

DESCRIPTION OF THE BLUEFIN TUNA FISHERY IN THE BAY OF BISCAY

by

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1. BRIEF HISTORY

The bluefin tuna fishing tradition of the Basques goes back many centuries. We know that the "Cofradía de Mareantes de San Pedro" (Mariners Fraternity of San Pedro) in Fuenterrabía is one of the oldest in the world, and was established in August, 1361. At that time, bluefin tuna fishing in the Bay of Biscay was carried out from row boats.

2. FISHING GROUNDS AND SEASONS

Bluefin tuna (Thunnus thynnus) fishing in the Bay of Biscay has been limited to the Basque ports of St. Jean de Luz and Fuenterrabía. However, in other ports of the Cantabrian coast, such as San Sebastian, Guetaria and Bermeo, bluefin are caught incidentally when fishing for albacore (Thunnus alalunga).

The summer months represent the main bluefin tuna fishing season; in December and February of some years some bluefin tuna have been caught in the purse seine nets of vessels dedicated to the seasonal fishing of clupeoids, although such cases are rare.

The bluefin tuna fishing area in the Bay of Biscay is shown in Fig. 1; the bluefin tuna fishing area is a very limited area at the back of the Bay of Biscay.

3. FISHING METHODS AND GEAR

The classical and traditional method of bluefin fishing was the troll, as was used for albacore fishing. In 1934, bluefin fishing using special spoons ("chapos") became popular among Basque fishermen. This came about when in 1933 the excellent yields of a vessel, which had used such a method secretly, became known.

The first attempt at fishing bluefin tuna with live bait in the Bay of Biscay was made by two boat owners of St. Jean de Luz, G. Pommereau and A. Elissalt, in the summer of 1947. During this period, 1947-1949, a series of circumstances occurred as a consequence of using a fishing method which was unknown up to that time. As a result, since 1954, this fishing system was established definitely and allowed for a more rational exploitation of the bluefin resources.

The appearance of steam powered engines for fishing in the Bay of Biscay occurred at the end of the 19th century. However, in many ports of the Spanish Cantabrian Sea traditional vessels using oars, called "trainera", were used for a few more years before the mechanization of the vessels.

After 1930, steam propulsion was completely established in the area. Since then, the development of the fishing vessels has been as follows:

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YEAR	GRT	NO. OF CREWMEN	FISHING METHOD
1930	25	3	Troll -chapa
1940	35	4	" "
1950	40	8	Live bait
1960	60	11	" "
	90	15	" "
1970	50	10-12	" "

The size of the vessels increased between 1950 and 1960 and at present is between 50-90 GRT. It should be pointed out that in the 1970's the construction of new vessels in the port of St. Jean de Luz was halted. However, in the port of Fuenterrabía vessel construction continued. The two main types of vessels built were: (1) large-sized vessels having sufficient power to be able to leave the area and fish for albacore, especially at the beginning of the spawning season, when schools of bluefin are found in areas very remote from the Cantabrian coasts; and (2) medium-sized vessels which remain in the Bay of Biscay area fishing bluefin. We can say that the bluefin fleet has stabilized.

YEAR	St. Jean de Luz		Fuenterrabía	
	40-79 GRT	80-120 GRT	40-79 GRT	80-120 GRT
1965	26	26		
1966	33	31		
1967	34	12		
1968	25	9		
1969	25			
1970	34			
1971	33			
1972	28		21	8
1973	30		20	8
1974	25		19	8
1975	30		17	11
1976	20		16	13
1977	18		15	13
1978	17		15	13

4. RELATION WITH OTHER FISHERIES

Basque tuna fishermen can fish bluefin or albacore. Since in France the price of bluefin is higher, this species has priority for the fishermen. On the other hand, since the tuna vessels are small, they do not wander far from the Bay of Biscay area.

In Spain the price of albacore is higher than that of bluefin so that in the majority of the Cantabrian ports albacore are taken. An exception is Fuenterrabía where fishermen traditionally aim towards bluefin. Therefore, bluefin landings of the other Spanish Cantabrian ports are taken into account in this paper.

5. TYPE OF BAIT USED

The meat used for bluefin tuna fishing is a combination of species such as horse mackerel (Trachurus trachurus), bogue (Boops boops), sardine (Sardina pilchardus), etc. Their abundance has not constituted a limitation of fishing effort.

6. DESCRIPTION OF THE FISHING OPERATION

Live bait fishing is characterized by the detection of tuna schools using acoustic methods, by the presence of birds, or by sighting tuna movements on the surface.

The normal procedure consists of using live bait to attract the schools of fish to the side of the vessel. When the fish are close the poles are lowered and fishing begins. The number of oper-

ations during the day varies since a vessel can carry out very distinct catches in each operation. This is dependent on diverse factors such as those of a technical nature or to the behavior and size of the detected schools.

7. EFFECTS OF THE WEATHER AND HYDROGRAPHICAL CONDITIONS

The effect of water temperature is important for bluefin fishing in the Bay of Biscay. Normally the catches are carried out when the temperatures are between 16°C (at the beginning and end of the fishing season) and 21°C (during the summer).

In some years, there are abnormal conditions in the Bay of Biscay, such as in 1976 when temperatures reached 24°C at the start of the season. These temperatures affected the catches in that the tuna did not bite the hooks during that time.

Therefore, hydrological conditions can affect the duration of a fishing season, either by decreasing the number of fishing days, such as occurred in 1976 or by lengthening the season as happened in 1978.

8. DURATION OF A FISHING TRIP

The duration of a trip is from 3-5 days and the number of trips ranges between 15 and 20 from June to October. In times of adverse weather conditions, fishing is impossible. However, this rarely happens in the Bay of Biscay.

9. CATCHES

The development of bluefin catches in the Bay of Biscay between 1940 and 1978 is shown in Fig. 2. It can be seen that catches increased gradually since 1948, coinciding with the use of the live bait method. Maximum catches occurred between 1954-1955, during which period the fishermen perfected the live bait fishing method. Rods with a pulley were used and this allowed the fishermen to approach the large-sized tuna schools (between 50-120 kg) which was difficult up to that time. Since then the overall level of the catches has decreased and has stabilized at about 1,500 MT, with considerable variation.

Bluefin catches in the Bay of Biscay since 1965 have been as follows:

YEAR	ST. JEAN DE LUZ	FUENTERRABIA	OTHER PORTS	TOTAL
1965	621	582	420	1,623
1966	1,624	1,069	432	3,125
1967	860	529	169	1,558
1968	390	367	446	1,203
1969	534	865	131	1,530
1970	732	1,299	174	2,205
1971	680	1,484	27	2,191
1972	740	1,209	932	2,881
1973	540	1,469	227	2,236
1974	522	983	106	1,611
1975	692	891	127	1,710
1976	267	587	93	947
1977	593	957	68	1,618
1978	723	1,265	312	2,300

The average catch per vessel and trip varies from one year to the next, although the yields per day at sea have been estimated for the last four years, as follows:

YEAR	YIELD PER DAY AT SEA
1975	520 kg
1976	591
1977	805
1978	1,019

10. FISHING EFFORT

The unit of fishing effort applicable to the French-Spanish baitboat fleet is of two distinct types: days at sea and man days at sea. The latter type allows us to break down the two vessel types homogeneously according to size. This takes into account equally the fact that the most important factor for fishing is the number of men available. As a result, if the extension of the fishing zone is very reduced, then the size of the vessel does not play an important part.

Also taken into account was the introduction of sonar to the vessels since 1977. As a result, the fishing potential of each tuna vessel was increased by 20%, according to studies carried out on a number of tuna vessels with and without sonar, for which a coefficient of 1.20 was applied to the 1978 results.

For this reason we can consider that the effort measures are reliable. The effort tendency in the last seven years is stable, although there was a significant reduction to levels of 50% for the years 1976 and 1977.

The figures are as follows:

YEAR	NO. OF MEN X DAYS AT SEA
1972	28,735
1973	32,556
1974	23,535
1975	30,931
1976	15,224
1977	18,034
1978	29,965

11. SIZE AND MATURITY OF THE CAPTURED FISH

The size of tuna in the Bay of Biscay ranges between 60 and 200 cm. The most common size blue-fin are between 70 and 140 cm, i.e. two to four-year-old fish. The youngest tuna are immature and the largest (between 150 and 200 cm) can be considered mature, in feeding migration towards other areas, that in passing through the Bay of Biscay follow the anchovy schools (Engraulis encarsicholus) which are very abundant during these periods.

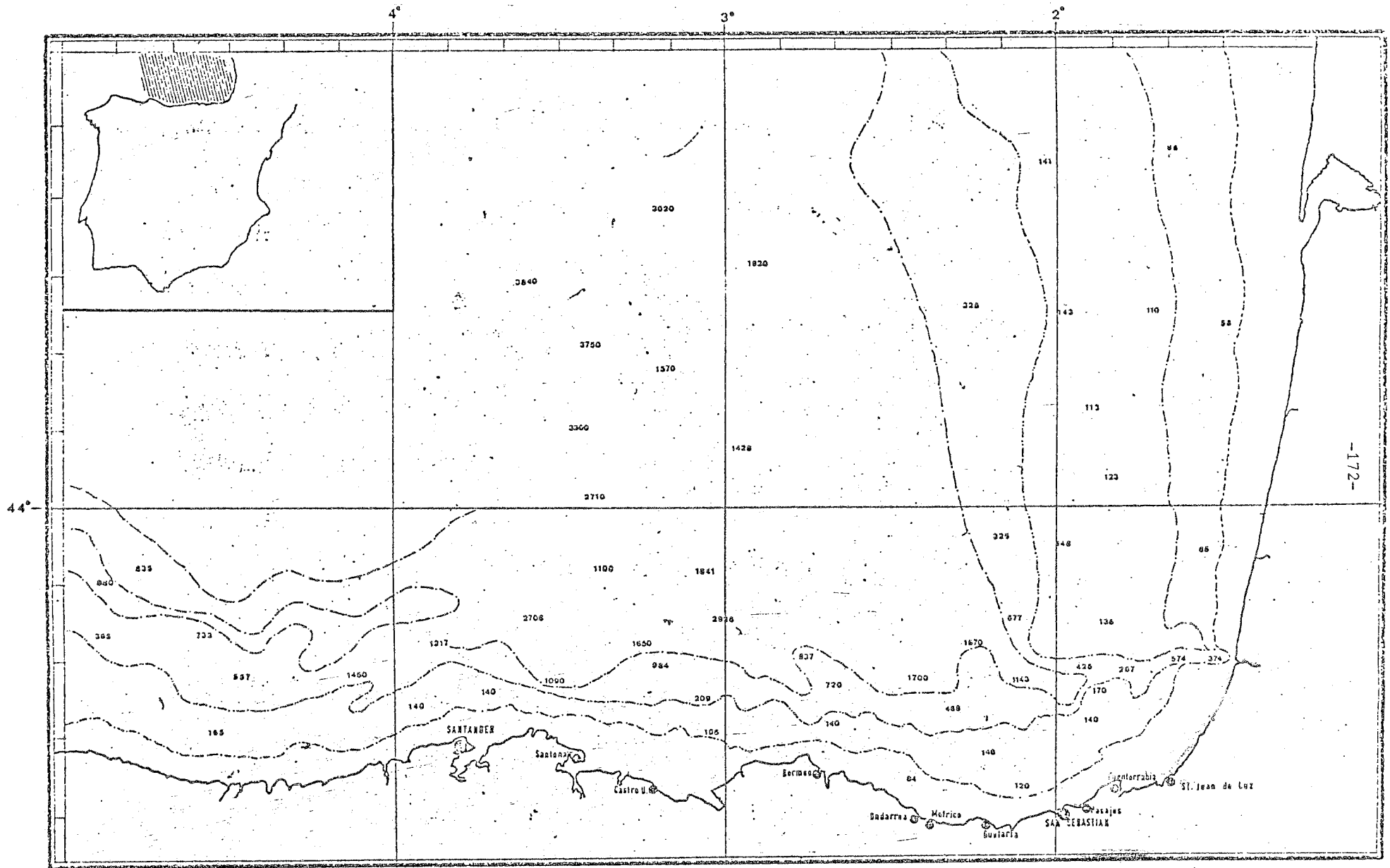


Fig. 1. The bluefin tuna fishing area in the Bay of Biscay.

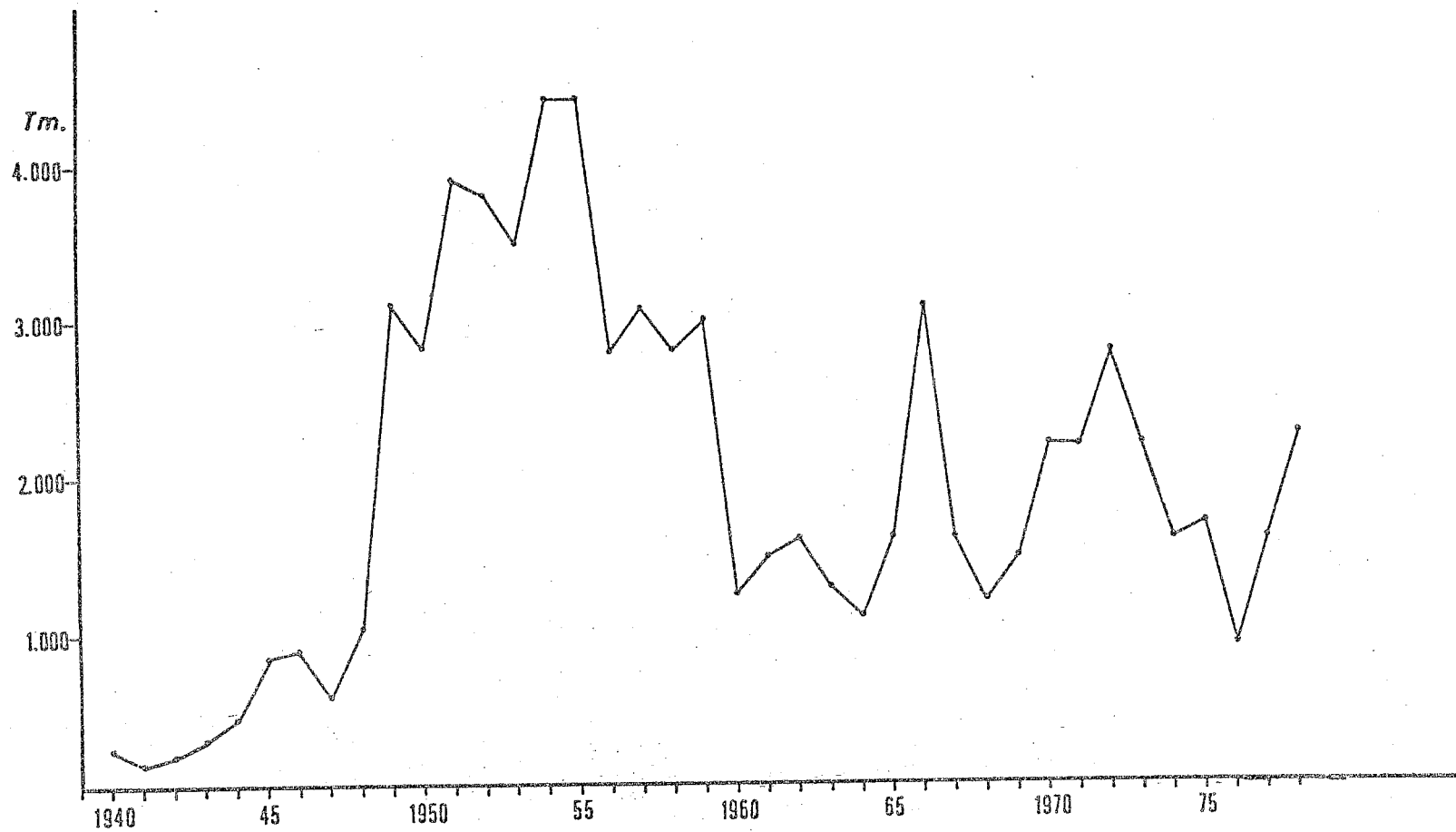


Fig. 2. The development of bluefin catches in the Bay of Biscay between 1940 and 1978.