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RAFT EXPEDITION STUDIES FISH OFF HAWAII

In contrast to modern vessels now used in fishery and oceanographic research, a 12-foot-square raft drifting on the calm waters off the Kona coast of the island of Hawaii recently served as a unique floating laboratory for four scientists from the Fish and Wildlife Service's Bureau of Commercial Fisheries Biological Laboratory at Honolulu, the Department of the Interior reports.

The two-week expedition--designated "Koalana I," from "Ko'a," a fishing bank or fish-attracting shrine, and "lana," floating--was the first attempt in Hawaiian waters to make direct observations of the large communities of fish and other marine animals which congregate under objects floating free in the ocean. The laboratory's tuna behaviorists were seeking information on how this association between fish and flotsam comes about, how the various members of such an aggregation react, and how their reactions might be turned to practical account in the commercial fisheries.

The raft Nenue, named after one of the most constant fish members of such flotsam communities, was built of timbers with a bamboo facing and six oil drums underneath for buoyancy. In the middle of the raft, a 6-foot metal cylinder with six glass viewing ports projected into the ocean beneath a small enclosure which protected the observers from the elements and shaded the inside of the observation capsule for better visibility.

The Bureau's research vessel Charles H. Gilbert launched the Nenue about 10 miles off Kealakekua Bay and then stood by within sight and walkie-talkie range of the raft at all times.

From the windows of their observation capsule, the biologists saw porpoise, marlin, manta rays, barracuda, opelu, wahoo (ono), and skipjack tuna. At times

there were as many as 60 rudderfish, locally known as the fish for which the raft was named, under and around the raft. Small triggerfish were also numerous and regular members of the Nenue's following.

Mahimahi (dolphin) were also frequently about the raft, sometimes as many as 30 at a time. They mingled harmoniously with the triggerfish, but they voraciously harried a stray jack, similar to the akule, keeping it holed up under the raft for several hours unit it finally escaped by joining the pilotfish escort of a passing whitetip shark.

Preliminary consideration of the results of Koalana I points to several areas of possible scientific and commercial fisheries application. The Nenue's observers were aware of the regular use of rafts in the dolphin fishery of Japan, but they were surprised by the rapidity with which considerable numbers of mahimahi gathered around their raft, particularly since it has commonly been thought that drift logs and other flotsem do not effectively attract large fish until they have been drifting long enough to accumulate a growth of seaweeds and a population of small invertebrate animals. The unexpectedly wide variety of fish species and large numbers of individuals seen from the Nenue offer some promise that floating observation posts could provide an additional and useful technique for estimating the abundance and composition of the fish resources of an area. There were some indications of rather definite changes in the make-up of the raft's following as it drifted into different locations at varying distances from shore. If further observations show these changes to be regular ones, they should give new insights into the relations between some commercially important fisheries and their environment, the Federal researchers believe.

Many of the scientific raftsmen's observations were recorded in still and motion pictures, and numerous specimens were collected for identification and for examination of their stomach contents. Detailed analysis of these data and of similar observations made from the underwater viewing chambers of the Charles H. Gilbert at various distances from the raft will furnish a basis for more sharply focused experimental work on future Koalana expeditions with an improved Nenue.

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NOTE: Photographs for illustrating this article are available from the Office of Information, Fish and Wildlife Service, Department of the Interior, Washington, D. C.