

# From Chinook Stock Assessment and Research Plan, 2013

Table 1.—Average inshore and federal waters harvests and fishery-specific activities recommended to fill knowledge gaps in stock-specific harvest assessment.

Chinook Fishery	Average Harvest (1994–2006)	Average Harvest (2007–2011)	Stock-Specific Harvest Assessment
Southeast	Subsistence: 1,000 Commercial: 309,000 Sport: 71,000	Subsistence: 1,000 Commercial: 297,000 Sport: 65,000	Genetics mixed-stock analysis and sampling of troll, sport, and districts 108 and 111 gillnet
Copper River and Prince William Sound	Subsistence: 7,000 Commercial: 48,000 Sport: 10,000	Subsistence: 5,000 Commercial: 18,000 Sport: 8,000	Age-size of commercial harvest. CWT recovery of major fisheries at 20% minimum coverage; genetic mixed-stock analysis of major fisheries
Cook Inlet	Subsistence: 3,000 Commercial: 18,000 Sport: 74,000	Subsistence: 2,000 Commercial: 12,000 Sport: 45,000	Comprehensive marine CWT and genetics sampling of Upper subdistrict set gillnet, Kenai Peninsula sport, Tyonek subsistence, Northern District set gillnet, Central District drift gillnet, winter sport fishery in Homer
Kodiak	Subsistence: <1,000 Commercial: 19,000 Sport: 8,000	Subsistence: <1,000 Commercial: 15,000 Sport: 9,000	CWT recovery of major fisheries at 20% minimum coverage; genetic mixed-stock analysis of major fisheries
Chignik and Alaska Peninsula	Subsistence: 1,000 Commercial: 17,000 Sport: 4,000	Subsistence: <1,000 Commercial: 14,000 Sport: 3,000	CWT recovery of major fisheries at 20% minimum coverage; genetic mixed-stock analysis of major fisheries
Bristol Bay	Subsistence: 16,000 Commercial: 78,000 Sport: 8,000	Subsistence: 14,000 Commercial: 38,000 Sport: 8,000	Improved genetic baseline resolution (listed under Table 3). CWT and genetic sampling of Chinook harvests.
Kuskokwim	Subsistence: 90,000 Commercial: 30,000 Sport: 2,000	Subsistence: 84,000 Commercial: 21,000 Sport: 2,000	Improved genetic baseline resolution (listed under Table 3) . CWT and genetic sampling of Chinook harvests..
Yukon	Subsistence: 51,000 Commercial: 64,000 Sport: 1,000	Subsistence: 44,000 Commercial: 10,000 Sport: 1,000	Improved genetic baseline resolution (listed under Table 3) . CWT and genetic sampling of Chinook harvests.
Norton Sound Kotzebue	Subsistence: 6,000 Commercial: 5,000 Sport: 1,000	Subsistence: 4,000 Commercial: 1,000 Sport: <1,000	Improved genetic baseline resolution (listed under Table 3) . CWT and genetic sampling of Chinook harvests.
Federal waters bycatch (all groundfish fisheries)	GOA: 19,000 BSAI: 47,000	GOA: 28,000 BSAI: 41,000	Increased observer sampling rate of bycatch for CWT and genetics, as well for process studies (listed under Table 3)
Totals	Subsistence: 175,000 Commercial: 584,000 Sport: 178,000 Federal Waters: 66,000	Subsistence: 154,000 Commercial: 425,000 Sport: 140,000 Federal Waters: 69,000	

Table 2.—Stock-specific activities recommended to fill knowledge gaps in Chinook salmon escapement, smolt, and local and traditional knowledge (LTK) assessments (CWT-tagging means coded-wire-tagging).

<b>Chinook Stock</b>	<b>Escapement or Inriver Assessment</b>	<b>Smolt Assessment</b>	<b>LTK Assessment</b>
Unuk	Mark-recapture with age-sex-size	CWT-tagging of smolt with recaptures in fishery and escapement	None, existing program sufficient
Stikine	Mark-recapture with age-sex-size	CWT-tagging of smolt with recaptures in fishery and escapement	A study of local and traditional knowledge
Taku	Mark-recapture with age-sex-size	CWT-tagging of smolt with recaptures in fishery and escapement	None, existing program sufficient
Chilkat	Mark-recapture with age-sex-size	CWT-tagging of smolt with recaptures in fishery and escapement	A study of local and traditional knowledge
Copper	Mark-recapture with age-sex-size	CWT-tagging of smolt with recaptures in fishery and escapement	An analysis of the harvest of Chinook salmon in the subsistence fishery in Copper River District, as well as commercial removals of Chinook salmon for personal use, including an LTK component
Susitna	Age-specific genetic mark-recapture	CWT-tagging of smolt with recaptures at Deshka weir, other weir, and fishery.	A study of local and traditional knowledge
Kenai	Sonar with age-sex-size	CWT-tagging of smolt with recaptures in fishery and escapement; mixed-stock analysis (early versus late runs)	A study of local and traditional knowledge
Karluk	Weir lease and age-sex-size sampling	CWT-tagging of smolt (Karluk and hatchery releases) with recaptures in fishery and escapement	None, existing program sufficient
Chignik	Age-sex-size sampling	CWT-tagging and PIT-tagging of smolt with recaptures in fishery and escapement	Improvements to the existing subsistence harvest monitoring and assessment program

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**Table 3.—Recommended activities to fill knowledge gaps that cut across Chinook salmon stocks and fisheries.**

<b>Activity</b>	<b>Explanation</b>
Nearshore Marine Trawl Research Cruises	As a companion to stock-specific estimates of marine survival, 3 years of trawl research cruises to study trends in nearshore marine abundance and distribution of juvenile Chinook salmon in the northern and southern Bering Sea, and Gulf of Alaska
Modeling effort for Western Alaska Chinook salmon	Use of data from research surveys to parameterize models for addressing questions regarding salmon production.
Offshore Fishery Sampling	GOA: Improvement in observer sampling rate (bycatch and CWT/genetic bycatch composition). Sample for CWT at 20% minimum for harvest coverage. BSAI: Sample for CWT at 20% minimum for harvest coverage. Both: Improved geographic and stock-specific resolution of bycatch to the individual haul. Consider use of bycatch samples for process studies of feeding, growth, maturation, and energy content.
Process Studies on the Yukon River	Three studies are recommended with the Yukon River as an initial focus stock. The first study is to examine climate-induced changes to Chinook salmon spawning and freshwater rearing habitats. The second study would examine predation as a source of Chinook salmon declines in Alaska. The third study will examine Chinook salmon condition during various freshwater and marine life stages and relate these measurements to adult production and environmental variables.
Genetic Baseline Development	Additional collections of Chinook salmon are needed to improve the Alaska Chinook salmon genetic baseline, which is required for stock identification purposes.
Genetic Marker Development	The inability to distinguish lower river spawning populations of Bristol Bay, Kuskokwim, and Yukon Chinook salmon from each other is a major knowledge gap; additional genetic marker development is necessary to improve identification ability.
CWT Lab Support	Implementation of additional CWT activities across Alaska will lead to greatly increased workload at the CWT lab and additional fiscal resources will be required for the CWT lab to handle the added workload.
Scale Reading Support	Many more scales from both adult and juvenile Chinook salmon will be collected. These scales will need to be read to determine age and samples will require archiving.
Biometric Support	An additional biometrician will be required to support the program as identified
Publication Support	Additional staff members are needed to ensure timely reporting of results of this program.

**Table 4.—Approximate annual costs (including startup costs) by type of activity to address Chinook salmon knowledge gaps (thousands of dollars).**

<b>Type of Activity</b>	<b>Approximate Annual Cost</b>
Stock-Specific Escapement or Inriver Run Assessments	\$3,000
Stock-Specific Smolt Assessments	\$2,500
Stock-Specific LTK Assessments	\$500
Stock-Specific Harvest Assessments	\$1,800
Marine Surveys and Modeling	\$1,600
Process Studies	\$700
Genetic Baseline and Marker Development	\$300
Programmatic Support	\$500