Black River Sonar - Chignik Area, Upper Aleutian Peninsula **FY2002 Request: $175,000**
Reference No: 34004

AP/AL: Appropriation
Project Type: Planning
Category: Natural Resources
Location: Kodiak
Contact: Doug Mecum
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Estimated Project Dates: 07/01/2001 - 06/30/2006

Brief Summary and Statement of Need:
This CIP will purchase modern split-beam, side-scanning sonar (SSS) equipment and provide for technical assistance with final site selection and training. Direct enumeration of salmon migrating up the Black River, in addition to the existing counting weir in the Chignik River, is the only way to accurately distinguish the relative escapement of the two runs of sockeye to the Chignik system. Sonar provides a technically feasible and advanced method for such enumeration, and avoids many of the staffing, logistic and maintenance difficulties of constructing and operating a separate weir in this remote location.

Funding:	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Gen Fund	$175,000						$175,000
Total:	$175,000	$0	$0	$0	$0	$0	$175,000

☐ State Match Required ☑ One-Time Project ☐ Phased - new ☐ Phased - underway ☐ On-Going
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Additional Information / Prior Funding History:

Project Description/Justification:
The Chignik River system supports two main stocks of sockeye salmon: the "early" run which ascends mostly to Black Lake via Black River in the upper watershed to spawn, and the "late run" which ascends only to Chignik Lake lower in the watershed. There is substantial overlap of the two runs each year during late June and July as fish pass the existing counting weir in the Chignik River below Chignik Lake. These runs support almost the entire salmon fishery for the Chignik area, which includes the five villages of Chignik Bay, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay. A number of fishery management plans, as well as the local manager's ability to effectively distribute spawning escapement between the distinct Black Lake and Chignik Lake spawning areas, depends upon the ability to distinguish these runs of fish inseason during the overlap period.

Currently, scale pattern analysis (SPA) is conducted inseason to provide an estimate of stock composition during the overlap period. However, SPA requires that a number of assumptions be fulfilled that cannot be fully tested. Annually, there are also difficulties associated with the collection of standards required for running the SPA models, plus inseason delays associated with collecting scales, digitizing them, creating applicable SPA models for specific age-classes, and running the models to obtain daily information necessary for managing the Chignik sockeye fishery (and adjacent fisheries for which management plans depend upon strength of escapements and harvests of Chignik-bound sockeye).

A more direct way to segregate the two spawning escapements would be to conduct separate fish counting projects, one at the existing weir low in the watershed, and another in the Black River which would specifically enumerate those fish

migrating to spawn in Black Lake. In 1990 and 1991 a floating weir was operated in the Black River for this purpose. Remoteness of the site combined with highly variable and occasionally swift flow and accumulation of debris prevented successful long-term operation of a weir at this location.

In summer of 2000, a feasibility project was conducted in the Black River with modern hydroacoustic equipment. Results indicate that suitable sites are available and that reliable counts of migrating sockeye can be obtained. Moreover, just after the feasibility study, the main counting weir in the Chignik River suffered damage; the sonar equipment deployed in the Black River was successfully redeployed at the Chignik River weir site to obtain interim counts while repairs were made to the weir. Purchase and operation of appropriate sonar equipment to monitor escapement into Black Lake would solve directly a longstanding problem in accurately segregating the numbers of sockeye allowed to escape for spawning in the two major runs, plus provide a valuable back-up to the existing monitoring program at the Chignik River weir.

Hydroacoustic Equipment

Since 1985, side scanning sonar (SSS) technology has been constantly refined and improved. The department has recently engaged in a large-scale evaluation of this technology and its potential application to salmon enumeration at various locations around the state. Improvements in sonar technology include target tracking, digital capture and storage of acoustic data, and the ability to post-process the data. Modern split beam counters are also able to distinguish the direction of fish migrations as well as gross size of the fish counted, which dramatically improves the validity of resulting counts. Finally, the modern equipment is compact, relatively easy to understand and operate by trained technicians, and can be supported at remote field stations.

Acquisition of hydroacoustic equipment for Black Lake would include: 1) purchase of split-beam sounder, transducer, rotator, cables, computer, and software; 2) technical configuration of the equipment to the unique characteristics of the Black River; and 3) training of technical staff to operate the new equipment.