# Understanding 2011 Kenai and Kasilof River sockeye goal increases:

## Do the new goals put more fish into the river?

KASILOF RIVER

Yes—goal number increases do put more fish into the river.

Nearly all of the increase occurred due to:
Additional years of brood table data

KENAI RIVER

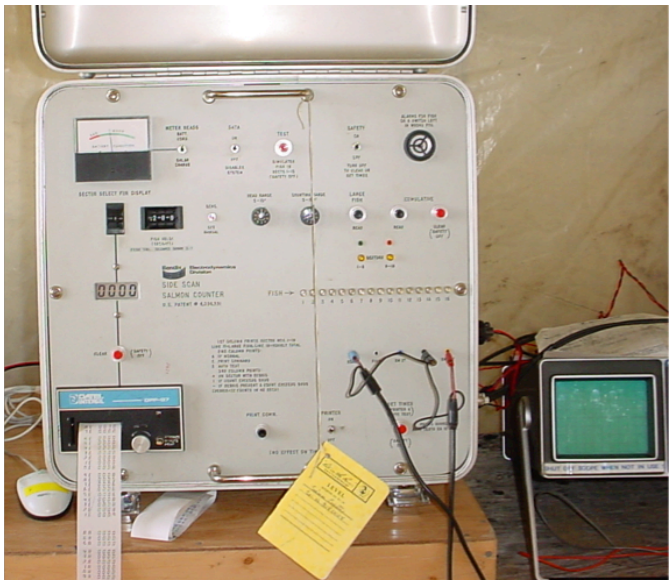
Yes and no—goal number increases put more fish into the river, but not nearly as many as new numbers suggest.
(See TRANSITIONS IN SONAR TECHNOLOGY, below, for an explanation)

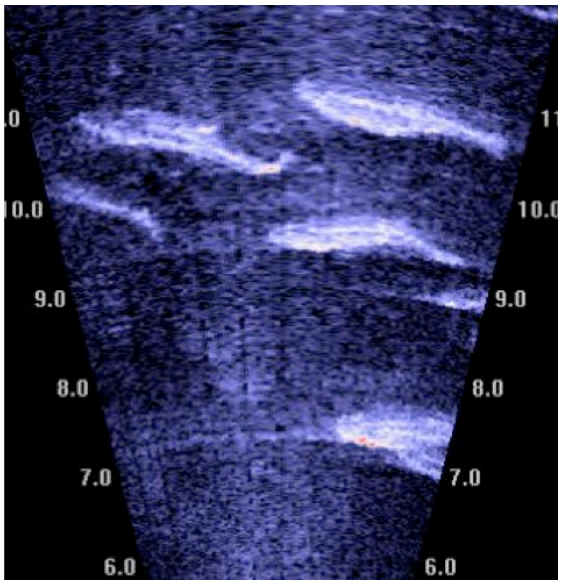
Nearly all of the increase occurred due to:
Transitions in sonar technology and Board of Fish Actions

| **ADDITIONAL YEARS OF BROOD TABLE DATA** | |
|---|---|
| A brood table is used to determine how many spawning salmon produce the greatest possible number of returning adult salmon and to establish escapement goals. Too few or too many spawning salmon (*over escapement*) can result in diminishing returns. Research biologists create brood tables based on many years of historical data and periodically update them with additional years of data (See last page for an example of how brood table data is used). In 2010, six years worth of additional data were added to the Kasilof and Kenai River brood tables. | |
| KASILOF RIVER<br><br>Over escapements occurred in five out of the six years of additional brood table data added. And the adult return per spawner from these large escapements was better than expected based on previous brood tables.<br><br>Consequently: brood tables and corresponding escapement goals increased considerably due to updates in 2010. | KENAI RIVER<br><br>Over escapements occurred in four out of the six years of additional brood table data added. And as expected, the adult return per spawner from these escapements was relatively poor as was expected based on previous brood tables.<br><br>Consequently: brood tables and corresponding escapement goals changed little due to updates in 2010. |
| OVERALL IMPACT ON GOAL INCREASE | |
| Large | Minimal |

| TRANSITIONS IN SONAR TECHNOLOGY | |
|---|---|
| At sonar sites throughout the state, ADF&G has replaced Bendix sonar with a newer sonar technology known as DIDSON. In some rivers DIDSON counts fish better. For these rivers, biologists have had to recalibrate escapement goals to correspond with the improved counting method. Just as converting a 50-mile speed limit into an 80-kilometer speed limit increases the number on speed limit signs, but not the actual speed at which you are allowed to travel, converting from Bendix to DIDSON units increases the goal number, but not salmon escapement. | |
| KASILOF RIVER<br><br>There was little difference between the way Bendix and DIDSON count sockeye in the Kasilof River. For every fish Bendix sonar counted, DIDSON counted about 1.02 fish.<br><br>Consequently: the conversion of the escapement goal from Bendix to DIDSON units resulted in almost no change in the escapement goal. | KENAI RIVER<br><br>There was a considerable difference between the way Bendix and DIDSON count sockeye in the Kenai River. For every fish Bendix sonar counted, DIDSON counted about 1.4 fish.<br><br>Consequently: the conversion of the escapement goal from Bendix to DIDSON units resulted in a considerable increase. |
| OVERALL IMPACT ON GOAL INCREASE | |
| Minimal | Large* |

*Unlike increases due to additional years of brood table data and Board of Fish Actions, the increase due to the transition in sonar technology does not actually put more fish into the river.






At the sonar sites counting sockeye in the Kasilof and Kenai Rivers, Bendix sonar equipment (left) has been replaced with DIDSON (right). In the Kenai River, DIDSON counts considerably more fish and ADF&G has increased escapement goals to reflect the change in counting. In a nutshell—ADF&G isn't putting more fish into the Kenai River, it's just counting them better.

| BOARD OF FISH ACTIONS | |
|---|---|
| While BEG (Biological Escapement Goals) and SEG (Sustainable Escapement Goals) are established by the Alaska Department of Fish and Game based on research data, the Board of Fish may establish and modify OEG (Optimum Escapement Goals) and Inriver Goals to take into account allocative and social considerations. In 2011, the BOF made OEG and Inriver Goal changes to correspond with ADF&G changes to the Kasilof BEG and Kenai SEG, but it then also added 50,000 fish to the lower end of the Kenai Inriver goal. | |
| KASILOF RIVER<br><br>BOF made changes to the OEG to correspond to ADF&G changes, but did not add new fish to goal increases. | KENAI RIVER<br><br>BOF made changes to the OEG and Inriver Goal to correspond to ADF&G changes, and added 50,000 fish to the lower end of the Inriver Goal. |
| OVERALL IMPACT ON GOAL INCREASE | |
| None | Moderate |

# 2011

# GOAL CHANGES

| Kasilof River | | |
|---|---|---|
| | BEG | OEG |
| 2010 | 150,000 to 250,000 | 150,000 to 300,000 |
| ⇩ | ⇩ | ⇩ |
| 2011 | 160,000 to 340,000 | 160,000 to 390,000 |

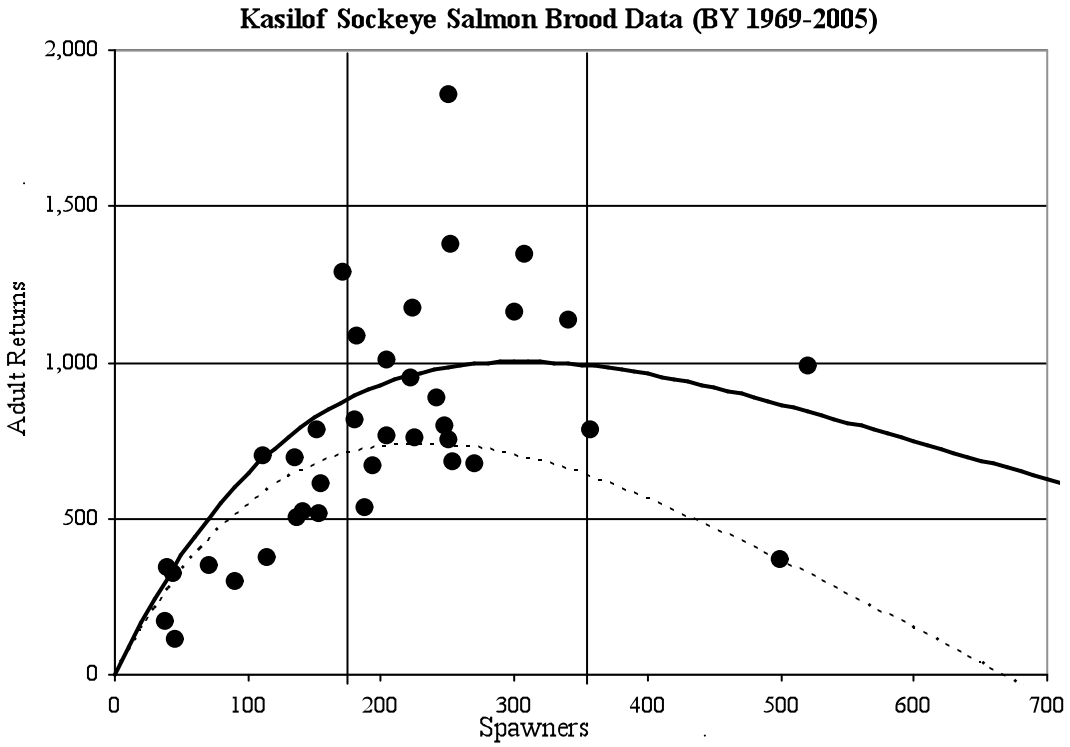
Increase due primarily to additional years of brood table data (which included better than expected returns from large escapements)
-FISH ADDED-

| Kenai River | | | |
|---|---|---|---|
| | BEG | OEG | Inriver Goal* |
| 2010 | 500,000 to 800,000 | 500,000 to 1,000,000 | 650,000 to 1,100,000 |
| ⇩ | ⇩ | ⇩ | ⇩ |
| 2011 | 700,000 to 1,200,000 | 700,000 to 1,400,000 | 900,000 to 1,350,000 |

Increase due primarily to conversion from Bendix to DIDSON units

BOF added 50,000 fish here
-FISH ADDED-

*The three tiers of the Inriver Goal have been merged for simplicity.




ADF&G biologists use a brood table to document the number of adult salmon that return per spawner from a given spawning event and the number of salmon that spawned in that event. Once biologists have documented many years of spawning and return data in a brood table for a river they plot the data and draw what they refer to as a Ricker curve. They use the curve to determine the number of spawning salmon that produce the greatest number of returning adult salmon per spawner and the point at which adding more salmon does not result in more returns. The Kasilof River brood table above was updated in 2010 with six years of historical data.