

# UPDATED ESTIMATES OF U.S. LANDED CATCH AT SIZE OF SWORDFISH

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## SUMMARY

Revisions to the U.S. landed catch at size of swordfish are made on the basis of additional documentation of catches received from fishermen participating in the U.S. fleet. The revised estimates are compared to those previously reported to ICCAT.

## RESUME

Les révisions aux données de prise par taille des espadons débarqués par les Etats-Unis proviennent d'une documentation additionnelle transmise par des pêcheurs travaillant sur les bateaux des Etats-Unis. Les estimations révisées sont comparées à celles qui ont été transmises antérieurement à l'ICCAT.

## RESUMEN

Se hacen revisiones a la captura desembarcada de pez espada por Estados Unidos sobre la base de documentación adicional de capturas recibida de pescadores que participan en la flota estadounidense. Las estimaciones revisadas se comparan con otras previamente comunicadas a ICCAT.

## INTRODUCTION

Recently, concerns have been expressed by U.S. fishermen, that U.S. landings of swordfish were underestimates of the actual landings made by the fishermen. This concern relates mostly to prior to 1991, when a mandatory reporting system for daily catch and effort and trip-specific landings was instituted for the permitted U.S. fleet. To allow examination of this possibility, numerous individual vessel captains and owners provided as complete a set of individual landing records as possible for the period before mandatory reporting of trip weights was required.

## METHODS

Sales receipt information provided was cross-checked against the historical landings data base maintained at the Southeast Fisheries Science Center. The historical landings were compiled from several sources, including the general landings canvass systems used for tracking fisheries statistics in the U.S., as well as from information provided in the form of individual weights of swordfish landed and sold by a number of the vessels active in the U.S. fleet. In general, landings made and recorded in the northeastern U.S. general canvass system are vessel-trip based, although some landings made in the northeastern U.S. are not associated with individual vessels, but are reported in aggregate. Landings recorded through the general canvass system in the southeastern U.S. are not generally available as individual vessel-trip landings. Thus, information on landings sales receipts is used to validate the trip-specific landings recorded in the northeastern U.S. general canvass data, when possible. Landings indicated on the sales receipts provided by individual vessel captains and owners were only considered as previously unaccounted landings if they exceeded the landings already recorded for an individual trip record on file or if the landings on the receipts exceeded the aggregate of landings recorded by state and month in each year. Revisions to the U.S. catch at size of swordfish are made on the basis of additional documentation of catches received from fishermen participating in the U.S. fleet. The revised estimates are compared to those previously reported to ICCAT.

## RESULTS

Table 1 shows the number of trip records that were documented with sales receipts for the vessel owners and captains that provided information for this review. In many cases, the records provided duplicated individual trip records already held in the SEFSC swordfish database. A number of the records documented landings that were considered to be unaccounted or misclassified by gear in the landings database. Table 2 compares the data base estimates of aggregate landings and estimated numbers of fish landed for the period 1978-1993 before and after revisions to the landings files were made based on the review. The largest revisions to the landings data were to estimates from 1982-1987, during which, estimated annual landings were increased an average of 2.85% (231,000 lbs, dressed; 139 mt round; range 20-323 mt round). During the period 1988-1991, revisions resulted in an average annual increase of 0.5% (46,800 lbs, dressed; 28 mt round; range 17-44 mt round). The review also indicated that for 1988, landings of approximately 80,000 lbs, dressed (48 mt round) were misclassified as longline caught fish, when the actual gear used was gillnet. The revised landings and catch at size summarized in Tables 2, 3 and 4 have been reported to ICCAT. Table 4 presents estimates of US landed catch below and above 41 lbs dressed (25 kg whole).

Table 1. Trip landings receipts received from vessel owners and captains for the period prior to mandatory trip-based reporting, by year

Total Trips Documented by Year												
80	81	82	83	84	85	86	87	88	89	90	91	Tot
10	7	21	20	28	25	96	105	124	174	331	14	995

Table 2. Estimated total landed weight, landed number of swordfish, and mean dressed weight (lbs) for the US fleet, compared to unrevised estimates.

YEAR	Unrevised		Revised			
	TOTAL DWT	TOTAL NUM	TOTAL DWT	TOTAL NUM	MEAN DWT	SF
1978	6106480	52335.8	6106480	53225.8	114.6	.16
1979	7654873	70161.3	7654873	70161.3	109.1	.48
1980	9322469	108968.7	9322469	108968.7	85.5	.48
1981	7506809	78280.2	7506809	78280.2	95.9	.47
1982	8430979	96353.6	8966537*	102604.8*	87.4	.57
1983	7957652	94644.3	7990788*	94363.0*	84.6	.59
1984	7522113	101486.5	7872152*	105884.4*	73.5	.57
1985	7654322	103206.8	7799279*	104822.0*	74.4	.68
1986	8454195	125345.1	8636180*	128781.7*	67.1	.62
1987	8552653	137232.4	8695781*	139495.8*	62.3	.66
1988	10159047	168691.5	10230903*	171071.9*	59.8	.69
1989	10582930	174240.7	10626840*	174888.1*	60.7	.71
1990	9107135	142846.6	9149731*	143126.5*	63.9	.61
1991	7115932	98305.8	7144748*	98689.5*	72.4	.81
1992	na	na	6383014	77752.6	82.2	.88
1993	na	na	6262355	76662.1	81.6	.88

\* : Revised estimate higher, - : Revised estimate lower; MEAN DWT = mean landed weight; SF = proportion of estimated numbers landed for which individual weights were observed

Table 3. Estimated number of swordfish landed by US fishermen based on revised landings by US matching areas

YEAR	CAR	GOM	FEC	SAB	MAB	NEC	NED	TOTAL
78	0.0	471.4	4507.7	5148.5	7589.2	34522.0	987.0	53225.8
79	0.0	5436.1	26584.4	7600.7	3123.3	18927.2	8489.7	70161.3
80	0.0	24248.4	35382.5	8361.1	12105.7	21639.7	7231.3	108968.7
81	0.0	15165.9	31211.7	6884.2	7675.0	11585.1	5758.3	78280.2
82	0.0	13797.3	31791.1	11487.0	14058.8	21160.1	10310.5	102604.8
83	0.0	10866.6	29862.1	13541.1	13624.9	15722.3	10746.0	94363.0
84	423.0	13522.4	32593.2	9795.8	14160.2	19178.5	16211.3	105884.4
85	6918.0	17583.0	30022.7	7102.0	10627.3	10515.3	22053.7	104822.0
86	24854.0	14712.6	24796.1	3704.7	19158.0	14500.8	27055.5	128781.7
87	24456.6	20384.7	32399.7	5567.9	12771.0	12989.9	30926.0	139495.8
88	23565.5	27857.9	37531.4	9190.7	12706.5	12138.9	48081.0	171071.9
89	22629.2	30656.4	42902.8	8244.5	13728.4	16942.4	39784.4	174888.1
90	21176.6	16792.7	42141.0	6630.2	20276.9	15667.7	20441.4	143126.5
91	15305.6	20990.2	22555.4	4013.0	9558.3	6344.5	19922.5	98689.5
92	11336.3	13956.9	15611.1	3944.8	7149.6	6377.7	19376.2	77752.6
93	14911.7	12883.0	13812.8	4038.4	6898.0	4643.2	19475.0	76662.1

US matching areas: NED = ICCAT SWO area 94A, GOM = ICCAT SWO area 91, CAR = ICCAT SWO area 93, FEC+SAB+MAB+NEC = ICCAT SWO area 92.

Table 4. Estimated number of swordfish landed which were a) &lt;41 or b) ≥41 pounds, dressed weight by US matching areas and year.

YEAR	CAR	GOM	FEC	SAB	MAB	NEC	NED	TOTAL
a) <41 lbs, dressed weight								
78	0.	107.	889.	1029.	813.	2500.	64.	5403.
79	0.	2013.	8134.	2078.	724.	1546.	243.	14738.
80	0.	11782.	9843.	2547.	3704.	4378.	621.	32874.
81	0.	6123.	8669.	2086.	1935.	680.	141.	19633.
82	0.	5763.	10190.	4332.	6410.	3447.	652.	30795.
83	0.	5949.	11065.	7111.	5871.	3107.	1173.	34276.
84	76.	7883.	12876.	5509.	6455.	5131.	1881.	39811.
85	890.	8644.	12545.	4083.	5958.	3103.	2360.	37583.
86	5966.	8561.	11660.	2433.	11097.	6709.	5838.	52264.
87	8532.	11291.	17777.	3570.	6535.	5204.	9359.	62268.
88	10220.	13080.	19276.	5361.	7781.	5432.	16199.	77350.
89	8056.	16325.	23966.	5476.	8073.	5701.	12641.	80238.
90	4781.	10013.	21740.	3956.	10178.	3614.	4412.	58694.
91	2261.	10690.	8696.	2116.	2252.	664.	1543.	28222.
92	1067.	3535.	3254.	940.	732.	700.	2011.	12239.
93	1416.	2611.	2075.	630.	921.	370.	2221.	10243.
b) ≥41 lbs, dressed weight								
78	0.	364.	3619.	4119.	6776.	32022.	923.	47823.
79	0.	3423.	18450.	5523.	2399.	17381.	8247.	55423.
80	0.	12467.	25540.	5815.	8402.	17262.	6610.	76095.
81	0.	9043.	22543.	4799.	5740.	10905.	5617.	58647.
82	0.	8034.	21601.	7155.	7649.	17713.	9658.	71810.
83	0.	4917.	18797.	6430.	7754.	12615.	9573.	60087.
84	347.	5639.	19717.	4287.	7706.	14047.	14330.	66073.
85	6028.	8939.	17478.	3019.	4670.	7412.	19694.	67239.
86	18888.	6152.	13136.	1271.	8061.	7792.	21217.	76518.
87	15924.	9094.	14623.	1998.	6236.	7786.	21567.	77228.
88	13346.	14778.	18255.	3829.	4925.	6707.	31882.	93722.
89	14573.	14331.	18937.	2768.	5656.	11241.	27144.	94650.
90	16396.	6780.	20401.	2675.	10099.	12053.	16029.	84432.
91	13045.	10300.	13860.	1897.	7306.	5681.	18379.	70468.
92	10269.	10422.	12357.	3005.	6417.	5678.	17365.	65513.
93	13496.	10273.	11738.	3408.	5977.	4273.	17254.	66419.

US matching areas: NED = ICCAT SWO area 94A, GOM = ICCAT SWO area 91, CAR = ICCAT SWO area 93, FEC+SAB+MAB+NEC = ICCAT SWO area 92.