
A Report to the House Fisheries Committee: Salmon Escapements in Excess of Goals

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Unharvested Salmon Surpluses: Causes and Potential Solutions
Alaska Department of Fish and Game, Division of Commercial Fisheries

Southeast Region – Region I

Hugh Smith, Sitka Survey Index, and Auke Creek Coho Salmon

Coho salmon in Southeast Alaska are managed on a regional level. The primary inseason coho salmon monitoring the department does is for the four index stocks: Auke, Hugh Smith, Berners, and Ford Arm. We do not know the escapement of the Hugh Smith and Sitka Survey Index group coho salmon stock until after the fishing seasons are mostly over. The department has adequate tools for inseason management, but does not advocate additional harvest above the existing level since escapement assessment takes place after the majority of harvests occur.

Tools Needed: None.

Taku and Klukshu Sockeye Salmon

Sockeye salmon returning to these systems are managed under the auspices of the Pacific Salmon Treaty with Canada. Harvests are not solely the prerogative of the Department of Fish and Game.

Tools Needed: None.

Central Region – Region II

Igushik River Sockeye Salmon

The Igushik River is one of three main rivers in the Nushagak District in Bristol Bay. Over the last five years, the Igushik River has exceeded the desired escapement goal range. It should also be noted that in 2004 and 2002, escapement into the Igushik system was less than the minimum desired escapement; in some years, the department has managed conservatively as a result.

The Igushik system is managed based on tower count information and aerial surveys; the tower typically begins operation on June 22 and operates until approximately July 23. It takes an estimated five days for sockeye salmon to swim from the upper end of the commercial fishing district to the counting tower site. Most of this distance is in very turbid water and fish cannot be observed from the air. The upper end of the Igushik River is clear and department personnel do survey the river to assess fish passage.

The current strategy for managing the Igushik system is to begin setnet-only openings as soon as there is a market available. This is typically between June 15 and June 18. Set gillnet-only fishing is open eight hours per day until the tower camp is up and running, and managers have escapement information to base decisions on. As escapement increases, set gillnet fishing time is increased and the drift fleet may also have openings in the Igushik Section. In 2011, continuous fishing with set gillnets began at 9:00 p.m. June 24, and fishing with drift gillnets began on June 25. Fishing with drift gillnets became continuous on June 30 at 1:00 p.m. Prior to that, the Igushik Section was open concurrently with the Nushagak Section for 12 to 18 hours per day.

The decision to go to continuous fishing was made after the daily escapement on June 29 was 42,000 fish, bringing the cumulative escapement to 103,000 fish.

The major problem with controlling Igushik River escapement is the lack of fishing effort in that area. Tenders are typically placed at the south line of the district or at Clarks Point, both a significantly longer distance from the Igushik Section than other areas one might fish. Fishermen tend to fish in the Nushagak Section when it is open, avoiding the Igushik Section because of the distance from tenders. Another change affecting harvest has been the decrease in set gillnet effort. The Wards Cove Ekuk plant used to buy fish from Igushik Beach. When Wards Cove ceased operation, Norquest took over buying fish from Igushik Beach. Norquest would not buy dry-picked fish and many Igushik set gillnet fishermen could not adjust to the new market requirement to pick fish wet. The number of set gillnet operations on Igushik Beach has decreased from over 80 to approximately 50. In some years, there were also processor limits or suspensions.

The Igushik Section is shallow with many bars and large flats and is more difficult to fish. In past years, the department has had Igushik-only openings to try and move the fleet into the Igushik Section, with limited success, and is trying different management approaches to increase harvest in the section.

Tools Needed: None.

Island Creek Pink Salmon

Island Creek pink salmon commercial harvests in Port Dick (Lower Cook Inlet) are typically comprised of mixed stocks. In some recent years, Island Creek escapement has exceeded the upper end of the sustainable escapement goal due to proximity of neighboring streams that have experienced poor returns. Therefore, when one stock has a poor return, harvest opportunity in Port Dick, overall, must be reduced by fishery managers to meet escapement goals for poorly performing adjacent stocks. Additional harvest opportunity could not occur on this stock unless other stocks return at higher levels to allow for increased harvest rates. Current emergency order (EO) authority and management plans are adequate to manage this fishery.

Tools Needed: None.

Chenik Lake Sockeye Salmon

Historically, the Chenik Lake system (also in Lower Cook Inlet) has been difficult to manage precisely for sockeye salmon given the barrier falls that prevent passage into the Chenik River from the ocean at all but the highest tides. Salmon, therefore, enter the lake in very large pulses. Complicating this is the turbid water of Lower Cook Inlet that prevents managers from making accurate estimates of sockeye numbers outside of Chenik Lagoon. Current EO authority and management plans are adequate to manage this fishery.

Tools Needed: None.

Arctic-Yukon-Kuskokwim Region – Region III

Yukon Mainstem Summer Chum Salmon

Riverwide, summer chum salmon escapement has been exceeded in Yukon River since 2002. In the mid-2000s, poor markets resulted in small commercial harvests. Since 2007, industry has worked to improve markets in the lower river (districts 1 and 2) and midriver areas (Subdistrict 4-A). It is a very remote and expensive area in which to operate.

The major difficulty managing summer chum is now related to poor king salmon runs that overlap in run timing, particularly during the peak of the summer chum salmon run. The Alaska Board of Fisheries (board) adopted a proposal last cycle to allow the department to prohibit sale of king salmon when closures of the subsistence salmon fishery are necessary for king salmon conservation. This regulation has assisted in allowing a little more commercial fishing for summer chum salmon. It remains difficult, however, to maximize harvest of summer chum salmon when there is no surplus of king salmon, which are harvested incidentally in lower river gillnet fisheries restricted to 6-inch maximum mesh size, the only legal gear for commercial fishing in lower river districts 1–3.

In 2011, the department took unprecedented management action to only open the South Mouth of District 1 by EO to short directed summer chum salmon fishing periods during the end of June. This strategy was utilized because test fishing indicated few king salmon migrating through the South Mouth, while there was a high abundance of summer chum salmon. Conversely, the Middle and North Mouth test fishery indicated higher passage of king salmon and thus, the remaining portion of the district was not opened to fishing. During four 4-hour fishing periods allowed in the South Mouth, approximately 77,000 summer chum salmon were harvested and 570 king salmon reported as caught, but not sold. Overall, the districts 1 and 2 harvest in 2011 was 266,500 summer chum salmon, the highest since 1992.

Current regulations separate subsistence and commercial fishing periods in the lower Yukon Area. In 2011, the department did allow some concurrent subsistence and commercial fishing periods by EO. This strategy was used to reduce the overall amount of fishing time during a poor king salmon run and because king salmon could not be sold. The incidental harvest of king salmon would be utilized for subsistence purposes and fishermen could decide during concurrent subsistence and commercial fishing periods whether to fish for subsistence or commercial purposes. It is anticipated similar actions will be taken in the future to increase summer chum harvest opportunity in lower Yukon River districts during times of king salmon conservation. Strategies and actions will be further refined and implemented as conditions warrant.

No buyer operated in District 4 in 2011, an area with high transportation costs and logistical difficulties. Through 1997, there were several buyers operating in Subdistrict 4-A, and in Galena, in subdistricts 4-B and 4-C. After years of poor runs from 1998 to 2002 and no fishing or buyers operating, it has been difficult to reestablish infrastructure in the area. Recently, buyers have reestablished smaller-scale operations in Subdistrict 4-A, although processing capacity is very limited compared to previous years. During times when king salmon conservation measures are needed, similar concerns and limitations on summer chum harvest

exist in this district. To increase overall opportunity and provide for king salmon conservation when needed, the department has worked with industry to address board regulatory changes that allow only fish wheel gear and stipulate that king salmon must be returned to the water alive. Last year the board adopted such regulations, adopted similar emergency regulations in District 6 (Tanana River) in response to an emergency petition submitted inseason, and made these emergency regulations permanent during the recent AYK Region meeting in January 2013.

Additional regulations were adopted by the board during the AYK Region meeting that will assist the department with managing for Chinook salmon conservation while allowing for increased commercial harvest opportunity on summer chum salmon. These regulatory changes include emergency order authority to:

- Refine implementation of concurrent subsistence and commercial periods;
- restrict commercial gillnets to mesh sizes of 5.5 inches or less with a mesh depth of 30 meshes or less; and
- restrict commercial gear to dipnets or beach seines, and require live release of any Chinook salmon taken with these gear types.

Tools Needed: None at this time

Westward Region – Region IV

Cinder River Sockeye Salmon

The Cinder River could potentially have more opportunity to harvest surplus escapement. Currently, the outer portion of the Cinder River Section is closed to commercial salmon fishing. While there is some opportunity to harvest salmon in the Cinder River Flats, fishermen are unable to fish that portion of the Cinder River Section due to shallow water within the tidal flats. In order to harvest excess salmon, a regulatory change would need to occur that would allow a fishery in that portion of the Cinder River Section outside of the breakwater.

Tools Needed: Alaska Board of Fisheries action.

Table 1.–Statewide summary.

Region	Number of times in past 5 years escapement goal exceeded					Number of goals in 2010
	5	4	3	Total	%	
Southeast	1	1	1	3	6.0	50
Central	2	5	15	22	21.0	105
AYK	3	4	5	12	16.4	73
Westward	1	1	2	4	6.8	59
Total	7	11	23	41	14.3	287

Table 2.–List of salmon stocks in Southeast Region with escapements that have exceeded their escapement goal in at least 3 of the last 5 years. Escapements were assessed as either Under (escapement below lower bound of goal), Met (escapement within goal range or above lower bound for lower-bound SEG), or Over (escapement exceeded upper end of goal) using the escapement goal in place at the time of enumeration.

Species	System	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	No. of times escapement over in	
												past 5 years	past 10 years
Chinook salmon	Chickamin River	Over	Over	Met	Over	Over	Met	Over	Met	Over	Met	2	6
Coho salmon	Hugh Smith Lake	Over	Over	Met	Over	Met	Over	Over	Over ^a	Over	Met	4	7
	Peterson Creek	Met	Met	Met	Met	Over ^a	Met	Over	Met	Over	Met	2	3
	Sitka Survey Index					Over	Over	Over	Over	Over	Over	5	6
Sockeye salmon	Taku River	Over	Over	Over	Over	Over	Over	Under	Met	Over	Over	3	8

Note: Blank cells indicate that there was no official escapement goal for the stock in that particular year. The yellow highlight indicates stocks exceeding goals in all 5 of the last 5 years.

^a Escapement goal reevaluated; goal range changed.

Table 3.– List of salmon stocks in **Central Region** with escapements that have exceeded their escapement goal in at least 3 of the last 5 years. Escapements were assessed as either Under (escapement below lower bound of goal), Met (escapement within goal range or above lower bound for lower-bound SEG), or Over (escapement exceeded upper end of goal) using the escapement goal in place at the time of enumeration.

Species	System	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	No. of times escapement over in		
												past 5 years	past 10 years	
Chinook salmon	<u>Upper Cook Inlet</u>													
	Kenai River - Early Run	Under	Met	Met	Over ^a	Over	Over	Over	Over	NA	NA		3	5
Chum salmon	<u>Upper Cook Inlet</u>													
	Clearwater Creek	Over	Under	Met	Under	Under	Met	Over	Met	Over	Over		3	4
	<u>Lower Cook Inlet</u>													
	Port Dick Creek	Over	Over	Over	Over	Met	Met	Over	Over	Met	Over		3	7
	Ursus Cove	Over	Over	Over	Over	Over	Over	Met	Over	Over	Over		4	9
	Cottonwood Creek	Over	Over	Over	Over	Over	Over	Met	Over	Over	Over	Under	3	8
	Iniskin Bay	Over	Over	Over	Over	Over	Under	Over	Over	Over	Under		3	8
Coho salmon	<u>Upper Cook Inlet</u>													
	Jim Creek	Over	Over	Over	Over	Over	Over	Over	Over	Under	Under		3	8
Pink salmon	<u>Lower Cook Inlet</u>													
	Barabara Creek	Met	Met	Met	Over	Met	Over	Over	Met	Over	Over		4	5
	Seldovia Creek	Met	Met	Over	Over	Over	Over	Over	Under	Met	Over		3	6
	Port Graham River	Over	Met	Over	Over	Over	Over	Over	Met	Met	Over		3	7
	Windy Creek Right	Over	Over	Over	Over	Over	Over	Over	Over	Met	Under		3	8
	Windy Creek Left	Met	Over	Met	Over	Over	Met	Over	Over	Met	Met		2	5
	Rocky River	Over	Over	Met	Over	Over	Over	Over	Over	Met	Met		3	7
	Island Creek	Over	Over	Over	Met	Over	Over	Over	Over	Over	Over	Met		4

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Species	System	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	No. of times escapement over in		
												past 5 years	past 10 years	
Sockeye salmon	Bruin River	Over	Met	Met	Met	Over	Over	Met	Over	Met	Under	2	4	
	Sunday Creek	Over	Over	Over	Over	Over	Over	Met	Over	Met	Under	2	7	
	Brown's Peak Creek	Over	Over	Met	Over	Over	Over	Met	Over	Met	Under	2	6	
	<i>Bristol Bay</i>													
	Naknek River	Met	Over	Over	Over	Over	Over	Over	Met	Over	Met	3	7	
	Wood River	Met	Met	Over	Met	Over	Over	Over	Met	Over	Met	3	5	
	Igushik River	Under	Met	Under	Over	Over	Over	Over	Over	Over	Over	Over	5	7
	<i>Upper Cook Inlet</i>													
	Crescent River	Over ^b	Over	Over	Over ^a	Over	Over	Met	NS	Over	Over	3	8	
	<i>Lower Cook Inlet</i>													
	English Bay	Over	Over	Over	Met	Over	Over	Met	Over	Met	Met	2	6	
	Delight Lake	Over	Met	Met	Over	Met	Over	Over	Over	Over	Over	5	7	
	Bear Lake	Over	Over	Met	Over	Over	Over	Over	Over	Met	Over	4	8	
	Chenik Lake	Met	Over	Over	Over	Over	Over	Over	Over	Over	Met	4	8	
	Amakdedori Creek	Over	Over	Over	Met	Under	Over	Over	Met	Under	Over	3	6	
<i>Prince William Sound</i>														
Upper Copper River	Over	Met ^a	Met	Over	Over	Over	Met	Met	Over	Over	3	6		

Note: NA = data not available; NS = no survey. The yellow highlight indicates stocks exceeding goals in all 5 of the last 5 years.

^a Escapement goal reevaluated; goal range changed.

^b Escapement goal reevaluated; goal type changed, but goal range remained the same.

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Table 4.– List of salmon stocks in **AYK Region** with escapements that have exceeded their escapement goal in at least 3 of the last 5 years. Escapements were assessed as either Under (escapement below lower bound of goal), Met (escapement within goal range or above lower bound for lower-bound SEG), or Over (escapement exceeded upper end of goal) using the escapement goal in place at the time of enumeration.

Species	System	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	No. of times escapement over in		
												past 5 years	past 10 years	
Chinook salmon	<u>Kuskokwim Area</u>													
	Aniak River	Met	Met	Met	NS ^a	Over	Over	Over	NS	NS	NS	2	3	
Chum salmon	<u>Kuskokwim Area</u>													
	Kogrukluak River	Met	Under	Under	Over ^a	Over	Over	Met	Over	Over	Over	4	6	
	<u>Yukon River Summer Chum</u>													
	Mainstem Yukon River	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	5	10	
	<u>Yukon River Fall Chum</u>													
	Tanana River	Over	Over	Over	Over	Over	Over	Over	Over	Over	Over	5	10	
	Delta River	Met	Over	Over	Over	Over	Over	Over	Met	Over	Over	4	8	
	Chandalar River	Met	Over	Met	Over	Over	Over	Over	Met	Over	Over	4	7	
	<u>Norton Sound</u>													
	Subdistrict 1 Aggregate	Met	Under	Met	Over	Over	Over	Met	Under	Over	Over	3	5	
Nome River	Under	Under	Met	Over ^b	Over	Over	Under	Under	Over	Met	2	4		
Snake River	Over	Met	Met	Over ^b	Over	Over	Under	Under	Over	Over	3	6		
Eldorado River	Over	Under	Under	Over ^b	Over	Over	Met	Under	Over	Over	3	6		
Kwiniuk River	Over	Met	Under	Met	Over	Over	Under	Under	Over	Over	3	5		
Unalakleet/Old Woman River	NS	NS	NS	Under ^b	NS	Under	NS	Over	Over	Over	3	3		

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Species	System	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	No. of times escapement over in		
												past 5 years	past 10 years	
Salmon Escapements Exceeding Goals														
	<u>Kotzebue Sound</u> Upper Kobuk w/ Selby River	NS	Met	Over	NS ^b	Over	NS ^c	Over	Over	NS	NS	2	4	
Coho salmon	<u>Norton Sound</u> Kwiniuk River	NS	Met	Met	NS ^b	NS	Over	Over	NS	Over	Over	4	4	
	Niukluk River	Met	NS	Met	NS	NS	Met	Over	Over	Over ^c	Met	3	3	
	North River (Unalakleet R.)	Met	NS	Over	Over ^b	NS	Over	Over	Over	Over	Over	5	7	
	<u>Kuskokwim Area</u> Middle Fork Goodnews River	Under	Met	Met	Over ^a	Over	Over ^c	Over	Met	Met	Under	2	4	
Sockeye salmon	<u>Norton Sound</u> Salmon Lake/Grand Central River	Under	Over	Over	Over ^b	Over	Over	Over	Under	Under	Met	2	6	

Note: NS =no survey; ND = not determined yet. The yellow highlight indicates stocks exceeding goals in all 5 of the last 5 years.

^a Escapement goal reevaluated; lower-bound goal changed to a range.

^b Escapement goal reevaluated; goal type changed, but goal value remained the same.

^c Escapement goal reevaluated; goal value changed.

Table 5.– List of salmon stocks in **Westward Region** with escapements that have exceeded their escapement goal in at least 3 of the last 5 years. Escapements were assessed as either Under (escapement below lower bound of goal), Met (escapement within goal range or above lower bound for lower-bound SEG), or Over (escapement exceeded upper end of goal) using the escapement goal in place at the time of enumeration.

Species	System	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	No. of times escapement over in		
												past 5 years	past 10 years	
Coho salmon	<i>Kodiak</i>													
	Buskin River	Over	Over	Met	Over ^a	Over	Over	Over	Over	Met	Met	3	7	
Pink Salmon	<i>Chignik</i>													
	Entire Chignik Area (odd year)				Over ^b		Over	^a	Over		Over	3	4	
	Entire Chignik Area (even year)				^b	Met		Over ^a		Met				
Sockeye salmon	<i>AK Peninsula</i>													
	Cinder River	Met	Over	Over	Over	Over	Over ^a	Over	Over	Over	Over	5	9	
	Ilnik River	Met	Over	Over	Over	Over	Over	Met	Over	Met	Met	2	6	
	Meshik River	Over	Over	Over	Over	Over	Met ^a	Over	Over	Met ^a	Met	2	7	
	North Creek	Over	Over	Over	Over	Met	Over	Over	Met	Over	Over	4	8	
	Mortensen Lagoon	Met	Over	Over	Over	Over	Met	Met	Over	Over	Under	2	6	

Note: The yellow highlight indicates stocks exceeding goals in all 5 of the last 5 years.

^a Escapement goal reevaluated, goal range changed.

^b Aggregate goal established to replace individual district level goals.