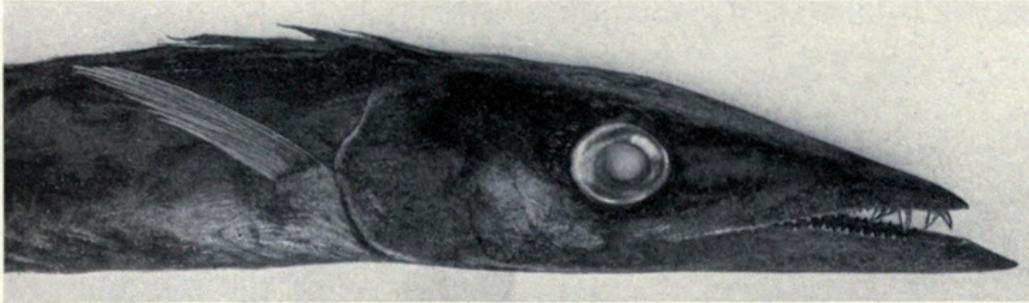


## NIGHT LIGHT FISHING TECHNIQUE IS AN AID TO SCIENCE

By LOREN P. WOODS  
ASSISTANT CURATOR OF FISHES

Man, through the ages, has devised many types of lures to attract his prey to within striking distance. In fishing, this luring method has been developed to an extreme, and there is a great variety of luring gear for the securing of fishes. Fishing by the light of a fire on a rocky promontory or in the bow of a canoe has long been practised



RARE PACIFIC FORM OF SNAKE MACKEREL

This three-foot specimen of the fish scientifically designated as *Gempylus thyrsoideus* came to fishing light used by Leon Mandel Galapagos Expedition at night and was caught on a squid-jig. During the day such fish live in the ocean depths, which accounts for the enormous eyes characteristic of dwellers in the "twilight zone." The barracuda-shaped head and enlarged razor-sharp teeth indicate predatory habits. The Pacific form is known from only two or three specimens; an Atlantic species (*Gempylus serpens*) is much more common, and fishermen of Madeira catch it for the food markets.

by many tribes of fishermen all over the world. Modern gasoline lanterns have been used in this country with such fatal results to the fishes that laws have been passed in some places prohibiting their use.

Recently marine fish collecting has been greatly expanded by use of an apparatus called "the under-water light." This consists of an electric light bulb sealed in a heavy glass globe which in turn is protected by a wire basket. The whole apparatus is of a convenient size and may be lowered into the water from a ship's rail to any desired depth. Swarms of plankton, larval shrimps, and fishes of all sizes are drawn to the light as insects are to a street lamp. It is possible to see clearly into the water in all directions for fifteen to twenty-five feet, and the collector standing poised with spear and dip-net has an enormous advantage over the myriad forms of animal life attracted within range, since he can observe and collect without being seen.

The animals that come to the light may be roughly classed into two groups: (a) weakly swimming animals (plankton), such as water striders, luminescent fishes, and a variety of flying fishes, large and small, that come because the light attracts them; (b) sharks, predatory fishes, and squids that are apparently not affected by the light but come only to prey on the concentration of animals.

During the Leon Mandel Galapagos Expedition of Field Museum in 1941 many evenings were spent using this method of fishing, and many rare and valuable animals were collected. Some forms were attracted while the yacht was anchored in a quiet

bay, but some of the richest hauls were made when the engines were stopped in the open ocean and the yacht drifted with the currents for a few hours.

### RARE BABY SAILFISH

A great deal of pelagic life seems to congregate above the edge of the continental shelf one hundred and twenty-five miles southwest of Cape Malo, Panama. This is near the place where a strong drift

from the west divides, and the resulting counter-currents mix the water sufficiently to bring food substances up from the bottom, with the result that a great diversity of minute plankton and its predators literally packs the water. During one hour of drifting in this region two baby sailfish (*Istiophorus greyi*), between four and five inches in length, were taken. Sailfish of this size are extremely rare and practically nothing is known of their habits. Tiny dolphins (the fish, not the mammal) six inches long were collected, a whole school at a time. Pelagic crabs (*Euphyllax*), oceanic water striders (*Halobates*), and luminescent fishes of several kinds, could be collected by scores. The luminescent fishes (*Mycetophidae*) commonly called "lantern fishes" because of the rows of luminescent spots along the sides and on the upper surface of the tail, live in the lightless depths in the daytime, but are driven to the surface at night by schools of the wolf-like squids.

The flying fishes were probably the most interesting to watch of all the fishes that came to the underwater light. Some of these were large and swift swimming, one or two feet long. They seemed to be wildly excited by the light. Schools of a dozen or more would rush in, lunging at the light, often stunning themselves by the force with which they struck the light or the side of the ship. It was possible to make observations on their flight from the time they started a dash from ten feet under water until they broke the surface and sailed away out of the circle of light. It was noted that the wing-fins were often spread under water and these were used for banking,

turning, elevating, or braking. The fins were folded close to the body as the fish shot toward the surface, but were opened immediately when it broke water. No fluttering of wings on these larger types could be detected, but once the fish was on a level with the surface of the water it was in such a dim light that close accurate observation could not well be made. Other kinds were the tiny butterfly-flying fishes with short, heavy bodies and colored wings. They would come fluttering through the water into the light, their gaudy appearance and behavior showing how they live up to their common name.

Another rarity attracted to the light was the snake-mackerel (*Gempylus*), a long, shiny-black, eel-like fish from the depths, with greatly enlarged eyes and large, flattened, dagger-like teeth. Whole specimens of this fish have been taken in the Pacific only rarely, and it is known largely from fragments which have been washed up onto the shore.

### MARINE SNAKES

Several specimens of a species of marine snake were seen, but only one came near enough to be netted. Marine snakes are related to the cobras and coral snakes. The only species on the American coast is brown above with a bright orange under side. It is seen in fair numbers in Panama Bay at certain seasons, but disappears for long periods of time. Very little is known of its migratory movements. Marine snakes eat small fishes, especially various eels.

Until recently few oceanic expeditions had utilized this method of fishing with a strong electric light in the water at night. It has certainly proved productive wherever used, and very likely many new forms of open ocean fishes and invertebrates will be discovered when it is used more extensively.

### Paleontologist Patterson Promoted

Mr. Bryan Patterson, a member of the Museum staff since 1926, and Assistant Curator since 1935, has been appointed Acting Curator of Paleontology. His promotion is to fill the vacancy caused by the recent retirement of Mr. Elmer S. Riggs, Curator of Paleontology for 44 years. Mr. Patterson has conducted a number of fossil hunting expeditions, and has published extensively within the scope of his subject.

### Museum Employees Do Their Bit

During 1942, employees of Field Museum have participated in five campaigns for community welfare and for aiding the war efforts: the Community Fund of Chicago, the United Service Organizations drive, the American Red Cross subscription, the campaign for regular purchases of War Bonds by payroll deductions, and the collecting of reading material for the armed forces in the Victory Book Drive.



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