

STATISTICS OF THE PURSE SEINE NEI FLEET IN THE INDIAN OCEAN (1984-1999)

by

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ABSTRACT

This document contains summary statistics of the purse seiner NEI fleet fishing in the Indian Ocean. Data collection and sampling program of this fleet are the same as those used for the Spanish and French purse seine fleets. Therefore the same problems detected in the application of the new sampling method in these fleets in 1999 can be applied to the NEI fleet. The result is that the catch by species estimated and the sizes distribution of catch of this fleet in 1999 should be also considered as provisional.

Table 1. NEI Purse seiners by category and carrying capacity in tons, 1984 - 1999.

Class	4	5	6	7	8	9	total	C.Capacity	Supplies	V.A.S.*
1984	1	3	0	5	0	0	9	4238	-	-
1985	1	2	0	5	0	0	8	4388	-	-
1986	0	0	0	3	0	0	3	2488	-	-
1987	0	0	0	2	0	0	2	1840	-	-
1988	0	0	0	3	0	0	3	2655	-	-
1989	0	0	0	3	0	0	3	2977	-	-
1990	0	0	0	3	2	0	5	3855	-	-
1991	0	0	0	2	2	0	4	4396	ND	ND
1992	0	0	0	2	2	0	4	4223	ND	ND
1993	0	0	0	6	3	0	8	6807	ND	ND
1994	0	0	0	4	3	0	7	7425	ND	ND
1995	0	0	0	4	3	0	7	7013	ND	ND
1996	0	0	1	3	4	0	8	7671	ND	ND
1997	0	0	0	6	11	0	16	13382	ND	ND
1998	0	0	1	5	6	0	12	12463	ND	ND
1999	0	0	1	5	6	0	12	11678	4	7

Class:

4	de	50	a	400	toneladas
5	de	401	a	600	toneladas
6	de	601	a	800	toneladas
7	de	801	a	1200	toneladas
8	de	1201	a	2000	toneladas
9			>	2000	toneladas

(* Vessel associated with supply)

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Table 2. NEI purse seiners total catch by species in the Indian Ocean, 1984-1999.

TOTAL CATCH BY SPECIES					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	8268	8220	477	105	17070
1985	8198	6786	490	84	15558
1986	5279	5289	1047	8	11623
1987	5233	4779	758	0	10770
1988	7919	7026	835	0	15780
1989	4537	8082	543	0	13162
1990	12019	10966	1030	137	24152
1991	11929	10810	1545	303	24586
1992	8043	10837	866	393	20139
1993	15449	17423	1929	75	34876
1994	19677	24463	2467	509	47115
1995	19322	22310	3396	343	45372
1996	17488	18674	3469	308	39999
1997	21874	24353	6114	393	52733
1998	20851	30751	6906	465	58972
1999	23844*	39090*	8967*	140*	72868

(*) provisional data

Table 3. NEI purse seiners catch on log by species in the Indian Ocean, 1984-1999.

CATCH ON LOGS BY SPECIES					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	1866	6116	330	7	8319
1985	2529	5628	304	0	8461
1986	2130	3251	706	0	6087
1987	1833	3162	396	0	5391
1988	1924	5234	470	0	7628
1989	1940	4770	358	0	7068
1990	4090	9214	601	117	14022
1991	2543	9421	1047	0	13012
1992	2386	7129	574	0	10089
1993	5050	11607	922	5	17584
1994	5118	16905	1651	28	23702
1995	11047	17196	2917	6	31165
1996	8889	14216	3057	15	26177
1997	14564	21355	5699	66	41683
1998	11127	25822	5434	97	42479
1999	13626*	33104*	7599*	4*	54350

(*) provisional data

Table 4. NEI purse seiners catches on free schools by species in the Indian Ocean, 1984 -1999.

CATCH ON FREE SCHOOL BY SPECIES					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	6402	2104	147	98	8751
1985	5669	1158	186	84	7097
1986	3149	2038	341	8	5536
1987	3400	1617	362	0	5379
1988	5995	1792	365	0	8152
1989	2597	3312	185	0	6094
1990	7929	1752	429	20	10130
1991	9385	1389	498	303	11575
1992	5658	3708	292	393	10051
1993	10399	5815	1007	70	17292
1994	14559	7558	816	481	23413
1995	8276	5114	479	338	14207
1996	8599	4458	413	294	13822
1997	7310	2999	415	327	11050
1998	9723	4929	1473	368	16493
1999	10218*	5986*	1367*	135*	18518

(*) provisional data

Table 5. NEI purse seiners catches and efforts for area F57.

CATCH AND EFFORT PS NEI DATA AREA: F 57							
YEAR	YFT	SKJ	BET	ALB	TOTAL	F.DAYS	P.SETS
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0
1994	1	2	0	0	3	0	0
1995	0	0	0	0	0	0	0
1996	26	103	22	0	151	9	10
1997	243	65	20	0	328	16	27
1998	3085	1511	698	1	5296	390	490
1999	15*	0*	0*	0*	15	10	12

(*) provisional data

Table 6. NEI purse seiners catches and efforts for area F51.

CATCH AND EFFORT PS NEI DATA AREA: F 51							
YEAR	YFT	SKJ	BET	ALB	TOTAL	F.DAYS	P.SETS
1991	11929	10810	1545	303	24586	1134	3045
1992	8043	10837	866	393	20139	1049	3247
1993	15449	17423	1929	75	34876	1833	3586
1994	19677	24463	2467	509	47115	1950	3952
1995	19322	22310	3396	343	45372	1795	4277
1996	17462	18571	3447	308	39847	2005	4840
1997	21631	24288	6094	393	52406	3354	5467
1998	17765	29239	6208	464	53677	2839	4570
1999	23829*	39090*	8967*	140*	72853	2959	4796

(*) provisional data

Table 7. Nominal fishing effort (fishing days, searching days) and standardised fishing days of the purse seine NEI fleet (1984 – 1999).

YEAR	F.DAYS	S.DAYS	F.DAYS ST.
1984	1414	1140	919
1985	1260	1054	1002
1986	539	442	554
1987	416	340	457
1988	559	447	583
1989	647	548	639
1990	994	850	955
1991	1134	925	1219
1992	1049	888	1135
1993	1833	1609	1895
1994	1950	1683	1977
1995	1795	1592	1837
1996	2014	1802	2021
1997	3371	3031	3228
1998	3229	2865	3235
1999	2969	2611	3086

Table 8. Number of 1x1 degree squares explored by the purse seine Spanish fleet. The same considering different minimum effort limits and number of 1x1 degree squares with sets and with catch.

YEAR	N. CWP	N. CWP with SET	N. CWP with CATCH	N. CWP Eff >12hrs	N. CWP Eff >60hrs
1984	278	182	156	177	77
1985	298	188	154	198	75
1986	180	113	91	111	31
1987	156	104	92	97	22
1988	196	138	130	120	21
1989	192	123	111	128	29
1990	268	184	170	183	54
1991	264	186	175	179	61
1992	296	204	198	212	56
1993	301	224	215	214	114
1994	347	243	233	262	114
1995	343	223	216	239	95
1996	410	272	263	300	126
1997	476	330	321	356	200
1998	635	413	400	453	172
1999	523	386	368	395	177

Table 9. Total number of sets, positive sets and null sets for the purse seine NEI fleet. Same statistics by fishing mode.

YEAR	ALL			LOGS			SCHOOL		
	N° SETS	N° SETS +	N° SETS -	N° SETS	N° SETS +	N° SETS -	N° SETS	N° SETS +	N° SETS -
1984	1037	632	405	354	286	68	683	346	337
1985	904	559	345	314	269	45	590	290	300
1986	433	246	187	161	128	33	272	118	154
1987	388	236	152	134	114	20	254	122	132
1988	595	355	240	168	148	20	427	207	220
1989	533	307	226	199	172	27	334	135	199
1990	710	508	202	323	293	30	387	215	172
1991	882	643	239	388	350	38	494	293	201
1992	769	653	116	301	300	1	468	353	115
1993	1139	893	246	465	457	8	674	436	238
1994	1511	1138	373	574	553	21	937	585	352
1995	1116	936	180	601	587	14	515	349	166
1996	1168	1026	142	620	612	8	548	414	134
1997	1803	1594	209	1286	1230	56	517	364	153
1998	1998	1679	319	1272	1227	45	726	452	274
1999	1908	1589	319	1126	1087	39	782	502	280

Table 10. Frequency of positive sets by size of catch.

TOTAL SET FREQUENCY BY CATCH											
YEAR	0.1-10	10.1-20	20.1-30	30.1-40	40.1-50	50.1-60	60.1-70	70.1-80	80.1-90	90.1-100	>100.
1984	162	139	86	70	54	30	19	20	11	12	29
1985	152	135	80	55	36	26	18	7	8	7	35
1986	47	43	31	16	26	13	12	10	7	4	37
1987	37	49	40	14	20	10	10	9	6	4	37
1988	44	63	59	34	26	18	23	8	20	9	51
1989	53	64	43	25	28	15	10	9	7	8	45
1990	57	98	79	68	45	34	18	20	15	11	63
1991	111	126	99	89	44	45	32	23	16	14	44
1992	84	150	111	73	56	43	32	26	16	8	54
1993	141	169	124	107	85	61	38	40	22	10	95
1994	159	198	212	116	85	80	63	39	31	23	130
1995	107	170	143	102	77	65	47	29	34	34	128
1996	174	241	160	116	85	56	42	32	24	16	80
1997	321	385	263	182	123	88	59	41	27	21	84
1998	321	408	281	170	121	99	63	63	25	26	102
1999	229	291	225	192	126	96	94	74	50	33	178

Table 11. Frequency of positive sets in FADs by size of catch.

SET FREQUENCY BY CATCH. FADs											
YEAR	0.1-10	10.1-20	20.1-30	30.1-40	40.1-50	50.1-60	60.1-70	70.1-80	80.1-90	90.1-100	>100.
1984	53	66	33	31	22	22	9	11	7	10	22
1985	61	67	41	25	24	14	10	3	7	2	15
1986	25	16	17	13	14	5	9	4	3	3	19
1987	15	22	18	8	11	9	7	6	1	4	13
1988	7	29	25	21	12	11	9	4	8	3	19
1989	30	32	24	16	17	10	5	7	5	4	22
1990	25	59	47	41	29	23	8	9	9	6	37
1991	52	61	65	49	26	28	20	11	12	7	19
1992	27	73	55	31	31	17	18	11	6	5	26
1993	61	90	71	58	45	33	22	18	10	8	41
1994	74	99	100	64	47	34	29	19	14	15	58
1995	52	97	98	75	54	37	29	22	18	20	85
1996	85	140	97	74	50	32	33	22	14	10	55
1997	245	291	203	152	90	65	46	34	19	20	65
1998	219	304	224	129	89	73	42	40	20	21	66
1999	124	188	150	142	88	68	68	58	35	22	143

Table 12. Frequency of positive sets in freeschools by size of catch.

SET FREQUENCY BY CATCH. FREE SCHOOL											
YEAR	0.1-10	10.1-20	20.1-30	30.1-40	40.1-50	50.1-60	60.1-70	70.1-80	80.1-90	90.1-100	>100.
1984	109	73	53	39	32	8	10	9	4	2	7
1985	91	68	39	30	12	12	8	4	1	5	20
1986	22	27	14	3	12	8	3	6	4	1	18
1987	22	27	22	6	9	1	3	3	5	0	24
1988	37	34	34	13	14	7	14	4	12	6	32
1989	23	32	19	9	11	5	5	2	2	4	23
1990	32	39	32	27	16	11	10	11	6	5	26
1991	59	65	34	40	18	17	12	12	4	7	25
1992	57	77	56	42	25	26	14	15	10	3	28
1993	80	79	53	49	40	28	16	22	12	2	54
1994	85	99	112	52	38	46	34	20	17	8	72
1995	55	73	45	27	23	28	18	7	16	14	43
1996	89	101	63	42	35	24	9	10	10	6	25
1997	76	94	60	30	33	23	13	7	8	1	19
1998	102	104	57	41	32	26	21	23	5	5	36
1999	105	103	75	50	38	28	26	16	15	11	35

Table 13. Cath rate (catch/fishing day) by species and total.

NOMINAL CATCH RATE (F.DAYS) ALL					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	6.04	5.35	0.15	0.07	12.07
1985	5.82	6.4	0.05	0.07	12.35
1986	9.07	11.25	1.23	0.01	21.56
1987	10.73	14.93	0.28	0	25.94
1988	12.5	15.22	0.52	0	28.24
1989	6	13.98	0.38	0	20.36
1990	11.28	12.75	0.15	0.14	24.32
1991	10.52	9.53	1.36	0.27	21.68
1992	7.67	10.33	0.83	0.37	19.21
1993	8.43	9.51	1.05	0.04	19.03
1994	10.09	12.55	1.27	0.26	24.17
1995	10.76	12.43	1.89	0.19	25.27
1996	8.68	9.27	1.72	0.15	19.86
1997	6.49	7.22	1.81	0.12	15.64
1998	6.46	9.52	2.14	0.14	18.26
1999	8.03*	13.17*	3.02*	0.05*	24.55

(*) provisional data

Table 14. Catch rate (catch/positive set) by species and total.

NOMINAL CATCH RATE (N° POSITIVES SETS) ALL					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	2.45	2.17	0.06	0.03	4.89
1985	1.71	1.88	0.02	0.02	3.63
1986	1.25	1.55	0.17	0	2.98
1987	0.9	1.26	0.02	0	2.18
1988	1.24	1.51	0.05	0	2.8
1989	0.69	1.62	0.04	0	2.36
1990	1.9	2.14	0.03	0.02	4.09
1991	2.17	1.97	0.28	0.06	4.48
1992	1.29	1.74	0.14	0.06	3.23
1993	2.43	2.74	0.3	0.01	5.49
1994	2.79	3.47	0.35	0.07	6.68
1995	2.63	3.04	0.46	0.05	6.18
1996	2.26	2.41	0.45	0.04	5.17
1997	2.66	2.97	0.74	0.05	6.42
1998	2.77	4.09	0.92	0.06	7.85
1999	3.32*	5.45*	1.25*	0.02*	10.15

(*) provisional data

Table 15. Cath rate (catch/fishing day) in FAD by species and total.

NOMINAL CATCH RATE (F.DAYS) FADS					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	1.89	4.37	0.09	0	6.78
1985	1.41	5.45	0.05	0	6.91
1986	2.59	8.61	0.8	0	12.01
1987	2.69	10.14	0.28	0	13.11
1988	1.59	11.89	0.17	0	13.65
1989	2.24	8.96	0.18	0	11.38
1990	3.13	10.96	0.05	0.12	14.26
1991	2.24	8.31	0.92	0	11.48
1992	2.28	6.8	0.55	0	9.62
1993	2.76	6.33	0.5	0	9.59
1994	2.63	8.67	0.85	0.01	12.16
1995	6.15	9.58	1.62	0	17.36
1996	4.41	7.06	1.52	0.01	13
1997	4.32	6.34	1.69	0.02	12.37
1998	3.45	8	1.68	0.03	13.16
1999	4.59*	11.15*	2.56*	0*	18.31

(*) provisional data

Table 16. Catch rate (catch/positives sets) in FADs by species and total.

NOMINAL CATCH RATE (N° POSITIVES SETS) FADS					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	2	4.64	0.1	0	7.2
1985	0.88	3.41	0.03	0	4.32
1986	0.7	2.33	0.22	0	3.24
1987	0.41	1.53	0.04	0	1.98
1988	0.37	2.75	0.04	0	3.16
1989	0.45	1.8	0.04	0	2.29
1990	1.09	3.83	0.02	0.04	4.98
1991	0.8	2.95	0.33	0	4.07
1992	0.73	2.2	0.18	0	3.11
1993	1.47	3.37	0.27	0	5.11
1994	1.3	4.28	0.42	0.01	6
1995	2.31	3.59	0.61	0	6.51
1996	1.9	3.04	0.65	0	5.61
1997	2.37	3.47	0.93	0.01	6.77
1998	2	4.64	0.98	0.02	7.63
1999	2.78*	6.75*	1.55*	0*	11.08

(*) provisional data

Table 17. Cath rate (catch/fishing day) in free school by species and total.

NOMINAL CATCH RATE (F.DAYS) F.SCHOOL					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	4.15	0.98	0.05	0.07	5.28
1985	4.41	0.95	0	0.07	5.43
1986	6.48	2.64	0.42	0.01	9.55
1987	8.05	4.79	0	0	12.83
1988	10.92	3.33	0.35	0	14.59
1989	3.76	5.02	0.2	0	8.98
1990	8.15	1.79	0.1	0.02	10.06
1991	8.28	1.22	0.44	0.27	10.21
1992	5.4	3.54	0.28	0.37	9.58
1993	5.67	3.17	0.55	0.04	9.44
1994	7.47	3.88	0.42	0.25	12.01
1995	4.61	2.85	0.27	0.19	7.91
1996	4.27	2.21	0.2	0.15	6.86
1997	2.17	0.89	0.12	0.1	3.28
1998	3.01	1.53	0.46	0.11	5.11
1999	3.44*	2.02*	0.46*	0.05*	6.24

(*) provisional data

Table 18. Catch rate (catch/positives sets) in free school by species and total.

NOMINAL CATCH RATE (N° POSITIVES SETS) F.SCHOOL					
YEAR	YFT	SKJ	BET	ALB	TOTAL
1984	2.72	0.64	0.03	0.05	3.46
1985	2.44	0.53	0	0.04	3.01
1986	1.83	0.75	0.12	0	2.7
1987	1.53	0.91	0	0	2.44
1988	1.89	0.58	0.06	0	2.53
1989	1.03	1.37	0.06	0	2.45
1990	2.64	0.58	0.03	0.01	3.26
1991	4.09	0.61	0.22	0.13	5.05
1992	1.9	1.24	0.1	0.13	3.37
1993	3.57	2	0.35	0.02	5.94
1994	4.69	2.44	0.26	0.15	7.55
1995	3.24	2	0.19	0.13	5.56
1996	2.81	1.46	0.13	0.1	4.51
1997	3.56	1.46	0.2	0.16	5.39
1998	4.99	2.53	0.76	0.19	8.47
1999	4.5*	2.63*	0.6*	0.06*	8.15

(*) provisional data

Table 19. Number of samples and fishes measured for the Purse Seiner fishery (1985 – 1999).

YEAR	N°	YFT	SKJ	BET	ALB
	samp.	N° fishes	N° fishes	N° fishes	N° fishes
1985	486	5942	4223	2180	-
1986	436	1912	3939	508	-
1987	508	4016	6813	309	-
1988	805	10769	11962	3067	48
1989	541	6772	12593	1976	-
1990	637	8917	9033	1901	77
1991	600	21573	17485	5895	513
1992	651	13395	16628	3226	230
1993	690	35474	36507	7765	2137
1994	726	30747	37683	6070	2407
1995	858	59244	67806	34194	1052
1996	715	60500	50970	21926	1286
1997	528	41412	21139	19180	775
1998	309	27715	19109	12273	645
1999	420	48461	16348	19215	234

Table 20. NEI fleet composition by country.

NEI FLEET
1983: Ivory Coast
1984: Ivory Coast, Panama, Malta
1985: Ivory Coast, Panama, Malta
1986: Ivory Coast, Panama, Malta
1987: Panama, Malta
1988: Panama, Malta
1989: Panama, Malta
1990: Panama, Malta
1991: Panama, Malta
1992: Panama, Malta, Liberia
1993: Panama, Malta, Liberia, Belize
1994: Panama, Liberia, Belize
1995: Panama, Malta, Liberia, Belize
1996: Panama, Liberia, Iran, Belize
1997: Panama, Seychelles, St Vincent, Liberia, Italy, Belize, Netherlands Antilles
1998: Panama, Seychelles, St Vincent, Liberia, Iran, Italy, Belize, Netherlands Antilles
1999: Panama, Seychelles, St Vincent, Iran, Italy, Belize, Netherlands Antilles

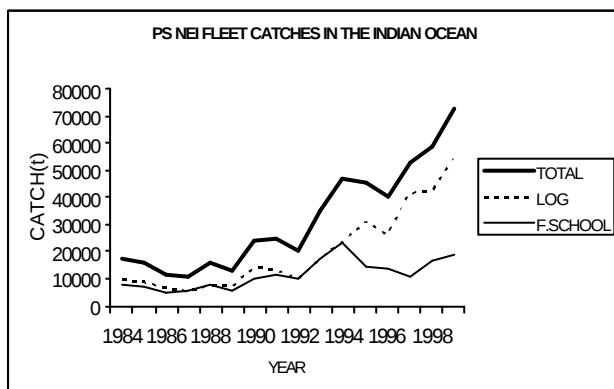


Figure 1. Total catch and catch by fishing mode (floating objet and free school) of the purse seine NEI fleet (1984 – 1999).

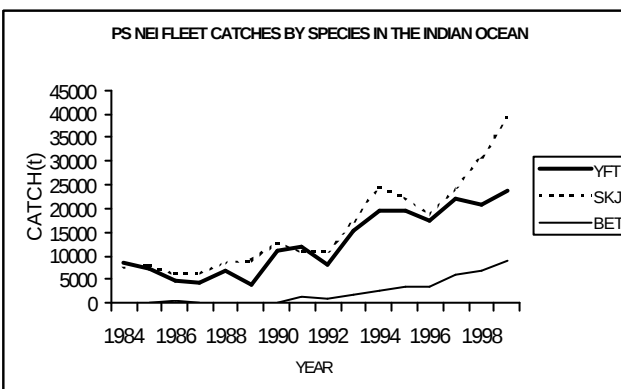


Figure 2. Catch by species of the purse seine NEI fleet (1984 – 1999).