

AN UPDATE OF U. S. BLUEFIN TUNA TAGGING

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SUMMARY

United States tag release and tag recapture data for all sizes of bluefin tuna up to 1979 are summarized by year of release and by year of recapture. A separate breakdown of small bluefin tuna tagged in the general area of the Mid-Atlantic Bight is also presented.

RESUME

Les données américaines sur le marquage et les récupérations de marques, pour toutes les tailles de thon rouge jusqu'en 1979, sont récapitulées par année de marquage et année de récupération. Une ventilation indépendante du petit thon rouge marqué dans le secteur général du "Mid Atlantic Bight" est également présenté.

RESUMEN

Se resumen por año de liberación y de recaptura las marcas realizadas por USA y los datos de marcas recapturadas para todas las tallas del atún rojo hasta 1979. También se presenta un desglose separado de atún rojo pequeño marcado en la zona general de Mid-Atlantic Bight.

TAGGING DATA BASE

INTRODUCTION

This report is an update of the data collected by U.S. tagging of bluefin tuna (Thunnus thynnus) and complements some aspects of SCRS/77/42 (Baglin et al. 1978). Earlier papers presenting results of U.S. tagging of bluefin tuna are FCRS/76/18 (Mason et al. 1977) and SCRS/74/36 (Mason 1975). The most recent update of tagging activities can be found in SCRS/78/41 (Tyler et al. 1979). This report represents the first attempt at a recapitulation of the data from a computerized master tagging file of the release/recapture information. It is intended to be a general update of tagging data and is not meant to be a document of analysis and conclusions. An analysis of mortality rates of bluefin tuna based on the data presented in Table 3 can be found in the current working document by M.I. Farber¹. A breakdown and detailed analysis of the tagging by size and gear and of the geographical discreteness of bluefin tuna resources is presented in the current working document by S. Brunenmeister². An analysis of tag shedding rates can be found in the current working document by R.E. Baglin Jr. et al.³.

¹M.I. Farber, A preliminary analysis of mortality of bluefin tuna, Thunnus thynnus, tagged in the northwestern Atlantic Ocean. SCRS/79/

²S. Brunenmeister, A summary and discussion of technical information pertaining to the geographical discreteness of Atlantic bluefin tuna resources. SCRS/79

³R.E. Baglin Jr., M.I. Farber, W.H. Lenarz, and J.M. Mason, Jr., Shedding rates of plastic and metal dart tags from Atlantic bluefin tuna, Thunnus thynnus. SCRS/79

A tabulation of all bluefin tuna tag releases by year of release, as recorded by the U.S. Cooperative Game Fish Tagging Program, and by year of recapture for 1954-1978 is presented in Table 1. A summary of all bluefin tuna tag releases by year and location for all gears is presented in Table 2. The geographical areas used in Table 2 are defined by the Figure 1 map. A preliminary summary of yearly releases and subsequent recaptures of U.S. tagged small bluefin for 1954-1978 is presented in Table 3. Only small bluefin tagged in the area designed as the Mid-Atlantic Bight (MAB) were included in the releases, though a few records from the New England (NE) area were also counted (see Figure 1). In general, the gears used for the initial capture were rod-and-reel (from sport boats) and purse seine (from commercial vessels). Multi-tagged specimens were counted as single releases, and similarly multi-tagged recaptures were counted as single recaptures. The total number of fish recovered from a given release year is separated into the number of returns during each subsequent year.

The potential for errors, both rectifiable as well as unknown, is great. It is believed, though, that the percentage of error is probably very low. As a case in point, a comparison between the yearly releases of small tagged bluefin tuna from Table 3 and that compiled in Table 1 in Baglin et al. (1978), shows differences in 18 of the 24 years presented (1954-1977). The total percentage difference is less than one-half of one percent. Further the number of recoveries of tags from any given release year will change with the future recovery of a tag from that year.

A list of all transoceanic migrations of tagged bluefin is compiled in Tables 4 and 5. These migrations are categorized as: (i) tagged small bluefin tuna from the Mid-U.S. Atlantic Coast to eastern Atlantic waters (Table 4); (ii) tagged small bluefin tuna from the Bay of Biscay to the Mid-U.S. Atlantic coast (Table 4 continued); and (iii) tagged giant bluefin tuna from the Bahamas to the Norwegian coast or South American coast (Table 5). Two additional migrations are noted on Table 4 that have been documented in previous tallies but have not been included in the data file.

1979 TAGGING RESULTS

During 1979 all tagging was directed at medium bluefin. Tagging began on July 8 and ended July 13, 1979. Many small and large schools of medium bluefin tuna were sighted, but for tagging purposes sets were made only on small schools (ten tons or less). A total of 99 medium fish were tagged from 4 sets that were exclusively medium bluefin. From the other 2 successful sets, 93 fish, averaging 50 lbs, were tagged. These were exclusively small bluefin even though the sets were mixed since during the tagging only the smaller fish stayed near the surface.

As of 15 September, approximately 197 medium bluefin had been tagged off Virginia Beach by harpoon fishermen. These fish were reported to be 180-250 lbs with a few small and giants mixed in. Further, approximately 500 giant bluefin had been tagged by U.S. purse seine vessels and 40 giants by harpooners.

There have been approximately 70 tagged and released small bluefin tuna by sport boats during the 1979 fishing season.

As of Oct. 1 there have been 176 tag recoveries. A breakdown of these recoveries by year released is:

<u>Release Year</u>	<u>Number recovered in 1979</u>
1965	1
1966	2
1976	4
1977	74
1978	91
1979	3
unknown	<u>1</u>
Total	176

<u>Recapture gear</u>	<u>Number recaptured</u>
Purse seine	153
Sport vessel	14
Japanese longline	6
Trap (Europe)	1
Bait boat (Europe)	<u>2</u>
Total	176

There have been three bluefin tuna tag recoveries this year from Europe (included in Table 4). Two recoveries were made in the Bay of Biscay, both fish having been tagged by a U.S. purse seine vessel off New Jersey. One release was in 1977, a 2 year old bluefin, and the other was in 1978, a 1 year old bluefin. The third fish was recaptured in a trap of Barbate (Cadiz) Spain. This fish had been tagged in 1966 from a U.S. experimental longlining research vessel and was estimated to be 275 lbs (125 kg) at release or probably about 8 or 9 years old. Age at recapture would be 21 or 22 years.

Table 4. (Continued) Transoceanic migrations of tagged small bluefin tuna:

Table 4. Transoceanic migrations of tagged small bluefin tuna (updated 9/6/79):

Mid-U.S. Atlantic Coast to Eastern Atlantic										Bay of Biscay to Mid-U.S. Atlantic Coast									
DATE (Yr-Mo-Da)		Days at Liberty	SIZE ^a			Tag No.	LOCATION		DATE (Yr-Mo-Da)		Days at Liberty	SIZE ^a			Tag No.	LOCATION			
Release	Recapture		Release	Recapture	Wgt.		Release	Recapture	Release	Recapture		Length	Wgt.	Release		Recapture	Release	Recapture	
540725	590715	1816	76 (D)	-	-	G 39	41°00'N, 70°50'W	43°55'N, 3°25'W	680923	700808	684	63 (C)	85 (C)	-	WH 565	40°10'N, 9°30'W	40°28'N, 70°38'W		
540727	590816	1846	74 (D)	-	68 (A)	G 54	41°00'N, 70°50'W	43°55'N, 3°25'W	590926	700720	297	-	-	-	WH 49	44°00'N, 5°05'W	40°00'N, 73°00'W		
650721	660722	366	81 (C)	-	16 (A)	D 7650	39°12'N, 74°03'W	43°31'N, 2°18'W	Code: (A) = kg estimated (B) = kg actual (C) = cm fork length, estimated (D) = cm fork length actual (E) = cm Total estimated										
650804	660806	367	56 (C)	-	10 (A)	D 6647	40°01'N, 73°17'W	44°20'N, 4°10'W											
650804	660825	386	56 (C)	-	11 (A)	D 6431	40°01'N, 73°17'W	44°50'N, 4°40'W											
650804	661023	445	56 (C)	-	15 (A)	D 6665	40°01'N, 73°17'W	43°45'N, 2°30'W											
650804	670809	735	56 (C)	-	21 (A)	D 8343	40°00'N, 73°31'W	45°10'N, 4°00'W											
650805	660708	337	81 (C)	-	18 (A)	D 6750	40°24'N, 73°34'W	43°20'N, 2°15'W											
650814	660803	354	56 (C)	-	9 (A)	D 8487	40°24'N, 73°41'W	44°15'N, 2°30'W											
650814	660823	374	56 (C)	-	8 (A)	D 8602	40°24'N, 73°41'W	43°25'N, 2°30'W											
650814	660323	374	56 (C)	-	9 (A)	D 8348	40°24'N, 73°41'W	43°25'N, 2°30'W											
650814	660914	396	58 (C)	-	8 (A)	D 8802	40°24'N, 73°41'W	43°27'N, 1°48'W											
650814	680707	1058	-	100 (C)	20 (A)	D 8478	40°24'N, 73°41'W	43°55'N, 2°45'W											
650821	670704	682	-	111 (C)	-	M 5299	41°00'N, 71°30'W	43°47'N, 3°25'W											
650821	670712	690	-	-	17 (A)	M 1163	41°00'N, 71°30'W	44°01'N, 2°58'W											
650821	660810	354	-	-	15 (A)	M 5295	41°00'N, 71°30'W	45°20'N, 2°25'W											
650821	670814	723	-	100 (C)	19 (A)	M 445	41°00'N, 71°30'W	43°38'N, 2°06'W											
650821	670817	726	58 (C)	82 (C)	-	C 27431	40°55'N, 70°32'W	43°40'N, 2°12'W											
650824	660813	354	58 (C)	-	12 (A)	D 8848	40°57'N, 70°53'W	44°18'N, 2°15'W	Table 5. Transoceanic migrations of tagged giant bluefin tuna:										
650828	660802	339	61 (C)	-	12 (A)	B 19139	41°00'N, 71°30'W	45°00'N, 2°00'W	Bahamas to the Norwegian Coast										
660326	790730	4874	125*(A)	279 (D)	288 (B)	M 8189	38° N, 62° W	36°25'N, 6°00'W											
660721	670720	364	79 (E)	-	15 (A)	H 7204	39°52'N, 73°34'W	43°32'N, 2°42'W											
660722	670704	347	66 (E)	120 (C)	-	H 7690	39°43'N, 73°16'W	43°22'N, 2°25'W											
660722	680810	750	66 (E)	104 (C)	20 (A)	H 7655	39°43'N, 73°16'W	43°24'N, 2°30'W											
660723	670629	341	79 (C)	98 (C)	15 (A)	D 9511	39°25'N, 73°36'W	43°45'N, 2°05'W											
660723	670712	354	56 (E)	85 (C)	-	H 6181	39°36'N, 73°35'W	44°10'N, 2°55'W											
660723	670714	356	79 (E)	-	15 (A)	H 470	39°26'N, 73°36'W	43°35'N, 1°45'W											
660723	700818	1487	79 (E)	-	85 (A)	H 6960	39°25'N, 73°36'W	44°46'N, 2°38'W											
660724	670711	352	79 (E)	-	19 (A)	H 6508	40°19'N, 73°32'W	43°35'N, 1°45'W											
660725	670712	352	79 (E)	-	17 (A)	H 6603	40°21'N, 73°22'W	44°00'N, 3°00'W											
660804	670822	383	53 (E)	-	9 (A)	H 401	40°42'N, 70°58'W	43°58'N, 3°46'W											
660804	670928	420	56 (E)	-	-	H 7346	40°41'N, 70°56'W	43°40'N, 2°15'W											
660806	680901	757	58 (E)	100 (C)	20 (A)	H 396	40°36'N, 71°19'W	43°21'N, 2°23'W											
660814	680806	723	58 (C)	98 (C)	17 (A)	M 2475	40°41'N, 71°02'W	43°26'N, 2°29'W											
660821	670801	345	58 (E)	-	8 (A)	H 10029	40°55'N, 71°47'W	43°30'N, 1°58'W											
660821	670815	359	56 (C)	-	10 (A)	D 6453	40°48'N, 71°40'W	43°56'N, 2°47'W											
660828	670802	339	-	74 (C)	9 (A)	M 1166	40°00'N, 70°00'W	44°10'N, 2°20'W											
670706	681005	457	76 (C)	94 (C)	18 (A)	M 13723	39°35'N, 73°39'W	46°20'N, 2°11'W											
670707	690703	727	69 (C)	95 (C)	16 (A)	D 7446	39°35'N, 73°38'W	43°58'N, 2°48'W											
670702	780715	378	-	-	43 (A)	H 70554	37°28'N, 75°12'W	43°50'N, 3°40'W											
670703	780728	390	80 (D)	-	25 (A)	H 74168	37°07'N, 75°28'W	44°15'N, 3°47'W											
670714	790722	738	82 (D)	137 (D)	52 (B)	D 58448	38°04'N, 74°47'W	44°53'N, 2°52'W											
680822	790819	362	61 (D)	-	-	H72119-20	40°51'N, 71°10'W	43°20'N, 1°45'W											

This fish was a medium bluefin when released by U.S. longlining vessel.

Note: There were 2 additional transoceanic migrations released in 1965 and recaptured in 1966 that have been documented but not included above.

^aCode: (A) = kg estimated
(B) = kg actual

Figure 1. Geographical areas used for U.S. Cooperative Game Fish Tagging Program data.

