

CANADIAN TAGGING AND RECAPTURE DATA OF LARGE PELAGIC FISH FOR THE PERIOD 1970-76

by

C.D. Burnett, M.J.A. Butler, C.A. Dickson, T.D. Iles

SUMMARY

The data associated with the tagging of 1,917 swordfish, shark and tuna and the recapture of 127 fish, is recorded for the years 1970-76. This information is intended to complement Technical Report 197 of the Fisheries Research Board of Canada (J.S. Beckett 1970) which surveys the years 1961-69.

RESUME

Les données annexes au marquage de 1.917 espadons, requins et thonidés, ainsi qu'à la recapture de 127 poissons, sont données pour 1970-76. Cette information a pour but de compléter le Rapport Technique n° 197 de l'Office des Recherches sur les Pêcheries du Canada (J.S. Beckett, 1970), lequel traite des années 1961 à 1969.

RESUMEN

Incluye datos referentes al marcado de 1.917 ejemplares, que incluyen peces espada, tiburones y túnidos, así como 127 recuperaciones, durante el periodo 1970-1976. Esta información es suplemento al Informe Técnico 197 del "Fisheries Research Board" de Canadá (J.S. Beckett 1970) que comprende los años 1961 a 1969.

INTRODUCTION

A preliminary assessment is made of the 1970-76 Canadian tag and recapture data. The information is currently being analysed and prepared for a Fisheries Research Board of Canada Technical Report, and will complement the Technical Report No. 197 (Beckett, J. S., 1970) which surveyed the Canadian tagging program for large pelagics for the years 1961-69. A program for such studies has been under way at the St. Andrews Biological Station since 1961.

RESULTS

(1) A total of 1954 large pelagics of 16 species were tagged and released during the period 1970-76 (Table 1).

(2) As a result of previous experience (Beckett, 1970) the tags utilized were primarily the W.H.O.I. type H (Spaghetti, Monofilament Dart) and the type FTIA (Plastic Single Barb).

(3) A total of 473 fish were double tagged, the balance of 1481 fish were single tagged.

(4) The catch techniques, prior to tag and release, involved one of six methods: purse seine, long line, rod and reel (sport), trap, or harpoon.

(5) Recoveries for the period 1970-76 total 127 fish of five species (Table 2). Eight of these were tagged prior to 1970 and 119 between the years 1970-76.

(6) The percentage recapture of five species (1970-76) in relation to the number tagged in the same period, is as follows:

- a. bluefin: 890 tagged, 104 recaptured (11.7%)
- b. swordfish: 107 tagged, 10 recaptured (9.3%)
- c. blue shark: 733 tagged, 4 recaptured (0.5%)
- d. dusky shark: 35 tagged, 1 recaptured (2.8%)
- e. tiger shark: 4 tagged

7. The numbers of fish tagged (double or single) by species and method of capture for the period 1970-76, is summarized in Table 3.

Table 1. Species tagged 1961-69, 1970-76

Species	No. Tagged 1961-69	No. Tagged 1970-76	No. Recaptured 1961-69	No. Recaptured 1970-76	Total Tagged	Total Recaptured
Swordfish, <i>Xiphias gladius</i>	124	107	5	15	231	20
White marlin, <i>Tetrapturus albidus</i>	2	-	-	-	2	-
Bluefin tuna, <i>Thunnus thynnus</i>	677	891	52	106	1568	158
Yellowfin tuna, <i>T. albacares</i>	434	33	4	-	467	4
Bigeye tuna, <i>T. obesus</i>	20	-	-	-	20	-
Skipjack, <i>Euthynnus pelamis</i>	125	-	4	-	125	4
Little tuna, <i>E. alletteratus</i>	17	-	-	-	17	-
Common bonito, <i>Sarda sarda</i>	4	-	-	-	4	-
Frigate mackerel, <i>Auxis</i> sp.	4	-	-	-	4	-
Escolar, <i>Lepidocybium flavobrunneum</i>	1	-	-	-	1	-
Oilfish, <i>Ruvettus pretiosus</i>	1	-	-	-	1	-
Longnose lancet, <i>Alepisaurus ferox</i>	2	-	-	-	2	-
Dolphin, <i>Coryphaena hippurus</i>	13	21	-	-	34	-
Sunfish, <i>Mola mola</i>	27	1	-	-	28	-
Mako shark, <i>Isurus oxyrinchus</i>	69	15	3	-	84	3
Porbeagle, <i>Lamna nasus</i>	8	3	-	-	11	-
Blue shark, <i>Prionace glauca</i>	1176	733	12	4	1909	16
Sickle shark, <i>Carcharhinus falciiformis</i>)	61	95	1	1	156	2
Brown shark, <i>C. milberti</i>)						
Dusky shark, <i>C. obscurus</i>)						
White tip shark, <i>C. longimanus</i>	61	12	-	-	73	-
Tiger shark, <i>Galeocerdo cuvieri</i>	15	4	-	1	19	1
Hammerhead shark, <i>Sphyrna lewini</i>	8	23	-	-	31	-
Sharpnose shark, <i>Rhizoprionodon terraenovae</i>	-	1	-	-	1	-
Bigeye thresher shark, <i>Alopias superciliosus</i>	1	-	-	-	1	-
Basking shark, <i>Cetorhinus maximus</i>	2	-	-	-	2	-
Wahoo, <i>Acanthocybium solanderi</i>	-	3	-	-	3	-
Pelagic stingray, <i>Dasyatis violacea</i>	4	-	-	-	4	-
Porpoise, <i>Phocaena phocaena</i>	-	1	-	-	1	-
Mixed bluefin tuna and skipjack	60	-	3	-	60	3
Mixed sickle and dusky shark	-	12	-	-	12	-
Unspecified tuna (Thunnidae)	4	-	-	-	4	-
Unspecified mackerel sharks (Lamnidae)	9	-	-	-	9	-
TOTALS	2929	1955	84	127	4884	211

Table 2. Release and recapture data by species (1970-1976)

(a)

RELEASE						RECOVERY							
Tag No.	Species	Date	Method	Position	Lgt. (cm)	Date	Method	Position	WT. (kg)	Lgt. (cm)	Days Free	Dist. in miles	
B01087	Swordfish	3/VII/68	Harp.	41°05'N 66°39'W	-	3/IX/70	L.L.	42°20'N 70°25'W	96	-	793	175	
B01734	"	13/VII/70	"	41 16 66 10	-	20/IX/70	"	40 31 67 02	63	-	70	59	
B01737	"	13/VII/70	"	41 16 66 15	-	14/VII/70	"	41 17 66 19	-	-	2	5	
B01740	"	13/VII/70	"	41 10 66 17	-	19/VII/70	"	41 41 65 46	-	-	7	38	
B01746	"	13/VII/70	"	41 07 66 20	-	11/IX/70	Harp.	42 29 66 14	84	-	61	83	
B01750	"	13/VII/70	"	41 11 66 17	-	13/X/70	L.L.	40 13 67 52	34	-	93	92	
B01752	"	13/VII/70	"	41 48 66 16	-	27/VII/70	Harp.	40 48 66 43	103	-	15	31	
B01100	"	4/VIII/68	"	42 12 65 42	-	30/VIII/70	"	42 12 66 24	106	-	751	-	
A2498	Dusky	10/III/70	L.L.	27 21 78 22	-	13/VI/70	R.R.	---	52	-	96	-	
A2221	Tiger	24/I/69	L.L.	15 00 60 52	-	25/VII/70	-	---	-	-	548	-	
271-272	Bluefin	2/VIII/71	P.S.	40 10 73 38	53	/71	R.R.	39 44 73 46	-	-	-	-	
O1035-36	"	26/VII/71	"	40 49 71 34	78	2/VIII/71	P.S.	40 45 70 -	9	83	7	-	
O1039-40	"	"	"	40 49 71 34	74	July/Aug/71	"	39 30 73 53	8	-	-	-	
O1071	"	27/VII/71	"	40 08 73 26	53	"	"	---	3	-	-	-	
O1131-32	"	2/VIII/71	"	40 11 73 37	75	-/VIII/71	"	39 - 72 -	-	-	-	-	
O1141-42	"	"	"	40 11 73 37	56	2/VIII/71	"	40 09 73 36	-	57	1	-	
O1403-04	"	24/VII/71	"	40 36 71 31	78	"	"	40 45 70 -	9	81	10	-	
O1421-22	"	"	"	40 43 71 32	73	13/VIII/71	"	40 44 70 34	-	76	21	-	
O1423-24	"	"	"	40 43 71 32	73	18/VIII/71	"	39 30 73 53	-	-	26	-	
O1429-30	"	"	"	40 43 71 32	75	26/VIII/71	"	40 41 69 07	8	-	34	-	
O1443-44	"	"	"	40 47 71 39	74	23/IX/71	"	40 50 71 22	-	-	62	-	
O1445-46	"	"	"	40 47 71 39	76	24/VIII/71	"	40 47 71 33	8	-	32	-	
O1453-54	"	"	"	40 47 71 39	75	2/VIII/71	"	40 43 70 15	8	79	10	-	
O1457-58	"	"	"	40 47 71 39	75	-/VIII/71	"	---	-	76	-	-	
O1463-64	"	"	"	40 47 71 39	76	26/VIII/71	"	40 40 69 34	-	-	34	-	
O1488-90	"	25/VII/71	"	40 50 71 31	75	29/VII/71	"	40 10 73 45	9	-	5	-	
O1491-92	"	"	"	40 50 71 31	77	23/IX/71	"	40 50 71 22	11	-	61	-	
B01167-68	"	2/VIII/71	"	40 10 73 38	55	15/VIII/71	R.R.	39 37 73 41	4	-	14	-	
B01802-03	"	24/VII/71	"	40 36 71 31	78	July/Aug/71	P.S.	40 45 71 33	9	79	-	-	
B01824-25	"	"	"	40 43 71 32	74	23/IX/71	"	40 50 71 22	11	-	62	-	
B01826-27	"	"	"	40 43 71 32	75	July/Aug/71	"	---	9	76	-	-	
B01846-47	Bluefin	24/VII/71	P.S.	40°47'N 71°39'W	76	26/VII/71	P.S.	40°53'N 71°37'W	8	-	3	-	
B01854-55	"	"	"	40 47 71 39	76	29/VII/71	"	40 10 73 45	9	-	6	-	
B01862-63	"	"	"	40 47 71 39	78	2/VIII/71	"	40 50 71 35	-	74	10	-	
B01886-87	"	25/VII/71	"	40 50 71 31	72	22/VIII/71	"	40 10 73 45	-	74	29	-	
B01893	"	"	"	40 50 71 31	69	23/IX/71	"	40 50 71 22	11	-	61	-	
B01922-23	"	"	"	40 57 71 36	72	29/VII/71	"	40 37 70 55	9	-	6	-	
204	"	21/VII/65	"	39 22 74 05	78	24/VII/72	-	39 20 74 40	-	-	2561	-	
274	"	2/VIII/71	"	40 10 73 38	54	2/VII/72	"	38 45 74 40	10	-	336	-	
281	"	"	"	40 10 73 38	55	7/VII/72	"	40 - 74 -	8	78	341	-	
293	"	"	"	40 09 73 36	54	7/IX/72	R.R.	40 20 73 51	11	89	403	-	
O1016	"	25/VII/71	"	40 57 71 36	75	19/VIII/72	"	40 20 73 51	23	-	392	-	
O1038	"	26/VII/71	"	40 49 71 34	76	-/VII/72	P.S.	---	-	-	-	-	
O1043-44	"	"	"	40 49 71 34	75	-/VII/72	"	39 - 72 -	19	94	-	-	
O1063	"	27/VII/71	"	40 08 73 26	53	-/VII/72	"	---	-	-	-	-	
O1089	"	29/VII/71	"	40 05 73 51	50	19/VIII/72	R.R.	40 20 73 48	10	-	388	-	
O1116-17	"	2/VIII/71	"	40 12 73 37	56	6/VIII/72	P.S.	39 40 73 46	11	-	371	-	
O1128-30	"	"	"	40 12 73 37	56	6/IX/72	"	40 01 73 48	10	84	402	-	
B01163-64	"	"	"	40 10 73 38	56	16/VIII/72	"	39 54 73 41	-	82	381	-	
B01169-81	"	"	"	40 10 73 38	55	26/VIII/72	"	39 35 73 45	-	78	391	-	
B01171-72	"	"	"	40 10 73 38	54	30/VIII/72	"	39 35 73 46	14	-	395	-	
B01177-78	"	2/VIII/71	"	40 10 73 38	55	17-24/VIII/72	"	39 30 74 -	15	107	-	-	
B01183-	"	"	"	40 09 73 36	52	2/VII/72	"	38 42 74 40	7	71	336	-	
B01185-86	"	"	"	40 09 73 36	52	19/X/72	"	39 65 72 07	-	120	445	52	
O1401-02	"	24/VII/71	"	40 36 71 31	77	1/XII/72	"	---	-	-	497	-	
O1425-26	"	"	"	40 43 71 32	71	3/VIII/72	"	39 54 73 45	-	-	377	-	
O1447-48	"	"	"	40 47 71 39	76	3-12/VII/72	"	39 - 74 -	22	152	-	-	
O1456	"	"	"	40 47 71 39	73	3/VIII/72	"	39 54 73 45	-	-	377	-	
O1486-87	"	25/VII/71	"	40 50 71 31	75	2/VIII/72	"	39 45 73 43	22	-	375	-	
B01796	"	29/VII/71	"	40 05 73 51	52	14/VIII/72	"	39 54 73 40	11	-	383	-	
B01800-01	"	24/VII/71	"	40 36 71 31	75	2/VIII/72	"	39 45 73 43	23	-	376	-	
B01809	"	"	"	40 43 71 32	76	19/VIII/72	"	40 21 73 48	22	-	393	-	
B01842	"	"	"	40 47 71 39	75	13-30/VII/72	"	39 - 74 -	-	-	-	-	
B01844-45	"	"	"	40 47 71 39	76	19/VIII/72	"	39 42 73 40	22	-	393	-	
B01850-51	"	"	"	40 47 71 39	76	16/VIII/72	"	40 03 73 45	22	-	370	-	
B01858-59	"	"	"	40 47 71 39	75	/72	"	---	-	-	-	-	
B01881	"	25/VII/71	"	40 50 71 31	76	8/VII/72	"	39 05 74 20	-	85	352	-	

(c)

RELEASE					RECOVERY								
Tag No.	Species	Date	Method	Position	Lgt. (cm)	Date	Method	Position	WT. (kg)	Lgt. (cm)	Days Free	Dist. in miles	
B01883	Bluefin	25/VII/71	P.S.	40°50'N 71°31'W	75	14/VIII/72	P.S.	40° 'N 73° 'W	18	-	389	-	
B01900	"	29/VII/71	"	40 05 73 51	52	7/IX/72	"	40 02 73 49	10	85	407	-	
B01904	"	"	"	40 05 73 51	53	2/VII/72	"	38 45 74 40	10	-	340	-	
B01920	"	25/VII/71	"	40 57 71 36	72	7/IX/72	"	40 04 73 47	-	109	411	-	
B01953	"	26/VII/71	"	40 49 71 34	73	21/VIII/72	"	40 00 73 43	19	-	393	-	
B01970	"	27/VII/71	"	40 08 73 26	56	6/VIII/72	"	39 40 73 46	11	-	377	-	
B01976-77	"	27/VII/71	"	40 08 73 26	54	16/VII/72	"	39 72	11	-	366	-	
B01094	Swordfish	3/VIII/68	HARP.	42 07 65 57	-	20/VII/72	L.L.	41 30 65 00	130	-	1448	45	
B01758	"	14/VII/70	Harp.	41 12 66 17	-	4/X/72	Harp.	40 70	-	-	814	-	
B02182	Blue Shark	29/V/72	L.L.	36 50 73 02	-	7/VII/72	-	40 50 71 50	68	228	40	-	
B02569	"	18/VI/72	"	37 49 70 23	167	/VIII/72	L.L.	39 45 71 00	-	-	-	-	
B02155	"	28/V/72	"	36 50 73 02	-	2/X/72	-	41 02 67 00	-	-	128	-	
C01052	Bluefin	9/VIII/73	P.S.	39 51 73 36	81	12/VIII/73	P.S.	---	-	-	4	-	
C01125-26	"	14/VIII/73	"	39 50 73 38	78	16/VIII/73	"	39 72	-	-	3	-	
C01057-58	"	9/VIII/73	"	39 50 73 38	92	22/XI/73	"	39 73	14	94	106	-	
B04067	"	10/VIII/73	"	39 58 73 36	79	22/X/73	"	39 72	9	83	74	-	
B01945	"	26/VII/71	"	40 49 71 34	74	/VIII/73	"	---	-	127	-	-	
C01077-78	"	10/VIII/73	"	39 58 73 36	78	/VIII/73	"	---	9	82	70	-	
C01073-74	"	"	"	39 58 73 36	57	22/IX/73	"	---	3	59	44	-	
C01101	"	13/VIII/73	"	40 06 73 45	75	28/VIII/73	"	39 54 73 35	9	-	16	17	
B04151-52	"	14/VIII/73	"	39 50 73 38	78	20/VIII/73	"	40 11 73 49	18	-	7	23	
B04089-90	"	10/VIII/73	"	39 58 73 36	77	13/VIII/73	"	40 03 73 54	9	-	4	15	
B04135-36	"	14/VIII/73	"	39 50 73 38	78	20/VIII/73	"	40 11 73 49	-	-	7	27	
C01093-94	"	10/VIII/73	"	39 58 73 36	74	13/VIII/73	"	40 03 73 54	-	-	4	19	
C01091-92	"	10/VIII/73	"	39 58 73 36	71	13/VIII/73	"	40 08 73 48	-	76	4	13	
B04141-42	"	14/VIII/73	"	39 50 73 38	75	17/VIII/73	"	39 52 73 34	-	-	4	5	
C01059-60	"	9/VIII/73	"	39 51 73 36	83	16/VIII/73	"	39 58 73 26	-	-	8	6	
B04143-44	"	14/VIII/73	"	39 50 73 38	80	16/VIII/73	"	39 58 73 26	-	-	3	13	
B04075-76	"	10/VIII/73	"	39 58 73 36	77	16/VIII/73	"	39 58 73 36	-	-	7	8	
B04069	"	"	"	39 58 73 36	76	/VIII/73	"	40 72	-	-	-	-	
01087-88	"	29/VII/71	"	40 05 73 51	51	25/IX/73	"	39 72	-	102	790	-	
B01165-66	"	2/VIII/71	"	40 10 73 38	55	12/VIII/73	"	39 72	-	62	742	-	
01449-50	"	24/VII/71	"	40 47 71 39	76	8/VI/73	"	39 55 73 06	-	133	686	81	
01484-85	"	25/VII/71	"	40 50 71 31	72	16/I/73	"	---	-	-	542	-	
B01907	Bluefin	29/VII/71	P.S.	40°05'N 73°51'W	52	5/VIII/73	P.S.	39°55'N 73°25'W	-	102	739	21	
B01967	"	27/VII/71	"	40 08 73 26	51	28/VIII/73	"	40 74	-	106	764	28	
B01170	"	2/VIII/71	"	40 10 73 38	-	/VIII/73	"	---	-	127	-	-	
B01029	Swordfish	27/VII/68	Harp.	43 12 61 40	-	26/IX/73	L.L.	43 19 60 22	144	-	1888	40	
B01641	Bluefin	1/VIII/69	Trap	44 37 64 02	-	31/VII/74	R&R	46 40 63 50	-	-	1826	525	
B01194	"	26/IX/71	"	44 37 64 03	-	15/VIII/74	Harp.	43 30 70 06	-	-	1055	336	
C01140	"	14/VIII/73	P.S.	39 50 73 38	79	20/VIII/74	P.S.	40 03 73 28	-	109	372	31	
C01039	"	6/VIII/73	"	40 09 73 37	76	15/VIII/74	"	40 73	-	106	375	27	
B04109	"	13/VIII/73	"	40 06 73 45	73	13/VII/74	"	39 73	-	81	335	76	
B04106	"	13/VIII/73	"	40 06 73 45	79	7/VIII/74	"	40 23 72 29	-	98	360	80	
B01885	"	25/VII/71	"	40 50 71 31	73	18/VIII/74	"	39 45 72 55	-	149	1121	117	
B01749	Swordfish	13/VII/70	Harp.	41 11 66 17	-	1/IX/74	Harp.	42 49 66 53	-	-	1512	102	
B02715	Blue Shark	27/VI/72	L.L.	41 06 65 45	-	3/V/74	-	35 08 74 55	-	-	676	586	
C01013-14	Bluefin	5/VIII/73	P.S.	39 52 73 37	74	10/VII/75	P.S.	40 02 73 38	-	274	705	14	
B03833	"	6/VIII/74	R&R	48 23 64 20	-	3/VIII/75	R&R	47 50 65 09	-	274	363	55	
B01104	"	10/VII/71	Trap	44 39 63 59	-	31/VIII/75	"	48 08 64 56	412	-	1514	535	
B03081-82	"	23/VI/75	"	44 37 64 02	-	3/IX/75	"	47 06 63 55	388	264	73	505	
B03123-24	"	"	"	44 36 64 03	-	14/IX/75	"	46 31 62 07	374	276	84	475	
B03329	"	30/VI/75	"	44 30 63 56	-	18/IX/75	"	46 29 62 01	301	254	81	-	
B01680	Swordfish	28/XI/69	L.L.	37 24 73 58	-	24/III/75	P.S.	35 00 74 48	101	-	1943	-	
B01756-57	"	14/VII/70	Harp.	41 12 66 17	-	1/IX/75	"	42 13 67 00	101	-	1876	7	
B04376	Bluefin	4/VIII/75	R&R	48 23 64 20	-	26/VIII/76	R&R	47 06 64 00	398	-	389	-	
B01135	"	13/VII/71	Trap	44 38 63 59	-	2/X/76	"	46 28 62 44	427	-	1909	-	
B03452-) B04271)	"	28/VI/76	"	44 38 64 00	-	29/VIII/76	"	48 09 64 54	395	-	63	-	
B03298	"	26/VI/75	"	44 39 63 59	-	4/X/76	"	44 35 64 03	358	-	466	-	
B01729-31	Swordfish	9/VII/70	Harp.	42 38 64 35	-	23/VIII/76	Harp.	42 06 68 42	142	-	2238	-	

Table 3. The numbers of fish tagged [double (in parenthesis) or single], by species and method of capture, for the period 1970-76.

Species	Method capture	1970	1971	1972	1973	1974	1975	1976	Total
Swordfish	LL	38(2)	1(10)	4(1)	-	-	16(1)	-	59(14) = 73
	Harp.	34							= 34 107
Bluefin	R&R	17	55	70	(15)	40(1)	20	17	219(16) = 235
	Trap	3	45	11(1)	-	8	7(141)	(12)	74(153) = 227
	P.S.	-	3(268)	-	156	-	-	-	159(268) = 427
	Harp.	-	-	-	(1)	-	-	-	- (1) = 1 890
Yellowfin	LL	-	1	1(1)	-	-	-	-	2(1) = 3
	P.S.	-	-	-	-	30	-	-	= 30 33
<u>Sharks</u>									
Blue	LL	-	87	589(20)	-	-	31	-	707(20) = 727
	Harp.	6	-	-	-	-	-	-	= 6 733
Dusky	LL	1	2	32	-	-	-	-	= 35
Whitetip	LL	4	-	8	-	-	-	-	= 12
Sickle	LL	46	10	4	-	-	-	-	= 60
Sickle/dusky (mixed)	LL	-	-	12	-	-	-	-	= 12
Hammerhead	LL	5	-	-	-	-	-	-	= 5
Scalloped hammerhead	LL	-	-	18	-	-	-	-	= 18
Mako	LL	-	-	12	-	-	3	-	= 15
Tiger	LL	-	-	4	-	-	-	-	= 4
Sharpnose	LL	-	-	1	-	-	-	-	= 1
Porbeagle	LL	-	-	3	-	-	-	-	= 3
Dolphin	LL	3	-	18	-	-	-	-	= 21
Porpoise	P.S.	-	-	-	-	1	-	-	= 1
Wahoo	LL	-	-	3	-	-	-	-	= 3
Annual totals		159	482	814	172	80	219	29	=1955