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Current Status of the Yellowtail Flounder Fishery in ICNAF Subarea 5

by

M. L. Parrack

National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts

INTRODUCTION

This document reviews 1972 yellowtail flounder catch statistics available to date and the 1972 research cruise data in ICNAF Subarea 5 to update the assessment studies reported by Brown (1972) and Brown and Hennemuth (1971). A pre-recruit catch model for the area east of 69° (Brown and Hennemuth, 1971a). is used to predict yellowtail flounder populations in 1973 and when extrapolated to 1974, to derive a preliminary recommendation for a 1974 quota.

CATCH STATISTICS

The preliminary 1972 catch statistics compared with 1971 are presented in Table 1. For this comparison 1972 catch by nations other than the United States are those reported to ICNAF under the quota regulations. The 1972 quotas of 16,000 MT in the management area east of 69° and 13,000 MT west of 69° served to hold catch to 18,302 MT in the former area and to 12,712 MT in the latter area (see Figure 1). Discards were greatly reduced in 1972. The US industrial fishery was, as in 1971, almost non-existent. A total of 1,644 MT were taken from the Cape Cod stock in the area W of 69°, a 678 MT decrease over 1971 and 12,045 MT from the southern New England stock, a 1,809 MT decrease from 1971.

Landings from Statistical Area 6 were estimated to have increased from 7,800 MT in 1971 to 9,700 MT in 1972, assuming that the catch by countries other than USA remained at the same level. While the relationship between the stocks in the middle Atlantic and in southern New England has not been clearly defined, there

undoubtedly is some overlap particularly along the 70°41' Subarea 5-Statistical Area 6 border line. Most of the increase resulted from catches in this border area. Because the stock situation is as critical as it is in southern New England stocks, such an increase in Statistical Area 6 catch, which may include some Div. 5Zw stock, is cause for concern.

FALL RESEARCH CRUISE ABUNDANCE INDICES

Abundance indices from annual Albatross IV fall research cruises have been established since 1963 (Brown and Hennemuth, 1971). On joint USSR-USA fall research cruises in 1967, 1968, 1970 and 1972, the USSR research vessel usted a standard 27.1 Soviet trawl. During the fall cruises in 1969 and 1971, the USSR vessel used either a different trawl or a modified 27.1 trawl so that due to probable differences in trawl efficiency, catch per tow data from such cruises are not comparable. Indices, however, were computed from USSR cruises on which the standard 27.1 Soviet trawl was used in the same manner as for Albatross IV cruises. The fall 1967 USSR cruise, however, did not include Georges Bank so that no indices are possible from USSR data for the area east of 69° for that year.

Catch per tow data from both USA and USSR fall cruises indicate a stabilizing of abundance on Georges Bank (Figs. 6-7). USSR research cruise of yellowtail abundance indices from west of 69° (both number and weight) show continued decrease in abundance of the southern New England stock; 60% drop in these abundance indices occurred since 1970 (Figs. 8-9). The US 1972 fall index, however, doubled over that of 1971. Since USSR indices have decreased and abundance of pre-recruits (and thus recruitment) has been low for the last several years (Table 2) this estimate of large increase is very likely due to sampling error and not increased stock size. Also, the catch of all species of fish was high on this cruise and the percent of yellowtail in the total catch per tow was about the same for this year as in the past (Table 3) indicating no relative increase of yellowtail abundance.

The number of fish at age I+ caught per tow in 1963-1969 by Albatross IV were estimated by Penttila and Brown (1972) from age-length keys developed from scale samples taken on Albatross IV fall cruises. This same method was used to determine the pre-recruit index for the U.S.S.R. cruises and Albatross IV cruises in 1970-1971 (Table 2). Preliminary aging of scales taken on the 1972 fall cruise was carried out in order to establish length boundaries of age I+ fish so the 1972 pre-recruit indices could be estimated.

Both U.S.A. and U.S.S.R. pre-recruit abundance indices (Table 3) decreased in southern New England, a trend which began in 1967 (Figure 10). The U.S.A. fall index dropped from 6.3 in 1971 to 4.3 in 1972, while the U.S.S.R. fall index dropped from 8.7 in 1970 to 2.6 in 1972. Although U.S.A. pre-recruit indices for Georges Bank were erratic during 1963-1967, these values indicated a general decrease from 1969 through 1971 and leveled off in 1972 (Figure 11). This decrease is also evident from U.S.S.R. pre-recruit indices (Table 2).

PREDICTED YELLOWTAIL FLOUNDER POPULATIONS

A model for predicting yellowtail flounder population size for southern New England from pre-recruit catches was developed by Brown and Hennemuth (1971a) using the pre-recruit indices described previously.

Table 2. Fall Research Cruise Abundance Indices for ICNAF Subarea 5.

	NOS. PER TOW AT AGE I+		TOTAL YELLOWTAIL NOS./TOW		TOTAL YELLOWTAIL WT./TOW	
	USA	USSR	USA	USSR	USA	USSR
YEAR			WEST OF 69°			
1963	16.3		50.6		32.1	
1964	18.6		60.8		41.9	
1965	11.5		38.7		28.0	
1966	35.5		50.3		20.8	
1967	20.0	11.7	57.7	59.7	31.0	33.1
1968	10.0	4.9	40.2	21.3	22.1	14.6
1969	12.8		54.8		31.7	
1970	7.3	8.7	39.8	52.1	24.2	31.7
1971	6.3		41.7		20.2	
1972	4.3	2.6	73.3	21.7	44.3	12.6
			EAST OF 69°			
1963	12.5		30.1		22.0	
1964	1.5		23.0		23.4	
1965	0.9		15.0		15.7	
1966	8.3		14.8		6.7	
1967	7.4		19.2		13.0	
1968	9.5	10.5	25.6	1.6	15.1	1.3
1969	6.5		23.1		16.0	
1970	4.5	9.8	13.4	2.4	8.6	2.0
1971	2.9		15.2		11.0	
1972	2.1	1.9	14.6	2.0	10.9	0.5

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The population index for 1973 was utilized to recommend a quota based on assuming an index for the 1971 year-class equal to the average of the three previous years. This gave a population index of 41.0 for 1973. Utilizing the actual 1972 values, the index is 30.8 as year-class strength declined (Table 4). Thus the quota set for 1973 was too high. The mean number per tow of age I+ fish for the years 1969-1972 is used to estimate the 1973 I+ (1972 year-class) value in order to predict the 1974 index; a total population index of 26.5 results. With this value a catch in 1974 from the southern New England stock of 7,000 MT would maintain F at the MSY level but would not allow for recovery of spawning stock at current recruitment levels. This value would prevent further reduction of the stock and allow for an increase in stock size only if recruitment levels improve. A quota of 9,000 MT for the area west of 69° for 1973 would allow for 2,000 MT being taken from the Cape Cod population.

The current status of the yellowtail flounder stocks in ICNAF Subarea 5 is a major cause for concern. The quota regulations have not arrested the decline in the southern New England stock. The 1974 quota should be less than 1973 to prevent further decline. However, serious consideration should be given to more drastic measures which would permit a definite stock recovery. At present quota levels, this will not occur unless recruitment improves.

The quota regulation on Georges Bank appears from survey cruise data to have stabilized the population but the confidence limits about the catch per tow index are such to make this judgment tentative. The question of recruitment is still open and if the level drops, then the quota would need to be lowered. However, currently the 16,000 MT quota appears to be an adequate management measure.

Table 1. Yellowtail flounder catch statistics for 1971 and 1972.

Area	Landings	Discard	USA Industrial	Other Nations	Total
Statistical Area 6					
1971 Weight (MT)	6,597		270	961[a]	6,867
1972 Weight (MT)	8,714		60	961[a]	9,735
West of 69°					
Cape Cod Grounds					
1971 Weight (MT)	1,662	660	-	-	2,322
1972 Weight (MT)	1,364	280	-	-	1,644
Southern New England					
1971 Weight (MT)	8,157	3,337	397	-	11,891
1972 Weight (MT)	8,226	1,661	329	-	10,216
Total West of 69°					
1971 Weight (MT)	9,819	3,997	397	308	14,521
1972 Weight (MT)	9,590	1,941	329	1,829	13,689
East of 69° - Georges Bank					
1971 Weight (MT)	11,881	3,127	-	771	15,779
1972 Weight (MT)	14,157	1,159	-	2,988	18,302

[a] Assumed to be the same as in 1971

Table 3. The percent of catch per tow of yellowtail flounder related to the total catch per tow of all species in Southern New England (Albatross IV Fall Cruise)

Year	% Yellowtail in Weight per Tow
1963	.12
1964	.13
1965	.09
1966	.09
1967	.13
1968	.08
1969	.07
1970	.07
1971	.13
1972	.12

Table 4. Indexes of Southern New England yellowtail flounder population abundance in weight by calendar years for age groups II-V.

Year	Index
1967	102.47
1968	119.22
1969	92.57
1970	71.89
1971	53.56
1972	40.04
1973	30.77
1974	26.59