

ESTIMATION OF SPECIES MISIDENTIFICATION IN THE COMMERCIAL LANDING
DATA OF RED SNAPPERS IN THE GULF OF MEXICO

by

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This document presents the estimated percentages of red snapper being misidentified as other species and percentages of other species that were misidentified as red snappers from 1994 to 2003. The estimated percentages of misidentification were based on the sampling records from TIP port agents. The estimates reported here most likely represent only minimal estimates of the percentage of misidentified red snappers since port agents did not sample all dealers in the Gulf of Mexico region, and did not record all misidentified species. In the analysis presented here, dealers not sampled by port agents were assumed to have had no misidentifications.

METHODS

The TIP database was used to estimate the rate of misidentification for each dealer. Misidentification of species by dealers was detected by comparing species names listed on the landing records (TIP21 section), which were reported by dealers, and the species names listed on the sample records (TIP41 section), which were reported by port agents. Misidentification of species can occur when dealers group different types of reef fish together for the convenience of sale, or when dealers cannot tell the difference between mixed species. The ALS landing data was used to estimate landings for each dealer and to calculate the total weight of misidentified species. The following steps provide the details for what was done:

1. For other species misidentified as ‘red snapper’ (RS):

(a) A rate of misidentification was calculated for each dealer who had a misidentified record:

$$R = A \times M / N, \text{ where}$$

R is the misidentification rate for a given dealer,

A is the average percentage of misidentification of fish for all trips for a given dealer,

M is the total number of trips for which a species was misidentified as RS for a given dealer, and

N is the total number of trips identified as having caught RS for a given dealer.

(b) The yearly weight of other species from ALS landings being misidentified as RS was determined:

$$W = D \times R, \text{ where}$$

W is the total yearly weight of other species being misidentified as RS,

D equals the yearly landings of RS for a given dealer, and

R is the misidentified rate for a given dealer.

(c) The values of W for all dealers were added together to get the total yearly weight of other species being misidentified as RS.

2. For red snappers misidentified as other species:

(a) All landing records for other species that contained RS were found.

(b) For each species in (a), the misidentified rate for a given dealer was found:

$$SR = SA \times SM / SN, \text{ where}$$

- SR is the misidentification rate for a given dealer for a particular species,
- SA is the average percentage of misidentification from all trips for a particular species for a given dealer,
- SM is the total number of trips in which RS was caught, but was misidentified as a different species, for a given dealer, and
- SN is the total number of trips in which a particular species (not RS) was caught, for a given dealer.

(c) For each species in (a), the total weight of RS misidentified as a particular species was found:

$$SW = SD \times SR, \text{ where}$$

- SW is the total weight of RS that was misidentified as a particular species for a given dealer,
 - SD is the total landing of a particular species for a given dealer, and
 - SR is the misidentification rate for a given dealer for a particular species.
- The values of SW for all dealers were added together to get the total yearly weight of RS misidentified as a particular species.

(d) The misidentified weights for each species in (a) were added together.

RESULTS

Table 1 shows the total yearly weights of other species being misidentified as red snappers from 1994 to 2003. The species commonly misidentified as 'red snapper' included vermilion snapper, silk snapper, lane snapper, mutton snapper, gray snapper, speckled hind, and red porgy. Table 2 shows the total yearly weights of red snapper being misidentified as other species from 1994 to 2003. A more detailed listing of misidentified weights by species and by year is shown in Table 3. The analysis shows that neither the weights of red snapper being misidentified as other species, nor the weights of other species being misidentified as red snapper, represented a significant portion of red snapper landings from 1994 to 2003 (Table 4).

Table 1 Estimated weights of other species misidentified as red snapper (1994-2003)

year	total weight of other species misidentified as red snapper (lb)	
	1994	1404.8
	1995	722.0
	1996	3366.3
	1997	7050.3
	1998	1523.8
	1999	3786.2
	2000	2309.3
	2001	4784.6
	2002	2024.0
	2003	2148.4

Table 2 Estimated weights of red snapper being misidentified as other species (1994-2003)

year	total weight of red snapper mididentified as other species (lb)	
	1994	927.3
	1995	16702.2
	1997	8.4
	1998	19382.6
	1999	2958.8
	2000	9847.9
	2001	4618.7
	2002	15133.6
	2003	4970.9

Table 3 Estimated weights of red snapper being misidentified as other species in each year

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
1994	8717000000	fin fish	65.7
1994	8835360000	unclassified snappe	26.6
1994	8835360113	silk snapper	835.0

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
1995	8835360113	silk snapper	16625.3
1995	8835360501	vermilion snapper	76.8

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
1997	8835360113	silk snapper	8.4

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
1998	8717000000	fin fish	16171.7
1998	8835360103	mutton snapper	349.4
1998	8835360113	silk snapper	2566.7
1998	8835360501	vermilion snapper	294.7

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
1999	8717000000	fin fish	1773.8
1999	8835360113	silk snapper	1185.0

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
2000	8717000000	fin fish	679.8
2000	8835360113	silk snapper	9168.1

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
2001	8717000000	fin fish	2970.9
2001	8835360113	silk snapper	1647.8

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
2002	8717000000	fin fish	2866.1
2002	8835020404	speckled hind	237.2
2002	8835280801	greater amberjack	1215.1
2002	8835360000	unclassified snapper	21.0
2002	8835360103	mutton snapper	315.6
2002	8835360113	silk snapper	2755.1
2002	8835360501	vermilion snapper	7723.5

year	nodc_code	common name	weight of red snapper being misidentified as other species (lb)
2003	8717000000	fin fish	2889.2
2003	8835360000	unclassified snapper	1.8
2003	8835360501	vermilion snapper	2079.9

Table 4. Estimated percentages of other species misidentified as red snapper and percentages of red snapper misidentified as other species.

year	percent of other species misidentified as red snapper	percent of red snapper misidentified as other species
1994	0.04%	0.03%
1995	0.02%	0.57%
1996	0.08%	0.00%
1997	0.15%	0.00%
1998	0.03%	0.41%
1999	0.08%	0.06%
2000	0.05%	0.20%
2001	0.10%	0.10%
2002	0.04%	0.32%
2003	0.06%	0.14%