Side Scanning Sonar—

New Type of Salmon Counter Tested

A new type of sonar salmon counter was recently tested by the Alaska Department of Fish and Game, Division of Commercial Fisheries, in conjunction with Bendix Corporation of California.

Tom Namtvedt, commercial fisheries research biologist, reported that tests were conducted over a three-day period in the Kenai River near Soldotna where salmon counting is complicated by heavy glacial silt.

Namtvedt stated that the counter was initially devised to determine the horizontal distribution of sockeye salmon molt in streams. Initial tests with the prototype during 1974 in the Kenai River and at Kodiak indicated that the unit was also usable for counting adult salmon.

The new counter, known as the side scanner, employs one narrow-beam, horizontal-looking transducer which sends a sound through the water and "listens" for the echos made by passing fish. The echos can be recorded on magnetic tape and the image printed out on paper tape for additional analysis.

The side scanner was installed in the Kenai River near the 30-transducer adult salmon counter that has been used for several years to count sockeye salmon escapement.

In three two-hour tests, a 96 per cent correlation between the two independent systems was observed, giving verification to the counts made with the standard adult system.

Spot checking was continued, the Department of Fish and Game biologist said, to maintain a measure of count accuracy during the sockeye migration.

Use of the side scanner to count or verify counts of adult salmon escapement over a much wider range of situations than previously possible will enable the department to better evaluate the annual spawning population in Cook Inlet.

Accurate escapement enumeration is essential to fisheries management, but before the development of sonar counters, it was not possible in large muddy rivers of the type encountered in Cook Inlet and elsewhere in Alaska.

The original 30-transducer counter is limited in its application to certain stream types and fish migration characteristics. The side scanner promises to be more adaptable and if not replacing the original sonar array will at least expand counting capabilities to many new river systems.

Escapement information is used in managing the fisheries to achieve the proper balance between catch and escapement to insure the productivity of future runs while giving maximum allowable benefit to the fishermen.

The side scanner was designed and developed by Al Menin of Bendix Corporation under contract to Commercial Fisheries Division of the Alaska Department of Fish and Game. It is the product of the most recent advances in electronics technology.

The usefulness of this unit has led the department to order another side scanner for application to Cook Inlet and elsewhere in the state. This unit would probably be used to evaluate smolt migrations in Bristol Bay early in the year and subsequently would be brought to Cook Inlet for use in counting adult salmon escapements.

Based on this season's experience certain modifications will be built into the new counter. It will have a variable beam width transducer and ten individual counters. Each counter will cover one tenth of the horizontal range of the beam.

The new version will be particularly useful in streams where high water velocity or debris content precludes the use of the original 30-transducer system.