Species monitored

Sockeye Salmon

The Yentna River represents more than 50 percent of sockeye salmon production in the Susitna Drainage.

The Susitna Drainage is the third most productive sockeye salmon system in Upper Cook Inlet, but its stocks are threatened by invasive northern pike. Northern pike prey on juvenile salmon and have been found in 14 of the drainage's sockeye-producing lakes.

Managing Susitna sockeye without sonar

In 2009, ADF&G determined the Yentna River sockeye salmon escapement goal was inappropriate given the uncertainties associated with the estimates and eliminated it in favor of weir-based goals. The new escapement goals are based on sockeye passage through weirs at the outlets of three lakes—Judd and Chelatna Lakes in the Yentna Drainage, and Larson Lake in the main stem Susitna Drainage.

Have a question, comment or suggestion? Contact us by phone, e-mail or mail.

ADF&G Sonar Sites

1. Kenai (RM 8.6)
2. Kenai (RM 19)
3. Anchor
4. Kasilof
5. Yentna
6. Crescent
7. Nushagak
8. Kvichak
9. Copper
10. Chilkat
11. Yukon (Pilot)
12. Aniak
13. Anvik
14. Sheenjek
15. Yukon (Eagle)

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To learn more about the Yentna River sockeye salmon sonar site and other ADF&G sonar sites visit our website:
www.AlaskaFisheriesSonar.org

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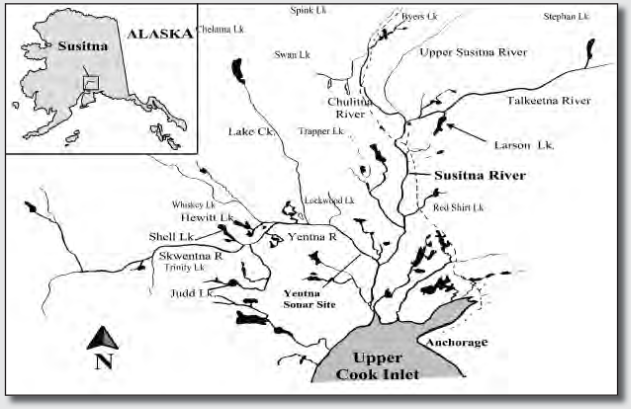
Alaska Fisheries Sonar

Yentna River Salmon Sonar Research Project

How biologists are determining if the Yentna River sonar project can be used to manage Susitna Drainage sockeye salmon.

At the Yentna River sonar site, the Alaska Department of Fish and Game must sort through abundant populations of chum, coho, king, sockeye and pink salmon to produce estimates for just one species—sockeye salmon.

Where the site is located



The sonar site is located six miles upstream of the mouth of the Yentna River, the largest tributary in the Susitna River Drainage.

Why ADF&G does not use the site for management

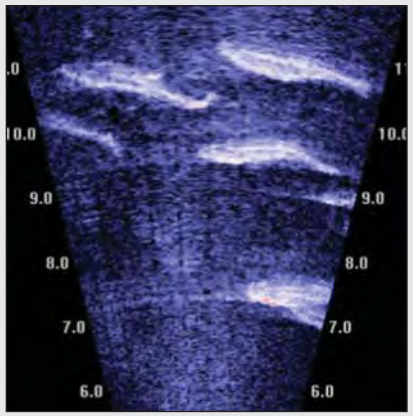
ADF&G used the site as a tool for managing Susitna Drainage sockeye salmon from 1986 until 2008. But in late 2008 a program examining estimate accuracy determined the site was grossly underestimating sockeye salmon returns. ADF&G is operating the site as a research-only project until estimate errors can be resolved.

Why the estimates are inaccurate

Biologists have identified two sources of estimate error—poor sonar detection of fish and fish wheel selectivity. Sonar has been identified as a minor source of error compared with fish wheel selectivity, partially because ADF&G recently replaced the site's sonar with sonar technology that detects fish better.

Site sonar operations

Technicians use Dual frequency IDentification SONar (DIDSON) to detect fish. DIDSON uses sound waves to produce ultrasound-like video images.



A DIDSON transducer is submerged near each bank and aimed perpendicular to the current. Before DIDSON the site used Bendix sonar. ADF&G stopped using Bendix sonar in favor of DIDSON in 2009.

Sonar site fish wheels

Sonar cannot identify fish by species. To separate sonar-detected fish by species, the site relies on fish wheels. Biologists examine the relative proportion of sockeye salmon to other species caught by the fish wheel to determine how many of the sonar-detected fish should be counted as sockeye salmon. Fish wheels scoop fish out of the river with large baskets and deposit them into a live box.

Fish wheel selectivity

Fish wheels have worked well at other sonar sites, but at the Yentna site they tend to over represent pink salmon. Biologists are conducting a study to determine how selective the fish wheels are and if a formula can be developed to correct for the selectivity to produce better sockeye estimates. The study is currently funded to continue through 2012.