

# Statewide king salmon decline points to outside forces

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The summer of 2012 was tough for king salmon runs. Economic disasters were declared in the wake of poor returns on the Yukon and Kuskokwim rivers, and in Cook Inlet. Users in all of those areas faced severe restrictions.

Although setnetters and sport anglers on the Kenai River were allowed more fishing opportunity than the near-complete shutdown in 2012, this past summer was a record-low return for king salmon. The minimum escapement goal of 15,000 kings to the Kenai River spawning grounds was achieved, however, but not until early August.

An escapement goal is the amount of fish needed to reach the spawning grounds to ensure sustainable returns in future years. For the second year in a row, the king salmon return to the Kenai River was later than usual and the Alaska Department of Fish and Game, or ADFG, didn't count enough kings to meet the goal until August after all sport and commercial fishing had been closed.

In the wake of the disastrous 2012 season for king salmon on several rivers, the state of Alaska convened a two-day symposium in Anchorage with fishermen and scientists from Alaska and Outside to talk about what had gone wrong that summer, and what can be done about it.

"We're not sure what is causing the downturn, and in many cases, we do not have the basic information needed to understand the causes," said ADFG's Bob Clark,

summarizing some of the symposium's findings.

Commercial fishing and tourism are two of Alaska's largest businesses, and in Cook Inlet those users collided in 2012 as setnet fishermen catching sockeyes along East Side beaches and sport anglers on the Kenai River targeting kings were completely closed to conserve king salmon. The closures cost each group tens of millions of dollars, and the threats to the Alaska economy from an ongoing decline in king salmon numbers in Cook Inlet are behind the Morris Communications Co. decision to publish this series entitled, "The case for conserving the Kenai king salmon."

From the 2012 symposium came a report by the ADFG Chinook Salmon Research Team that identified 12 indicator stocks from major river systems to portray the health of Alaska's kings, and research priorities to better understand the forces at play.

The problem is more complex than just blaming the poor returns on managers, and data suggests that the statewide king salmon decline may be outside of the realm of control for area biologists and attributable to ocean conditions such as changes in temperature, currents or food competition.

Some evidence of that is river systems around the state that have very little fishing pressure and few habitat concerns also have seen crashes in king salmon runs.

Robert Begich is an area management biologist for the Alaska Department of Fish and Game based in Soldotna. He's worked on other rivers in Alaska, and seen the cyclical returns first hand.

"The canary in the coal mine for me is the Nelson River," Begich said.

The river, also called Sapsuck, is on the Alaska Peninsula between Nelson Lagoon and Cold Bay.

"They've closed the king fishing there the last couple of years and nobody sport fishes there," Begich said.

The Nelson River is just one of many waterways with cyclical returns.

During the 1990s, Begich said he worked on the Karluk River on Kodiak, an island in the Gulf of Alaska.

"That's a wilderness, it's in a refuge," he said. "It was 22 miles long from the lake to the lagoon. We would get maybe, it'd be a stretch to say 50 rafts on wilderness trips, people on wilderness trips to fish for king salmon. We used to get runs of 8,000 to 14,000 consistently."

Now, the Karluk is a stock of concern, and one of the chinook team's indicator stocks. That Karluk and the Ayakulik, Kodiak Island's other major king run, have had king restrictions in most recent years.

On the Ayakulik, which usually has the strongest king run on the island, the total weir count at the end of the season was 2,368 fish, less than half the 2012 count, and slightly lower than the 2009 count, the prior low year for the past decade. The high for the past decade was 24,742 kings, in 2004, according to ADFG data.

Likewise on the Karluk, 1,824 fish were counted in 2013, down from 3,198 in 2012 but up from the recent past, when the count was 1,208 in 2009 and 752 in 2008, the lowest count on record.

Those rivers, like others, have seen restrictions for in-river users. Ocean fishermen also saw certain restrictions to protect kings. But there is some indication that the lows are cyclical. The Ayakulik and Karluk saw a decline in king returns in the 1970s, but stocks rebounded from those lows, according to ADFG data.

#### Yukon, Kuskokwim

The Yukon and Kuskokwim, both indicator stocks, have faced some of the most severe restrictions, but those rivers, and others in the northern part of the state, had another year of low escapements in 2013.

On the Yukon, which flows 1,980 miles from British Columbia to the Bering Sea across the width of Alaska, the king declines began in the late 1990s.

The most recent runs have been even lower than ADFG predictions, and those estimates accounted for the low productivity in parent years in the late 2000s.

Both ADFG and the United States Fish and Wildlife Service have jurisdiction on the Yukon, and kings are managed under a treaty with Canada. In 2013, like many in the recent past, the U.S. did not meet its treaty obligation to send between 42,000 and 55,000 kings past the border.

An estimated 30,725 passed the sonar at Eagle, which is about 10 miles from the Canadian border, by late August 2013. That's less than the historic low of 2011, and despite significant limitations to subsistence fishermen and the shutdown of commercial king fishing on the river for the last six years.

Protections enacted last winter by the state Board of Fisheries were aimed at conserving the stock, including using different gear to target chums in an effort to leave kings in the water or return them safely, and a prohibition on fishing on the lower river to allow the first pulse to pass upstream.

Now, the Kuskokwim could be following a similar trend: since 2010, that river has had historically low king returns.

The Kuskokwim flows through western Alaska from the foothills of the Alaska Range to the Bering Sea, and has one of the state's largest king runs.

ADFG estimated in January 2013 that subsistence users reasonably needed 67,200 to 109,800 kings from the entire drainage. But restrictions in 2012 and 2013 limited the subsistence harvest to just a fraction of that amount.

In October 2013, Fish and Game released a season summary saying that it planned to work on a more conservative management strategy for 2014.

### **Bristol Bay**

Bristol Bay's Nushagak River, another indicator stock, is a bright spot among the king returns. The bay is a major salmon fishing region, with the largest natural sockeye run and a significant commercial king fishery.

During the summer of 2013, ADFG data said 113,743 kings were counted on the river, up slightly from 110,117 fish in 2012 and ahead of the 75,000 fish in-river goal, which meant liberalized fishing opportunity for all users.

The Nushagak return was more than any other river in the state, and a turnaround from years with particularly low runs in 2007 and 2010.

Kings have had more variable performance on the Nushagak, with strong runs some years and weaker runs others. In 1999, the river was closed to fishing for part of the season.

## **Copper River**

Copper River kings are doing better than some Alaska runs, but it took in-season restrictions this year to meet escapement goals.

The Copper River, another indicator stock, runs from the Wrangell Mountains to Prince William Sound, in Southcentral Alaska.

By mid-October, ADFG's Mark Somerville, an area management biologist, said the department expected the king run to fall within the sustainable escapement goal range, although the numbers were not yet finalized.

That came after restrictions to all users. The sustainable escapement goal calls for an escapement of at least 24,000 kings. While this year's return looks to meet that, it hasn't been the case every year. According to ADFG data, returns have ranged from 16,771 to 27,994 fish since 2009.

The Native Village of Eyak estimates the run each year, based on a mark recapture effort at a fish wheel there.

#### Southeast Alaska

King salmon runs in Southeast Alaska also have experienced significant fluctuations in the past several decades.

The Taku and Stikine rivers have the largest king salmon runs in Southeast Alaska, according to ADFG, but returns have varied and hit record lows in recent years. Both are indicator stocks for the chinook project.

The Taku runs from the Coast Mountains in British Columbia to the Taku Inlet, just south of Juneau. The Stikine starts farther south in British Columbia, and ends near Wrangell.

The recent lowest estimated escapement on the Taku River was 14,854 kings in 2007. Prior to that, the river hit 9,795 in 1983, but rebounded from that low in subsequent years, according to ADFG data.

The Stikine has had a stronger run. The king run there plummeted in the 1970s, and, like other rivers, rebounded in later years. Despite stronger escapements in the early 2000s, runs have declined again in recent years.

This year, 17,025 kings returned to the Taku, and 18,172 to the Stikine, according to preliminary ADFG estimates.

Both rivers are managed under a treaty with Canada that calls for a certain number of fish to swim upstream to Canada. Fishing opportunity has been limited to meet the treaty goals in recent years.

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