

Reported commercial landings of red drum in Florida and estimated annual length and age composition.

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Reported Landings

Commercial harvest information was obtained from the FWC's Marine Fisheries Information System data and from the Fisheries Statistics Division of the National Marine Fisheries Service (NMFS) for the years 1950-1988. Earlier records came from various publication of Fisheries Statistics of the United States. No commercial landings have been reported for Florida since 1988 when the sale of native-caught red drum was prohibited. These data include annual landings tallied from monthly dealer reports collected by the NMFS during the period 1950-85¹ and trip-specific commercial landings reported within the FWC trip ticket program during the period 1986-1988. Florida trip tickets examined included edited batches 1 – 981.

Prior to 1986, landings of red drum were reported to the NMFS through monthly dealer reports made by major fish wholesalers in Florida. Since 1986, information on what is landed and by who in Florida's commercial fisheries comes from the FWC's Marine Resources Information System, commonly known as the trip-ticket program. Wholesale dealers are required to use trip tickets to report their purchase of saltwater products from commercial fishers. Conversely, commercial fishers must have Saltwater Products Licenses to sell saltwater products to licensed wholesale dealers. In addition, red drum became a "restricted species" in late 1987 so only fishers who had Restricted Species Endorsements on their Saltwater Products License qualified to sell red drum (though commercial fishing effectively ended beginning in 1988). Each trip ticket includes the Saltwater Products License number, the wholesale dealer license number, the date of the sale, the gear used, trip duration (time away from the dock), area fished, depth fished, number of traps or number of sets where applicable, species landed, quantity landed, and price paid per pound. During the early years of the program some data field were deleted from the records, e.g. Saltwater Products License number for much of 1986, or were not collected, e.g., gear used was not a data field until about 1991.

Annual commercial harvest of red drum in Florida was sporadically available between 1889 and the late 1920's and during the 1940's but consistently since 1950. There was a clear increase in landings between the historic period and the early 1980's; landings averaged 0.07 million pounds during 1927-1940 and 0.13 million pounds during 1975-1984 (Table 1, Fig. 1). During the mid-1980's the commercial fisheries faced tightening restrictions resulting in declining landings prior to being prohibited after 1987.

The dominant commercial fishing gear used to capture red drum had consistently been gill nets since at least the 1960's on both coasts. After the early 1960's gill-net-caught red drum have generally made up more than 70% of the landings on the Atlantic coast (Table 2).

¹ See <http://www.st.nmfs.gov/st1/commercial/index.html>.

Biostatistics

No formal biostatistical sampling occurred for red drum landed in Florida's commercial fishery. The weights, lengths and ages of red drum comprising the commercial landings were not routinely collected by the NMFS-developed Trip Interview Program (TIP). Only nineteen records of red drum appear in the NMFS Trip Interview Program files for Florida, during the period 1991-2002 when the commercial fishery was closed. These were likely from recreational tournaments that are occasionally sampled within the TIP (S. Brown, FWC-FWRI, pers. comm.). Biostatistics data were opportunistically collected during a red drum life history study conducted during the period 1981-1983 (Murphy and Taylor 1990) and during supplemental sampling of commercial gears in 1987 and 1988 while conducting tagging operations (Table 3). Generally, individual fish lengths, gear type and date were recorded at the very least, with more indepth sample processing for sex, weight, and aging parts for the life history research and for mortalities observed during tagging operations.

Biostatistical sampling intensity for commercially landed or caught red drum was highest during the early 1980's when catches made using gill nets, trammel nets, and hook-and-line gear were sampled each year (Table 2). For samples obtained during tagging programs, where commercial fishermen were utilized to obtain large numbers of red drum, some fish would not have been landed due to size-limit restrictions. In this analysis, it was assumed that all red drum outside the minimum/maximum size limit at the time would have been released alive and these were not tallied in Table 1. The regulatory battles over red drum during the mid-1980's heightened awareness of changing fishing rules so this assumption is probably valid.

Mean weight estimates were not available for landings made during 1950-1980. This missing information was filled by calculating and applying the mean gear-specific weights for 1981-1982 to the annual gear-specific landings prior to 1981. Several year-gear combinations during 1981-1988 were also missing, requiring varying degrees of interpolation or extrapolation from years with these data (Table 3).

Lengths samples of landed red drum were derived from the same length data used to determine the mean weights for the landings, although length frequency estimates were restricted to the period 1981-1988. All extrapolations and interpolations required for the estimation of mean weights were carried forward in the allocation of the landings into inch-specific total length classes within each gear category (Table 4).

Age-length keys could not be adequately developed from the commercial gear-specific samples each year so a composite age length key comprised of all commercially-caught, aged and measured red drum during 1981-1988 was applied to the annual length frequencies to estimate the age composition of the commercial landings each year (Table 5). In addition, age-length data from angler catches was included to fill in missing information in the key: age 10 and age 12 fish. Red drum ages were determined from well-established protocol for thin-sectioning and reading red drum sagittae. Ages were, by convention, incremented on January 1 each year after completion of their first year to align ages with other calendar-based statistics. For fall-spawned red drum, this meant that their assignment to age 1 occurred at about 15 months of true chronological age.

Biases in the biostatistical sampling are likely but difficult to determine. The fortuitous nature of sampling and the low number of trips sampled for fish could have imparted an unknown bias to the recorded lengths and weights attributed to the

commercial landings. The smoothing effect of the combined-samples age-length key could also obscure fluctuations in recruitment not strongly apparent in the estimated length frequencies. A potentially serious flaw in these data are the lack of any measure of the red drum mortalities attributed to regulatory discards. However, it seems likely that there were few discards before 1985 because of the liberal regulations (12 inch fork length minimum size) and good market price. After 1985 the commercial fishery had a greater likelihood for discards due to regulations.

Estimated catch at age

The estimated annual numbers of red drum represented by the reported landings from Florida's Atlantic coast declined more rapidly during the 1980's than the landings by weight due to a general increase in mean size in response to increasing minimum size limits (Table 6). The estimated number of red drum landed each year prior to 1981 was related to landings by a scalar (average 1981-83 mean weight) since there was no mean weight information during this time (Table 7).

The length distribution of the commercial landings of red drum also became more restricted with the increase in minimum size limit during the mid 1980's. During the early 1980's red drum down to 10 inches total length were seen in the commercial landings but this changed to larger sizes as minimum size limits increased and reduced fishing pressure allowed for expansion of the length structure in the stock (Table 8). Commercial landings length frequencies showed a bimodal pattern, reflecting the rapid growth of red drum and seasonal changes in their availability. With availability greatest during the fall and winter, model-age-0 and 1 red drum 12-18 inches long and age-2 red drum 22-25 inches long made up a large portion of the overall landings on each coast each year. As the minimum size limit was raised toward the end of the commercial fishery, age-0 red drum declined in the landings.

The number of red drum landed from each age group during 1981-1988 was estimated by applying age-length keys to estimated length frequencies to generate year-specific landings age frequencies (Table 9).

Possible refinements

The Florida-specific commercial catch-at-age for red drum is based on a limited amount of biostatistics data within each of the four recognized gear categories. If there are similarities in landings lengths with other southern region commercial fisheries, it may be wise to combine the Florida data with these before estimating regional commercial catch at age.

Table 1. Commercial landings (lbs) for red drum on the Atlantic coast of Florida during 1950-1988 by collapsed gear categories. Landings for various types of similar gears were combined into these four categories, though cast-net-caught fish were included with gill-net gear and spear-caught fish were included in hook-and-line gear.

| Atlantic | | | | | |
|----------|----------|-----------|--------|-------------|---------|
| Year | Gill Net | Hook&Line | Seine | Trammel Net | Totals |
| 1950 | 98,500 | 67,900 | 22,800 | 0 | 189,200 |
| 1951 | 32,300 | 52,600 | 50,100 | 500 | 135,500 |
| 1952 | 42,200 | 47,500 | 35,200 | 5,200 | 130,100 |
| 1953 | 68,200 | 29,000 | 29,200 | 1,000 | 127,400 |
| 1954 | 78,500 | 48,900 | 11,400 | 0 | 138,800 |
| 1955 | 55,900 | 27,900 | 9,800 | 2,600 | 96,200 |
| 1956 | 59,500 | 34,800 | 9,600 | 2,800 | 106,700 |
| 1957 | 38,300 | 53,100 | 14,600 | 2,000 | 108,000 |
| 1958 | 21,600 | 54,800 | 25,900 | 0 | 102,300 |
| 1959 | 44,700 | 76,100 | 10,300 | 100 | 131,200 |
| 1960 | 47,500 | 67,200 | 14,300 | 0 | 129,000 |
| 1961 | 71,700 | 20,200 | 21,400 | 1,200 | 114,500 |
| 1962 | 94,500 | 38,400 | 14,300 | 2,100 | 149,300 |
| 1963 | 89,500 | 32,200 | 11,500 | 1,000 | 134,200 |
| 1964 | 65,100 | 29,700 | 19,500 | 4,700 | 119,000 |
| 1965 | 83,400 | 38,800 | 24,100 | 0 | 146,300 |
| 1966 | 82,600 | 35,400 | 33,500 | 1,500 | 153,000 |
| 1967 | 91,100 | 30,400 | 22,100 | 3,500 | 147,100 |
| 1968 | 107,600 | 27,900 | 28,500 | 3,000 | 167,000 |
| 1969 | 82,800 | 25,300 | 8,900 | 2,000 | 119,000 |
| 1970 | 111,800 | 24,400 | 9,600 | 1,000 | 146,800 |
| 1971 | 67,600 | 11,100 | 4,300 | 2,200 | 85,200 |
| 1972 | 95,800 | 28,700 | 3,900 | 0 | 128,400 |
| 1973 | 133,000 | 25,900 | 6,100 | 1,500 | 166,500 |
| 1974 | 89,900 | 33,100 | 11,700 | 2,600 | 137,300 |
| 1975 | 57,100 | 19,400 | 5,900 | 900 | 83,300 |
| 1976 | 76,400 | 22,300 | 6,700 | 600 | 106,000 |
| 1977 | 72,600 | 20,300 | 8,700 | 1,900 | 103,500 |
| 1978 | 87,100 | 16,900 | 600 | 100 | 104,700 |
| 1979 | 62,200 | 27,100 | 500 | 2,900 | 92,700 |
| 1980 | 159,896 | 29,324 | 257 | 1,223 | 190,700 |
| 1981 | 215,132 | 41,088 | 519 | 1,635 | 258,374 |
| 1982 | 110,028 | 27,704 | 479 | 959 | 139,170 |
| 1983 | 79,084 | 24,817 | 516 | 747 | 105,164 |
| 1984 | 93,788 | 28,797 | 2,717 | 5,583 | 130,885 |
| 1985 | 63,651 | 21,214 | 614 | 3,450 | 88,929 |
| 1986 | 59,323 | 17,308 | 439 | 0 | 77,070 |
| 1987 | 31,618 | 9,387 | 1,988 | 0 | 42,993 |
| 1988 | 131 | 153 | 0 | 0 | 284 |

Table 2. Number of commercial trips sampled for biostatistical information on landed red drum and the numbers of fish sampled for length (N), whole weight (Wt), or age structure (Age) each year on the Atlantic coast of Florida during the period 1981-1988. The general gear categories were gill net, hook and line, seine, and trammel net.

Atlantic

| | Gill Net | | | | Hook and Line | | | | Seine | | | | Trammel Net | | | |
|------|----------|-------|----|-----|---------------|----|----|-----|-------|----|----|-----|-------------|-----|----|-----|
| | Trips | N | Wt | Age | Trips | N | Wt | Age | Trips | N | Wt | Age | Trips | N | Wt | Age |
| 1981 | 19 | 649 | 32 | 82 | 2 | 8 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 90 | 15 | 15 |
| 1982 | 36 | 1,149 | 38 | 233 | 11 | 80 | 34 | 44 | 2 | 51 | 0 | 0 | 12 | 377 | 19 | 60 |
| 1983 | 6 | 108 | 11 | 21 | 0 | 0 | 0 | 0 | 2 | 15 | 0 | 1 | 8 | 276 | 6 | 65 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 14 | 31 | 40 |
| 1988 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 10 | 28 | 28 |

Table 3. Estimated observed mean weights (lbs) from all red drum measured for length (and converted to weight) or directly weighed for whole weight. The 'Used' mean weights were those actually applied to the estimated gear-specific landings to calculate the numbers of landed red drum by gear. Differences between the observed and 'Used' were due to inadequate sampling or sampling that was known or judged to be biased relative to the commercial landings.

Atlantic

| | Gill Net | | | Hook and Line | | | Seine | | | Trammel Net | | |
|------|----------|-------|-------|---------------|--------|-------|-------|-------|-------|-------------|-------|-------|
| | N | Obs | Used | N | Obs | Used | N | Obs | Used | N | Obs | Used |
| 1981 | 649 | 2.808 | 2.808 | 8 | 19.148 | 3.98 | 0 | | 4.759 | 90 | 7.154 | 7.154 |
| 1982 | 1,149 | 3.731 | 3.731 | 80 | 11.898 | 6.55 | 51 | 4.277 | 4.277 | 377 | 9.416 | 9.416 |
| 1983 | 108 | 2.448 | 2.448 | 0 | | 5.265 | 15 | 6.397 | 4.277 | 276 | 7.213 | 7.213 |
| 1984 | 0 | | 2.996 | 0 | | 5.265 | 0 | | 4.277 | 0 | | 5.483 |
| 1985 | 0 | | 2.996 | 0 | | 5.265 | 0 | | 4.277 | 0 | | 5.483 |
| 1986 | 0 | | 2.996 | 0 | | 5.265 | 0 | | 4.277 | 0 | | 5.483 |
| 1987 | 0 | | 2.996 | 0 | | 5.265 | 0 | | 4.277 | 14 | 3.754 | 3.754 |
| 1988 | 0 | | 2.996 | 0 | | 5.265 | 0 | | 4.277 | 10 | 4.645 | 4.645 |

Table 4. Observed and estimated length frequencies, total length in inches, for red drum sampled from the commercial landings made along the Atlantic coast of Florida during 1981-1988. Estimated length frequencies were made for time periods when inadequate samples were taken from the landings.

| Gill Net | | | | | | | | | Hook and Line | | | | | | | | |
|----------|-----|-------|-----|-----|-----|-----|-----|-----|---------------|----|-----|-----|-----|-----|----|----|----|
| TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 |
| 10 | 0 | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 10 | 0 | 14 | 7 | 7 | 0 | 0 | 0 | 0 |
| 11 | 0 | 51 | 0 | 17 | 0 | 0 | 0 | 0 | 11 | 0 | 22 | 11 | 11 | 0 | 0 | 0 | 0 |
| 12 | 9 | 59 | 0 | 23 | 0 | 0 | 0 | 0 | 12 | 4 | 21 | 13 | 13 | 0 | 0 | 0 | 0 |
| 13 | 17 | 89 | 1 | 36 | 36 | 0 | 0 | 0 | 13 | 14 | 1 | 8 | 8 | 8 | 0 | 0 | 0 |
| 14 | 50 | 119 | 1 | 57 | 57 | 0 | 0 | 0 | 14 | 19 | 0 | 10 | 10 | 10 | 0 | 0 | 0 |
| 15 | 72 | 136 | 7 | 72 | 72 | 0 | 0 | 0 | 15 | 19 | 0 | 10 | 10 | 10 | 0 | 0 | 0 |
| 16 | 86 | 108 | 28 | 74 | 74 | 0 | 0 | 0 | 16 | 12 | 0 | 6 | 6 | 6 | 0 | 0 | 0 |
| 17 | 101 | 71 | 21 | 64 | 64 | 0 | 0 | 0 | 17 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 0 |
| 18 | 92 | 66 | 19 | 59 | 59 | 59 | 59 | 59 | 18 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| 19 | 50 | 33 | 16 | 33 | 33 | 33 | 33 | 33 | 19 | 0 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| 20 | 31 | 19 | 5 | 18 | 18 | 18 | 18 | 18 | 20 | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| 21 | 16 | 19 | 0 | 12 | 12 | 12 | 12 | 12 | 21 | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| 22 | 17 | 22 | 0 | 13 | 13 | 13 | 13 | 13 | 22 | 0 | 5 | 3 | 3 | 3 | 3 | 3 | 3 |
| 23 | 16 | 15 | 3 | 11 | 11 | 11 | 11 | 11 | 23 | 0 | 4 | 2 | 2 | 2 | 2 | 2 | 2 |
| 24 | 14 | 39 | 0 | 18 | 18 | 18 | 18 | 18 | 24 | 4 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| 25 | 25 | 35 | 1 | 20 | 20 | 20 | 20 | 20 | 25 | 1 | 4 | 3 | 3 | 3 | 3 | 3 | 3 |
| 26 | 12 | 43 | 2 | 19 | 19 | 19 | 19 | 19 | 26 | 1 | 10 | 6 | 6 | 6 | 6 | 6 | 6 |
| 27 | 13 | 50 | 0 | 21 | 21 | 21 | 21 | 21 | 27 | 0 | 8 | 4 | 4 | 4 | 4 | 4 | 4 |
| 28 | 4 | 37 | 2 | 14 | 14 | 14 | 14 | 0 | 28 | 0 | 10 | 5 | 5 | 5 | 5 | 5 | 0 |
| 29 | 10 | 48 | 1 | 20 | 20 | 20 | 20 | 0 | 29 | 0 | 12 | 6 | 6 | 6 | 6 | 6 | 0 |
| 30 | 10 | 22 | 1 | 11 | 11 | 11 | 11 | 0 | 30 | 1 | 5 | 3 | 3 | 3 | 3 | 3 | 0 |
| 31 | 1 | 12 | 0 | 4 | 4 | 4 | 4 | 0 | 31 | 1 | 8 | 5 | 5 | 5 | 5 | 5 | 0 |
| 32 | 0 | 11 | 0 | 4 | 4 | 4 | 4 | 0 | 32 | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 0 |
| 33 | 0 | 11 | 0 | 4 | 4 | 4 | 4 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 | 0 | 5 | 0 | 2 | 2 | 2 | 2 | 0 | 34 | 0 | 4 | 2 | 2 | 2 | 2 | 2 | 0 |
| 35 | 0 | 2 | 0 | 1 | 1 | 1 | 1 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 6 | 3 | 3 | 3 | 3 | 3 | 0 |
| 37 | 3 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 37 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 0 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 3 | 8 | 6 | 6 | 6 | 6 | 6 | 0 |
| 39 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 |
| 40 | 0 | 5 | 0 | 2 | 2 | 2 | 2 | 0 | 40 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 0 |
| 41 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 41 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 0 |
| 42 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 649 | 1,149 | 108 | 635 | 593 | 290 | 290 | 225 | Totals | 93 | 169 | 131 | 131 | 100 | 63 | 63 | 25 |

Table 4 (con't). Observed and estimated length frequencies, total length in inches, for red drum sampled from the commercial landings made along the Atlantic coast of Florida during 1981-1988. Estimated length frequencies were made for time periods when inadequate samples were taken from the landings

| Seine | | | | | | | | | Trammel Net | | | | | | | | |
|--------|----|----|----|----|----|----|----|----|-------------|----|-----|-----|-----|-----|-----|----|----|
| TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 2 | 1 | 1 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 16 | 0 | 0 | 3 | 2 | 2 | 0 | 0 | 0 |
| 17 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 17 | 0 | 3 | 8 | 5 | 5 | 0 | 0 | 0 |
| 18 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 18 | 0 | 0 | 5 | 4 | 4 | 4 | 2 | 3 |
| 19 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 19 | 1 | 7 | 33 | 17 | 17 | 17 | 0 | 8 |
| 20 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 20 | 3 | 10 | 22 | 11 | 11 | 11 | 0 | 6 |
| 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 21 | 1 | 11 | 12 | 7 | 7 | 7 | 2 | 5 |
| 22 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 22 | 1 | 10 | 12 | 9 | 9 | 9 | 6 | 8 |
| 23 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 23 | 10 | 10 | 11 | 6 | 6 | 6 | 0 | 3 |
| 24 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 24 | 11 | 6 | 4 | 2 | 2 | 2 | 0 | 1 |
| 25 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 25 | 9 | 15 | 9 | 5 | 5 | 5 | 0 | 2 |
| 26 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 26 | 13 | 23 | 16 | 9 | 9 | 9 | 2 | 6 |
| 27 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 27 | 10 | 50 | 15 | 8 | 8 | 8 | 4 | 4 |
| 28 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 28 | 4 | 43 | 22 | 11 | 11 | 11 | 0 | 0 |
| 29 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 29 | 7 | 46 | 11 | 6 | 6 | 6 | 0 | 0 |
| 30 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 30 | 4 | 28 | 23 | 12 | 12 | 12 | 2 | 0 |
| 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 10 | 16 | 12 | 6 | 6 | 6 | 2 | 0 |
| 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 6 | 23 | 13 | 7 | 7 | 7 | 2 | 0 |
| 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 0 | 18 | 24 | 12 | 12 | 12 | 2 | 0 |
| 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 20 | 10 | 5 | 5 | 5 | 0 | 0 |
| 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 5 | 8 | 4 | 4 | 4 | 0 | 0 |
| 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 0 |
| 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 6 | 0 | 0 | 0 | 0 | 6 | 0 |
| 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 |
| 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Totals | 33 | 33 | 33 | 33 | 33 | 29 | 29 | 22 | Totals | 90 | 377 | 276 | 145 | 145 | 137 | 44 | 44 |

Table 5. Composite (across years and gears) age-length key for commercially landed red drum along the Atlantic coast of Florida during 1981-1988. Ages (0-14⁺) are modeled ages, incremented on January 1 beginning after the first full year of life, and lengths are total length (TL) inch classes.

| TL\Age | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 ⁺ |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------|
| 6 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 7 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 8 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 9 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 10 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 11 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 12 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 13 | 1.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 14 | 0.8400 | 0.1600 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 15 | 0.8750 | 0.1250 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 16 | 0.5000 | 0.5000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 17 | 0.3448 | 0.6552 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 18 | 0.2667 | 0.7333 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 19 | 0.2692 | 0.7308 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 20 | 0.2083 | 0.7917 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 21 | 0.1177 | 0.8235 | 0.0588 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 22 | 0.0455 | 0.6818 | 0.2273 | 0.0455 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 23 | 0.0000 | 0.5000 | 0.5000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 24 | 0.0000 | 0.4783 | 0.4348 | 0.0870 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 25 | 0.0000 | 0.3000 | 0.6500 | 0.0500 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 26 | 0.0000 | 0.3182 | 0.5909 | 0.0455 | 0.0000 | 0.0000 | 0.0455 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 27 | 0.0000 | 0.1563 | 0.7500 | 0.0625 | 0.0000 | 0.0000 | 0.0313 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 28 | 0.0000 | 0.2105 | 0.6842 | 0.0526 | 0.0526 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 29 | 0.0000 | 0.0882 | 0.7059 | 0.1765 | 0.0294 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 30 | 0.0000 | 0.1600 | 0.4400 | 0.3600 | 0.0000 | 0.0000 | 0.0000 | 0.0400 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 31 | 0.0000 | 0.0000 | 0.3889 | 0.5556 | 0.0556 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 32 | 0.0000 | 0.0000 | 0.1765 | 0.7647 | 0.0000 | 0.0000 | 0.0588 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 33 | 0.0000 | 0.0000 | 0.1875 | 0.5625 | 0.0000 | 0.1875 | 0.0625 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 34 | 0.0000 | 0.0000 | 0.0000 | 0.8182 | 0.1818 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 35 | 0.0000 | 0.0000 | 0.0000 | 0.7000 | 0.3000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 36 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.3000 | 0.4000 | 0.0000 | 0.0000 | 0.3000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 37 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.2000 | 0.0000 | 0.0000 | 0.0000 | 0.3000 | 0.3000 | 0.0000 | 0.2000 | 0.0000 | 0.0000 |
| 38 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1000 | 0.2000 | 0.0000 | 0.1000 | 0.2000 | 0.4000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 39 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1000 | 0.1000 | 0.1000 | 0.0000 | 0.1000 | 0.2000 | 0.0000 | 0.2000 | 0.0000 | 0.1000 | 0.1000 |
| 40 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1000 | 0.1000 | 0.0000 | 0.1000 | 0.1000 | 0.2000 | 0.1000 | 0.0000 | 0.0000 | 0.3000 |
| 41 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1000 | 0.0000 | 0.1000 | 0.0000 | 0.0000 | 0.1000 | 0.0000 | 0.2000 | 0.1000 | 0.0000 | 0.4000 |
| 42 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1000 | 0.3000 | 0.2000 | 0.0000 | 0.0000 | 0.4000 |
| 43 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1000 | 0.0000 | 0.0000 | 0.0000 | 0.2000 | 0.0000 | 0.3000 | 0.0000 | 0.1000 | 0.0000 | 0.3000 |
| 44 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.3000 | 0.2000 | 0.0000 | 0.0000 | 0.5000 |
| 45 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.3000 | 0.0000 | 0.0000 | 0.0000 | 0.7000 |
| 46 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.3000 | 0.0000 | 0.0000 | 0.0000 | 0.7000 |
| 47 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.5000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.5000 |
| 48 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.7000 | 0.0000 | 0.3000 |

Table 6. Reported landed weight (lbs), estimated observed mean weights (lbs) from all red drum measured for length (and converted to weight) or directly weighed for whole weight, and calculated numbers of red drum represented in the landings made on the Atlantic coast of Florida during 1981-1988.

Atlantic

| | Gill Net | | | Hook and Line | | | Seine | | | Trammel Net | | |
|------|----------|---------|---------|---------------|---------|---------|---------|---------|---------|-------------|---------|---------|
| | Land wt | Mean wt | Est num | Land wt | Mean wt | Est num | Land wt | Mean wt | Est num | Land wt | Mean wt | Est num |
| 1981 | 215,132 | 2.808 | 76,614 | 41,088 | 3.98 | 10,323 | 519 | 4.759 | 109 | 1,635 | 7.154 | 229 |
| 1982 | 110,028 | 3.731 | 29,488 | 27,704 | 6.55 | 4,230 | 479 | 4.277 | 112 | 959 | 9.416 | 102 |
| 1983 | 79,084 | 2.448 | 32,310 | 24,817 | 5.265 | 4,714 | 516 | 4.277 | 121 | 747 | 7.213 | 104 |
| 1984 | 93,788 | 2.996 | 31,308 | 28,797 | 5.265 | 5,469 | 2,717 | 4.277 | 635 | 5,583 | 5.483 | 1,018 |
| 1985 | 63,651 | 2.996 | 21,248 | 21,214 | 5.265 | 4,029 | 614 | 4.277 | 144 | 3,450 | 5.483 | 629 |
| 1986 | 59,323 | 2.996 | 19,304 | 17,308 | 5.265 | 3,205 | 439 | 4.277 | 100 | 0 | -- | 0 |
| 1987 | 31,618 | 2.996 | 10,547 | 9,387 | 5.265 | 1,782 | 1,988 | 4.277 | 464 | 0 | -- | 0 |
| 1988 | 131 | 2.996 | 44 | 153 | 5.265 | 29 | 0 | -- | 0 | 0 | -- | 0 |

Table 7. Estimated commercial landings (numbers) of red drum made on the Atlantic coasts of Florida during 1950-1988 by collapsed gear categories. During the period 1950-1980, when no mean weight estimates were available the average of the 1981-1983 mean weights were used for each gear category.

| Atlantic | | | | | |
|----------|----------|-----------|--------|-------------|--------|
| Year | Gill Net | Hook&Line | Seine | Trammel Net | Totals |
| 1950 | 32,881 | 12,896 | 5,138 | 0 | 50,915 |
| 1951 | 10,782 | 9,990 | 11,290 | 63 | 32,126 |
| 1952 | 14,087 | 9,022 | 7,932 | 656 | 31,697 |
| 1953 | 22,766 | 5,508 | 6,580 | 126 | 34,981 |
| 1954 | 26,205 | 9,288 | 2,569 | 0 | 38,061 |
| 1955 | 18,660 | 5,299 | 2,208 | 328 | 26,496 |
| 1956 | 19,862 | 6,610 | 2,163 | 353 | 28,988 |
| 1957 | 12,785 | 10,085 | 3,290 | 252 | 26,413 |
| 1958 | 7,210 | 10,408 | 5,837 | 0 | 23,455 |
| 1959 | 14,922 | 14,454 | 2,321 | 13 | 31,709 |
| 1960 | 15,856 | 12,763 | 3,222 | 0 | 31,842 |
| 1961 | 23,935 | 3,837 | 4,822 | 151 | 32,745 |
| 1962 | 31,546 | 7,293 | 3,222 | 265 | 42,327 |
| 1963 | 29,877 | 6,116 | 2,592 | 126 | 38,710 |
| 1964 | 21,732 | 5,641 | 4,394 | 593 | 32,360 |
| 1965 | 27,840 | 7,369 | 5,431 | 0 | 40,641 |
| 1966 | 27,573 | 6,724 | 7,549 | 189 | 42,035 |
| 1967 | 30,411 | 5,774 | 4,980 | 442 | 41,606 |
| 1968 | 35,919 | 5,299 | 6,422 | 378 | 48,019 |
| 1969 | 27,640 | 4,805 | 2,006 | 252 | 34,703 |
| 1970 | 37,321 | 4,634 | 2,163 | 126 | 44,245 |
| 1971 | 22,566 | 2,108 | 969 | 278 | 25,921 |
| 1972 | 31,980 | 5,451 | 879 | 0 | 38,310 |
| 1973 | 44,398 | 4,919 | 1,375 | 189 | 50,881 |
| 1974 | 30,010 | 6,287 | 2,637 | 328 | 39,261 |
| 1975 | 19,061 | 3,685 | 1,330 | 114 | 24,189 |
| 1976 | 25,504 | 4,235 | 1,510 | 76 | 31,325 |
| 1977 | 24,235 | 3,856 | 1,961 | 240 | 30,291 |
| 1978 | 29,075 | 3,210 | 135 | 13 | 32,433 |
| 1979 | 20,763 | 5,147 | 113 | 366 | 26,389 |
| 1980 | 53,376 | 5,570 | 58 | 154 | 59,158 |
| 1981 | 76,614 | 10,323 | 109 | 229 | 87,276 |
| 1982 | 29,488 | 4,230 | 112 | 102 | 33,931 |
| 1983 | 32,310 | 4,714 | 121 | 104 | 37,248 |
| 1984 | 31,308 | 5,469 | 635 | 1,018 | 38,431 |
| 1985 | 21,248 | 4,029 | 144 | 629 | 26,050 |
| 1986 | 19,304 | 3,205 | 100 | 0 | 22,609 |
| 1987 | 10,547 | 1,782 | 464 | 0 | 12,793 |
| 1988 | 44 | 29 | 0 | 0 | 73 |

Table 8. Estimated length frequencies, total length in inches, for commercial red drum landings made along the Atlantic coast of Florida during 1981-1988.

| Gill Net | | | | | | | | | Hook and Line | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|----|---------------|--------|-------|-------|-------|-------|-------|-------|----|
| TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 50 | 36 | 42 | 0 | 0 | 0 | 0 |
| 10 | 0 | 231 | 0 | 148 | 0 | 0 | 0 | 0 | 10 | 0 | 350 | 252 | 292 | 0 | 0 | 0 | 0 |
| 11 | 0 | 1,309 | 0 | 838 | 0 | 0 | 0 | 0 | 11 | 0 | 551 | 396 | 459 | 0 | 0 | 0 | 0 |
| 12 | 1,062 | 1,514 | 0 | 1,117 | 0 | 0 | 0 | 0 | 12 | 444 | 526 | 450 | 522 | 0 | 0 | 0 | 0 |
| 13 | 2,007 | 2,284 | 299 | 1,758 | 1,279 | 0 | 0 | 0 | 13 | 1554 | 25 | 270 | 313 | 304 | 0 | 0 | 0 |
| 14 | 5,903 | 3,054 | 299 | 2,792 | 2,032 | 0 | 0 | 0 | 14 | 2109 | 0 | 342 | 397 | 385 | 0 | 0 | 0 |
| 15 | 8,500 | 3,490 | 2,094 | 3,532 | 2,569 | 0 | 0 | 0 | 15 | 2109 | 0 | 342 | 397 | 385 | 0 | 0 | 0 |
| 16 | 10,152 | 2,772 | 8,377 | 3,647 | 2,653 | 0 | 0 | 0 | 16 | 1332 | 0 | 216 | 251 | 243 | 0 | 0 | 0 |
| 17 | 11,923 | 1,822 | 6,283 | 3,170 | 2,306 | 0 | 0 | 0 | 17 | 444 | 100 | 144 | 167 | 162 | 0 | 0 | 0 |
| 18 | 10,861 | 1,694 | 5,684 | 2,907 | 2,115 | 3,923 | 2,143 | 12 | 18 | 222 | 25 | 54 | 63 | 61 | 76 | 42 | 2 |
| 19 | 5,903 | 847 | 4,787 | 1,626 | 1,183 | 2,194 | 1,199 | 6 | 19 | 0 | 100 | 72 | 84 | 81 | 102 | 57 | 2 |
| 20 | 3,660 | 488 | 1,496 | 903 | 657 | 1,219 | 666 | 4 | 20 | 0 | 50 | 36 | 42 | 40 | 51 | 28 | 1 |
| 21 | 1,889 | 488 | 0 | 575 | 418 | 776 | 424 | 2 | 21 | 0 | 50 | 36 | 42 | 40 | 51 | 28 | 1 |
| 22 | 2,007 | 565 | 0 | 641 | 466 | 864 | 472 | 3 | 22 | 0 | 125 | 90 | 104 | 101 | 127 | 71 | 3 |
| 23 | 1,889 | 385 | 898 | 558 | 406 | 754 | 412 | 2 | 23 | 0 | 100 | 72 | 84 | 81 | 102 | 57 | 2 |
| 24 | 1,653 | 1,001 | 0 | 871 | 633 | 1,175 | 642 | 3 | 24 | 444 | 50 | 108 | 125 | 121 | 153 | 85 | 3 |
| 25 | 2,951 | 898 | 299 | 1,002 | 729 | 1,352 | 739 | 4 | 25 | 111 | 100 | 90 | 104 | 101 | 127 | 71 | 3 |
| 26 | 1,417 | 1,104 | 598 | 936 | 681 | 1,263 | 690 | 4 | 26 | 111 | 250 | 198 | 230 | 223 | 280 | 156 | 6 |
| 27 | 1,535 | 1,283 | 0 | 1,035 | 753 | 1,396 | 763 | 4 | 27 | 0 | 200 | 144 | 167 | 162 | 203 | 113 | 5 |
| 28 | 472 | 950 | 598 | 706 | 514 | 953 | 521 | 0 | 28 | 0 | 250 | 180 | 209 | 202 | 254 | 141 | 0 |
| 29 | 1,181 | 1,232 | 299 | 969 | 705 | 1,308 | 714 | 0 | 29 | 0 | 300 | 216 | 251 | 243 | 305 | 170 | 0 |
| 30 | 1,181 | 565 | 299 | 542 | 394 | 731 | 400 | 0 | 30 | 111 | 125 | 108 | 125 | 121 | 153 | 85 | 0 |
| 31 | 118 | 308 | 0 | 214 | 155 | 288 | 157 | 0 | 31 | 111 | 200 | 162 | 188 | 182 | 229 | 127 | 0 |
| 32 | 0 | 282 | 0 | 181 | 131 | 244 | 133 | 0 | 32 | 0 | 50 | 36 | 42 | 40 | 51 | 28 | 0 |
| 33 | 0 | 282 | 0 | 181 | 131 | 244 | 133 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 | 0 | 128 | 0 | 82 | 60 | 111 | 61 | 0 | 34 | 0 | 100 | 72 | 84 | 81 | 102 | 57 | 0 |
| 35 | 0 | 51 | 0 | 33 | 24 | 44 | 24 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 150 | 108 | 125 | 121 | 153 | 85 | 0 |
| 37 | 354 | 0 | 0 | 49 | 36 | 66 | 36 | 0 | 37 | 333 | 25 | 72 | 84 | 81 | 102 | 57 | 0 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 333 | 200 | 198 | 230 | 223 | 280 | 156 | 0 |
| 39 | 0 | 26 | 0 | 16 | 12 | 22 | 12 | 0 | 39 | 333 | 75 | 108 | 125 | 121 | 153 | 85 | 0 |
| 40 | 0 | 128 | 0 | 82 | 60 | 111 | 61 | 0 | 40 | 111 | 50 | 54 | 63 | 61 | 76 | 42 | 0 |
| 41 | 0 | 77 | 0 | 49 | 36 | 66 | 36 | 0 | 41 | 111 | 50 | 54 | 63 | 61 | 76 | 42 | 0 |
| 42 | 0 | 77 | 0 | 49 | 36 | 66 | 36 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 77 | 0 | 49 | 36 | 66 | 36 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 0 | 77 | 0 | 49 | 36 | 66 | 36 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 76,614 | 29,488 | 32,310 | 31,308 | 21,248 | 19,304 | 10,547 | 44 | Totals | 10,323 | 4,230 | 4,714 | 5,469 | 4,029 | 3,205 | 1,782 | 29 |

Table 8 (con't.). Estimated length frequencies, total length in inches, for commercial red drum landings made along the Atlantic coast of Florida during 1981-1988.

| Seine | | | | | | | | | Trammel Net | | | | | | | | |
|--------|-----|-----|-----|-----|-----|-----|-----|----|-------------|-----|-----|-----|-------|-----|----|----|----|
| TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | TL" | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 1 | 7 | 4 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 7 | 7 | 7 | 39 | 9 | 0 | 0 | 0 | 16 | 0 | 0 | 1 | 11 | 7 | 0 | 0 | 0 |
| 17 | 8 | 8 | 9 | 48 | 11 | 0 | 0 | 0 | 17 | 0 | 1 | 3 | 35 | 22 | 0 | 0 | 0 |
| 18 | 18 | 19 | 20 | 106 | 24 | 19 | 90 | 0 | 18 | 0 | 0 | 2 | 25 | 15 | 0 | 0 | 0 |
| 19 | 10 | 10 | 11 | 58 | 13 | 11 | 49 | 0 | 19 | 3 | 2 | 12 | 116 | 72 | 0 | 0 | 0 |
| 20 | 5 | 5 | 5 | 29 | 7 | 5 | 24 | 0 | 20 | 8 | 3 | 8 | 77 | 48 | 0 | 0 | 0 |
| 21 | 3 | 3 | 4 | 19 | 4 | 4 | 16 | 0 | 21 | 3 | 3 | 5 | 49 | 30 | 0 | 0 | 0 |
| 22 | 2 | 2 | 2 | 10 | 2 | 2 | 8 | 0 | 22 | 3 | 3 | 5 | 63 | 39 | 0 | 0 | 0 |
| 23 | 2 | 2 | 2 | 10 | 2 | 2 | 8 | 0 | 23 | 25 | 3 | 4 | 39 | 24 | 0 | 0 | 0 |
| 24 | 12 | 12 | 13 | 67 | 15 | 12 | 57 | 0 | 24 | 28 | 2 | 2 | 14 | 9 | 0 | 0 | 0 |
| 25 | 8 | 8 | 9 | 48 | 11 | 9 | 41 | 0 | 25 | 23 | 4 | 3 | 32 | 20 | 0 | 0 | 0 |
| 26 | 8 | 8 | 9 | 48 | 11 | 9 | 41 | 0 | 26 | 33 | 6 | 6 | 63 | 39 | 0 | 0 | 0 |
| 27 | 5 | 5 | 5 | 29 | 7 | 5 | 24 | 0 | 27 | 25 | 14 | 6 | 53 | 33 | 0 | 0 | 0 |
| 28 | 7 | 7 | 7 | 39 | 9 | 7 | 33 | 0 | 28 | 10 | 12 | 8 | 77 | 48 | 0 | 0 | 0 |
| 29 | 13 | 14 | 15 | 77 | 17 | 14 | 65 | 0 | 29 | 18 | 12 | 4 | 39 | 24 | 0 | 0 | 0 |
| 30 | 2 | 2 | 2 | 10 | 2 | 2 | 8 | 0 | 30 | 10 | 8 | 9 | 81 | 50 | 0 | 0 | 0 |
| 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 25 | 4 | 5 | 42 | 26 | 0 | 0 | 0 |
| 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 15 | 6 | 5 | 46 | 28 | 0 | 0 | 0 |
| 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 0 | 5 | 9 | 84 | 52 | 0 | 0 | 0 |
| 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 5 | 4 | 35 | 22 | 0 | 0 | 0 |
| 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 1 | 3 | 28 | 17 | 0 | 0 | 0 |
| 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 109 | 112 | 121 | 635 | 144 | 100 | 464 | 0 | Totals | 229 | 102 | 104 | 1,018 | 629 | 0 | 0 | 0 |

Table 9. Estimated age frequencies (January 1 anniversary) of red drum caught with gill nets, hook and line, seines, or trammel nets deployed in the commercial fishery on the Atlantic coasts of Florida during 1981-1988.

Gill N

| Age | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|--------|--------|--------|--------|--------|--------|--------|--------|------|
| 0 | 30,213 | 13,836 | 11,854 | 13,711 | 8,445 | 2,021 | 1,104 | 6 |
| 1 | 36,697 | 8,429 | 18,394 | 11,511 | 8,375 | 9,071 | 4,956 | 25 |
| 2 | 7,858 | 4,973 | 1,749 | 4,373 | 3,181 | 5,900 | 3,223 | 11 |
| 3 | 1,267 | 1,445 | 234 | 1,114 | 811 | 1,503 | 821 | 1 |
| 4 | 66 | 152 | 40 | 109 | 79 | 147 | 80 | 0 |
| 5 | 71 | 68 | 0 | 54 | 39 | 72 | 40 | 0 |
| 6 | 112 | 148 | 27 | 112 | 81 | 151 | 82 | 0 |
| 7 | 47 | 23 | 12 | 22 | 16 | 29 | 16 | 0 |
| 8 | 0 | 15 | 0 | 10 | 7 | 13 | 7 | 0 |
| 9 | 106 | 33 | 0 | 36 | 26 | 49 | 27 | 0 |
| 10 | 106 | 95 | 0 | 76 | 55 | 102 | 56 | 0 |
| 11 | 0 | 64 | 0 | 41 | 30 | 55 | 30 | 0 |
| 12 | 71 | 8 | 0 | 15 | 11 | 20 | 11 | 0 |
| 13 | 0 | 3 | 0 | 2 | 1 | 2 | 1 | 0 |
| 14+ | 0 | 195 | 0 | 125 | 91 | 168 | 92 | 0 |
| Totals | 76,614 | 29,488 | 32,310 | 31,308 | 21,248 | 19,304 | 10,547 | 44 |

H&Line

| Age | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|--------|--------|-------|-------|-------|-------|-------|-------|------|
| 0 | 6,494 | 1,592 | 2,197 | 2,549 | 1,197 | 70 | 39 | 2 |
| 1 | 2,020 | 637 | 786 | 911 | 884 | 687 | 382 | 13 |
| 2 | 423 | 991 | 781 | 906 | 879 | 1,104 | 614 | 13 |
| 3 | 151 | 382 | 299 | 347 | 336 | 422 | 235 | 1 |
| 4 | 51 | 109 | 86 | 100 | 97 | 122 | 68 | 0 |
| 5 | 144 | 98 | 94 | 109 | 105 | 132 | 74 | 0 |
| 6 | 127 | 78 | 77 | 89 | 86 | 109 | 60 | 0 |
| 7 | 4 | 5 | 4 | 5 | 5 | 6 | 3 | 0 |
| 8 | 78 | 78 | 68 | 79 | 77 | 97 | 54 | 0 |
| 9 | 255 | 73 | 94 | 109 | 105 | 132 | 74 | 0 |
| 10 | 255 | 98 | 112 | 129 | 126 | 158 | 88 | 0 |
| 11 | 100 | 30 | 38 | 44 | 43 | 53 | 30 | 0 |
| 12 | 78 | 10 | 20 | 23 | 22 | 28 | 16 | 0 |
| 13 | 33 | 8 | 11 | 13 | 12 | 15 | 8 | 0 |
| 14+ | 111 | 43 | 49 | 56 | 55 | 69 | 38 | 0 |
| Totals | 10,323 | 4,230 | 4,714 | 5,469 | 4,029 | 3,205 | 1,782 | 29 |

Table 9 (con't.). Estimated age frequencies (January 1 anniversary) of red drum caught with gill nets, hook and line, seines, or trammel nets deployed in the commercial fishery on the Atlantic coasts of Florida during 1981-1988

Seine

| Age | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|--------|------|------|------|------|------|------|------|------|
| 0 | 15 | 16 | 17 | 88 | 20 | 10 | 44 | 0 |
| 1 | 52 | 54 | 58 | 304 | 69 | 46 | 214 | 0 |
| 2 | 35 | 36 | 39 | 204 | 46 | 37 | 172 | 0 |
| 3 | 5 | 6 | 6 | 32 | 7 | 6 | 27 | 0 |
| 4 | 1 | 1 | 1 | 4 | 1 | 1 | 4 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 1 | 1 | 1 | 3 | 1 | 1 | 3 | 0 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 109 | 112 | 121 | 635 | 144 | 100 | 464 | 0 |

Tram'l

| Age | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|--------|------|------|------|-------|------|------|------|------|
| 0 | 3 | 2 | 9 | 89 | 55 | 0 | 0 | 0 |
| 1 | 64 | 21 | 36 | 373 | 231 | 0 | 0 | 0 |
| 2 | 116 | 43 | 31 | 296 | 183 | 0 | 0 | 0 |
| 3 | 40 | 22 | 22 | 206 | 127 | 0 | 0 | 0 |
| 4 | 2 | 4 | 2 | 22 | 14 | 0 | 0 | 0 |
| 5 | 0 | 3 | 2 | 16 | 10 | 0 | 0 | 0 |
| 6 | 3 | 2 | 1 | 12 | 8 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 |
| 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14+ | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 229 | 102 | 104 | 1,018 | 629 | 0 | 0 | 0 |

Table 9 (con't.). Estimated age frequencies (January 1 anniversary) of red drum caught with gill nets, hook and line, seines, or trammel nets deployed in the commercial fishery on the Atlantic coasts of Florida during 1981-1988

| All gear | | | | | | | | |
|-----------------|--------|--------|--------|--------|--------|--------|--------|------|
| Age | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
| 0 | 36,725 | 15,445 | 14,076 | 16,437 | 9,717 | 2,101 | 1,188 | 8 |
| 1 | 38,833 | 9,141 | 19,274 | 13,100 | 9,558 | 9,804 | 5,552 | 39 |
| 2 | 8,432 | 6,043 | 2,599 | 5,779 | 4,289 | 7,041 | 4,010 | 24 |
| 3 | 1,463 | 1,855 | 561 | 1,698 | 1,281 | 1,931 | 1,083 | 2 |
| 4 | 120 | 266 | 130 | 236 | 191 | 270 | 152 | 0 |
| 5 | 215 | 169 | 95 | 178 | 154 | 205 | 113 | 0 |
| 6 | 243 | 228 | 106 | 216 | 176 | 260 | 145 | 1 |
| 7 | 52 | 28 | 17 | 30 | 23 | 35 | 20 | 0 |
| 8 | 78 | 94 | 68 | 89 | 84 | 110 | 61 | 0 |
| 9 | 362 | 107 | 94 | 145 | 132 | 181 | 100 | 0 |
| 10 | 362 | 193 | 112 | 205 | 181 | 260 | 143 | 0 |
| 11 | 100 | 95 | 38 | 85 | 72 | 109 | 60 | 0 |
| 12 | 149 | 18 | 20 | 38 | 33 | 48 | 26 | 0 |
| 13 | 33 | 10 | 11 | 14 | 13 | 17 | 10 | 0 |
| 14+ | 111 | 239 | 49 | 181 | 145 | 237 | 130 | 0 |
| Totals | 87,276 | 33,931 | 37,248 | 38,431 | 26,050 | 22,609 | 12,793 | 73 |

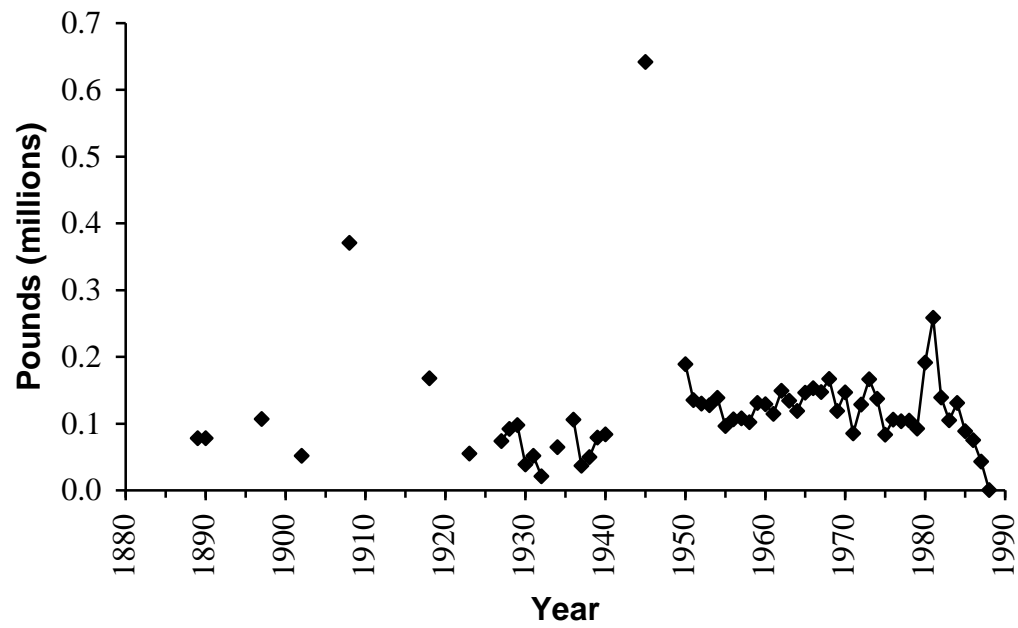


Figure 1. Available annual commercial landings reports for red drum landed on the Atlantic coast of Florida during the period 1888-1988.