Can sonar identify salmon by species?

No, but we have non-sonar tools to help. To separate a run by species, we catch fish swimming past the sonar site using a fish wheel or by drifting test gillnets. We then analyze these catches to come up with a sort of salmon run recipe that might read something like one part Chinook to nine parts sockeye and three parts coho. The recipe can change from one day to the next, so we analyze catches regularly to keep estimates updated.

Don’t you need to run sonar continually to collect reliable data?

No. The difference in estimates generated while operating sonar continually 24-hours a day and estimates generated by sampling is very small. But the difference in operational costs is huge! Instead of operating sonar continually, sampling takes sonar snapshots hourly, which we then expand to represent a full 24-hour period.

Sometimes several salmon species arrive in large numbers at the same time or we need to find a handful of Chinook among droves of sockeye.

How it all comes together—From data to management

At Upper Cook Inlet sites, a sonar snapshot may last anywhere from 10 to 20 minutes. Sonar snapshots expanded to a 24-hour day.
Salmon Data Collection Toolbox (in-season)

SONAR TOOLS

DIDSON
- Determines fish travel direction
- Detects fish within ~40 m of the sonar
- Can be used to calculate fish size
- Provides ultra-sound like fish video

Split-Beam
- Determines fish travel direction
- Detects fish within ~300 m of the sonar

NON-SONAR TOOLS

Test Gillnets
- Provide Chinook catch rates as an indication of run strength at Chinook sonar sites
- Help biologists estimate the proportion of sonar-detected fish that are Chinook

Fish Wheels
- Help biologists estimate the proportion of sonar-detected fish that are sockeye

Fishing* Reports
- Provide sport and commercial catch rates as an indication of run size
- Provide age class information for arriving salmon that can be used as an indication of run size

Sonar — Not Our Only Tool

A fisherman relies on many tools to maintain his outboard motor and we rely on many tools to make and adjust salmon run strength estimates—including non-sonar tools.

Why are there two sonar sites on the Kenai River?

The Kenai River has a sockeye sonar site at River Mile 19 and a Chinook sonar site at River Mile 8.6. The need for separate sites is driven by differences in fish behavior and river conditions. Insonifying the entire width of the Kenai River is technologically difficult. For sockeye, we achieve better detection by choosing a site where strong currents push sockeye close to shore.

But in the Kenai we can’t rely on currents to push Chinook close to shore. Instead, the Chinook site is located where conditions are best for deploying sonar technology that can cover the middle of the river. For more on this topic see our “Kenai Chinook Sonar” brochure or visit AlaskaFisheriesSonar.org

Why don’t you stop using split-beam sonar now that you have DIDSON?

DIDSON has many advantages over split-beam sonar, including better fish images and better detection along uneven riverbeds. But when it comes to range, split-beam sonar detects fish more than seven times as far as DIDSON. DIDSON ranges are improving. A new lens that nearly doubles DIDSON’s range for high resolution imaging is being field-tested at the Kenai River Mile 8.6 Chinook sonar site. For more on this topic see our “Kenai Chinook Sonar” brochure or visit AlaskaFisheriesSonar.org

In the Upper Cook Inlet Region, split-beam is only used at the Kenai RM 8.6 sonar site. We mount the rectangular DIDSON and round split-beam transducers on the same tripod.

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