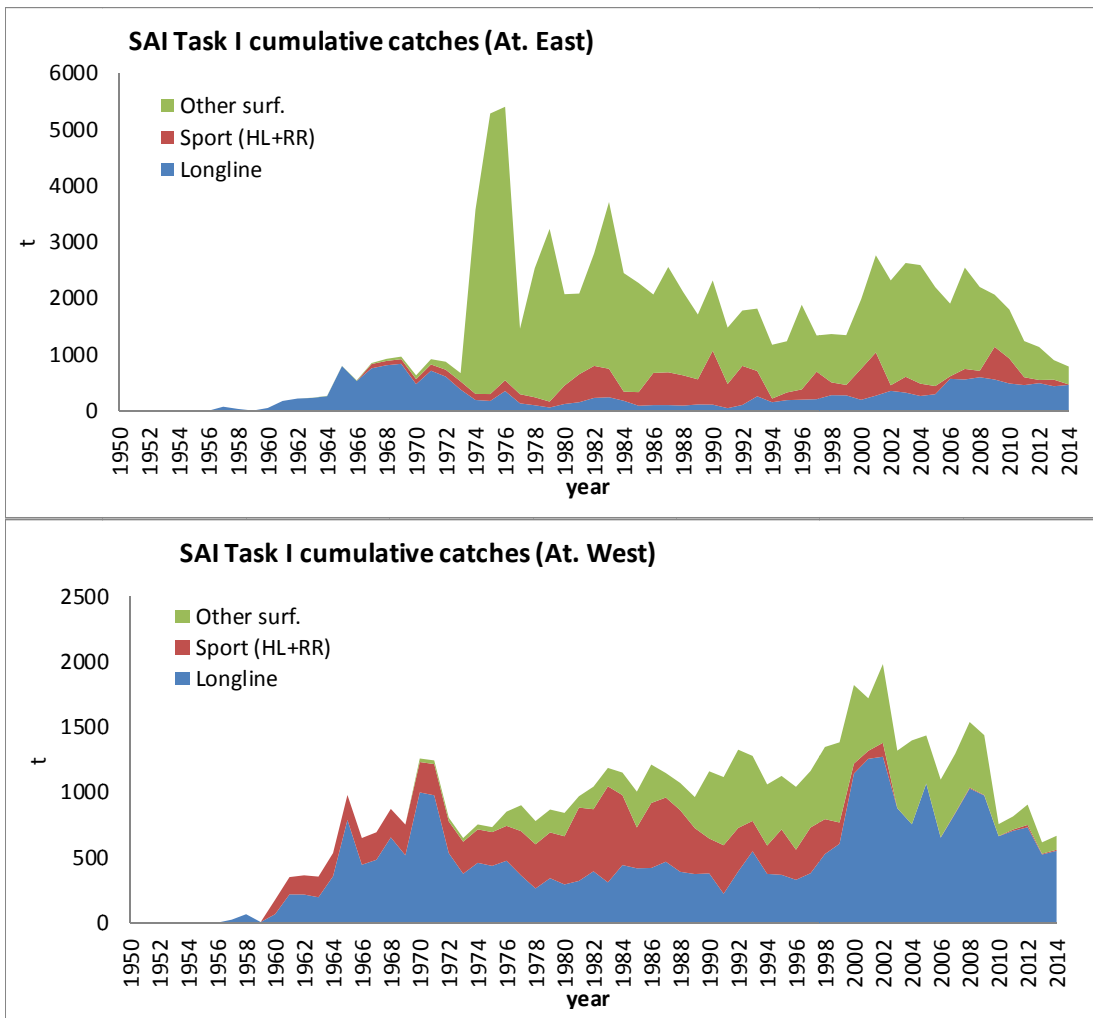
1. Brazilian Task I catches from 2012 to 2014 are preliminary and under revision.



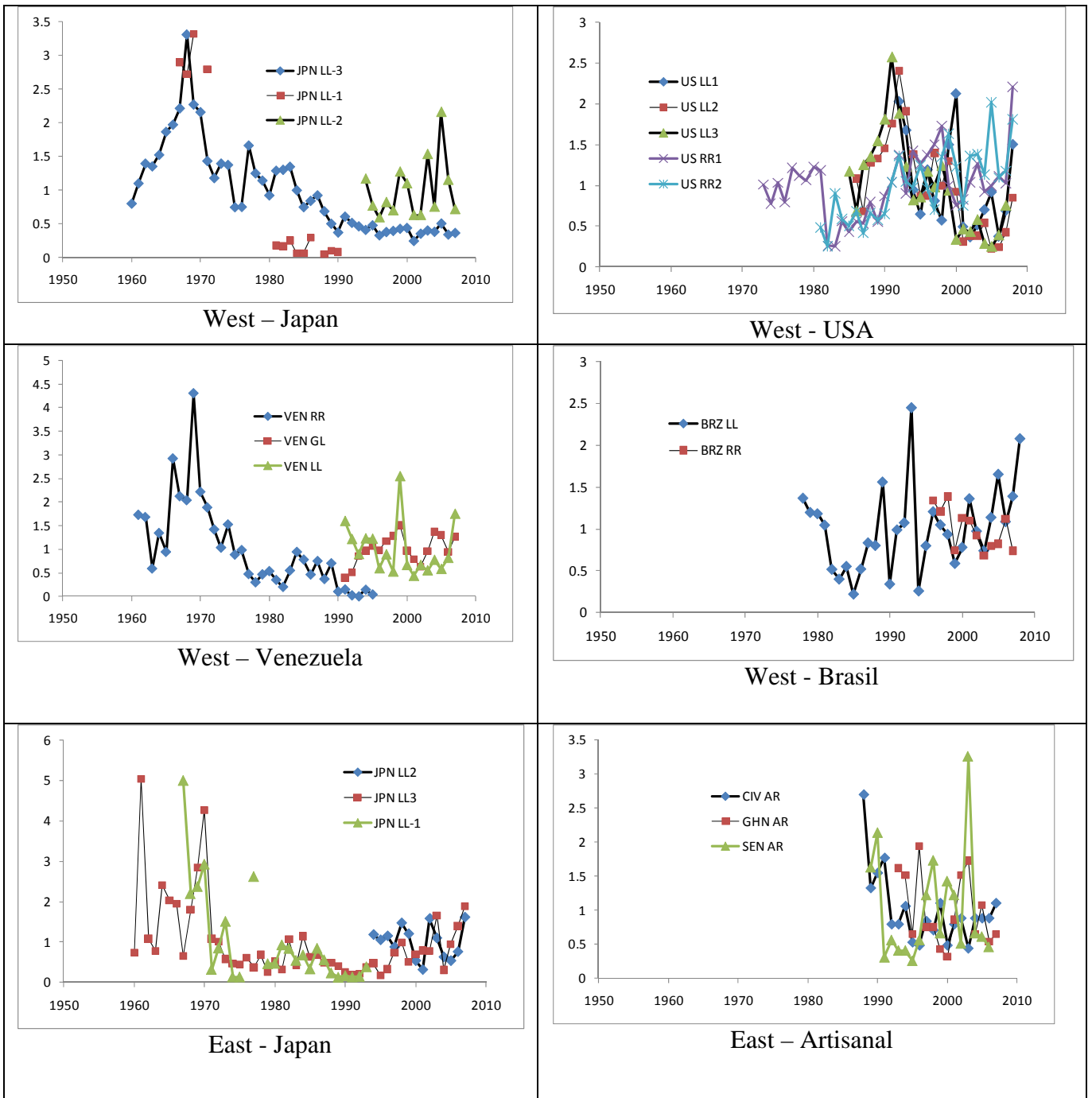
SAI-Figure 1. Geographic distribution of mean catches of sailfish by major gears and by decade. The dark line denotes the separation between stocks.



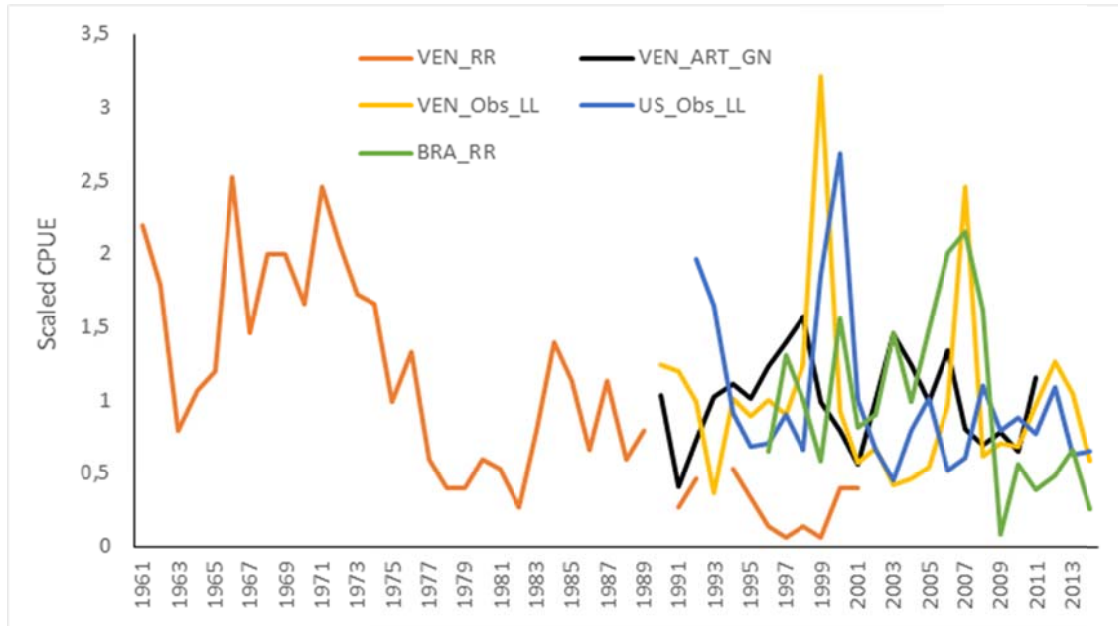
SAI-Figure 2. Conventional tag returns for Atlantic sailfish. Lines join the locations of release and recapture.



SAI-Figure 3. Task I catches of sailfish for each of the two Atlantic stocks, East and West.



SAI-Figure 4. Relative abundance indices obtained by standardizing CPUE data for various fleets. All indices were scaled to the mean of each series prior to graphing.



SAI-Figure 5. New relative abundance indices of SAI-west obtained by standardizing CPUE data for various fleets. All indices were scaled to the mean of each series prior to graphing.