SEDAR 22- DW-12

# Estimation of species misidentification in the commercial landing data of tilefish in the Gulf of Mexico from 1984 to 2009.

Ching-Ping Chih

March, 2010

Southeast Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
75 Virginia Beach Drive
Miami, FL 33149

Abstract

This report documents the misidentification of tilefish in the landing records from the Gulf of Mexico from 1984 to 2009. The percentage of species misidentification was calculated based on samples obtained from the Trip Interview Program. About 5.48% of tilefish were misidentified as other species or placed in the general bony fish category in landing records, while about 0.51% of tilefish landings were actually other species. The net effect of the species misidentification was an approximate 4.97% underestimation of tilefish landings from 1984 to 2009.

## Methods

All data used for this analysis were from the Trip Interview Program (TIP) database. The main assumption of this analysis was that TIP samples represented landings. The percentage of tilefish misidentified as other species was calculated by dividing the number of tilefish samples identified in landing records as another species by the total number of tilefish samples. The percentage of other species misidentified as tilefish was calculated by dividing the number of other species samples identified as tilefish in tilefish landing records by the total number of samples recorded as tilefish in landing records. Not all samplers recorded a landing species based on the dealer's landing records in the historical TIP database (i.e., sometimes samplers accounted for mistakes in a dealer's landing records or were not able to obtain dealer's landing records). Thus, the percentage of species misidentification in the TIP database is probably underestimated.

## Results and discussion

About 5.48% of tilefish samples were misidentified as other species in the landing records (Table 1). Most of this misidentification was due to tilefish ending up in bony fish landings. Tilefish were most frequently misidentified as blueline tilefish or goldface tilefish. The percentage of misidentification varied significantly from year to year (Table 2). Some of the variation was due to small sample sizes. Also, the percentage of misidentification varied significantly between different counties (Table 3). Since different dealers

tended to group landings differently, the variations between different counties was expected. About 0.51% of tilefish landings were actually other species, such as blueline tilefish, goldface tilefish and yellowedge groupers. The overall effect of species misidentification is a 4.97% underestimation of tilefish landings from 1984 to 2009.

Table 1. Number and percentage of tilefish misidentified as other species in the Gulf of Mexico from 1984 to 2009.

| Species name | Number of tilefish samples misidentified as other species | Percentage of misidentified samples |
|---|---|---|
| BLUELINE TILEFISH | 14 | 0.07% |
| BONY FISHES | 1074 | 5.20% |
| GOLDFACE TILEFISH | 18 | 0.09% |
| GREATER AMBERJACK | 2 | 0.01% |
| JACKS | 2 | 0.01% |
| RED PORGY | 13 | 0.06% |
| SNOWY GROUPER | 1 | 0.00% |
| YELLOWEDGE GROUPER | 8 | 0.04% |
| Total | 1132 | 5.48% |

Table 2. Number and percentage of tilefish misidentified as other species in the Gulf of Mexico from 1984 to 2009 listed by year.

| Year | Number of misidentified samples | Total number of tilefish samples | Percentage of misidentified samples |
|---|---|---|---|
| 1984 | 8 | 207 | 3.86% |
| 1986 | 61 | 63 | 96.83% |
| 1987 | 132 | 152 | 86.84% |
| 1988 | 172 | 253 | 67.98% |
| 1989 | | 84 | |
| 1990 | 129 | 284 | 45.42% |
| 1991 | 142 | 487 | 29.16% |
| 1992 | 166 | 514 | 32.30% |
| 1993 | 61 | 333 | 18.32% |
| 1994 | 212 | 1748 | 12.13% |
| 1995 | 1 | 654 | 0.15% |
| 1996 | 1 | 851 | 0.12% |
| 1997 | 3 | 1270 | 0.24% |
| 1998 | 13 | 565 | 2.30% |
| 1999 | | 1061 | |
| 2000 | | 1417 | |
| 2001 | 12 | 1224 | 0.98% |
| 2002 | 2 | 387 | 0.52% |
| 2003 | 10 | 821 | 1.22% |
| 2004 | | 1791 | |
| 2005 | | 2029 | |
| 2006 | | 1189 | |
| 2007 | | 1010 | |
| 2008 | 11 | 957 | 1.15% |
| 2009 | 7 | 1320 | 0.53% |

Table 3. Number and percentage of tilefish misidentified as other species in the Gulf of Mexico from 1984 to 2009 listed by county.

| State | County name | Number of misidentified samples | Total number of tilefish samples | Percentage of misidentified samples |
|---|---|---|---|---|
| AL | Baldwin | | 4560 | |
| AL | Mobile | | 11 | |
| FL | | | 181 | |
| FL | Bay | | 1307 | |
| FL | Escambia | 15 | 1345 | 1.12% |
| FL | Franklin | 1 | 1282 | 0.08% |
| FL | Gulf | | 78 | |
| FL | Hillsborough | | 1 | |
| FL | Lee | 11 | 75 | 14.67% |
| FL | Manatee | 2 | 121 | 1.65% |
| FL | Monroe | | 611 | |
| FL | Okaloosa | 3 | 769 | 0.39% |
| FL | Pinellas | 20 | 6233 | 0.32% |
| FL | Santa Rosa | | 370 | |
| FL | Sarasota | 1 | 33 | 3.03% |
| FL | Wakulla | 11 | 124 | 8.87% |
| LA | | 48 | 48 | 100.00% |
| LA | Cameron | 7 | 31 | 22.58% |
| LA | Jefferson | 449 | 682 | 65.84% |
| LA | Lafourche | 575 | 1854 | 31.01% |
| LA | Plaquemines | | 19 | |
| LA | Terrebonne | | 20 | |
| MS | Jackson | | 2 | |
| TX | Cameron | | 800 | |
| TX | Galveston | | 114 | |

Table 4. Number and percentage of other species samples misidentified as tilefish in the Gulf of Mexico from 1984 to 2009.

| Species name | Number of other species samples misidentified as tilefish | Percentage of tilefish landings that were actually other species |
|---|---|---|
| BEARDED BROTULA | 1 | 0.01% |
| BLACKBELLY ROSEFISH | 1 | 0.01% |
| BLUELINE TILEFISH | 36 | 0.18% |
| DOLPHIN | 1 | 0.01% |
| GOLDFACE TILEFISH | 16 | 0.08% |
| GREATER AMBERJACK | 1 | 0.01% |
| SPINYCHEEK SCORPIONFISH | 11 | 0.06% |
| WAHOO | 1 | 0.01% |
| YELLOWEDGE GROUPER | 32 | 0.16% |
| Total | 100 | 0.51% |

Table 5. Number and percentage of other species samples misidentified as tilefish in the Gulf of Mexico from 1984 to 2009 listed by year.

| YEAR | Number of other species samples misidentified as tilefish | Total number of samples with landing recorded as tilefish | Percentage of tilefish landings that were actually other species |
|---|---|---|---|
| 1984 | | 199 | |
| 1986 | | 2 | |
| 1987 | | 20 | |
| 1988 | | 81 | |
| 1989 | | 84 | |
| 1990 | | 155 | |
| 1991 | | 345 | |
| 1992 | | 348 | |
| 1993 | | 272 | |
| 1994 | 1 | 1536 | 0.07% |
| 1995 | | 653 | |
| 1996 | | 850 | |
| 1997 | 15 | 1267 | 1.18% |
| 1998 | 12 | 552 | 2.17% |
| 1999 | 3 | 1061 | 0.28% |
| 2000 | 1 | 1417 | 0.07% |
| 2001 | 4 | 1212 | 0.33% |
| 2002 | | 385 | |
| 2003 | 1 | 811 | 0.12% |
| 2004 | | 1791 | |
| 2005 | 1 | 2029 | 0.05% |
| 2006 | 14 | 1189 | 1.18% |
| 2007 | | 1010 | |
| 2008 | 41 | 946 | 4.33% |
| 2009 | 7 | 1313 | 0.53% |