

LOAN COPY ONLY

University of Florida
Institute of Food and Agricultural Sciences
Department of Food and Resource Economics

1999

FACT SHEET

Project Title: Structure and Competitiveness of Florida's Tropical Ornamental Marine Life Industry
Authors: Sherry L. Larkin and Donna J. Lee

Quantity and Economic Value of Commercially Harvested Marine Life in Florida, 1990 to 1996

Description of the Data

Florida's "marine life" industry encompasses the harvest of live products (fishes and invertebrates) from Florida's waters that are sold in the aquarium and shell/curio trade. Information on the industry is collected by the Florida Department of Environmental Protection (FDEP) – formerly known as the Department of Natural Resources – through the Marine Information System. The Marine Information System, which began in 1990, requires licensed dealers (i.e., buyers) to report dealer and harvester (collector) license numbers, the location of harvest, the species and quantity purchased, and the value of each transaction by species. This information is collected on a "trip ticket" and the data is maintained by the Florida Marine Research Institute (Division of Marine Resources, FDEP). Landings that are not sold or are retained for personal use are excluded from the data set maintained by the FDEP.

Ex-vessel Value of Marine Life Harvested in Florida from 1990 to 1996

The total (reported) value of marine life landings destined for the wholesale market ranged from \$1.4 million in 1990 to \$4.3 million in 1994. Landings in 1996 were valued at \$2.6 million. In 1990, fish species comprised the majority of industry value. In subsequent years invertebrate species comprised the larger share. The invertebrate share of the market rose from 46 percent in 1990 to 68 percent in 1996. The total values are illustrated graphically in Figure 1.

Top 10 Groups of Species Harvested by Value in Florida in 1996

The live rock species group – consisting of seven different species – was valued at \$750,000 dockside in 1996, the highest among all marine life groups. The next most valuable species group is angelfish with a value of \$461,000 in 1996. Snails follow with an aggregate value of \$133,000 from collection of 24 different species. The other highly valued invertebrate species groups are crabs, gorgonians, anemones, live sand, sand dollars, sea stars, urchins, and sponges. The remaining high valued fish species groups

are hogfish, sea horses, jawfish, wrasses, morays, butterflyfish, damselfish, tangs, and parrotfish.

A total of six species groups – one fish and five invertebrates – had landed values exceeding \$100,000 in 1996. Conversely, nine species groups of the top 20 – 8 fish and 1 invertebrate – were valued at less than \$50,000. While the industry collects and trades in approximately 100 different species groups, two groups (angelfish and live rock) comprise 46 percent of the total value of marine life landed live and sold. For additional detail, the interested reader is referred to Table 1.

Top 10 Groups of Species Harvested by Landings in Florida in 1996

The majority of all fish landings were angelfish and seahorse. Over 60,000 angelfish and 19,000 seahorses were harvested live and sold in 1996. Dameselfish, wrasse, hogfish, catfish, jawfish, grunt, drum and butterfly fish round out the top ten fish groups in terms of number of fish landed.

In the invertebrate category, sand dollars and live rock were harvested in the greatest quantity with 776,000 sand dollars and 671,000 pounds of live rock collected in 1996. Rounding out the top ten are sea star, snail, crab, anemone, live sand, sea biscuit, conch, and fileclam. A comparison of the highest valued species (Table 1) with the largest volume landed by species (Table 2) highlights the difference in the prices received for the various species. The interested reader is referred to Tables 1 and 2 for more information on values and landings, respectively, and Table 3 for a list of reported prices.

Top 10 Average Ex-vessel Prices by Species in Florida from 1990 to 1996

The average unit price of all marine life landed live and sold between 1990 and 1996 was \$3.38, however, reported prices ranged from \$0.02 to \$52.43. Only 21 of the 306 species (7 percent) sold in 1996 averaged more than \$10 per individual. In contrast, 58 species (19 percent) averaged less than \$1 per individual.

Green morays, great barracudas, and rainbow parrotfish each averaged more than \$20 each (ex-vessel) from 1990-96. Three species of parrotfish (rainbow, midnight, and queen) were among the top 10 in value. The interested reader is referred to Table 3 for detail.

Changes in Invertebrate Landings over Time from 1990 to 1996

Landings for 8 of the 35 invertebrate species groups fell more than 18 percent. Octopus landings declined the most falling 58 percent over 6 years (from 1,433 to 607 individuals). The next largest declines were in jellyfish, plants, basket stars, and nudibranches.

The remainder of the invertebrate groups (77 percent) have been landed in increasing numbers over time. Among species landed in 1990, reported increases ranged from 2 to 10,900 percent. Those with the largest growth are scallops, sea stars, sea hares, conches, and tunicates. Among newly collected species (i.e. those not collected in 1990), are live sand, whelks, miscellaneous, bryozoa, and penshell and. In general, increases

among species with 1990 landings exceeding 17,500 units (from 17,566 to 249,093 for shrimp and live rock) ranged from 2 to 420 percent (for fileclams and snails). For additional detail, the reader is referred to Table 4.

Changes in Fish Landings over Time from 1990 to 1996

Over time, landings have declined for more than half of the fish species groups. Among the highly valued fish, landings fell 15 to 56 percent (for angelfish and damselfish, respectively). The largest percentage reductions (63 to 92 percent) were seen in landings of bigeye, flounder, sharks, soldierfish, and scorpionfish.

Total landings increased in 28 (46 percent) of the fish species groups between 1990 and 1996. Among species landed in 1990, collection increased by the largest margin – from 7 to 9,885 fish – in the catfish group. Also notable was the rise in remora, spadefish, and rays landings. Among the species groups with 1990 landings in excess of 5,000 individuals (5 percent of the total fish species groups), only 3 were landed in greater numbers in 1996. They are seahorses, jawfish, and hogfish. For additional details the reader is referred to Table 5.

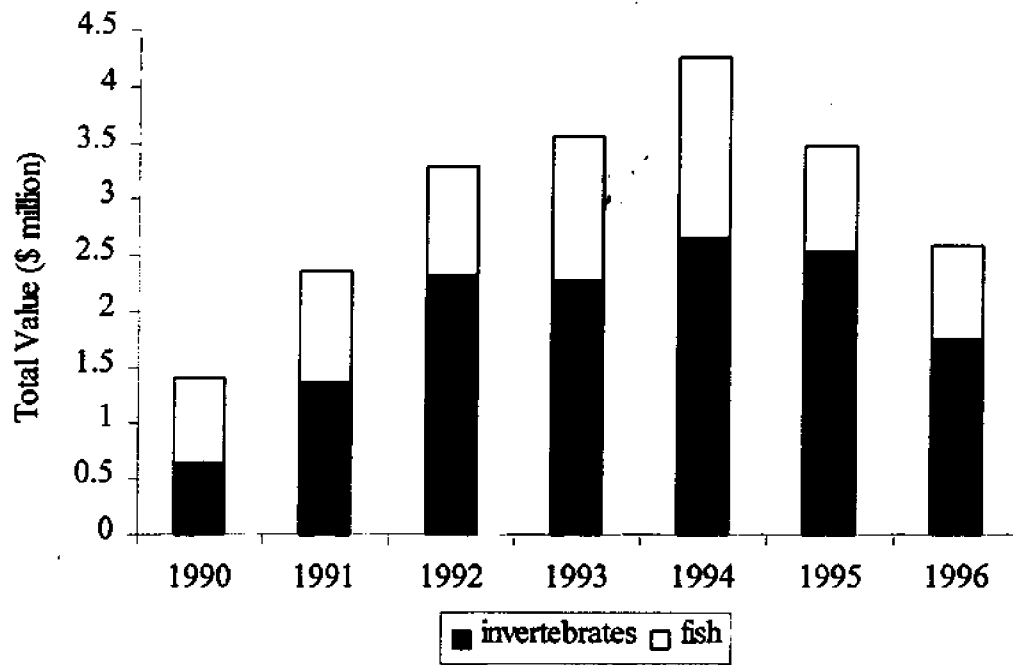


Figure 1. Ex-vessel Value of Marine Life Harvested in Florida, 1990-96

Table 1. Top 10 Groups of Species Harvested by Value in Florida, 1996

Fish		Invertebrates	
Group	Ex-Vessel Value	Group	Ex-Vessel Value
Angelfish (6)	\$461,309	Live Rock (7)	\$749,161
Hogfish (3)	83,923	Snail (24)	132,636
Seahorse (3)	25,453	Crab (14)	107,268
Jawfish (4)	24,187	Grogonian (3)	103,751
Wrasse (8)	21,209	Anemone (7)	102,003
Moray (5)	18,410	Live Sand (1)	94,250
Butterflyfish (6)	17,950	Sand Dollar (3)	81,587
Damselfish (14)	17,200	Sea Star (3)	69,422
Tang (3)	16,581	Urchin (5)	66,871
Parrotfish (9)	14,932	Sponge (4)	44,107

Notes: Parentheses contain the number of distinct species within each group. This number is conservative for some groups since several include an "other" category.

Table 2. Top 10 Groups of Species Harvested by Landings in Florida, 1996

Fish		Invertebrates	
Group	Number Landed	Group	Landings
Angelfish (6)	60,602	Sand Dollar (3)	776,682
Seahorse (3)	19,037	Live Rock (7)	671,226 ^a
Damselfish (14)	14,102	Sea Star (3)	520,658
Wrasse (8)	12,453	Snail (24)	470,357
Hogfish (3)	10,633	Crab (14)	252,882
Catfish (1)	9,885	Anemone (7)	233,649
Jawfish (4)	9,285	Live Sand (1)	138,194 ^a
Grunt (4)	8,219	Sea Biscuit (3)	85,766
Drum (4)	7,233	Conch (7)	60,004
Butterflyfish (6)	6,941	Fileclam (2)	47,897

Notes: Parentheses contain the number of distinct species within each group. This number is conservative for some groups since several include an "other" category.

^a Landings in pounds rather than number.

Table 3. Top 10 Average Ex-vessel Prices by Species in Florida, 1990-96

Species	Unit Price
1. Moray, Green	\$21.83
2. Barracuda, Great	20.41
3. Parrotfish, Rainbow	20.17
4. Shark, Lemon	19.68
5. Shark, Other	17.30
6. Chub, Bermuda	15.00
7. Parrotfish, Midnight	14.75
8. Angelfish, French	14.71
9. Isopod, Giant	14.29
10. Parrotfish, Queen	14.13

Notes: These unit values have not been verified (e.g., compared to reported wholesale prices).

Table 4. Largest Percentage Changes in Invertebrate Landings by Species Group, 1990-96

Group	1990 Landings	1996 Landings	Percentage Change
Largest reduction in landings among all species groups:			
Octopus	1,433	607	- 58%
Jellyfish	8,696	4,050	- 53
Plants	30,504	19,658	- 36
Basket Star	1,242	838	- 33
Nudibranch	4,366	3,576	- 18
Largest increase in landings among groups with more than 5 landed in 1990:			
Scallop	18	1,980	10,900%
Sea Star	7,298	520,658	7,000
Sea Hare	12	631	5,200
Conch	1,210	60,004	4,900
Tunicates	55	1,906	3,365
Largest increase in landings among groups with zero landings in 1990:			
Live Sand	0 ^a	138,194 ^a	13,819,300% ^b
Whelk	0	5,881	588,000 ^b
Miscellaneous	0	4,599	459,800 ^b
Bryozoa	0	496	49,500 ^b
Penshell	0	17	1,600 ^b

^a Landings in pounds rather than number.

^b Reported landings in 1990 were set equal to 1 to generate a percentage change.

Table 5. Largest Percentage Changes in Fish Landings by Species Group, 1990-96

Group	1990 Landings	1996 Landings	Percentage Change
Largest reduction in landings among groups with more than 10 landed in 1990:			
Bigeye	444	36	- 92%
Flounder	410	89	- 78
Shark	1,049	323	- 69
Soldierfish	72	24	- 67
Scorpionfish	534	198	- 63
Largest increase in landings among groups with more than 5 landed in 1990:			
Catfish	7	9,885	141,114%
Miscellaneous	13	261	1,908
Remora	20	241	1,105
Spadefish	105	1,077	926
Rays	18	177	883
Groups with fewer than 2 landed in 1990:			
Barracuda	2	45	2,150%
Tilefish	2	37	1,750
Snapper	0	48	4,700 ^a
Brotula	0	24	2,300 ^a
Surgeonfish	0	24	2,300 ^a

^a Reported landings in 1990 were set equal to 1 to generate a percentage change.

