

High-tech tools help biologist start firm that forecasts fish

By WILLIAM SISSON
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Mitch Roffer has been called "Dr. Tuna" and "Dr. Satellite," appropriate enough monikers for a marine biologist who for the last decade has been using satellites to help locate fish.

Last December, Roffer decided there was enough of a demand from recreational and commercial fishermen for his services, so he hung out his shingle in Miami as Roffer's Ocean Fishing Forecasting Service.

Roffer assembles and sells oceanographic charts from which anglers can glean the location and movement of a variety of fish — from sardines to marlin. The charts are a melding of Roffer's background in fisheries with raw data from geostationary and polar orbiting satellites.

Roffer also receives oceanographic information from planes, commercial and sport fishermen, ocean buoys, the National Oceanic and Atmospheric Administration and NASA. The business has three full-time and several part-time employees.

"We use a lot of high-tech, state-of-the-art technology and try to bring it down to the level of the fisherman," said Roffer, who did satellite/fisheries contract projects for NASA, Sea Grant and the United Nations while at the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences.

The satellites provide Roffer with temperature "maps" of the ocean and atmosphere, which he then uses to identify the location of water density or temperature fronts, the edges of which often produce good fishing.

Fishermen — both sport and commercial — use the charts to reduce the time, expense and guesswork associated with find-

ing fish. "Either you are where the fish are," said Roffer, "or you're not."

Roffer said the charts also are valuable to yacht racers, ocean shippers and fishery managers.

Roffer's maps show large scale ocean features that range from 10 to 500 miles, such as the Gulf Stream, its eddies and fronts. Roffer also charts smaller features of one to 10 miles such as coastal circulation features and the location of river plumes.

Roffer said his ocean temperature charts are popular with fishermen in the Northeast, especially those who run 60 to 90 miles offshore to fish the canyons for tuna and other large pelagic species.

He said he intends to begin marketing his charts in Florida this fall, once the cloudy conditions that hinder the satellite pictures dissipate.

"I don't want to tell people we can produce something when we can't," said Roffer. He also is producing several charts a week for the Gulf area.

In preparing his fishing analyses, Roffer factors in water temperature, salinity, water color, the distribution of bait, and the shape and movement of major inshore and offshore circulation features such as Gulf Stream eddies or rings. Roffer sends clients the information in both a chart and a text format, which include longitude numbers.

"You learn to recognize patterns," said Roffer, such as which fronts are conducive to fish and which aren't. "A front alone is not the end of the world. It has to have the right characteristics, too," he said.

Roffer said acceptance of satellite fishing is increasing among anglers, although he wouldn't disclose the number of subscribers to his service.

"This is a growing field," said Roffer. "Five years ago I had to twist fishermen's arms to con-

vince them how important temperature was in finding fish."

Now, he added, it's a matter of convincing them how rapidly changes can occur. Roffer produces charts seven days a week, but when atmospheric conditions or ocean patterns are changing quickly, he may update as many as 10 times a day.

"It's my firm belief that it's got to be fresh, and it's got to be good," said Roffer. "You want to know where it is, not where it was. Fish are constantly moving. That's why we have to look at the pictures all the time."

NOAA also produces sea surface temperature charts, but the maps are drawn to a larger scale and they're issued only three times a week.

"It's good for ship transport business, but in terms of fishing, it doesn't help them," said Roffer. "Fishermen need to know how to interpret these charts, and most don't."

Most charts are transmitted to subscribers via telephone facsimile machines. Some anglers have facsimile machines aboard their vessels and others call by cellular phone. Some radio Miami via the marine operator for updates, which Roffer provides in a code.

"We tell people, the first tuna you catch, dedicate it to the fax machine," he said.

Some people, even within his own profession, are skeptical of the value of satellite-generated sea surface temperatures.

"A lot of oceanographers still don't believe it's very accurate, particularly the old-time oceanographers," Roffer said.

The same is true of some anglers. "There are plenty of fishermen who don't want to listen to anyone," he said. "They'll fish where their grandfathers fished."

Roffer provides both inshore and offshore analyses. The satellites, he said, allow him to "see" within one to four miles of the beach, including such bodies of water as Long Island Sound and Chesapeake Bay.

The minimum subscription is three charts a week for 12 weeks for \$200, or roughly \$5.50 per chart. The charts can be received seven days a week. Roffer also offers customized tournament specials.