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A GAME FISH FOR THE SALTON SEA, THE TEN-POUNDER, *Elops affinis*¹

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Two hundred and forty-four feet below sea level in southern California lies the Salton Sea, whose saline waters, 40 miles long and 12 miles wide, sparkle beneath the desert sun. Swimming, boating and some waterfowl shooting attract sportsmen to its shores. But to the angler it has long remained almost barren water.

With no outlet, because of its low elevation, it is fed mainly by the muddy Alamo and New rivers which are simply drainage channels for waste and excess water from the irrigation system of the Imperial Valley. Through these streams and canals it has a connection with the Colorado River. Thus, it is possible for fish to migrate from the river into Salton Sea, and most of its fishes have been derived in this way. Of late years the only fishes known to be present in fairly large numbers have been: mullet, *Mugil cephalus*; desert minnows *Cyprinodon macularius* (a native of the Salton Sink); mosquito fish, *Gambusia affinis affinis*. Carp, catfishes, and a few sunfishes also occur in the Sea, but are found commonly only near the mouths of the Alamo and New rivers where the water is fresher. Practically no game fishing has thus been afforded by the Sea.² At long last now, there is at least an indication that a sport fishery may be established—with the first record of ten-pounders, *Elops affinis* Regan, from the Salton Sea. (See Figs. 49 and 50.)



FIG. 49. Warden Leo Rossier with 2 ten-pounders, *Elops affinis* Regan, caught by commercial fishermen off Mullet Island, Salton Sea, California. May 24, 1942.

This game fish is common in the Gulf of California, and " * * * has been found * * * from California to Ecuador, usually in bays, estuaries, sloughs, and muddy tidal streams," according to Walford (1937). Glidden (1941) first reported its occurrence in the Colorado River at Laguna Dam, 12 miles

¹ Submitted for publication, August, 1942.

² Striped bass, *Roccus lineatus*, were introduced in 1929 (Anon., 1930), and again in 1930 (Anon., 1931), but evidently did not survive. Silver salmon, *Oncorhynchus kisutch*, were introduced in 1934, but failed to survive (records of State Division of Fish and Game).

above Yuba, Arizona, where he obtained two specimens, 11 and 14 inches long, in August, 1941. He then expressed the hope that "* * *" this fish will establish itself in the river and find its way into Salton Sea where it would be a very desirable game fish."

His latter hope has now been fulfilled. On May 14, 1942, Mr. Leo Rossier, of the Bureau of Patrol, reported that 10 ten-pounders, from 18 to 20 inches long, were caught by commercial fishermen in the Salton Sea at Bombay Beach. These fish were taken in trial beach seine hauls for mullet.³ On May 24th, the fishermen made their second attempts at netting mullet. This time gill nets were used off Mullet Island within a quarter mile of the shore. Two overnight sets with 3½ inch stretched mesh nets produced 20 ten-pounders in addition to a few mullet. Two other sets using 4 inch stretched mesh caught only mullet. On the same day, the authors caught one ten-pounder at Bombay Beach and 10 ten-pounders near the mouth of the Alamo River. These were caught in gill nets of 3 and 3½ inch stretched mesh. (Nets of 4 inch stretched mesh caught none.) It seems probable that the fish are well distributed in the Sea.

All of these fish were very similar in size and appearance. The 10 fish from the mouth of the Alamo River ranged in length (to fork of caudal fin) from 17.1 inches to 19.7 inches, and from 1.75 pounds to 2.5 pounds in weight. The other fish taken were within or close to this size range. All of the fish examined on May 24th (3 females from Mullet Island, 3 females and 7 males from the mouth of the Alamo River, and 1 male from Bombay Beach) were sexually mature and in spawning condition. Large quantities of milt flowed readily from the males.

The stomachs of 20 ten-pounders were examined. Twelve of these were empty. Five fish taken at Bombay Beach on May 14th contained from 1 to 9 desert minnows apiece. Three from Mullet Island taken on May 24th contained from 2 to 34 desert minnows apiece. (These minnows ranged from 1 to 2 inches in length.) One hydrophilid beetle was also found in a stomach.

It is of considerable interest to speculate on the presence of the ten-pounder both in the Colorado River and in the Salton Sea. It might have been expected that their occurrence in the Colorado River would have been better known had they been present before 1941. However, fish called "anchovies" have been reported by residents near Yuma at various times, and the description of these fish checks well with that of the ten-pounder. The so-called "gars" or "pike" also reported taken in the lower Colorado River by fishermen are also suspected of being ten-pounders.

No explanation can be offered as to why this species has not entered the Sea before. An open waterway has always existed up the Colorado River from the Gulf of California, and the fish could have gained access to the Sea through the canal system diverting from the river. (Of course, it may well be possible that the ten-pounder has been present in the Sea for some time. Since 1931 commercial fishing has been illegal and there has been but little angling. Consequently,

³ Commercial fishing for mullet in the Salton Sea was started in 1915, abandoned voluntarily in 1921, and prohibited by law in 1931. It was resumed this year, but is still in an experimental stage—the work being done under the close supervision of the California Division of Fish and Game.

reports of its capture might have had only a small circulation. The fact remains that from 1915 to 1921, anyway, they were apparently not present—else they should have been reported by commercial fishermen.)

Be that as it may, the fish has now reached the Salton Sea, and possibly it may establish itself in sufficient numbers to form a new sport fishery there. With this in mind, the Division of Fish and Game has ordered all holders of permits to take mullet in the Sea to change their nets to a minimum size of 5 inch stretched mesh. This will still allow the taking of mullet, but will permit the ten-pounders to escape destruction. No exodus from the Sea into the Colorado River is possible because of the many barriers (drops) in the irrigation system. The establishment of a fishery is dependent, therefore, on the continued ingress of fish from the river or upon the successful completion of its

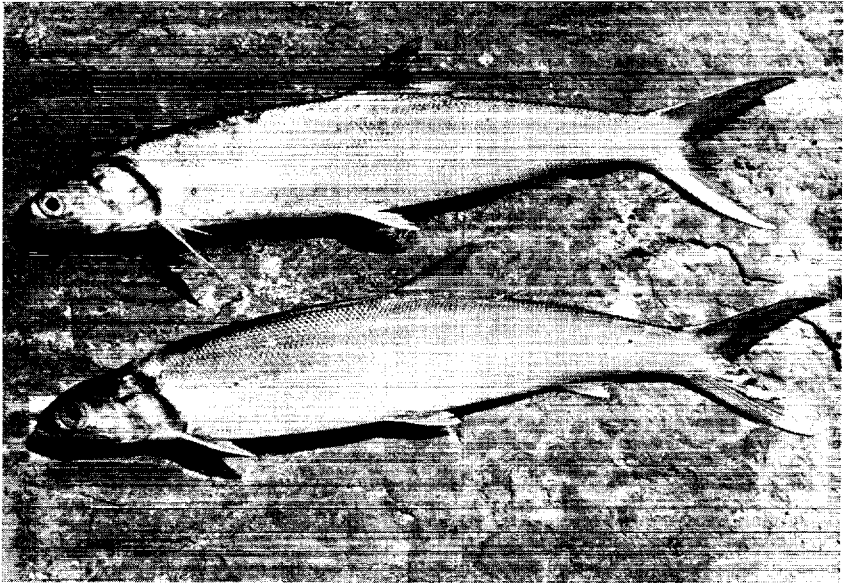


FIG. 50. Ten-pounders, *Elops affinis* Regan, caught by commercial fishermen off Mullet Island, Salton Sea, California. May 24, 1942.

life cycle in the Sea. Our knowledge of the conditions (physical, chemical and biological) necessary for the successful development of the eggs and young of this species is too slight to permit any prediction as to the outcome. Food, in the form of desert minnows and mosquito fish is apparently rather plentiful, although the former, especially, might not stand up under the inroads of a large population of ten-pounders. Possibly, some of the other fishes and invertebrates might also be utilized.

Elops saurus, a close relative of our ten-pounder, is highly esteemed by Atlantic coast sportsmen. *Elops affinis* is its equal as a game fish. Not only will it take bait but it responds to artificial lures. Walford (1937) states that “* * * it will take a No. 3 or 4 spoon with a triple hook * * *” and that it gives excellent sport on light tackle.

No one who has ever witnessed the long leaps of this streamlined fish will doubt the latter statement. It is suggested here that since the fish is known to feed on desert minnows that streamer flies with or without an attached spinner might afford an excellent method of taking it. Several people who have eaten those taken from the Sea attest to the excellent quality of its flesh. (It should be noted, however, that in the hot climate of the Salton Sink the meat may spoil quite rapidly, and care should be taken to ice the fish as soon as possible after its capture.)

It is not yet classed as a game fish by law in our inland waters, but this will be suggested in a forthcoming report on the fishery of the lower Colorado River and Salton Sea.

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