

ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE

March 28, 2014

3:34 p.m.

MEMBERS PRESENT

Senator Cathy Giessel, Chair
Senator Peter Micciche
Senator Click Bishop
Senator Anna Fairclough
Senator Hollis French

MEMBERS ABSENT

Senator Fred Dyson, Vice Chair
Senator Lesil McGuire

COMMITTEE CALENDAR

OVERVIEW OF SALMON STOCKS AND MANAGEMENT PLANS IN UPPER COOK
INLET

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

CHARLIE SWANTON, Director
Division of Sport Fisheries

Alaska Department of Fish and Game (ADF&G)

POSITION STATEMENT: Presented an overview of Upper Cook Inlet
(UCI) salmon stocks and the management plans governing these
fisheries.

TRACY LINGNAU, Supervisor
Region II, Division of Commercial Fisheries
Alaska Department of Fish and Game (ADF&G)

POSITION STATEMENT: Presented an overview of Upper Cook Inlet
(UCI) salmon stocks and the management plans governing these
fisheries.

BILL TEMPLIN, Principal Geneticist
Genetics Lab

Alaska Department of Fish and Game (ADF&G)

POSITION STATEMENT: Answered salmon genetics questions about Upper Cook Inlet.

ACTION NARRATIVE

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CHAIR CATHY GIESSEL called the Senate Resources Standing Committee meeting to order at 3:34 p.m. Present at the call to order were Senators Micciche, Fairclough, and Chair Giessel.

**Overview of Salmon Stocks and Management Plans in
Upper Cook Inlet**

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CHAIR GIESSEL said that earlier the committee heard from 12 salmon user groups and today would hear from the department that would give an overview of salmon stocks and management plans in Upper Cook Inlet.

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CHARLIE SWANTON, Director, Division of Sport Fisheries, Alaska Department of Fish and Game (ADF&G), introduced Tracy Lingnau and said together they would present an overview of Upper Cook Inlet (UCI) salmon stocks and the management plans governing these fisheries. The purpose of this presentation is to describe some of the geography of UCI, the stocks of salmon that run through it, and the management plans which guide the harvest and allocation of those stocks, and how those management plans inter-relate to each other and to the various stocks.

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SENATOR FRENCH joined committee.

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TRACY LINGNAU, Supervisor, Region II, Division of Commercial Fisheries, Alaska Department of Fish and Game (ADF&G), said the Upper Cook Inlet is managed into two distinct areas, the Northern District with its southern boundary between Boulder Point on the east side and to a coordinate on the west side, and the Central District with its northern boundary at a line above Boulder Point and the southern boundary is at the Anchor Point latitude.

All five species of salmon are found in UCI. Drainages that support these species are the Susitna River Drainage, which includes the Yentna River, and to the east of the Northern

District, the Little Susitna River and the Knik and Turnagain Arms. The largest sockeye salmon producers in Cook Inlet are the Kenai and Kasilof Rivers. The systems to the west and north include Theodore, Chuitna, Beluga, and Lewis; to the south and west: the Crescent, Drift, and Kustatan Rivers.

He said that only set gillnets are allowed in the Northern District and both drift and set gillnets are allowed in the Central District.

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Other terms commonly used are references to the various fishing sections that have been developed by the Board of Fisheries (BOF) through time: the Kenai and Kasilof Sections were adopted in 1996; more recently the Kenai/Kasilof Expanded Sections were developed, and this past February an Anchor Point Section was developed. These sections are used to harvest Kenai and/or Kasilof River sockeye salmon while allowing northern stocks to move through to their drainages.

MR. SWANTON said Cook Inlet is one of the most complex salmon fisheries in the state and a suite of management plans were addressed at the February 14th UCI board meeting. These plans include subsistence fisheries in Tyonek and the Upper Yentna River, personal use fisheries in the Kenai/Kasilof/Beluga and Fish Creeks, sport and guided sport fishing, and set and drift gillnet commercial fisheries. There were approximately 236 proposals with in-depth information for each available prior to and at the board meeting.

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He explained that the Upper Cook Inlet Salmon Management Plan is the umbrella plan that covers all of Cook Inlet; it was first adopted in 1977 and it has been reviewed at every board meeting since. It guides the harvest and allocation of stocks through a series of step-down plans; examples are the Kenai River Late-Run Sockeye Management Plan, the Central District Gillnet Fishery Management Plan, and the Kenai River Late-Run King Salmon Management Plan. These step-down plans provide specific directives to the department for in-season management of the various resources and they often lay out the allocation of the resource. They are structured around the migratory timing of the various salmon stocks as they move through Cook Inlet.

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MR. LINGNAU explained that their display on slide 6 reflects the general run timing of the stocks with the early sockeye and king

salmon runs in May and early June being fairly well separated from the other stocks. This is followed by a mixture of late-run sockeye, late-run kings, early coho, pink, and chum salmon that all come in late June through early August. The overlapping run timing in many of these follow the same migratory pathways. The bulk of the UCI management challenges lie in front of them in the late June and July timeframe.

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SENATOR BISHOP joined the committee.

MR. LINGNAU said slide 7 incorporated the various plans into the run timing of the salmon stocks. There are a total of 17 different management plans and the ones listed here do not include other guidelines such as gear, bag limits, seasons, and others. Three step-down plans cover the entire season: the Cook Inlet Subsistence Fisheries Plan, UCI Personal Use Management Plan and the Riparian Habitat Plan.

He explained that most of UCI is designated as a non-subsistence area; however there are two subsistence fisheries: the Tyonek, which is aimed at king salmon by using set gillnets, and another one that uses fish wheels with a live box.

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MR. SWANTON continued that although the Personal Use Salmon Management Plan overlaps all of the timeframes, its emphasis is during July when Kasilof sockeye and late-run Kenai sockeye migrate into the Inlet. These fisheries began in 1982 and have evolved from subsistence fisheries that were in place prior to the designation of non-subsistence use areas in 1992. There is one personal use fishery at the mouth of the Kasilof River that uses set gillnets to target Kasilof sockeye, but most of the opportunity provided in personal use fisheries is in the two dipnet fisheries, one at the mouth of the Kasilof and one at the mouth of the Kenai River. There are two additional personal use fisheries that are quite a bit smaller, a dipnet fishery in Fish Creek near Wasilla and a second on the Beluga River open only to senior citizens.

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The department also has Riparian Habitat Plans. The riparian zone is a vegetative zone along the banks of the river that provides important rearing areas for juvenile salmon. While the plan covers the entire year, there is an emphasis in the middle timeframe in July because of the intensive in-river usage then. The primary objective of this plan is to be able to regulate in-

river fisheries to protect riparian habitat. Most of the assessment and application occurs during the late-run Kenai River fisheries.

Plans prior to July 1 include the Northern District King Salmon Plan, the Kenai/Kasilof Early-Run King Salmon Plan, the Big River Sockeye Plan, and the UCI Marine Early-run King Salmon Plan. There is also the Russian River Sockeye Plan Fishery Management Plan, which covers the whole season but contains an early part for the early Russian River sockeye run and a later part that covers the later one.

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He said that most of the stocks prior to July 1 are managed primarily for recreational purposes. During the early timeframe there are freshwater fisheries for king salmon and a sport fishery targeting early run Russian River sockeye. Also during this timeframe the Northern District has a commercial king salmon fishery and on the west side a sockeye salmon commercial fishery.

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MR. LINGNAU stated that the Northern District King Salmon Management Plan addresses management of a directed king salmon fishery that occurs on the first Monday on or after May 25 and goes through June 24. Depending on the calendar year, there are between 4 and 5 commercial periods during this timeframe. Each of these commercial periods is 12 hours long. However, in recent years because of the poor king salmon runs both commercial and sport fisheries have been substantially restricted in the Northern District drainage.

The Kenai/Kasilof Rivers Early-Run King Salmon Plan is designed to ensure adequate escapement and conserve the unique large-size Kenai River king. It primarily governs the sport fishery harvest because there is little or no commercial fishing on these stocks. The plan contains size limits on king salmon that anglers can harvest on the Kenai River and provides options managers can choose from to restrict these fisheries if necessary.

The Big River Sockeye Salmon Plan addresses a commercial fishery on the west side of Cook Inlet in the Kustatan Subdistrict and also on the west side of Kalgin Island. The Upper Cook Inlet Salt Water Early-Run King Salmon Management Plan is meant to stabilize the sport fish harvest of early-run king salmon in the mixed stock marine fishery. These are waters near Deep Creek and

Anchor Point. The Plan established closed waters near the mouth of local streams and a guideline harvest level for sport harvest.

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MR. LINGNAU said that the Russian River Sockeye Salmon Management Plan is to ensure adequate escapement and provide for a management guideline to preclude allocation effects. The early run is harvested primarily in the sport fishery; the late run is harvested by sport, commercial and personal use fisheries.

The plan for the late-run Russian River sockeye provides options for restricting the in-river fishery and specifies that the least restrictive option should be used early to avoid the necessity for more restrictive and complete closures later in the season.

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MR. SWANTON said the Board of Fisheries (BOF) through implementation of the Sustainable Salmon Fisheries Management Policy has designated seven Northern Cook Inlet king salmon stocks as stocks of concern: the Chuitna, Theodore, Lewis, Alexander, Willow, Sheep, and Goose Creeks. He provided a table that summarized recent escapements for each of the king salmon stocks currently designated as a stock of concern saying that escapements had been low for each of the last five years and only in 2013 did two stocks, the Chuitna and Willow Creek, meet their escapement. Eleven of 16 Northern Cook Inlet king salmon escapement goals were achieved in 2013, which is a significant improvement upon previous years.

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MR. LINGNAU said the largest number of management plans are in effect in the middle timeframe (July). Plan highlights: sockeye, chum, and pink salmon stocks move through UCI during this timeframe and are managed primarily for commercial uses. The Kenai River late-run king salmon stocks are managed primarily for sport and guided uses and also minimizing the incidental take of the Northern District coho, late-run Kenai kings and Kenai River coho in the commercial fisheries. The major fisheries occurring during this time include commercial, personal use, sport and guided sport.

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He said the Kasilof River Salmon Management Plan covers the harvest of Kasilof River sockeye salmon. Part of this plan states that achieving the lower end of the Kenai River

escapement goal takes precedent over not exceeding the upper end of the optimum escapement goal in the Kasilof River. This means that 50,000 additional sockeye salmon may escape into the Kasilof River in order to ensure that the lower end of the escapement goal is met in the Kenai River. This fishery opens on or after June 25; however, it may also open as early as June 20 based on a 50,000-sockeye salmon trigger.

From the beginning of the fishery through July 7 there are 48 hours of additional fishing time per week beyond the regularly scheduled 12-hour fishing periods. Fishing is also closed for 36 consecutive hours per week beginning sometime between 7 p.m. Thursday night and 7 a.m. Friday morning. There is also a terminal harvest area, which encompasses the mouth of the Kasilof River that has been used when the Kasilof River is going to exceed its escapement goal and all other management tools have been used to control the escapement.

After July 7 the Kasilof River Sockeye Management Plan is married to the Late-run Kenai River Sockeye Management Plan.

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MR. SWANTON said the Kenai River Late-run King Salmon Management Plan provides for adequate escapement of late-run king salmon. It's managed primarily for sport and guided sport uses in order for the salmon to be harvested over the entire run. This plan provides specific direction on managing both sport and commercial fisheries.

Preseason or in-season actions are to be taken based on projecting the in-river run and whether or not the escapement goal will be achieved. Unlike the Kenai River Late-run Sockeye Salmon Management Plan, the run projections are not specifically tied to the sonar project. All available information is used in developing projected returns including creel surveys, in-river test netting and commercial setnet harvests. The plan also states that if the in-river sport fishery is closed, the marine sport fishery off of Deep Creek and a commercial setnet fishery are also closed. If the in-river sport fishery remains open but is restricted to no bait, the commercial fishery would remain open but also be restricted to no bait. Finally, the plan also provides direction to the department to conduct habitat assessments as feasible and report findings during the normal board cycle.

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MR. LINGNAU said that at the recent UCI board meeting in February 2014 new regulations were passed pertaining to how the east side setnet fishery would be fished in years with low runs of king salmon. These plans would be implemented together beginning July 1 and are paired with sport fish restrictions. If less than 15,000 kings are being projected, the sport fisheries in the Kenai River and in the salt water are closed to the taking of king salmon. The east side set gillnet fishery is also closed and no drift fishing may occur within 1.5 miles of shoreline. When the projected escapement is between 15,000-22,500 and the sport fishery is allowed to continue but no retention (catch and release), then only 12 hours of setnet commercial fishing per week is allowed on the east side. If the sport fishery is limited to no bait, essentially reducing the harvest by 50 percent, then no more than 36 hours can be used in the east side set gillnet fishery.

The board also stipulated that after August 1 commercial fishing could only occur if the escapement goal is projected to be greater than 16,500 fish. In addition, step-down plans passed in February state that in the commercial fishery during times of low king salmon abundance the department can reduce the number of nets being used. Typically, three nets are used by the set gillnet fleet, but now the department can require less than three nets.

Also, a significant change in the history of the set gillnet fishery in 2014 is the incorporation of the 29 mesh deep gillnets. Typically, fishermen use 45 mesh deep gillnets, but a few have started to use 29 mesh deep nets.

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He said the Kenai River Late-run Sockeye Plan, which is separate from the plan he just described, is more complex and goes into effect on July 8 and also includes the Kasilof section. It directs the department to manage the late-run sockeye primarily for commercial uses but yet minimize the harvest of Northern District coho, late-run Kenai River king salmon, as well as coho salmon moving into that area. Windows of closed fishing also provide for personal use and sport fishing opportunities. Management objectives specified are to meet the optimum escapement goal, which is 700,000 to 1.4 million sockeye salmon, and to achieve in-river goals.

In addition to the two regular scheduled 12-hour commercial fishing periods, time is allowed dependent upon the run size.

Essentially, the bigger the run the more fishing time is allowed.

An in-river goal is different than an escapement goal in that the in-river goal includes allocations of sockeye salmon for the sport fishery above the sonar site, which is located at mile 19. That site has a sockeye salmon escapement goal that provides for harvest above the sonar site for in-river users. The Late-run Kenai Plan has established goals based upon the expected run size. If the Kenai River sockeye salmon run is going to be small or less than 2.3 million, then there is one goal. If the run is between 2.3 and 4.6 million, there is a second goal that adds more fish to the in-river users. If it's over 4.6 million, there is a third goal, which even provides more fish to the in-river users.

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MR. LINGNAU said the drift fishery occurs in the Central District as well as in the various sections he outlined earlier. The Central District is divided up into four drift areas; drift fishermen do not necessary get to fish the entire district. There are certain time periods and specific areas where and when fishermen can go.

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He said that in the recent board meeting action was taken on the drift fishery. From July 9 to July 15 drifters are restricted to the expanded corridor and drift gillnet area 1 during the regular fishing periods. From July 16 through July 31, in runs of less than 2.3 million Kenai River sockeye salmon, all regular 12-hour fishing periods are restricted to the expanded Kenai/Kasilof sections of the upper subdistrict. For runs between 2.3 million and 4.6 million sockeye salmon to the Kenai River, one regular fishing period per week is restricted to any combination of the sections on the right hand side and Area 1 on the left side.

The second period is restricted to any combination of the east side sections only. In runs of over 4.6 million sockeye salmon to the Kenai River between July 16 and 31 only one fishing period per week is restricted to the east side sections shown on the right and there are no restrictions for the second period in that week. Additional fishing time that is allowed to the drift fishery is restricted to the east side setnet sections described on the right of his slide 24.

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MR. LINGNAU said the Northern District Salmon Management Plan directs the department to manage the harvest of Northern District chum, pink, and sockeye salmon primarily for commercial uses, to minimize the harvest of Northern District coho salmon and to provide for sport and guided sport opportunity. This is done by not allowing additional commercial fishing periods of coho that are thought to be the most abundant stock in that particular harvest. The Northern District is also limited to the regular 12-hour fishing periods on Mondays and Thursdays after August 15.

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The Susitna River sockeye salmon were declared to be a stock of yield concern in 2008 and is managed by the action plan that was developed at that time with regular fishing periods only between June 25 and July 19, and then between July 20 and August 6 only one net may be used. However, if escapement goals are being met, additional nets can be used.

The Susitna River sockeye salmon being a stock of yield concern means that escapement goals have been met, but the harvest from fishermen has declined. He showed a map of three sockeye salmon goals that are now monitored by weirs; Chelatna Lake, which is part of the Yentna River drainage, Larson and Judd Lakes.

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Larson Lake is part of the main stem Susitna River. Beginning in 2009 the Yentna River sockeye salmon escapement goal, which is based on a Bendix sonar and fish wheel apportionment study, was replaced by the three lake weir goals. Chelatna and Judd Lakes represent approximately 42 percent of the sockeye salmon migrating into the Yentna River. The Chelatna Lake goal is 20,000 to 65,000 fish and that has been achieved or exceeded in four of the past five years. Judd Lake sockeye salmon's goal is 25,000 to 55,000 sockeye and it has been achieved or exceeded in two of the past five years, but not achieved in three years.

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Larson Lake that is one-half of the main stem Susitna River escapement goal is 15,000 to 50,000 fish and tagging studies have indicated it has been achieved in four of the past five years.

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MR. LINGNAU summarized that these management plans are complex by themselves and how they interact with each other and carrying them out in-season requires coordination and communication

between the two management divisions. In years of low abundance with any species this coordination typically includes directors.

Meeting the escapement goals is the primary objective of all management plans, he said. The department has been clear that meeting the lower end of the goal has a priority over not exceeding the upper end of another escapement goal. These management plans are structured around the migratory timing of stocks as they move into and through Cook Inlet. They also include step-down plans that provide specific management objectives to the department for both management and allocation in each of those fisheries.

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MR. SWANTON said the committee already had a presentation on the Chinook salmon research initiative, but he wanted to highlight important research activities that are ongoing as it pertains to Chinook salmon. In the Susitna River drainage projects are currently using other funding sources such as Susitna/Watana or Alaska Energy Authority, the CIP that was derived in 2014, and Alaska Sustainable Salmon Funds (AKSSSF). These projects include looking at adult spawning abundance, juvenile abundance, Cook Inlet area harvest, genetic stock identification, coded wire tagging, and local and traditional knowledge.

The Kenai River already has a fair amount of research being conducted with the new sonar, but they have also been looking at Kenai River kings in the Cook Inlet area in terms of harvest and apportionment of those harvests using genetics and coded wire tagging of juveniles.

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MR. LINGNAU showed a map that depicted some of the new major king and coho fishery research projects. They include the three lake weir projects previously mentioned and the sockeye salmon fish wheel project on the Susitna River where the Yentna comes in; they are trying to find a feasible means to reestablish the sonar to better manage these stocks. Also in that same location, chum/king and coho salmon mark recapture studies are being done to evaluate the total run of these stocks.

The Fish Creek sockeye salmon smolt project studies out-migrants to help the department better understand the lifecycle, which also provides greater detail for forecasting run strength.

Throughout Cook Inlet genetic sampling is a critical part of any mixed stock fishery, not only to determine how many fish were

caught, but to find out where those fish were going. Genetic stock identification provides the department an estimation for the stock harvested in a mixed stock fishery. This information along with escapement information allows them to more accurately estimate escapement goals. It also allows them to gain information on how stocks move through Cook Inlet across time and area.

Another project allows them to go back in time to analyze historical information that improves brood tables used in determining escapement goals and that may allow them to determine how big run sizes were historically.

A post season identification project improves their total estimation for each stock harvested in mixed stock fisheries. Using genetics provides a more robust escapement goal analysis, and separates the Kenai, Kasilof and other stocks that might be harvested in the east side sector net fisheries.

The department is currently developing a new genetic baseline for Cook Inlet coho salmon, a new project that is a first time for the species using coho genetics in a mixed stock fishery. This is necessary to understand the total run, which is catch and escapement in these fisheries.

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Post season stock identification of coho salmon is a three-year project. It will improve their understand overall of stock specific assessment of coho salmon.

The Anchor Point line test fishery has been in place since 1979 providing run timing and abundance of sockeye salmon that are moving into UCI. This project has been a key factor in providing the in-season total run. Having this information allows the department to do an in-season projection and if they need to, they can make adjustments to the management plans in season.

A northern drift test fishery began in 2012 funded by a capital improvement project (CIP) for five years. This next year will be the third year of that project. Sockeye and coho salmon genetic samples are being collected to determine their river of origin. This is a first coho genetic study ever done in UCI.

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Another one is a multi-year study that began in Region II to implement a new sonar called Didson, which is dual frequency identification sonar with a 29 degree field of view and either

an 8 or a 14 degree vertical beam. It counts more fish and counts them accurately, therefore providing better information on escapements. The Kenai portion of the study began in 2004 and the Kasilof began in 2006.

The Bendix counter is an echo-counting single beam sonar with 2 and 4 degree circular beams. The information they got from this machine was essentially a ticker tape that they would add numbers on.

Fish moving through the Didson sonar beam providing much more accurate counts and allows the video to be archived for future studies.

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MR. SWANTON continued that a suite of stock assessment or escapement enumeration projects is being conducted by the Sportfish Division and they are depicted on slide 39. They are broken into two broad categories: long-standing - greater than 10 years in duration (slide 40) - and those that have been added in the last several years (slide 41). Moving south to north there are the Anchor River Chinook salmon weir, the Ninilchik and Crooked Chinook salmon weirs and brood stock collection sites. He noted that within their array of escapement enumeration are indexing processes both within Cook Inlet and statewide. A weir is the most precise means of measuring escapement along with sonar, which is the most costly. Whereas aerial and foot surveys are the least costly and imprecise. That is why they are often referred to as "escapement indices" (some unknown fraction or poorly quantified fraction of the total escapement).

The Ninilchik, Crooked and Deception Creek weirs are also employed for enhancement activities or brood stock collection whereby eggs are taken and transported to the William Jack Hatchery in Anchorage for rearing and subsequent release.

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Slide 41 contained a list of more recent projects, those that have been conducted for less than five years in their current form and that have been added either through CIP funds, increments, or contractual funds such as those from Alaska Energy Authority or Sustainable Salmon funds.

The Lewis and Theodore weirs operations were extended to count coho salmon owing to the cost savings of already having the weirs for counting Chinook established.

The Alexander Creek project, the control project, was started in 2008 as a pilot netting program. With this information they were able to secure funds from AKSSSF to expand the program and now with the legislative increment they will be able to move from aerial survey to counting Chinook and coho salmon via weir.

MR. SWANTON said he wanted to highlight the Susitna River project that in 2013 for the first time staff had been able to estimate drainage-wide escapements of both Chinook and coho salmon. In 2013 approximately 89,000 Chinook and 160,000 coho escaped into this drainage. This project will continue in 2014 as part of AEA, and then the Chinook salmon component will be funded using Chinook Salmon Research Initiative funds moving into the future.

They will also embark on a number of habitat-related projects using funds appropriated from the legislature, which include inventory of beaver dams for future removal, finishing a problem culvert inventory and replacement program and prioritizing a wetlands habitat inventory for the Mat-Su. These funds were provided to the department via CIP.

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MR. SWANTON explained that the department has used sonar technology on the Kenai River for a lengthy period of time as a means to count king salmon. The new Didson or Aris technology allowed them to improve their precision in counting Chinook salmon over previous techniques. A CIP of \$1.8 million in FY13 allowed them to conduct two sonar sites, both at 8.6 mile and 13.7 mile, which is above tidal influence. They have conducted mark recapture and radio tracking fish to further refine and improve their escapement and enumeration program.

The first year of paired counts was in 2013 and they anticipate with several more years being able to move the sonar program to mile 13.7, which is above tidal influence and improve their estimates.

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He touched on a number of enhancement projects for Chinook and coho salmon within Cook Inlet. By enhancement he meant they have sites where they take eggs, incubate, and rear the fish to the smolt stage and then release them into the ocean environment. These fish come back and support a variety of marine and fresh water sport fisheries. He pointed out that they received funds from the legislature in 2013 specific to the Mat-Su for

increased production of Chinook salmon at Deception and Eklutna Tail Race. At both of these locations the number of fish they projected to release increased markedly in 2014.

The new Jack Hernandez Hatchery has allowed them to increase both the quantity and the quality as measured by weight in grams of these fish. They believe that right around 14 grams is the optimum size for Chinook salmon smolt releases and that's why there is a slight reduction in size.

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He presented another map of release sites and enhancement activities around Cook Inlet.

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SENATOR MICCICHE asked what riparian management plans they are talking about.

MR. SWANTON replied that elements within the management plans have a riparian habitat component to them and the board's Sustainable Salmon Fisheries Management Policy has a habitat component. Here he is referring to riparian habitat components within some of the plans that instruct the department to, in one case, present to the board activities that have taken place in riparian habitat.

SENATOR MICCICHE asked if they are still doing aerial studies for comparisons of before and after.

MR. SWANTON answered no, not lately. They are more focused on those areas that appear to be impacted by recreational anglers. The board had closed some areas to recreational anglers along the banks, but the department had not done any intensive work in that regard.

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CHAIR GIESSEL asked if they were both fish biologists and what their credentials are.

MR. LINGNAU replied that his college degree is in zoology, but his career began with the State of Alaska in 1985 and he has spent 13 years working on the Yukon in a suite of positions; he had also spent seven years in Kotzebue assisting that fishery. Although he came to Cook Inlet in 2005, compared to most folks he is a "newbie."

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MR. SWANTON replied that he has a Bachelor of Science in Biology with an emphasis on aquatic ecology, a Bachelor of Science in Fishery Science with an emphasis on statistics, and a Master's Degree in Fishery Science with an emphasis on salmon population dynamics and statistics. He has worked since he had hair on his head.

CHAIR GIESSEL asked if they are the folks the write the fishery plans or is it the Board of Fish.

MR. SWANTON answered that these elements of the management plans are in essence put in place in consultation with the board and the department. In a lot of cases it's a back and forth, relying on the department to answer the simple question "Can you manage this fishery with these elements?" It's a collaborative effort.

CHAIR GIESSEL asked if their recommendations are typically taken by the board or does it have its own ideas.

MR. SWANTON characterized it as depending on the board and a little bit of both.

SENATOR FAIRCLOUGH asked him about the habits of pike. Does it migrate?

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MR. SWANTON responded that pike are not endemic to systems on the south side of the Alaska Range. Based upon backtracking, pike were first introduced in the late 1950s in a "pothole lake" in the Mat-Su drainage. Over the course of time, through flooding, pike have spread. Their spawning habitat is generally shallow: under 4 or 5 feet and in reedy or aquatic sedge vegetation that warms up quickly in the spring time. Systems that have those characteristics would be favorable towards pike spawning and juvenile rearing.

They believe that through flooding and high water events, pike will move seasonally into deeper basins for over-wintering. They will, in fact, move from lakes into river systems where there is a steady flow (such as in the Interior), and then move back into spawning areas and in some cases underneath the ice in the spring and prepare themselves for spawning. Generally, they are very voracious and cannibalistic, and pretty much will eat anything that moves.

In the case of Alexander Creek, that used to be a fairly large high-profile Chinook and coho salmon fishery back in the day and

Alexander Lake is relatively shallow with plenty of weeds: premium pike-spawning habitat. They focused on some of the slews and other areas where the pike will spawn and move with an intensive netting program: catching the pike and disposing of them. They have seen some encouraging signs with regards to that project, but he wasn't sure they could be completely eradicated. They have seen signs where distribution of Chinook and coho juveniles has gone to where they haven't seen it in the past handful of years.

He said the department is working on another fairly intensive project in Soldotna Creek that involves a series of interconnected lakes using a toxin to fish. If it's successful, that approach could be used in other Mat-Su areas.

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SENATOR FAIRCLOUGH asked if the fish go between fresh and salt water.

MR. SWANTON said he had heard reports of them in salt and brackish waters, but he didn't know how many. Their migrations are mostly between and within a drainage.

SENATOR FAIRCLOUGH asked how long poison has to be in the water to affect the pike.

MR. SWANTON replied that he didn't think it was that long; in some cases there are repeated applications simply because of wanting to make sure the Rotenone has comprehensive mixing.

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SENATOR FAIRCLOUGH asked if they typically go after pike in the winter or the summer.

MR. SWANTON answered generally they make these applications in the fall.

SENATOR FAIRCLOUGH asked if there was a way to go after the pike in the winter when water is frozen so chemical exposure would be less and less poison could be used.

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MR. SWANTON responded that he would provide her with "a wealth of detailed information" on applications. Rotenone is not poisonous to humans; it affects oxygen transfer in the fish gills, so they essentially quit breathing.

CHAIR GIESSEL recapped that the native species of salmon is captured and taken to hatcheries, then Rotenone is applied. She asked the native species is restocked.

MR. SWANTON replied basically when their assessment indicates the pike are gone using traps in the spring and fall and maybe another follow in the next spring.

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SENATOR BISHOP asked if birds help transplant pike.

MR. SWANTON answered that people have postulated a number of vectors with regards to invasive species and it's possible that a migratory bird could have picked up a pike egg, because they are relatively adhesive.

SENATOR BISHOP said he heard the pike were stocked in one lake in the 1950s.

MR. SWANTON said some of their earlier documentation tracked it to that period of time.

SENATOR BISHOP remarked that a lot of people live where the pike are in Fairbanks; some people really enjoy ice fishing and became very efficient at going after them.

MR. SWANTON responded that he had observed Interior pike fishing on the Chatanika River and he knew that a number of people in the Mat-Su ice-fish for pike, but pike are in quite a few spots.

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SENATOR MICCICHE said the department does an amazing job and asked if the board has the ability to introduce more east side setnet areas so that fishing could be opened when fish are on the beach in that locale.

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MR. LINGNAU answered that two Kenai/Kasilof sections were married after July 8, but they are not necessarily managed together. By regulation the department has time and area; for instance, if Kenai River king salmon are short, they may choose to fish the Kasilof section but not the Kenai section.

SENATOR MICCICHE said this plan does not allow subdividing the Kasilof or Kenai sections.

MR. LINGNAU said that was correct in terms of dividing those sections into smaller areas.

SENATOR MICCICHE asked if there is genetic code for rivers of origin for coho in the Cook Inlet.

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BILL TEMPLIN, Principal Geneticist, Genetics Lab, Alaska Department of Fish and Game (ADF&G), answered that there is a significant amount of genetic diversity in coho salmon in Cook Inlet. It's not necessarily always down to the individual stream, but it seems to be organized around larger drainages. Initial work on coho salmon genetics in Cook Inlet indicated there is a sufficient amount of genetic distinction among the larger population groups that it could be used for identification of proportional contribution to harvest in Cook Inlet, which they are working on right now.

SENATOR MICCICHE asked if the board had asked him about potential conflicts with the halibut charter fleet in later July in the Anchor Point section where hundreds of charter boats are going to have interactions where they previously had few with drift gillnetters.

MR. SWANTON replied that he couldn't speak for staff, but he was not personally asked.

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SENATOR FRENCH went to slide 16 of low escapements and picked out Goose Creek and asked what turns that around.

MR. SWANTON answered that the board looks at what fisheries are inducing mortality on the stock and in consultation with the department, figure out where it exists in terms of harvest and then do whatever it can to minimize it. Beyond the past six or eight years there has been poor ocean rearing conditions for Alaska Chinook salmon, which they can't do a lot about.

SENATOR FRENCH said it seems like the one tool the department has is closures for commercial king fishing but there just aren't many of them left. He heard him say they are just hoping the ocean changes to bring more fish back.

MR. SWANTON said when he refers to ocean conditions, he is talking about forage, temperature, and production that are favorable for Chinook salmon. For example, right now, they are probably looking at smolt to adult survival of less than 1

percent; whereas in better conditions they would look at 3-5 percent smolt survival.

SENATOR BISHOP observed that a Columbia River hatchery program indicated that for all the eggs and smolt that go back in the river, they get a 1 percent return.

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MR. SWANTON explained that when they talked about 1 percent in terms of those hatcheries they were talking about an egg to subsequent adult. For comparative purposes, those fish that are being produced in the Columbia will have record returns of adults this year, which is just the converse situation here.

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CHAIR GIESSEL asked who was doing the study that tracked kings back to their home streams.

MR. SWANTON replied that was the Katana study, a sonic tag study contracted through the department for distribution and migration information over the course of one year. Some of the work is done elsewhere, almost coast-wide and that is referenced in their presentation, was coded wire tagging, which has been a long-standing approach to tag smolts or juveniles. You put an alpha-numeric coded piece of wire into their snout and clip the adipose fin for identification. The code indicates when that fish was released, when it was tagged, and its river of origin; it can be done pretty much at any point in their ocean migration. It has been done for a lengthy period of time.

CHAIR GIESSEL asked what they learned from the one-year study.

MR. SWANTON answered that some things were verified: that king salmon tend to mill in the ocean in and around the mouths of their natal streams more so than other species. Sockeye are more directional and the king salmon tend to travel deeper.

CHAIR GIESSEL asked if that informed the guidance for the setnetters in terms of having their nets higher and a different net size.

MR. SWANTON responded that they must ask BOF. A task force was a precursor to this board meeting about a year and a half ago talking about what restrictions could be brought to the board by the sport, commercial and personal use fisheries. Certain representatives of the setnetters were talking about shallower nets at that time, which would have been precursive to any of

the information that came from the study. But he didn't know where the board stood.

SENATOR MICCICHE said the sample size was pretty low for king salmon in that study.

MR. SWANTON answered that he didn't have the numbers of samples in his head, but it was limited compared to other tagging studies. He didn't know if their sampling objectives had been met.

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MR. LINGNAU said the project was to tag 70 kings and 70 sockeyes, but only 51 sockeyes and 25 kings were tagged.

SENATOR MICCICHE said they know there will be more kings some time. In times of low abundance everyone has to give up some fish. What is the department doing to ensure that every fish survives until the times of adequate abundance returns?

MR. SWANTON said the department has already announced they will close the early run completely. He didn't know of any other precursive mortality in the marine environment by any user group at that point in time.

SENATOR MICCICHE said he supported that decision and his goal is to help any way he can to make sure the fisheries in the Valley that are currently challenged return to adequate productivity. Maybe there are habitat challenges and he asked who is managing water quantity and quality in areas that could be affecting abundance in some of those streams. The Kenai River had a similar water quality issue a few years back and it was difficult to get an agency to say yes, by golly, we have a hydrocarbon problems and we're going to work on it.

MR. SWANTON replied that the Department of Environmental Conservation (DEC) is the agency that has been involved with hydrocarbons and turbidity and designations with regard to the Kenai and Little Susitna.

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SENATOR MICCICHE said there is no doubt in his mind that they want what is best for fish, but he thinks there is a gap. He asked Mr. Swanton if he would at least consider a system where agencies work toward those objectives that have shared responsibilities in the future. Is there some room for improvement?

MR. SWANTON said he would take the issue up with him after the meeting.

CHAIR GIESSEL said this meeting wrapped up salmon week.

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CHAIR GIESSEL adjourned the Senate Resources Standing Committee meeting at 4:58 p.m.