

**Appendix H:
Crucial Fish Habitats or Key Streams Within the
Kobuk-Seward Peninsula Planning Area**

A. Introduction..... H-3
B. Criteria for Defining Crucial Fish Habitat on or Adjacent to BLM Administered Lands H-3
C. Rivers H-4

Appendix H: Crucial Fish Habitats or Key Streams Within the Kobuk-Seward Peninsula Planning Area

A. Introduction

Ten rivers within the planning area are subject to Required Operating Procedure FW-7a (Map H-1). The objective of this required operating procedure is to: Protect, maintain, and preserve the condition and ecological function of the aquatic and riparian zones of streams that determine the ability of these habitats to:

1. Provide clean water for community use;
2. Produce fish and wildlife on a sustained basis to support cultural, economic, subsistence, and recreational needs; and
3. Maintain the hydrological and morphological stability of streams to prevent un-natural flooding, habitat degradation, and water quality impairment.

This appendix provides the criteria and rationale for selecting the ten key rivers subject to Required Operating Procedure FW-7a.

B. Criteria for Defining Crucial Fish Habitat on or Adjacent to BLM Administered Lands

The following criteria were used to determine which rivers within the planning area should be considered crucial fish habitat subject to ROP FW-7a.

1. Essential Fish Habitat as defined by 50 CFR Part 600;
2. Waterbodies identified under Alaska Department of Natural Resources Anadromous Waters Catalog. Alaska Statute 41.14.870(a) requires the Alaska Department of Natural Resources (ADNR) Office of Habitat Management & Permitting (OHMP) to "specify the various rivers, lakes and streams or parts of them" of the state that are important to the spawning, rearing or migration of anadromous fishes. The Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes and its associated atlas (the Catalog and Atlas or AWC, respectively) are the media used to accomplish this specification and are adopted as regulation under 11 AAC 195.010.
3. Habitat listed and/or recognized as a high priority by the BLM;
 - a. Habitat necessary to sustain a population deemed important for its role in providing subsistence, commercial, and recreation opportunities;

b. Habitat necessary to sustain a population deemed important to the economy of the region and local area in which the fishery is located;

4. Habitat necessary to sustain keystone species (see definition below);

Habitat necessary to prevent a species from declining to the level that it is under status review by the FWS/NMFS; or 2) whose numbers are declining so rapidly that Federal listing may become necessary; or 3) with typically small and widely dispersed populations; or 4) those inhabiting ecological refugia or other specialized or unique habitats. Significant production of anadromous and/or resident fish is present or has been documented.

Definitions

Bankfull Elevation: This height (or stage) is delineated by the elevation of incipient flooding at the high annual flow achieved every year or other year, and, is indicated by deposits of sand or silt at the active scour mark, break in stream slope, perennial vegetation limit, rock discoloration, and root hair exposure.

Active Stream Channel: Bankfull elevation.

Keystone species: A Keystone species is one which has a disproportionate effect on its environment relative to its abundance. Such an organism plays a role in its ecosystem is analogous to the role of a keystone in an arch. While the keystone feels the least pressure of any of the stones in an arch, the arch still collapses without it. Similarly, an ecosystem may experience a dramatic shift if a keystone species is removed, even though that species was a small part of the ecosystem by measures of biomass or productivity.

Maximum Bankfull Depth (Dbkf): The maximum depth measured at bankfull discharge.

Width Flood-prone area (Wfpa): An area bordering a stream that will be covered by stream at a flood stage of twice the maximum bankfull depth ($2 \times \text{Dbkf}$); flood-prone width equals twice the maximum bankfull depth.

C. Rivers

Using the criteria listed in the previous section, the following ten rivers are considered crucial fish habitat subject to ROP FW-7a (Map H-1). There are at least 10 other rivers/streams within the planning area listed as Essential Fish Habitat that are not considered here. Dropped from consideration on this list are the: Buckland River, Pick River, Kukpowruk, River, Ipewik River, Nilik River, and Kiklovilik Creek (Upper Selawik River).

Kivalina River

Essential Fish Habitat (EFH) anadromous waters catalog #331-00-10044. The Kivalina River contains Chinook, coho, sockeye, chum, and pink salmon, and Dolly Varden. These are all

anadromous fish species which use the river for spawning, rearing, and migratory habitat; therefore this river is characterized as Essential Fish Habitat by the National Marine Fisheries Service (NMFS). The river also contains broad whitefish, and possibly least ciscoes, which are harvested for subsistence by residents of the village of Kivaliana. Stream resident Arctic grayling occur in the river as well.

Dolly Varden are probably the most important fish resource for subsistence needs. There are two separate and distinct run of dollies in the river that range from 20,000 to 40,000 fish. The summer run peaks approximately August 1 and uses spawning habitat in the middle reaches of the river. The fall run peaks around September 10. Fall run fish spawn in the upper reaches of the river. The Dolly Varden stocks which inhabit the Kivalina River are considered "world class" with high catch rates and are capable of producing fish that exceed 25 pounds. The neighboring Wulik River holds the State Record for sport-caught Dolly Varden (27 lbs), and it is believed both drainages may hold larger fish.

In addition to its importance as fish habitat, and probably more importantly from the resource utilization perspective, the river is the source of fresh water for some residents of the village who feel their water supply in the village is tainted by toxic effluent produced naturally by the Wulik River, and as a result of surface disturbance produced by the Red Dog zinc mine.

Ungalik River, Shaktoolik River, Inglutalik River

EFH anadromous waters catalog #333-40-10700, 333-50-10100, and 333-40-10350. These three rivers compose the bulk of the Nulato Hills drainage in eastern Norton Sound. They are listed in the State of Alaska's anadromous waters catalog as important for the spawning, rearing, and migration of Chinook, coho, chum, and pink salmon, and therefore are considered Essential Fish Habitat. These rivers contribute salmon and other fish for subsistence harvest by the villages of Koyuk and Shaktoolik and contribute fish to the commercial fisheries in Shaktoolik and Elim. Of particular importance is the overwintering rearing habitat for Chinook and coho fry contained in the numerous ox-bow lakes, back-water sloughs, and beaver ponds interspersed throughout the floodplains.

In addition to the salmon present in these rivers, Dolly Varden, arctic char, and arctic grayling are present. Recreational fishing opportunities are "world class." These rivers are mostly undisturbed. One exception is the lower reach of the Ungalik River which has been historically mined off and on for decades. This previously mined area no longer includes any BLM-managed Public Lands.

Koyuk River, including the East Fork

EFH anadromous waters catalog #333-40-10200. The Koyuk River contains Chinook, coho, chum, and pink salmon, and is therefore listed by NMFS as Essential Fish Habitat. This river is the primary source of subsistence fisheries resources for the village of Koyuk. Besides the salmon, sheefish, Dolly Varden, and whitefish are utilized as subsistence resources, and provide for outstanding sportfishing opportunities. Uniquely, recent genetic analysis of chum salmon in this river has shown that they are more closely related to Kotzebue Sound fish than Norton Sound fish. At some point approximately 10,000 years ago, this river drained to the north, which means this drainage may act as an important genetic reservoir for the regionally important chum salmon stocks.

Tubutulik River

EFH anadromous waters catalog #333-30-10650. This river is listed as Essential Fish Habitat and contains Chinook, coho, chum, and pink salmon, as well as Dolly Varden. Besides the anadromous fish, stream resident arctic char and arctic grayling contribute to the subsistence harvest for the nearby village of Moses Point. But with no village located at the mouth of this river, the stocks present have had the opportunity to thrive naturally, and provide 'world class' sport fishing. Hot springs in the upper watershed also make this drainage unique. Chinook produced in this watershed no doubt contribute to the commercial harvest that intermittently occurs at the village of Elim.

Kuzitrin River

EFH anadromous waters catalog #332-00-10230. The Kuzitrin River drains into the eastern Imuruk Basin and is classified as Essential Fish Habitat because it produces Chinook, coho, chum, pink, and sockeye salmon, as well as Dolly varden. This river supports the subsistence harvest of fish for Teller, Brevig Mission, and Nome residents. The river is valued for its large population of northern pike, and contains large Dolly Varden and arctic char. Recreational fishing is popular since this river is road accessible from Nome. The upper drainage has lakes that may contain genetically unique resident arctic char, similar to those found in the Kigluaik Mountains.

Agiapuk River

EFH anadromous waters catalog #332-00-10230. The Agiapuk River is classified as Essential Fish Habitat as it supports Chinook, chum, pink, and coho salmon. Dolly Varden, whitefish and arctic grayling are present also. A unique run of Fall chum spawns in a major tributary, the American River. These chum are very large compared to other Norton Sound stocks, and current genetic analysis is underway which it is believed will show these fish are more closely related to Kotzebue Sound fish. This would indicate that, similar to the Koyuk River, this drainage previously flowed north instead of south, and therefore the Fall chum are genetically distinct and act as a gene refugia for chum stocks in the area. The strength of the coho run has been subject to debate over the years, but both chum and coho are present in late August to early September, providing a last chance for subsistence fishers from Teller, Brevig Mission, and Nome to harvest salmon if nearby summer runs of salmon have been low.

Pah River

EFH anadromous waters catalog #331-00-10490-2370. The Pah River, an upper Kobuk River tributary, is near the suspected limit of chum salmon habitat, and as such is Essential Fish Habitat. The extent of chum spawning on BLM-managed lands is unknown. The river also contains sheefish and northern pike. These fish are utilized as a subsistence resource by the villages of Kobuk and Shungnak, and the chum and sheefish contribute to commercial fisheries in Kotzebue Sound. The Pah River holds not only the state record for a sport-caught sheefish, but the world record as well, for a 53 pound sheefish caught in 1986. The Pah River flats also provide important habitat for waterfowl. The Pah River flats contain numerous Northern pike which thrive on the many waterfowl hatched and reared in this area during the spring and summer.

Noatak River

EFH anadromous waters catalog #331-00-10290. The Noatak River is a major drainage in Northwestern Alaska. It has a vibrant population of chum salmon which contributes well over half of the commercial harvest in Kotzebue Sound. Sheefish produced in the Noatak River are also harvested in a Kotzebue Sound commercial fishery. The villages of Noatak and Kotzebue utilize the fish resources in subsistence fisheries. The Noatak supports lesser numbers of Chinook, sockeye, and pink salmon and therefore is considered Essential Fish Habitat by NMFS.

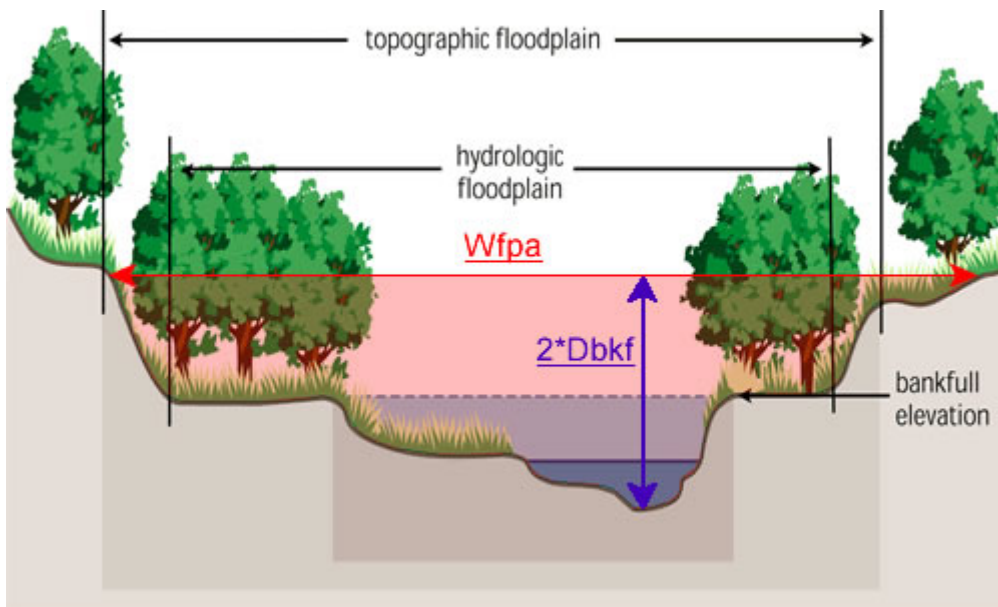


Figure H-1. Flood-Prone Area (Federal Interagency Stream Restoration Working Group. 1998. Stream Corridor Restoration: Principles, Processes, and Practices. By the Federal Interagency Stream Restoration Working Group (15 Federal agencies of the US gov't). GPO Item No. 0120-A; SuDocs No. A 57.6/2:EN 3/PT.653. ISBN-0-934213-59-3.)

INSERT MAP H-1: Key Rivers

