

Bristol Bay Beluga Control Investigations  
Operational Plans, 1975

BACKGROUND

Research conducted between 1954 and 1957 showed that Beluga whales (Delphinapterus leucas) fed on both outmigrating smolt and returning adult sockeye salmon. It was felt that if the Belugas could be prevented from entering the restricted area of the rivers, significant smolt predation would be greatly reduced. Several methods were attempted, including harassment with outboard driven skiffs, dynamite bombing, and transmitting various sounds under water.

John Vania, Game Division, experimented with the use of the sounds of the killer whale (Grampus rectipinna) from 1965 to 1968. The gear was termed successful if units could be used on both sides of the Kvichak River.

In 1974, the Alaska Department of Fish and Game's Commercial Fish and Game Divisions, in cooperation with the U. S. Navy, used an underwater hi-fi system which played the sounds of the killer whale in the Kvichak and Nushagak River. It was successful in keeping the Belugas up to a mile away from the underwater equipment.

The Bendix Corporation, Electrodynamics Division, was recently contracted to supply eight units of repelling gear to be used in Bristol Bay. Two of these units will be used on the Kvichak River and one unit on the Nushagak River. Single units will be operated on the Igushik, Naknek, and Egegik Rivers if need arises.

OBJECTIVES

1. To prevent Beluga whales from entering the constricted river channels to feed on outmigrating sockeye salmon smolt.
2. To test the underwater system for future use. This includes proper location, timing, and type of killer whale sounds used.

PERSONNEL

The Nushagak and Igushik units will be under direct supervision of Mike Nelson, Area Biologist in Dillingham. The Nushagak unit will be operated out of the Dillingham office and the Igushik unit will be contracted out to a local individual.

The Kvichak, Naknek, and Egegik units will be under direct supervision of Donald Bill, Assistant Area Biologist in King Salmon. Two temporary employees have been hired for the Kvichak River, one to be located at Nakeen and the other to be located at an undetermined site on the east side of the Kvichak. The Naknek River unit will be operated out of the King Salmon office and the Egegik unit will be contracted to a local individual.

In addition, Ken Pitcher of the Game Division will be in the area to provide consulting services and to attempt to capture and sample whales from above and below the operational units.

#### MATERIALS AND METHODS

The Beluga Repeller is a sophisticated underwater Hi-Fi system. It consists of an underwater loudspeaker, a high power/high fidelity amplifier, automatic timer and an automatic reverse cassette tape player which will play the sounds of killer whales, the natural predator of the Beluga. The tape player will play one side of the tape then the other and continuously reverse its operation, thus not requiring any operator tape reversing. The entire system operates from an ordinary 12-volt automobile battery.

The units will be set up near the mouths of the rivers involved. The loudspeaker should be immersed in water from 3 to 12 feet in depth. An automatic timer can be set to allow operation from one to seven hours, shut off for 12 1/2 hours, and then repeat the cycle. The units have a manual override switch which will allow continuous operation.

Daily logs will be kept at each location to record climatological information, Beluga sightings and activities, effectiveness of the repelling units, and miscellaneous data. Dates of operation will be approximately May 15 to June 15 on east side rivers and June 15 to July 15 on west side rivers.