Upper Cook Inlet Board of Fisheries Taskforce

Reference Library

Reports Relative to Upper Cook Inlet Task Force Mission:

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Eskelin, T, and J. D. Miller. 2010. A qualitative evaluation of parameters used to assess Kenai River king salmon, 1986-2010. Alaska Department of Fish and Game, Special Publication No. 10-18, Anchorage.
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Dunker, K. J. 2010. Upper Cook Inlet personal use salmon fisheries, 2007-2009. Alaska Department of Fish and Game, Fishery Data Series No. 10-89, Anchorage.
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Data Requests Received After the November 16, 2013 Meeting

Q. Can you please provide estimates of sustained yield and recruitment for escapements at 1,000 fish increments?

A. See attached table showing return and sustained yield for escapements for Kenai River late-run Chinook Salmon data, 1986-2012 (*PDF 15 kB*). Please note these values differ slightly from data supplied in the department's draft interim escapement goal report due to minor refinements in data and methods since that time.

Data Requests Received at the November 16, 2013 Meeting

- What are the 2009, 2010, 2011, and 2012 final escapement estimates for early- and late-run Kenai River Chinook salmon?
- What are the DIDSON conversions used during the 2012 season?
- How will past escapement estimates be converted to DIDSON based estimates?
- What is the proposed interim escapement goal for Kenai River late-run Chinook salmon?
- What are the revised brood tables for early- and late-run Kenai River Chinook salmon for all years calculated?
- What is the 2013 Kenai River late-run Chinook salmon forecast based off of brood table information?
- What is the historical run timing for Kenai River late-run Chinook salmon, both in percentages and numbers, and dates when sonar counts ceased?
- What are the exploitation rates on early- and late-run Kenai River Chinook salmon for all years and by gear type?
- What is the historical age and sex composition of Kenai River late-run Chinook salmon?
- What is the historical age and sex composition of Kenai River late-run Chinook salmon harvested in the commercial and sport fisheries?
- What is the composition of inriver harvest from July 1–July 8 between early-run and late-run Chinook salmon?
- What are the results of the 2010-2011 Genetic Stock ID study conducted on the commercial harvest of Kenai River Chinook salmon?
- Provide and overview of the department's 2013 Chinook salmon sonar operations, including procedures, new site, reliability, and possible problems?
- What was the relationship between early- and late-run Chinook salmon run strengths?
- What data is available for the DIDSON that indicates bias counting due to fish behind the sonar, orientation to the sonar, outside the counting range, etc.?
- What is the gillnet selectivity of the netting program for various sizes of Chinook salmon goals based on DIDSON estimates?
- What data is available to support the estimates of Chinook salmon savings by going to no bait and catch and release?
- What date can the department make a reasonable projection of early- and late-run Kenai River Chinook salmon run strength, within 10, 20, and 30% of the actual run? Please provide a hindcast model to indicate that this level can be achieved.
- Sockeye versus Chinook salmon goals, what's more important?

Q. What are the 2009, 2010, 2011, and 2012 final escapement estimates for early- and late-run Kenai River Chinook salmon?

A. The final escapement estimates for these years, converted to DIDSON (i.e. multi-beam technology) equivalents and adjusted for undetected Chinook salmon passing the river mile 9 sonar site, is 22,320 (2009), 16,320 (2010), 20,290 (2011), and 28,440 (2012). For additional information see Table 4 in the draft interim escapement goal report.

Q. What are the DIDSON conversions used during the 2012 season?

A. There was no conversion of DIDSON estimates during the 2012 season. Chinook salmon passage estimates generated from DIDSON technology will not be converted to an estimate that may have been produced if dual-beam sonar or split-beam sonar (TS-based estimates) had been used because TS-based estimates are subject to a high degree of influence by sockeye salmon misclassified as king salmon. For additional information see the September 14, 2012 memorandum by Sport Fish Division Director Charles Swanton (*PDF 1,800 kB*).

Q. How will past escapement estimates be converted to DIDSON based estimates?

A. Past escapements will not be converted to DIDSON by a standard metric. There is no conversion from previously used dual-beam sonar or split-beam sonar to DIDSON. Rather all available data (excluding dual-beam and split-beam sonar estimates) from each year will be used in a model to reconstruct the total runs from each year, including the years 1986 through 2012. DIDSON-based inriver run estimates from 2010-2012 and the relative abundance indices (sport CPUE, ESSN harvest, inriver test net CPUE's and net apportioned sonar) for all years available are parts of the model to reconstruct the 1986-2012 runs. For additional information see the draft interim escapement goal report (*PDF 1,991 kB*).

Q. What is the proposed interim escapement goal for Kenai River late-run Chinook salmon?

A. The interim escapement goal analysis and report is currently being drafted and peer reviewed, both internally and externally. Based on the foregoing analysis, the department recommends an interim sustainable escapement goal (SEG) of 15,000–30,000 Kenai River late-run Chinook salmon. The recommended goal is based on the actual escapement needed to sustain yields, so that it must be evaluated by accounting for undetected Chinook salmon passing the river mile 9 sonar site. This is accomplished by multiplying DIDSON sonar estimates at river mile 9 by 1.31 (or dividing by pMR = 0.764), and subtracting estimated harvest and release mortality above river mile 9. For additional information see the the draft interim escapement goal report (*PDF 1,991 kB*).

Q. What are the revised brood tables for early- and late-run Kenai River Chinook salmon for all years calculated?

A. The proportions by age and year for each returning brood will not change. However, the total number of Chinook salmon in the return for each brood will change accordingly based on the run reconstruction. The brood table and run reconstruction analysis is being drafted/peer reviewed and are part of the escapement goal analysis. For additional information see Appendix C1 in the draft interim escapement goal report.

Q. What is the 2013 Kenai River late-run Chinook salmon forecast based off of brood table information?

A. Outlooks for the 2013 Kenai River king salmon fishing season will not be developed until after the escapement goal analysis is complete. Typically outlooks are not available until the spring. The stock-recruit model used in the escapement goal analysis will be able to produce a forecast therefore one may be provided as early as the Jan 14, 2013 task force meeting.

Q. What is the historical run timing for Kenai River late-run Chinook salmon, both in percentages and numbers, and dates when sonar counts ceased?

A. Run timing information can be derived from different sources of information; inriver test net catch per unit effort (CPUE) estimates, net apportioned DIDSON estimates, DIDSON estimates, eastside set net harvest, and daily sport fishing CPUE. The best source of timing data comes from the inriver test net CPUE because it is low in the drainage, has consistent project dates, and is based upon netting of actual king salmon. See Test Net CPUE Run Timing Information (*PDF 59 kB*).

Q. What are the exploitation rates on early- and late-run Kenai River Chinook salmon for all years and by gear type?

A. Harvest rates on Kenai River late-run Chinook salmon ranged from 0.28 to 0.53 until 2012, when fishery restrictions reduced the harvest rate to 0.03. Also see the draft interim escapement goal report, Table 1 for harvest by user group and Figure 5e for exploitation rates.

Q. What is the historical age and sex composition of Kenai River late-run Chinook salmon?

A. See the draft interim escapement goal report, Appendix C1 for total run abundance by age class.. See the following report on historical age and sex composition of Kenai River late-run Chinook salmon (*Large PDF 6.23 MB*).

Q. What is the historical age and sex composition of Kenai River late-run Chinook salmon harvested in the commercial and sport fisheries?

A. See historical age and sex composition for Kenai fisheries information (*PDF 19 kB*).

Q. What is the composition of inriver harvest from July 1–July 8 between early-run and late-run Chinook salmon?

A. Results from lower river mixture sampling (See Tables 6 through 11 in the Alaska Sustainable Salmon Fund (AKSSF) completion report below) show the majority of Chinook salmon that enter the Kenai River prior to the middle of June are of tributary origin; depending on the year, after the second or third week in June mainstem fish become more prevalent. Very few tributary fish enter the Kenai in July. Results from the lower river sport fishery mixture sampling (See Tables 12 through 14 in the AKSSF completion report) demonstrate that most of the harvest in May and June is of tributary-bound fish, and that nearly all of the harvest in July is of mainstem-bound fish. Results from the middle river sport fishery mixture sampling (See Tables 15 and 16 in the AKSSF completion report) demonstrate that most of the harvest in June is of tributary-bound fish, the harvest in the first two weeks of July is a somewhat equal mix of tributary- and mainstem-bound fish, and that nearly all of the harvest in the last two weeks in July is of mainstem-bound fish. For more information see the Kenai River Chinook Genetics AKSSF Completion Report (*PDF 538 kB*).

Q. What are the results of the 2010-2011 Genetic Stock ID study conducted on the commercial harvest of Kenai River Chinook salmon?

A. Genetic samples were collected from Chinook salmon commercially harvested in the East Side Set Gillnet (ESSN) fishery in 2010 and 2011. These samples were analyzed by the Gene Conservation Laboratory. Read a summary of the genetic stock composition estimates (proportions) (*PDF 579 kB*).

Q. Provide and overview of the department's 2013 Chinook salmon sonar operations, including procedures, new site, reliability, and possible problems?

A. In 2013 the department will operate the RM 8.6 sonar station using DIDSON from May 16 through August ~10. Information from this location will be used to evaluate the escapement goal for management. DIDSON estimates from RM 8.6 are considered reliable since we have been successfully producing estimates at this site since 2010.

The latest generation of DIDSON known as ARIS (for Adaptive Resolution Imaging Sonar) will also be deployed and operated at RM 13.75 during the same time period. Several potential locations above tidewater were investigated during 2011 and 2012. Site investigations included deploying ARIS systems and collecting sonar data to evaluate sonar performance at this site.

These investigations indicate a site at RM 13.75 to be the most suitable for assessing Chinook salmon passage. At this site we should be able to improve the passage estimate over the RM 8.6 site because it is located above tidal fluctuations. At this time information indicates the RM 13.75 offers a number of physical improvements over the RM 8.6 site. The project at RM 13.75 is also

designed to assess performance of the ARIS and the hardware that collects acoustic data and the software that estimates fish size.

Q. What was the relationship between early- and late-run Chinook salmon run strengths?

A. Generally, when the early run is above average, then the late run is above average. Conversely, when the early run is below average, then the late run is below average. See charts depicting the relationship between early runs and late runs (*PDF 73 kB*).

Q. What data is available for the DIDSON that indicates bias counting due to fish behind the sonar, orientation to the sonar, outside the counting range, etc.?

A. This is discussed in the run reconstruction part of the draft interim escapement goal report (*PDF 1,991 kB*). The data available is derived from independent estimates of run size from 1996-97, and 2007-2011 as compared to the reconstructed DIDSON equivalent run sizes from 1996-97 and 2007-2011.

Q. What is the gillnet selectivity of the netting program for various sizes of Chinook salmon goals based on DIDSON estimates?

A. Net selectivity does not change between different sonar technologies. A review and analysis of netting program is part of the the draft interim escapement goal report (*PDF 1,991 kB*)

Q. What data is available to support the estimates of Chinook salmon savings by going to no bait and catch and release?

A. Data used to projected harvest savings in the Kenai River Chinook salmon sport fishery are detailed in a May 7, 2012 Fish and Game Memorandum (*PDF 114 kB*).

Q. What date can the department make a reasonable projection of early- and late-run Kenai River Chinook salmon run strength, within 10, 20, and 30% of the actual run? Please provide a hindcast model to indicate that this level can be achieved.

A. Inseason run projections are best generated using inriver test gillnet information to establish run timing. The median date of passage has varied up to 2 weeks among years, from July 13 to July 28 with an average median date of July 19. Average inseason projection error is 23% on July 19 and is, in part, a function of variability in run timing rather than run size. For additional data see the 2012 Run Projection Hindcast (*PDF 51 kB*).

Q. Sockeye versus Chinook salmon goals, what's more important?

A. Regarding escapement goals, the Alaska Department of Fish and Game (department) manages salmon fisheries in Alaska following the Policy for the Management of Sustainable Salmon Fisheries (5 AAC 39.222) and the Policy for Statewide Salmon Escapement Goals (5 AAC 39.223). The board adopted these policies into regulation during the winter of 2000–2001 to ensure that the state's salmon stocks are conserved, managed, and developed consistent with the sustained yield principle. The board also adopted 5 AAC 21.363, Upper Cook Inlet Management Plan, to provide the department long-term direction in management of salmon in Upper Cook Inlet (UCI). Achieving established escapement goals is one the primary management objectives of this plan (5 AAC 21.363(e)). It should be noted that the management plans and policies do not indicate a priority of meeting the lower end of escapement goals over exceeding the upper end of an escapement goal. However, even though it is not stated in the plans and policies, the department puts a priority of meeting the lower end of escapement goals over exceeding the upper end of escapement goals.