

acquired by exchange, from surface entry and mining for a period of 50 years for the Bureau of Land Management to protect the Eagle Rock and Leaburg Lake Sections of the McKenzie River located in Lane County. The minerals in 53.35 acres of public lands are non-Federal, and will be acquired by exchange. Upon acquisition, the 159.41 acres of non-Federal lands and the 53.35 acres of non-Federal minerals will be opened to mineral leasing. The 238.90 acres of public lands have been and remain open to mineral leasing.

EFFECTIVE DATE: September 6, 1994.

FOR FURTHER INFORMATION CONTACT:

Donna Kauffman, BLM Oregon/
Washington State Office, P.O. Box 2965,
Portland, Oregon 97208-2965, 503-280-
7162.

By virtue of the authority vested in the Secretary of the Interior by Section 204 of the Federal Land Policy and Management Act of 1976, 43 U.S.C. 1714 (1988), it is ordered as follows:

1. Subject to valid existing rights, the following described public lands are hereby withdrawn from settlement, sale, location, or entry under the general land laws, including the United States mining laws (30 U.S.C. Ch. 2 (1988)), but not from leasing under the mineral leasing laws, to protect the significant scenic, wildlife, fisheries, and recreational values along the McKenzie River:

Willamette Meridian

Public Domain Lands, Federal Minerals

Eagle Rock Section

T. 17 S., R. 3 E.,

Sec. 10, lots 4 and 5, SE $\frac{1}{4}$ NW $\frac{1}{4}$, and that portion of the N $\frac{1}{2}$ SE $\frac{1}{4}$ described as follows: Beginning at the east one quarter corner of said sec. 10; Thence along the north line of the SE $\frac{1}{4}$ south 89°1'55" west 2,592.50 feet to the center of sec. 10; Thence along the west line of the SE $\frac{1}{4}$ south 00°51'27" east 230.97 feet; Thence south 71°32'28" east 171.61 feet; Thence south 31°10'49" east 272.59 feet; Thence north 54°03'58" east 150.37 feet; Thence north 44°58'06" east 136.39 feet; Thence north 79°24'46" east 211.20 feet; Thence south 52°08'02" east 156.48 feet; Thence south 78°47'26" east 204.25 feet; Thence north 77°12'21" east 239.97 feet; Thence south 85°25'02" east 249.56 feet; Thence south 64°51'38" east 190.59 feet; Thence south 43°58'08" east 278.95 feet; Thence south 76°45'59" east 72.41 feet; Thence south 61°24'24" east 164.01 feet; Thence south 70°45'40" east 263.35 feet; Thence south 68°01'23" east 206.56 feet; Thence south 63°39'19" east 58.06 feet to the section line; Thence along the section line north 01°10'17" west 996.84 feet to the point of beginning;

Sec. 11, that portion of the NW $\frac{1}{4}$ SW $\frac{1}{4}$ described as follows: Beginning at the

west one quarter corner of said sec. 11; Thence along the section line south 01°10'17" east 996.84 feet; Thence south 63°39'19" east 111.86 feet; Thence north 69°28'36" east 208.20 feet; Thence north 39°02'30" east 199.57 feet; Thence north 82°56'58" east 175.34 feet; Thence south 72°50'23" east 265.76 feet; Thence north 66°07'42" east 298.03 feet; Thence north 79°22'51" east 94.10 feet; Thence north 47°29'53" east 124.60 feet to the east line of the NW $\frac{1}{4}$ SW $\frac{1}{4}$ of said sec. 11; Thence along said east line north 0°40'06" west 630.58 feet to the northeast corner of the NW $\frac{1}{4}$ SW $\frac{1}{4}$; Thence along the north line of the NW $\frac{1}{4}$ SW $\frac{1}{4}$ north 89°01'20" west 1,318.99 feet to the point of beginning.

The areas described aggregate 139.20 acres in Lane County.

Revested Oregon and California Railroad Grant Lands, Federal Minerals

Eagle Rock Section

T. 17 S., R. 3 E.,

Sec. 10, lot 3 and NW $\frac{1}{4}$ NW $\frac{1}{4}$;
Sec. 11, lot 3.

The areas described aggregate 99.70 acres in Lane County.

2. Subject to valid existing rights, the following described public lands are hereby withdrawn from settlement and sale under the general land laws. Upon acquisition, the minerals will be subject to the terms and conditions of this withdrawal:

Willamette Meridian

Revested Oregon and California Railroad Grant Lands, Non-Federal Minerals

Eagle Rock Section

T. 17 S., R. 3 E.,

Sec. 3, lot 4;
Sec. 9, lot 5.

The areas described aggregate 53.35 acres in Lane County.

3. The following described non-Federal lands are within the exterior boundary of the Leaburg Lake and Eagle Rock Sections of the McKenzie River. Upon acquisition, the lands will be subject to the terms and conditions of this withdrawal:

Willamette Meridian

Leaburg Lake Section

T. 16 S., R. 2 E.,

Sec. 31, lot 2.

Eagle Rock Section

T. 17 S., R. 3 E.,

Sec. 4, lot 8;
Sec. 9, lot 6;
Sec. 10, SW $\frac{1}{4}$ NW $\frac{1}{4}$;
Sec. 11, lot 2 and SE $\frac{1}{4}$ NW $\frac{1}{4}$.

The areas described aggregate 159.41 acres in Lane County.

For the entire withdrawal, the areas described aggregate 451.66 acres in Lane County.

4. The withdrawal made by this order does not alter the applicability of those

public land laws governing the use of the lands under lease, license, or permit, or governing the disposal of their mineral or vegetative resources other than under the mining laws.

5. This withdrawal will expire 50 years from the effective date of this order unless, as a result of a review conducted before the expiration date pursuant to Section 204(f) of the Federal Land Policy and Management Act of 1976, 43 U.S.C. 1714(f) (1988), the Secretary determines that the withdrawal shall be extended.

Dated: August 25, 1994.

Bob Armstrong,

Assistant Secretary of the Interior.

[FR Doc. 94-21795 Filed 9-2-94; 8:45 am]

BILLING CODE 4310-33-P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 90

[PR Docket No. 94-94; FCC 94-216]

900 MHz Emission Mask

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This action responds to a request by Geotek Communications, Inc. (Geotek) for clarification of the FCC's rules concerning the 900 MHz emission mask. Geotek brought to our attention that the 900 MHz emission mask included in our Rules has the effect of unintentionally restricting the use of low power digital equipment in this band. The intended effect of this action is to eliminate the anomaly.

EFFECTIVE DATE: October 6, 1994.

FOR FURTHER INFORMATION CONTACT: Karen Rackley, Private Radio Bureau, (202) 634-2443.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's order in PR Docket No. 94-94, FCC 94-216, adopted August 12, 1994, and released August 30, 1994. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW, Washington, DC. The complete text of this decision also may be purchased from the Commission's copy contractor, International Transcription Service, Inc., (202) 857-3800, 2100 M Street NW., Suite 140, Washington, DC 20037.

Summary of the Order

1. Geotek Communications, Inc. (Geotek) brought to our attention that the 900 MHz emission mask included in

Section 90.209(h) of our Rules has the effect of restricting the use of low power digital equipment in this band. Geotek went on to point out that the restrictive effect of this rule conflicts with the Commission's intent, as stated in our Report and Order in GEN Docket 84-1233, 2 FCC Rcd 1825 (1986), 51 FR 37398, October 22, 1986, to permit any type of modulation in this band, including digital modulation.

2. The 900 MHz band was allocated for use by the Private Land Mobile Services in 1986. The regulatory structure established for this new band was designed to provide as much flexibility as possible for licensees to use a variety of technologies to satisfy their mobile communications requirements. The technology that Geotek proposes to use in this band is just the type of new technology that we had intended our flexible rules to be able to accommodate. Unfortunately, as pointed out in Geotek's letters, the emission mask for the 896-901/935-940 MHz bands has the unintended effect of precluding use of Geotek's particular technology. Very simply, the current emission mask penalizes Geotek's system because of its use of relatively low power (4 watt) portable transceivers. The emission mask currently in effect in our rules requires various levels of attenuation relative to the actual unmodulated carrier power of the transmitter, regardless of how small that transmitter power might be. For very low power transmitters, the effect of this requirement can be very severe on the design of the equipment, with no apparent corresponding benefit with respect to interference reduction. This anomaly in our rules was clearly unintended. We are, therefore, amending Section 90.209(h) of our Rules to eliminate this anomaly in the emissions mask that unintentionally restricts the use of low power digital equipment. For example, for a 4 Watt transmitter on a frequency removed 15 kHz from the channel's assigned (center) frequency, the current mask requires a relative attenuation of 71 decibels while the new mask requires only 56.

3. This rule change is being made to conform our rules to the intent stated in the text of the Report and Order in Docket 84-1233 at paragraph 68:

We desire to allow as much flexibility as possible for end users to choose the equipment that best meets their needs at a cost they can afford. We want to establish appropriate incentives for the development of new technologies. However, we do not want to adopt a plan that essentially requires end users to employ one particular modulation method * * *. Furthermore, we want

the channeling plan for this spectrum to accommodate technologies such as digital that have been developed, but require further advances to make them marketable to private land mobile users.

This rule change is noncontroversial because it does not infringe on any current or potential licensee's substantive rights. Therefore, for the above stated reasons, and because this rule change is clearly in the public interest, we find good cause to conclude that notice and comment are impracticable, unnecessary, and contrary to the public interest. See 5 U.S.C. 553(b)(B).

4. Accordingly, *It Is Ordered* that, effective 30 days after publication in the Federal Register, Section 90.209(h) of the Commission's Rules, 47 CFR 90.209(h) is amended as indicated below.

List of Subjects in 47 CFR Part 90

Communications equipment, Radio.
Federal Communications Commission.
William F. Caton,
Acting Secretary.

Rule Changes

Part 90 of Chapter I of Title 47 of the Code of Federal Regulations is amended as follows:

PART 90—PRIVATE LAND MOBILE RADIO SERVICES

1. The authority citation for Part 90 continues to read as follows:

Authority: Secs. 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, and 332, unless otherwise noted.

2. Section 90.209 is amended by revising paragraph (h)(3), and by removing paragraph (h)(4) to read as follows:

§ 90.209 Bandwidth limitations.

(h) * * *

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 9.5 kHz: At least 157 Log₁₀ ($f_d/5.3$) decibels or 50 plus 10 Log₁₀ (P) decibels or 70 decibels, whichever is the lesser attenuation.

* * * * *

[FR Doc. 94-21845 Filed 9-2-94; 8:45 am]

BILLING CODE 6712-01-M

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB94

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Kootenai River Population of the White Sturgeon

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Fish and Wildlife Service (Service) determines endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for the Kootenai River population of the white sturgeon (*Acipenser transmontanus*). The Kootenai River population of the white sturgeon is restricted to approximately 270 river kilometers (km) (168 miles (mi)) of the Kootenai River, in Idaho, Montana, and British Columbia, Canada, primarily upstream from Cora Linn Dam at the outflow from Kootenay Lake, British Columbia. With the exception of 1974, sturgeon recruitment has been declining since the mid-1960's, and there has been an almost complete lack of recruitment of juveniles into the population since 1974, soon after Libby Dam in Montana began operation. The population also faces threats from reduced biological productivity, and possibly poor water quality and the effects of contaminants. This rule implements the protection and conservation provisions afforded by the Act for the Kootenai River population of the white sturgeon.

DATES: October 6, 1994.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Ecological Services Field Office, 4696 Overland Road, Room 576, Boise, Idaho 83705.

FOR FURTHER INFORMATION CONTACT: Dr. Charles H. Lobdell, Field Supervisor, at the above address or telephone (208) 334-1931.

SUPPLEMENTARY INFORMATION:

Background

White sturgeon (*Acipenser transmontanus*) are in the Family Acipenseridae, which consists of 4 genera and 24 species of sturgeon. Eight species of sturgeon occur in North America, with white sturgeon one of five species in the genus *Acipenser*. White sturgeon historically occurred on the Pacific Coast from the Aleutian

Islands to central California. The species reproduces in at least three large river systems: the Sacramento-San Joaquin River in California, Columbia River basin in the Pacific Northwest, and the Fraser River system in British Columbia, Canada. The closely related green sturgeon (*Acipenser medirostris*) also occurs in the Pacific Coast region but is restricted in distribution to river estuaries.

White sturgeon were first described by Richardson in 1863 from a single specimen collected in the Columbia River near Fort Vancouver, Washington (Scott and Crossman 1973). All sturgeon are distinguished from other fish in that they have a cartilaginous skeleton with a persistent notochord, and a protractile, tube-like mouth and sensory barbels ventrally on the snout. The white sturgeon is distinguished from other *Acipenser* by the specific arrangement and number of scutes (bony plates) along its body (Scott and Crossman 1973). The largest authentic record of a white sturgeon is a 630 kilogram (kg) (1,387 pounds (lbs)) specimen taken from the Fraser River in British Columbia in 1897 (Scott and Crossman 1973). Individuals in landlocked populations tend to be smaller. For example, white sturgeon over 90 kg (200 lbs) have not been reported from the Kootenai River system (Apperson 1992, Graham 1981, Partridge 1983). White sturgeon are generally long-lived, with females living from 34 to 70 years (Pacific States Marine Fisheries Commission (PSMFC) 1992). The oldest of 342 sturgeon captured in the Kootenai River during 1977 to 1982 was estimated to be 44 years old (Partridge 1983).

For white sturgeon in general, the size or age of first maturity in the wild is quite variable (PSMFC 1992). Females normally require a longer period to mature than males, with females for most sturgeon species spawning between 15 to 25 years of age (Doroshov 1993). Only a portion of adult white sturgeon are reproductive or spawn each year, with the spawning frequency for females estimated at 2 to 11 years. Spawning occurs when the physical environment permits vitellogenesis (egg development) and cues ovulation. White sturgeon are broadcast spawners, releasing their eggs and sperm in fast water. In the lower Columbia River below McNary Dam, landlocked populations of white sturgeon normally spawn during the period of peak flows from April through July (Parsley et al. 1989). Spawning at peak flows with high water velocities disperses and prevents clumping of the adhesive eggs. Following fertilization, eggs adhere to

the river substrate and hatch after a relatively brief incubation period of 8 to 15 days, depending on water temperature (Brannon et al. 1985). Recently hatched yolk-sac larvae swim or drift in the current for a period of several hours and settle into interstitial spaces in the substrate. Larval white sturgeon require 20 to 30 days to metamorphose into juveniles with a full complement of fin rays and scutes.

The Kootenai River population of white sturgeon is one of 18 landlocked populations of white sturgeon known to occur in western North America. The Kootenai River originates in Kootenay National Park in British Columbia, Canada. The river flows south into Montana, turns northwest into Idaho, and north through the Kootenai Valley back into British Columbia, where it flows through Kootenay Lake and eventually joins the Columbia River at Castlegar, British Columbia.

Historically, little was known regarding the status and life history of the white sturgeon population in the Kootenai River basin prior to studies initiated during the late 1970's by the British Columbia Ministry of Environment and Parks (Andrusak 1980), Idaho Department of Fish and Game (IDFG) (Partridge 1983), and Montana Department of Fish, Wildlife and Parks (MDFWP) (Graham 1981).

The Kootenai River population of white sturgeon is restricted to approximately 270 river km (168 river mi) in the Kootenai River basin. This reach extends from Kootenai Falls, Montana, located 50 river km (31 river mi) below Libby Dam, downstream through Kootenay Lake to Cora Linn Dam at the outflow from Kootenay Lake, British Columbia, Canada. Historically, Kootenai Falls represented an impassible natural barrier to the upstream migration of the white sturgeon. A natural barrier at Bonnington Falls downstream of Kootenay Lake has isolated the Kootenai River white sturgeon from other white sturgeon populations in the Columbia River basin since the last glacial age (approximately 10,000 years) (Apperson and Anders 1991).

Genetic analysis indicates that the Kootenai River sturgeon is a unique stock and constitutes a distinct interbreeding population (Setter and Brannon 1990). The average heterozygosity (or measure of the quantity of genetic variation) determined for the Kootenai River population at 0.54 compared to an average heterozygosity of 0.74 for white sturgeon in the Columbia River (Setter and Brannon 1990). Based on these comparisons, Setter and Brannon (1990)

concluded " * * * we find adequate evidence to distinguish these fish as a separate population based on differences in allele frequencies, the genetic distance calculation and the overall quantity of variation displayed."

In general, individual white sturgeon in the Kootenai River are broadly distributed, migrating freely between the Kootenai River and the deep, oligotrophic Kootenay Lake (Andrusak 1980). However, the species is not commonly found upstream of Bonners Ferry, Idaho to Montana (Apperson and Anders 1991). In 1980, Graham (1981) estimated that only one to five adult white sturgeon resided in Montana, found in the river reach immediately downstream of Kootenai Falls. Although white sturgeon use the main channel of the Kootenai River upstream to Kootenai Falls, few individuals have been reported from tributaries to the Kootenai River in Idaho and Montana.

Based on tagging studies, Kootenai River white sturgeon are relatively sedentary during the summer and inhabit the deepest holes of the Kootenai River and Kootenay Lake (Apperson and Anders 1990). Kootenai River locations used by white sturgeon were generally sites over 20 feet (ft) (6 meters (m)) deep with column velocities less than 0.77 ft per second (fps) (less than 0.24 m per second (mps)) and water temperature of 57 to 68° F (14 to 20° C) (PSMFC 1992), while depths utilized in Kootenay Lake ranged from 30 to over 300 ft (10 to 100.5 m) (Apperson and Anders 1991). Compared with other waters containing white sturgeon, the Kootenai River is a relatively cool river with summer high temperatures of 68 to 72° F (20 to 22° C).

White sturgeon in the Kootenai River are considered opportunistic feeders. Partridge (1983) found white sturgeon more than 28 inches (in) (80 centimeters (cm)) in length feeding on a variety of prey items, including chironomids, clams, snails, aquatic insects, and fish. Andrusak (British Columbia Environment, Parks and Lands, pers. comm., 1993) noted that kokanee salmon (*Oncorhynchus nerka*) in Kootenay Lake, prior to a dramatic population crash beginning in the mid 1970's, were once considered an important prey item for adult white sturgeon.

Historically (pre-Libby Dam construction and operation), habitat for white sturgeon spawning was considered available in an approximate 96 river km (60 river mi) stretch of the Kootenai River from Shorty's Island in Idaho (river km 223, river mi 145) upstream to Kootenai Falls in Montana

(river km 327, river mi 203) (Apperson, Idaho Department of Fish and Game, pers. comm., 1993). Monitoring of mature white sturgeon tagged with ultrasonic and radio transmitters in 1990 through 1993 has documented long distance movements upriver during the spring to suspected staging areas located from Shorty's Island (river km 230, river mi 143) to Bonners Ferry (river km 245, river mi 153), and the suspected spawning reach upstream of Bonners Ferry. For example, Apperson (1992) reported that six reproductively mature white sturgeon (three males and three females) tagged with ultrasonic transmitters were located weekly from April through July 1991 to monitor spawning related movements. By May, all six fish had moved upriver 16 to 114 river km (10 to 71 river mi) between Shorty's Island and immediately downstream of Bonners Ferry. They remained congregated in this area through July. These fish exhibited movements similar to other sturgeon tagged and monitored in 1990. During May through July, white sturgeon fitted with transmitters occupied locations with water velocities that ranged from 0.3 to 0.6 mps (1 to 2 fps) in 1990, and 0.4 to 0.8 mps (1.3 to 2.5 fps) in 1991.

Based on a comparison of population estimates made in 1982 and 1990, Kootenai River white sturgeon declined from an estimated 1,194 fish (range of 907 to 1,503) (Partridge 1983) to approximately 880 fish (range of 638 to 1,211) (Apperson and Anders 1991). The Bonneville Power Administration (BPA) (1993), commenting on the proposed rule, believes that the population has further declined in 1993 to an estimated 785 individuals (range 569 to 1,080) based on recent estimates of annual mortality and no natural recruitment since 1990.

The population is reproductively mature, with few of the remaining white sturgeon younger than 20 years old (Apperson 1992). The Idaho Department of Fish and Game (IDFG) estimates that 7 percent of the female, and 30 percent of the male white sturgeon in the Kootenai River are reproductive each year (Apperson 1992). Based on a 1:1 sex ratio, this translated into 22 to 42 females and 96 to 182 males available to spawn in 1990. The actual number of available spawners is dependent upon size at maturity and spawning frequency. It is not certain at what age reproductive senescence occurs in white sturgeon, although most sturgeon species reproduce in the age brackets of 10 to 20 years for males and 15 to 25 years for females (Doroshov 1993).

There has been an almost complete lack of recruitment of juveniles into the

population since 1974, soon after Libby Dam began operation (Partridge 1983, Apperson and Anders 1991). The youngest white sturgeon found in recent studies include a single specimen from the 1977 (Apperson and Anders 1991) year class and three specimens from a year class between 1976 and 1978 (BPA 1993). Additionally, no white sturgeon less than 51 cm (20 in) total length were collected in surveys conducted between 1977 and 1982 on the Kootenai River (PSMFC 1992).

Partridge (1983) noted that white sturgeon recruitment was intermittent and possibly decreasing from the mid-1960's to 1974. This is demonstrated by lack of white sturgeon from the 1965 to 1969, 1971 to 1973, and 1975 year-classes. Partridge speculated that the lack of recruitment was due in part to the elimination of rearing areas for juveniles through diking of slough and marsh side-channel habitats, and the increase in chemical pollutants (e.g., copper, zinc) in the river that may have affected spawning success. Based on the most recent annual mortality rate estimate of 0.0374 coupled with continuing zero recruitment in the future, BPA believes the population will further decline to an estimated 648 individuals by 1998, with only 17 to 33 females available to spawn annually (BPA 1993).

Fish community associates include the burbot (*Lota lota*) and several native salmonids: westslope cutthroat trout (*Oncorhynchus clarki lewisi*), rainbow trout (*Salmo gairdneri*), bull trout (*Salvelinus confluentus*), kokanee salmon (*Oncorhynchus nerka*), and mountain whitefish (*Prosopium williamsoni*). Both burbot and spawning kokanee salmon populations have declined dramatically in the Kootenai River since the 1950's. The decline in burbot is not fully understood, but is thought partially due to the changing Kootenai River hydrograph. Several factors are believed to have contributed to the kokanee collapse, primarily a decline in the overall biological productivity due to system dam construction and operations and the introduction of mysid shrimp in Kootenay Lake, an efficient competitor with kokanee for prey (Ashley and Thompson 1993).

Previous Federal Action

On November 21, 1991, the Service included the Kootenai River population of white sturgeon as a category 1 candidate species in the Animal Notice of Review (56 FR 58804), based primarily on the results of field studies conducted by IDFG. Category 1 candidates are taxa for which the

Service has on file enough substantial information on biological vulnerability and threats to propose them for endangered or threatened status. On June 11, 1992, the Service received a petition from the Idaho Conservation League, Northern Idaho Audubon, and Boundary Backpackers to list the Kootenai River population of white sturgeon as threatened or endangered under the Act. The petition cited the continuing lack of natural flows affecting juvenile recruitment as the primary threat to the continued existence of the wild sturgeon population. Pursuant to section 4(b)(3)(A) of the Act, the Service published in the *Federal Register* on April 14, 1993 (58 FR 19401) a determination that the petition presented substantial information indicating that listing the sturgeon population as threatened or endangered may be warranted.

Based upon the petition, status surveys, and other information on file, the Service proposed the Kootenai River population of white sturgeon for listing as endangered on July 7, 1993 (58 FR 36379). The proposed rule included information submitted by various agencies, including IDFG (Apperson 1992; Apperson and Anders 1990; 1991; Partridge 1983), MDFWP (Graham 1981; Graham and White 1985), the Service (Duke et al. 1990; Miller et al. 1991; Parsley et al. 1989) and the British Columbia Ministry of Environment and Parks, Fish and Wildlife (Andrusak 1980). The proposal included a public comment period of 120 days ending November 4, 1993 and gave notice of one public hearing in Sandpoint, Idaho. To accommodate additional public hearings in Bonners Ferry, Idaho, and Libby, Montana, the Service published a notice of public hearing on August 3, 1993 (58 FR 41237). The first comment period on the proposal, which originally closed on November 4, 1993, was extended to November 19, 1993 (58 FR 54549) to provide the public with more time in which to submit comments.

The Service now determines the Kootenai River population of white sturgeon to be an endangered species with publication of this rule.

Summary of Comments and Recommendations

In the July 7, 1993 proposed rule (58 FR 36379), all interested parties were requested to submit comments or information that might contribute to the development of a final determination. The Service also gave notice of a public hearing to be held in Sandpoint, Idaho during the public comment period ending November 4, 1993. On August 3,

1993, the Service published a **Federal Register** notice announcing two additional public hearings to be held prior to the November 4, 1993 close of the comment period (58 FR 41237). Announcements of the proposed rule and notice of public hearings were sent to at least 156 individuals including Federal, State, County, and City elected officials; State and Federal agencies; interested private citizens; and local area newspapers and radio stations. Announcements of the July 7, 1993 proposed rule were also published in six newspapers: the Bonners Ferry Herald, Bonners Ferry, Idaho; Coeur d'Alene Press, Coeur d'Alene, Idaho; the Idaho Statesman, Boise, Idaho; The Spokesman Review, Spokane, Washington; the Tobacco Valley News, Eureka, Montana; and the Western News, Libby, Montana. To accommodate requests for additional public hearings in Bonners Ferry, Idaho, and Libby, Montana, the Service published a notice of public hearings in the **Federal Register** on August 3, 1993 (58 FR 41237). Three public hearings were held on the proposal: from 5 to 8 p.m. on August 24, 1993, in Bonners Ferry, Idaho; from 5 to 8 p.m. on August 25, 1992, in Libby, Montana; and from 1 to 4 p.m. and 6 to 8 p.m. on August 26, 1993, in Sandpoint, Idaho. To provide the public with more time in which to provide comments, the Service published a third notice, on October 22, 1993, extending the comment period 15 days to November 19, 1993 (58 FR 54549).

Thirty-four oral and forty written comments were received on the proposed rule. These included comments from three Federal agencies, four Montana and Idaho State agencies, four Canadian agencies, the Kootenai Tribe of Idaho, Idaho's two U.S. Senators, Montana's U.S. Representative, Idaho's Governor, fifteen County or City officials, and thirty-three individuals or groups. The Service considered all comments, including oral testimony at the three public hearings. A majority of comments opposed the proposed rule. Opposition was based on several factors, including the possible economic impacts of listing the white sturgeon population, and that all causes of decline are not currently known or fully understood. Seven written comments supported the proposed rule and five letters requested additional public hearings. Idaho Senators Larry Craig and Dirk Kempthorne requested that the Service "not proceed hastily towards a decision to list the Kootenai sturgeon" and suggested that the

Service consider "the recovery strategy prepared by the Kootenai Tribe of Idaho." Many commenters provided information pertaining to further research needs, critical habitat, and recovery planning. These comments, in addition to recovery strategies submitted by the Kootenai Tribe of Idaho, Idaho Department of Fish and Game, and Montana Department of Fish, Wildlife & Parks, will be useful in the development of a recovery plan for the Kootenai River population of white sturgeon. Several commenters provided new and substantive biological information applicable to the listing decision. The British Columbia Ministry of Environment, Lands and Parks of Canada submitted information on a fertilization program for Kootenay Lake. The Kootenai Tribe provided additional information on white sturgeon captured in the Kootenai River in 1993, and the BPA provided annual reports describing results from a 1993 white sturgeon monitoring program ongoing in the Kootenai River. Comments of a similar nature or point of concern are grouped for consideration and response. A summary of these issues and the Service's response to each, are discussed below.

Issue 1: Several commenters requested that the Service delay or preclude listing the Kootenai River white sturgeon because too little is known regarding all causes of decline. They also believed there were "obvious uncertainties" regarding the Kootenai sturgeons' current status throughout its range. Some commenters questioned whether population estimates for Kootenai River white sturgeon cited in the proposed rule are a reliable indicator of its current status since the fish moves between the river and Kootenay Lake and additional fish may reside in the lake. Other respondents claim that the Service ignored all potential causes of decline in the proposed rule. Specifically, assertions in the proposed rule that ascribe the primary cause of decline to Kootenai River flow modification such as "the free-flowing river habitat has been modified and impacted from development of the Kootenai River basin." The Lincoln County Board of Commissioners (Montana) believe "other potential causes of decline must be analyzed before a decision is made on the listing of the white sturgeon, while another respondent stated that "information strongly suggest other mechanisms are limiting sturgeon recruitment into the population." Because it appears that the Kootenai

River white sturgeon population has been declining since the mid-1960's, prior to the construction and operation of Libby Dam, additional causes of decline contributing to a lack of recruitment and survival should be investigated. These respondents also suggested that the Service initiate a comprehensive research study to develop additional data on the biological and environmental factors limiting sturgeon recruitment prior to any listing decision.

Service response: The listing process includes an opportunity for the public to comment and provide new information that is evaluated and considered by the Service before making a final decision. Aside from previously cited studies and reports in the proposed rule (58 FR 36379), the Service has reviewed and considered new information regarding distribution and general life history for the Kootenai River population of white sturgeon from BPA (1993), the Kootenai Tribe of Idaho (1993), and Marcuson (1993); information about Kootenay Lake fertilization studies (Ashley and Thompson 1993); and information contained in an independent status review prepared for the Pacific Northwest Utilities Conference Committee (Giorgi 1993).

New information submitted during the comment period reaffirmed that the white sturgeon population continues to decline, and is not more widespread or found in other areas of the Kootenai River basin. According to BPA (1993) and Giorgi (1993), estimates showing a decline in the white sturgeon population from an estimated 1,194 fish (range 907 to 1503) in 1982 (Partridge 1983) to 880 (range 638 to 1,211) in 1990 (Apperson and Anders 1991) are not directly comparable because the 1990 survey occurred in a river sampling reach almost 50 river km (31 river mi) longer. However, both BPA and Giorgi concur the population is declining. The Service believes recent population trends and population estimates accurately reflect the current status of the fish. Trends in population demographics reveal an aging population with no known recruitment of age 1 sturgeon since 1978. Additionally, although mark-recapture studies reveal that white sturgeon move freely between the Kootenai River and Kootenay Lake, there is no evidence that white sturgeon reside or spawn in other tributaries entering Kootenay Lake, British Columbia.

The Service acknowledged in the proposed rule that the white sturgeon population in the Kootenai River has been declining since the mid-1960's.

with limited intermittent recruitment until 1974; and indicated that there are causal factors of decline other than " * * * significant modifications of the natural hydrograph * * * " (58 FR 36379). For example, reduced biological productivity, habitat loss due to diking, poor water quality and contaminants, inadequate regulatory mechanisms, and possibly disease were all identified in the proposed rule as contributing to the decline and affecting recruitment of Kootenai River white sturgeon. Giorgi (1993) also reported that the relationship between recruitment and " * * * spring/summer flow volumes in the Kootenai River is not apparent". Based on year-class comparisons between 1974 (the last year of successful reproduction and measurable recruitment) and recent years with high flow conditions that resulted in no recruitment, Giorgi concluded that if " * * * the linkage between flow levels, spawning, and recruitment were as strong as some have theorized, recruitment from these years should have occurred." The Service believes these types of comparisons are valid only if additional flow-related factors considered important in affecting sturgeon spawning behavior and early age recruitment are considered—the seasonal timing and duration of peak flows to encourage spawning behavior and the effects of load-factoring. For example, recent tracking studies have revealed reproductively mature white sturgeon equipped with radio and sonic transmitters moving upriver to the pre-spawning staging areas downstream of Bonners Ferry around mid-May (Apperson 1992; Marcuson 1993). These fish will commonly stay in the suspected spawning reach immediately upstream through July dependent upon flow conditions and whether they have spawned. In 1974 when the last strong year-class of sturgeon occurred, flows were increasing and remained highest during the May and June period, providing habitat conditions suitable to spawning and survival of eggs/larvae to age 1 recruitment.

Peak flows in the Kootenai River have varied seasonally in each year since 1975 when Libby Dam operations began. Load-factoring has affected the discharge stability at Libby Dam and sustained flows through the spawning reach near Bonners Ferry throughout the spring/summer sturgeon reproduction season. For example, in 1981 flows peaked at Bonners Ferry near the same volume as in 1974, but not until July, while higher than normal natural flows (since 1974) peaked around mid-June in 1990, early May in 1991, and May 15 in

1993. Recent monitoring efforts documented white sturgeon spawning in 1991 and 1993, and some level of spawning has likely occurred in several or most years since 1974. The Service believes the combination of diminished mean discharge since 1974 at Bonners Ferry and the effects of daily and weekly load-factoring on flow fluctuations have adversely affected sturgeon spawning behavior and egg/larval survival which has inhibited recruitment to age 1 since 1974.

In summary, no new significant distributional or demographic information affecting the status of the white sturgeon were reported by any respondent. Moreover, monitoring and survey programs conducted from 1990 through 1993 substantiate conclusions in the proposed rule that the Kootenai River white sturgeon population continues to decline and recruitment has been virtually non-existent since 1974. There is no recent evidence of successful spawning and survival past the egg stage. Existing regulations and experimental flow programs have not been effective in arresting this decline. The Service maintains that this final rule is based on the best information available. The Service also believes that sufficient information is provided on the Kootenai River population of white sturgeon to warrant making a determination on their status under the Act.

Issue 2: Many commenters expressed concerns with the potential economic impacts to hydropower generation, recreation, agriculture and timber harvesting in the Kootenai River basin from listing the Kootenai River population of white sturgeon under the Act. For example, British Columbia (BC) Hydro believes that " * * * some Canadian citizens and all B.C. Hydro ratepayers would be adversely affected by the proposed rule to list the sturgeon * * * as endangered." The Kootenai Valley Reclamation Association was concerned that higher Kootenai River flows during the sturgeon spawning season would increase pumping costs for area farmers growing crops behind levies downstream of Libby Dam. Other respondents requested that the Service consider the potential impacts to recreational boating and resident fisheries at Lake Kootenai from future recovery measures dependent upon storage water regulated at Libby Dam. They also cited the possible negative consequences of implementing the interim flow strategy to benefit sturgeon spawning and recruitment as cited in the proposed rule, including impacts to reservoir refill and the effects of early summer drawdowns in Lake Kootenai.

Service response: Under section 4(b)(1)(A) of the Act, the listing process is based solely on the best scientific and commercial information available and economic considerations are not applicable. The legislative history of the provisions clearly states the intent of Congress to "ensure" that listing decisions are "based solely upon biological criteria and to prevent non-biological considerations from affecting such decisions." (H.R. Rep. No. 97-835, 97th Congress 2nd Session 19 (1982)). Because of the clear intent of Congress to preclude the Service from considering economic and other non-biological impacts in the listing process, the Service has not addressed such impacts in this final rule. However, economic factors are considered when designating critical habitat and during the development of a recovery plan.

Issue 3: Several respondents requested that the Service designate critical habitat during the final rulemaking process so that the potential economic impacts could be evaluated. Boundary County of Idaho officials believed that " * * * To list the sturgeon without addressing critical habitat is a serious disservice to the people of Boundary County and a direct circumvention of the mandates of law * * * ". Another commenter representing the petitioner Idaho Conservation League stated that without critical habitat designation " * * * it seems that the management plans that you (affected agencies) come up with will be out of touch with the direct habitat needs that exist on the ground * * * ".

Service response: Under section 4(a)(3)(A) of the Act, the Secretary shall designate critical habitat to the maximum extent prudent and determinable at the time a species is determined to be threatened or endangered. Critical habitat is not a management plan, but a legally described list of those areas considered essential for the conservation of the species and that may require special management consideration or protection. It should be noted that a designation of critical habitat does not create a wildlife refuge or wilderness area, nor does it close the area to human activity. It applies only to Federal agencies that propose to fund, authorize or carry out activities that may affect areas within designated critical habitat. Although critical habitat may be designated on private or State lands, activities on these lands are not affected by the designation unless they involve Federal authorization or funding. Additionally, critical habitat is not designated within foreign countries or

in other areas outside of United States jurisdiction (50 CFR 424.12(h)).

At the time of the proposed listing determination, critical habitat was not determinable because information necessary to perform the required analysis was not available. Because information sufficient to complete required analyses for a designation is still lacking, critical habitat for the Kootenai River population of white sturgeon is not presently determinable. The Service concludes that the threats to the Kootenai River white sturgeon population and benefits associated with listing justify taking action now, rather than waiting until a full analysis of critical habitat can be completed. See the "Critical Habitat" section below for a complete discussion on the issue of critical habitat designation relative to the listing of the Kootenai River population of white sturgeon. Furthermore, economic analyses conducted on determinations of critical habitat examine the costs attributed to critical habitat over and above costs associated with listing. Consequently, designating critical habitat would not result in an analysis of the costs of listing the sturgeon.

Issue 4: Several commenters maintain that habitat problems should be addressed through existing regulatory processes and not through the Federal listing process. For example, Direct Services Industries, Inc. stated that the "USFWS has incorrectly determined that existing regulatory mechanisms are inadequate to assure conservation and recovery of the sturgeon and promote recovery of its purportedly declining population." They and other respondents also believe that operations at Libby Dam have not been modified to date because the biological needs and requirements of white sturgeon are not currently known. The IDFG also believes that recovery of the sturgeon population is still achievable without listing under the Act if the U.S. Army Corps of Engineers (Corps) would modify Kootenai River flow management to benefit sturgeon recruitment and survival.

Service response: The Service believes that, although the lack of reproduction and successful recruitment is the most immediate threat to the sturgeon population, other factors are also contributing to their decline. In recent years, efforts by various State agencies and the Kootenai Tribe, authorized by the Northwest Power Planning Council (NWPPC) (1987) and funded by BPA, have been undertaken to identify all environmental factors limiting the white sturgeon population in the Kootenai River. Additionally, the Corps and BPA

have committed to providing experimental flows releases from Libby Dam for sturgeon. For example, 400,000 acre-feet of water was released from Libby Dam during May and June 1993 as a test to stimulate sturgeon spawning. However, the experiment was intended only to evaluate possible spawning flow thresholds, not to provide flow or habitat conditions necessary for survival beyond the egg stage throughout the spawning season.

The Corps and BPA, in conjunction with the Bureau of Reclamation (Reclamation), have also developed a flow proposal starting in 1994 based on results of the 1993 experimental flow and water availability in an effort to provide for spawning and recruitment of Kootenai River white sturgeon. The flow proposal includes provisions to "shape" flows from Libby Dam to achieve the "desired" sturgeon flows in 3 out of every 10 years, dependent upon flow forecasts (water availability), and only to the extent that flows will not reduce refill or violate flood control requirements (Corps 1993).

Despite this flow proposal and cooperative monitoring efforts to better comprehend the factors affecting the Kootenai River white sturgeon, there is no long-term commitment to modify dam operations and manage stored water at other times of the year to ensure that sturgeon flows are provided starting in 1994 or other early years of the 10 year cycle. The Corps and BPA continue to prioritize Libby Dam operations to meet other demands, primarily hydropower and recreation, and not for the benefit of Kootenai River white sturgeon or other resident fishes.

In summary, long-term provisions to govern future Libby Dam water management that fully consider the habitat needs of white sturgeon reproduction in the Kootenai River are still required and have not been implemented to date. See Factor D in "Summary of Factors Affecting the Species" for a complete discussion on the inadequacy of existing regulatory mechanisms for the Kootenai River population of white sturgeon.

Issue 5: Several respondents expressed support for the Kootenai River white sturgeon recovery strategy prepared by the Kootenai Tribe of Idaho. The Kootenai Tribal Plan (Plan), submitted during the public comment period, describes a detailed conservation program based on three recovery strategies: (1) the re-establishment of natural spawning, (2) a supplementation program, and (3) additional research. The Pacific Northwest Utilities Conference Committee; Direct Services Industries,

Inc.; City of Bonners Ferry, Idaho; Boundary County Board of Commissioners, Idaho; and Idaho's U.S. Senators Larry Craig and Dirk Kempthorne, among others, endorsed the Plan and requested that the Service implement the Plan in lieu of federally listing the sturgeon. Additionally, the IDFG and MDFWP each submitted recovery strategies that describe their respective recommendations for recovery of the Kootenai River white sturgeon. Both IDFG and MDFWP's recovery strategies are similar in that each relies on re-establishment of natural spawning in years when precipitation provides average or above average water availability, and population augmentation and/or supplementation in below average or drought water years.

Service response: According to section 2(b) of the Act, one of the "purposes of this Act [is] to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." Once a species becomes listed as threatened or endangered, section 4(f) of the Act directs the Service to develop and implement recovery plans for that species. Recovery means improvement in the status of a listed species to the point at which listing is no longer appropriate under the criteria provided in section 4 of the Act (50 CFR 402.02). Two goals of the recovery process are: (1) the maintenance of secure, self-sustaining wild populations of the species; and (2) restoration of the species to a point where it is a viable, self-sustaining component of its ecosystem.

Recovery programs submitted by the Kootenai Tribe of Idaho, IDFG, and MDFWP are basically similar in that their overall goal is to achieve a naturally reproducing, self-sustaining population of Kootenai River white sturgeon. However, each of the three programs differs in its reliance on supplementation as an interim augmentation measure, and for meeting long-term recovery goals. While the Service recognizes that captive propagation and supplementation can be valid conservation tools and assist in recovery efforts, they, by themselves, do not contribute to the maintenance of a secure, self-sustaining Kootenai River white sturgeon population in the wild. For example, if the Service were to implement provisions of any or each of the three agency recovery strategies in lieu of listing, such implementation would not be binding on the Corps or BPA to modify the current Libby Dam operations or flow regime in the Kootenai River for the long-term benefit

of white sturgeon recruitment and survival in the wild. See Factor D in "Summary of Factors Affecting the Species" for a complete discussion on the inadequacy of existing regulatory mechanisms for the Kootenai River population of white sturgeon.

In summary, the Service believes that information contained in each of the three agency recovery strategies will be useful in future recovery planning efforts and the development of a recovery plan. Such a recovery plan would include measures to address all threats to the sturgeon and incorporate provisions that implement realistic, natural flow based solutions within water management constraints for successful white sturgeon recruitment in the Kootenai River.

Issue 6: Several comments were received from Canadian agencies and individuals requesting that the Service consider the international implications of any final listing decision. For example, the Canadian Department of Fisheries and Oceans, while concurring that action must be taken to protect the sturgeon, was concerned that "in protecting the white sturgeon, measures could be implemented which have the potential to impact other non-targeted stocks of Canadian fish." British Columbia Environment also expressed similar concerns regarding impacts to fish resources and recreational angling in area reservoirs and rivers "given the integrated nature of the power grid in B.C., Washington, Idaho and Montana." B.C. Hydro believes listing the sturgeon population will impose adverse environmental, social (recreational), and energy costs on many citizens in Canada.

Service response: As stated previously (Issue #2), listing decisions are to be based solely on the best scientific and commercial information available, and socioeconomic considerations and non-biological impacts may not be considered in listing decisions. The Service shares Canada's concerns regarding possible environmental and economic impacts from any listing decision. The Service will work with Canadian government agencies to promote international cooperation for recovery of the Kootenai River white sturgeon and address potential environmental impacts to other aquatic resources in Canada and the United States.

Issue 7: Many comments were received expressing concerns that any recovery measures implemented for white sturgeon would adversely affect other species in the Kootenai River basin. These resident species include the Idaho State sensitive burbot or ling,

westslope cutthroat trout, and the bull trout. For example, concerns were expressed that future changes in Libby Dam operations to benefit white sturgeon could reduce bull trout access to spawning streams and impact reservoir productivity affecting reservoir bull trout populations. Some respondents believe that future Kootenai River flow management schemes, developed for the benefit of Kootenai River white sturgeon spawning and recruitment, could also reduce the hydroelectric systems flexibility to provide "federally-mandated flows" for listed salmon stocks downstream in the mid-Columbia River, and cause direct and indirect impacts to resident fish species in Lake Koocanusa behind Libby Dam.

Service response: The Service agrees that these are valid concerns. Concerns regarding the possible adverse environmental and non-biological effects from implementing future recovery measures cannot be considered in a decision to list a species. However, these concerns are important in developing recovery measures that take into account environmental effects to other species. The Service will fully consider the environmental effects and consequences of implementing future recovery measures for Kootenai River white sturgeon.

Issue 8: Several commenters requested that the Service prepare an environmental assessment or environmental impact statement under the National Environmental Policy Act (NEPA) for the proposed listing action. For example, Scott Orr of the Montana House of Representatives believes that NEPA is required for the Service to "fully disclose its understanding of what the status of the white sturgeon really is. It would provide the public with the same information the Service has and it would allow the public to completely understand the reasoning behind any decision the Service may make." Additionally, Direct Services Industries, Inc., also maintains that the interim flow strategy developed for white sturgeon spawning and recruitment as described in the proposed rule "would constitute a major federal action significantly affecting the quality of the environment, which would necessitate preparation of an EIS under NEPA."

Service response: As discussed in the NEPA section of this rule, it has been determined that such analyses are not required in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination

was published in the *Federal Register* on October 25, 1983 (48 FR 49244). The Service will consider economic and other environmental factors during the analysis of critical habitat designation and in development of a recovery plan. Federal actions to implement a recovery plan would be subject to NEPA analysis at the time they are proposed.

Issue 9: Two respondents believe that if the Kootenai River population of white sturgeon is provided protection under the Act, it should be listed as threatened instead of endangered. Specifically, without defined threshold criteria to distinguish between a threatened or endangered status, "it will be difficult to develop delisting criteria to rebuild the Kootenai River white sturgeon population."

Service response: The proposal to list the Kootenai River population of white sturgeon as endangered was based on an assessment of the best scientific and commercial information available at the time. In making this final listing determination, the Service has considered the current status of the fish, including population demographics, and continued lack of successful reproduction and recruitment since the mid-1970's. The population had declined to an estimated 880 individuals in 1990, and possibly declined to around 785 individuals in 1993 based upon BPA's (1993) recent estimates. The population may be reaching the age of reproductive senescence, since for most sturgeon species females reproduce between the ages of 15 to 25 years (Doroshov 1993). Although the continuing lack of natural flows affecting sturgeon juvenile recruitment is considered the primary threat to its continued existence, other factors are also contributing to the wild populations' decline. See the "Summary of Factors Affecting the Species" section for a more complete discussion on the factors affecting the white sturgeon's decline. Consequently, the Service has determined that this distinct population of white sturgeon is in danger of extinction throughout its range and therefore fits the Act's definition of an endangered species.

Issue 10: In comments on the proposed rule, BPA stated that two Libby Dam operational decisions cited as examples of other uses taking priority over the needs of Kootenai River white sturgeon need further clarification. Additionally, BPA believes the proposed rule also misinterpreted the level of cooperation between the Service and other State, Federal, Canadian agencies and the Kootenai Indian Tribe in forming the White Sturgeon Technical Committee in June 1992 to

address Kootenai River white sturgeon issues. Specifically, the statement that " * * * Based on discussions and recommendations by the Kootenai River Sturgeon Technical Committee, the Service adopted an interim flow proposal as the basis of any prelisting Conservation Agreement * * * ".

Service response: The two operational decisions in question were described in Factor D of the "Summary of Factors Affecting the Species" section of the proposed rule. The first example occurred during early June 1992. BPA required that water be stored behind Libby Dam for recreational purposes (not as part of an energy exchange as stated in the proposed rule) at the request of B.C. Hydro. As a result, flows dropped from nearly 20,000 cubic feet per second (cfs) to 4,000 cfs (566 cubic meters per second (cms) to 113 cms) in the Kootenai River during the critical spawning period. At that time, three mature female sturgeon tagged with ultrasonic transmitters were staging in the suspected spawning reach near Bonners Ferry when suitable temperature and possibly adequate flow conditions were present. Subsequent to the flow reduction no eggs or larvae or other evidence of spawning were reported for the 1992 sturgeon spawning season.

In the second example, BPA in mid-February 1993 started drafting the nearly 1 million acre-feet stored behind Libby Dam to meet firm power needs. The Service had been working with the Corps to develop an Memorandum of Agreement (MOA) that included a flow regime for 1993 using all or part of this stored water for white sturgeon reproduction. Approximately 400,000 acre-feet of this water ended up being released as the 1993 experimental flow test. As previously described, BPA acknowledged that this experimental test flow was probably insufficient to maximize sturgeon spawning opportunity and ensure egg/larvae survival in 1993, likely contributing to another year-class failure. The BPA also noted that the early drafting " * * * was done consistent with the Pacific Northwest Coordination Agreement * * * " Regardless of the causes, these actions demonstrate the continued reluctance to manage Kootenai River water for most non-hydropower purposes.

Regarding the Sturgeon Technical Committee, the Service agrees that committee members were not authorized to approve future management actions, or did not necessarily support the interim flow proposal. As stated in the proposed rule, the Service adopted the interim flow

proposal based upon the best empirical data and only as a minimum first step to address flow related problems affecting white sturgeon reproduction in the Kootenai River.

In summary, no substantive comments were received indicating that the Kootenai River white sturgeon is more abundant, widespread or less endangered than described in the proposed rule. Opposing comments were based primarily upon concerns that listing of the Kootenai River white sturgeon would affect water management at Libby Dam (and Koocanusa Reservoir) or impact the economy of the Kootenai River basin, rather than information concerning the species status. Because many of these comments focused on recovery concerns, they will be useful in developing recovery options for the Kootenai River population of white sturgeon. Some opposing comments questioned the adequacy of the Service's data, specifically concerning the current status of the population and whether all of the causes of decline have been considered. The Service has continued to gather information regarding the status of the Kootenai River white sturgeon since publication of the proposed rule in July 1993 and believes that this final rule is based on the best scientific and commercial information available. As discussed in detail in the "Summary of Factors Affecting the Species" section, the Service concludes that the Kootenai River population of white sturgeon continues to decline from the combined effects of lack of recruitment and natural mortality and is in danger of extinction.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal Lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their applicability to the Kootenai River population of white sturgeon (*Acipenser transmontanus*) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

The significant modifications to the natural hydrograph in the Kootenai River caused by flow regulation at Libby Dam is considered the primary reason for the Kootenai River white sturgeon's continuing lack of recruitment and

declining numbers (Apperson and Anders 1991). Since 1972 when Libby Dam began regulating flows (though not fully operational until 1975), spring flows in the Kootenai River have been reduced an average 50 percent, and winter flows have increased by 300 percent over normal. As a consequence, natural high spring flows required by white sturgeon for reproduction rarely occur during the May to July spawning season when suitable temperature, water velocity, and photoperiod conditions exist. Spring flows in the Kootenai River below Libby Dam are also normally far below the flows observed in 1974, the last year with appreciable white sturgeon production (Apperson 1992). Flows in 1974 exceeded 35,000 cfs (1,000 cms) during most of the spawning season. The current operation of Libby Dam drastically alters seasonal downstream discharge by storing the natural spring runoff, providing more predictable flows throughout the year, and allowing late summer load factoring (power peaking) flows (Apperson 1992).

Evidence of spawning by Kootenai River white sturgeon has been documented only in 1991 and 1993. In 1990 and 1991, river discharge during the suspected spawning period was atypical for the post-Libby Dam period. Instead of discharge declining through late spring as occurred during 1989 and most prior years following Libby Dam operation, increasing and higher than "normal" flows coincided with increasing water temperatures through June in 1990 and 1991. In both years, mature female sturgeon tagged with ultrasonic transmitters moved from 15 to 110 river km (10 to 68 river mi) upriver and congregated in the 16 river km (10 river mi) reach near Bonners Ferry (Apperson 1992). These migrations coincided with an increase in flows near Bonners Ferry from approximately 24,700 cfs to nearly 42,400 cfs (700 to 1,200 cms) and an increase in water temperature from 8 to 14 °C (46 to 57 °F).

Although no sturgeon eggs were recovered in 1990, 13 eggs were collected in early July 1991 from an artificial substrate placed in the suspected spawning area near river km 243 (river mi 155) at Bonners Ferry, within 0.06 mi (100 m) downriver from the railroad bridge (Apperson 1992). The eggs, estimated to be approximately 3 days of age, were spawned when water temperatures were 14 °C (57 °F) and discharge between June 29 and July 2 ranged from 14,125 to 19,400 cfs (400 to 500 cms). Water velocities where sturgeon eggs were collected were estimated at 2.4 to 3.1 fps (0.8 to 1.0

mps); these velocities were at the lower end of velocity ranges measured in white sturgeon spawning areas during egg collection in the lower Columbia River (1.6 to 9.1 fps or 0.5 to 2.8 mps) (Miller et al. 1991). Although pre-spawning migratory behavior was observed in both 1990 and 1991, the higher than normal Kootenai River flows through the suspected spawning area occurred only for a brief period, with a few viable eggs collected in 1991. Evidence that more than one female spawned successfully, or whether the eggs spawned in 1991 survived past the larval stage, is lacking.

Spawning was also documented during the 1993 experimental test flow (see Factor D below for a more complete discussion of this test flow). Two eggs spawned from two separate females were collected during the test flow period on artificial substrate mats in the same general location where eggs were found in 1991. The first egg was collected on June 10, with an estimated spawning date of June 7. The second egg collected on June 15 was not fertilized. Flows at Bonners Ferry during this period averaged 20,000 cfs (566 cms) with no load-following and water temperatures ranged from 12 to 14 °C (54 to 57 °F). A third egg was collected on July 10 in a D-ring net. However, the egg was dead and the back-calculated time of spawning was not determinable. Although 1993 spawning monitoring efforts were intense, larval sturgeon are normally difficult to collect. Similar to 1991 results, there is currently no evidence that eggs spawned in 1993 survived past the larval stage.

Additional adverse impacts to sturgeon because of reduced spring flow conditions may result from load-factoring or load-following at Libby Dam. Load-factoring, the deliberate practice of artificially raising and lowering river levels over a daily or weekly pattern for peak power generation or recreation, can create rapid changes in tailwater flows and affect depth, temperature, dissolved gases, and other physical-chemical conditions in the tailwater. Load-factoring at Libby Dam is a frequent and sporadic operating practice contributing to routine fluctuations in river elevations of 1 to 3 ft (0.3 to 0.9 m) per day (Kim Apperson, IDFG, pers. comm., 1993). These fluctuations may adversely affect sturgeon spawning behavior and reduce any egg/larvae survival by dewatering early rearing habitats. Because sturgeon spawning coincides with peak flows during spring and early summer, flows within natural fluctuations are considered important in maintaining consistent sturgeon

spawning behavior during the spawning period (Lance Beckman, U.S. Fish and Wildlife Service, pers. comm., 1993).

Kootenai River white sturgeon eggs and larvae are subject to downstream drift and are vulnerable to dewatering from flow fluctuations for 4 to 6 weeks post-spawning. This is especially critical for eggs and larvae deposited in shallow, littoral areas within the 16 river km (10 river mi) stretch downstream of Bonners Ferry. For example, initial study results from Instream Flow Incremental Methodology (IFIM) monitoring in the Kootenai River near Bonners Ferry indicate that potential egg and larval habitats may be exposed or dewatered when flows drop below 11,000 cfs (BPA 1993). Load-factoring also affects and modifies the primary and secondary productivity in lotic ecosystems (Ward and Stanford 1979). White sturgeon normally begin exogenous feeding within 2 weeks following hatching. Therefore, the availability of native benthos, periphyton, and zooplankton suitable as prey organisms is critical to their early survival.

The Service believes that some sturgeon spawning may occur on a periodic, and possibly annual basis in the Kootenai River. However, survival past the age/larval stage is suspect since recruitment (above age 1) was virtually non-existent from 1974 to 1978, and unknown after 1978. For example, three adult white sturgeon were captured in 1993 near Shorty's Island (river mi 141, river km 227) while fishing for broodstock sturgeon (BPA 1993). One fish was estimated at 14 years old, likely spawned during 1978. A second fish was estimated to be 14 to 17 years of age, suggesting it came from the 1975 to 1978 year class(es) while the third fish was not aged because both aging structures (pectoral fin rays) were deformed.

Another contributing factor to the white sturgeon decline is the elimination of side channel slough habitat in the Kootenai River floodplain due to diking and bank stabilization to protect agricultural lands from flooding. Much of the Kootenai River has been channelized and stabilized from Bonners Ferry downstream to Kootenay Lake, resulting in reduced aquatic habitat diversity, altering flow conditions at potential remaining spawning and nursery areas, and altering remaining substrates and conditions necessary for survival. The former slough and side channel areas were considered important rearing and foraging habitat for early age sturgeon and their prey (Partridge 1983).

In summary, these extensive aquatic habitat and flow modifications in the Kootenai River basin are believed to have caused adverse effects on white sturgeon reproduction, recruitment, and survival, and threaten the continued existence of the population.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

All legal commercial and sport harvest for Kootenai River white sturgeon has been eliminated in Idaho, Montana, and British Columbia. However, it is not known what impact, if any, to Kootenai River sturgeon may still be occurring from the illegal harvest.

While no historic evidence of white sturgeon exploitation in the Kootenai River basin during the 1800's exists (PSMFC 1992), sturgeon were utilized by the Kootenai Indians " * * * at least several hundred years ago" (Graham and White 1985). In Idaho, the harvest of white sturgeon in the Kootenai River was first regulated in 1944 when commercial fishing was prohibited and sport fishing restrictions were imposed (Apperson 1992). With increasingly restrictive harvest and length restrictions, an estimated 10 to 20 white sturgeon were harvested per year from 1944 through the mid-1970's. Partridge (1983) reported that although the legal harvest had reached a relatively constant 51 to 52 fish per year over the 1979 through 1981 period, the total number of sturgeon caught was decreasing with fewer fish being released. Partridge also found that only 13 percent (n = 50) of the 342 sturgeon sampled were younger than age 15 and smaller than the legal size of 32 in (92 cm) total length. He concluded that lack of recruitment was limiting the population and fishery. Following this investigation and citing concerns about the status of the population, Idaho terminated the legal sport harvest in 1984, limiting the sturgeon fishery to catch and release only.

In Montana, the harvest of white sturgeon was not restricted prior to 1972 (Apperson 1992). Graham and White (1985) reported that burbot (ling) anglers and fishermen using set-lines harvested sturgeon in the Kootenai River downstream of Kootenai Falls during the 1940's and 1950's. Beginning in 1972, harvest was restricted to two sturgeon per year with a slot (size) limit of between 36 and 54 in (102 to 183 cm). Over a 6-year period, 5 to 18 sturgeon were harvested annually. Fishing for sturgeon in Montana has been prohibited since 1979, and the species

is now classified as a "Species of Special Concern" (MTNHP 1993).

In British Columbia, the white sturgeon harvest was first regulated in 1952 (Apperson 1992). During the 1974 through 1989 period, anglers were required to secure a permit to fish for white sturgeon and allowed to harvest one white sturgeon per year over 1 m total length. An average of 55 permits were issued annually from 1973 to 1980 with an estimated annual legal and illegal harvest of 10 to 20 fish (Graham 1981). Most sturgeon angling occurred on or near the Kootenai River delta or in the river. Setlining for white sturgeon in British Columbia was prohibited in 1989, and a total ban on the sport harvest was imposed in 1990. Current regulations allow catch and release only for white sturgeon in Kootenay Lake.

A few adult white sturgeon are collected each year for experimental culture purposes. The Kootenai Tribal Experimental Hatchery in Bonners Ferry, Idaho, is currently evaluating factors limiting recruitment, including the relationship between water quality and gamete viability, as well as habitat use and survival of juvenile white sturgeon released into the Kootenai River. Collection for experimental culture purposes does not appear to be a threat at this time. The BPA recently completed an evaluation of a captive broodstock program to determine the environmental impacts and genetic risk of supplementation on the remaining wild white sturgeon population in the Kootenai River (Kincaid 1993).

C. Disease or Predation

Not known to be applicable. However, the potential exists for disease to enter the wild Kootenai River white sturgeon population through the release of hatchery raised sturgeon, such as those from the Kootenai Tribe's experimental hatchery. Diseases known to occur in white sturgeon hatcheries include bacterial diseases, protozoans, fungi, adenovirus, and the white sturgeon iridovirus (WSIV) (PSMFC 1992). Many of these causative diseases are commonly found in natural water systems, while the WSIV pathogen is thought to reside naturally in several wild populations of white sturgeon. During late November 1992, an outbreak of the WSIV killed most of the nearly 23,000 fingerling Kootenai River white sturgeon being raised at the Kootenai Tribe hatchery, and the IDFG hatchery at Sandpoint, Idaho. High fish densities and low dissolved oxygen conditions at the hatchery at the time of the WSIV outbreak were considered contributing factors. According to BPA (1993), WSIV problems at the experimental hatchery

have been alleviated by installing additional tanks and supplying additional water. Although it appears that white sturgeon fingerlings are most susceptible to WSIV when confined under hatchery rearing conditions, the Service is concerned that WSIV and other diseases in wild white sturgeon reared in hatcheries may also be transmitted to the remaining wild population when released.

Fish predation may be a contributing source of mortality for Kootenai River white sturgeon eggs and larvae, although no data to support this suggestion exists specific to the Kootenai River. In the Columbia River downstream of McNary Dam, common carp (*Cyprinus carpio*), largescale suckers (*Catostomus macrocheilus*), and northern squawfish (*Ptychocheilus oregonensis*) have been collected with white sturgeon eggs in their stomachs (Duke et al. 1990).

D. The Inadequacy of Existing Regulatory Mechanisms

The IDFG currently classifies the Kootenai River population of white sturgeon as endangered, which it defines as "any species in danger of extinction throughout all or a significant portion of its Idaho range" (IDFG 1992). While such designation regulates the take or possession of those species classified as threatened or endangered, the State lacks authority to impose or implement additional conservation measures to ensure survival or recovery of the Kootenai River population of white sturgeon.

In Montana, the Kootenai River white sturgeon is classified as a "Species of Special Concern" (MTNHP 1993). The fish is currently managed under restricted harvest regulation, with catch and release only and possession prohibited. Similar to Idaho, Montana also lacks authority to impose additional conservation measures on flow management at Libby Dam to benefit white sturgeon.

The Corps regulates the management of water at Libby Dam. The Libby Dam project was authorized by Title II of Public Law 81-516, the Flood Control Act of 1950, primarily for flood control, hydropower generation, and recreation purposes (Corps 1984). Present Corps policy states that equal consideration should be given to environmental concerns in accordance with project objectives. However, other than providing minimum flow releases of 4,000 cfs (113 cms) from Libby Dam to maintain rainbow trout habitat downstream, permanent operational flow alternatives for Libby Dam to

benefit white sturgeon recruitment have not been implemented.

Because operation of Libby Dam is considered part of the Coordinated Columbia River System, BPA is also involved in the management of Kootenai River operations. The Coordinated Columbia River System refers to all projects operated under at least three authorities: The Columbia River Treaty, the Pacific Northwest Coordination Agreement, and Federal flood control statutes. The Columbia River Treaty of 1961 between Canada and the United States provided for the building of four storage reservoirs including Libby Dam, in the upper Columbia River drainage, primarily for flood control and power production. The Pacific Northwest Coordination Agreement, an intricate contract between the Corps, BPA, and Reclamation, calls for the planned operation to accommodate all of the authorized purposes of the Columbia River hydropower system. These authorized purposes include flood control, navigation, irrigation, and power production (System Operation Review Interagency Team 1991).

The aforementioned treaty and contract, and various Federal flood control statutes, have established stringent planning and operation criteria for the Columbia River system. In addition, alternative operational scenarios for the 14 Federal hydro projects of the Coordinated Columbia River system are being developed and analyzed by the Systems Operations Review (SOR) program. The Resident Fish Technical Work Group of SOR is evaluating alternative operations at each of the Federal projects that address the needs of Kootenai River white sturgeon, and other resident fishes. At the time of this rule, the SOR is still undergoing NEPA review and analysis. Therefore, operational changes at Libby Dam to benefit white sturgeon and other resident fish in the Kootenai River basin resulting from the SOR process are not likely to be implemented any time soon.

The Service joined efforts in June 1992 with IDFG, MDFWP, the Corps, the Kootenai Tribe, and other U.S. and Canadian regional agencies to form a Kootenai River White Sturgeon Technical Committee (Committee). The goal of the Committee was to identify factors affecting Kootenai River white sturgeon and develop a regional, prelisting recovery strategy that would form the basis of a Conservation Agreement (CA) or Memorandum of Agreement (MOA) between the Service and the various agencies. The Service noted the MOA would need to include measures to remove threats to the sturgeon and include long-term

provisions to modify flows in the Kootenai River below Libby Dam that would result in successful spawning and recruitment.

Based on discussions and recommendations by some members of the Committee, the Service adopted an interim flow proposal as the basis of any prelisting CA or MOA. This alternative attempted to match flows of 1974, the last year of successful reproduction and measurable recruitment to the population, but reduced peak flows to 35,000 cfs (1,000 cms) to minimize flooding impacts and dike damage at Bonners Ferry and reduce nitrogen supersaturation effects below Libby Dam. The interim flow strategy specified that discharge from Libby Dam be regulated so that river flows through the suspected spawning reach near Bonners Ferry stay at the 35,000 cfs (1,000 cms) discharge throughout the white sturgeon spawning, egg incubation, and early rearing period. The flow strategy also contained provisions to eliminate peak-loading during the enhanced flow period. Prior to publication of the proposed rule (58 FR 36379), the Service was unable to successfully negotiate a CA to implement the interim flow proposal developed by the Committee.

Partially as an outcome of the Committee discussions, the Corps and BPA provided 400,000 acre-feet of water from Lake Koocanusa as a test flow to stimulate white sturgeon spawning in 1993. The water was initially stored to provide flows for federally listed salmon in the lower Columbia River. However, the water was shaped and released in a manner to provide a test for white sturgeon. This water was released from Libby Dam between May 28 and June 16 to elevate Kootenai River flows at Bonners Ferry to approximately 20,000 cfs (566 cms), to provide information about sturgeon spawning activity at that flow (BPA 1993). BPA acknowledges that the duration of the 1993 test flow " * * * was probably not sufficient to allow all white sturgeon an opportunity to spawn." Intensive egg sampling and monitoring by the IDFG and Kootenai Tribe of Idaho during and following the test flow period collected three sturgeon eggs, presumably spawned by at least two female sturgeon. Based on monitoring results from the 1991 and 1993 spawning test flow, the Corps and BPA have suggested that white sturgeon will successfully spawn at flow levels lower than the 'shaped' 35,000 cfs peak flows some members of the Committee, including the Service, believe are needed to maximize sturgeon reproduction opportunities (BPA 1993; Corps 1993). Subsequently, these

agencies have proposed an alternate flow strategy to provide for " * * * maximum spawning opportunity" in 3 out of 10 years starting in 1994 based on research to date and dependent upon flow forecasts and water availability. General provisions are as follows:

In May, release flows to maintain 15,000 cubic feet per second at Bonners Ferry, Idaho, as local inflow subsidies. Increase flows to 20,000 cubic feet per second at Bonners Ferry beginning at the time when water temperatures there have reached 12–13° C, and maintain for 25 days for sturgeon spawning. Commencement of 20,000 cubic feet per second flows would generally occur in early June. Flows would be reduced over 3 days to 11,000 cubic feet per second at Bonners Ferry and maintained for 28 days. Load following would be eliminated during May through July in years that proposed sturgeon flows are attempted.

The Service considers the proposal an acknowledgement by the water management agencies that flows are indeed an important component affecting sturgeon recruitment and is encouraged that the effects of flow stability, i.e., duration of and load-factoring, on sturgeon reproductive success are addressed in the flow proposal.

However, the Service believes the proposed action is deficient in at least four areas: (1) The flow proposal is not based on empirical evidence or data to support the conclusion that sturgeon spawning opportunity will be maximized throughout the potential reproductive season; (2) there is no agency commitment to initiate proposed sturgeon flows early in the 10 year cycle. For example, the flow proposal as currently worded would allow enhanced flows to start in year 7 or 8; (3) providing sturgeon flows each year is solely dependent upon "above average" water availability and will not reduce refill in Lake Koocanusa; and (4) there are no provisions to adjust flows or modify operations in future years if monitoring demonstrates a need for additional flows for white sturgeon recruitment. Additionally, the question whether successful natural recruitment 3 out of 10 years is sufficient to maintain this population still needs to be addressed.

In summary, the BPA and the Corps have committed to only providing experimental flows for white sturgeon in some years with several qualifying conditions. They have not yet committed to implement long-term conservation measures on Libby Dam operations for non-hydropower purposes, specifically to protect and enhance recruitment opportunities for white sturgeon in the Kootenai River

basin. Additionally, BPA has previously stated that additional conservation measures to benefit sturgeon would be available if the species were listed.

The Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Power Planning Act) was a recent attempt by the U.S. Congress to address the hydropower impacts on fish and wildlife in the Columbia River system. The Power Planning Act directed the NWPPC to " * * * promptly develop and adopt * * * a program to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries" (16 U.S.C. 839b(h)(1)(A)). BPA has been charged with funding all efforts and projects to protect, mitigate, and enhance fish and wildlife consistent with the NWPPC's Program. Ongoing efforts by various State agencies and the Kootenai Tribe, authorized by the NWPPC (1987) and funded by BPA, have been undertaken to identify environmental factors limiting the white sturgeon population in the Kootenai River, and develop and maintain an experimental white sturgeon culture facility on the Kootenai River. Despite these efforts to better comprehend the factors affecting the Kootenai River white sturgeon, a change in the flow regime associated with dam operation on the Kootenai River is still needed to enable this population to successfully reproduce and increase in size.

In summary, the Corps and BPA have committed to experimental flow releases from Libby Dam for Kootenai River white sturgeon in possibly 3 out of the next 10 years. However, providing these flows is contingent upon meeting other project priority uses. The proposed action increases discharge and sustains flows in the Kootenai River at only 57 percent of the discharge the Service believes is necessary to maximize sturgeon spawning and maintain suitable larval rearing habitats. Existing regulatory mechanisms are not sufficient to ensure the survival and recovery of this species.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Although not fully understood, there is evidence that the overall biological productivity of the Kootenai River downstream of Libby Dam has been altered. Based on limnological studies of Kootenay Lake, Daley et al. (1981) concluded that the construction and operation of Libby Dam (and Duncan Dam, Canada) " * * * has drastically altered the annual hydrograph and has resulted in modifications to the quality of water now entering the lake by removing nutrients, by permitting the

stripping of nutrients from the water in the river downstream from the dam, and altering the time at which the nutrients are supplied to the lake." Potential threats to the Kootenai River white sturgeon from declining biological productivity include: (1) decreased prey abundance and limited food availability for all life stages of sturgeon downstream of Libby Dam, (2) reduced condition factor in adult white sturgeon, possibly impacting fecundity and reproduction, and (3) a possible reduction in the overall capacity for the Kootenai River and Kootenay Lake systems to sustain substantial populations of white sturgeon and other native fishes. The British Columbia Ministry of Environment, Lands and Parks is currently experimenting with fertilization of Kootenay Lake to increase biological productivity and enhance native fisheries (Ashley and Thompson 1993). Beginning in 1993, BPA funded IDFG and Idaho State University to study primary productivity, community respiration, and nutrient cycling in the Kootenai River from Libby Dam downstream to Kootenay Lake (BPA 1993). It will be several years before results from these studies explain what extent, if any, reduced biological productivity has been a contributing factor to the Kootenai River white sturgeon's population decline.

Poor water quality and excessive nutrients in the Kootenai River were once considered major problems for the white sturgeon and other native fishes prior to the construction and operation of Libby Dam. Graham (1981) concluded that poor water quality conditions in the 1950's and 1960's resulting from industrial and mine development most likely affected white sturgeon reproduction and recruitment. Poor water quality, i.e., heavy metals and other contaminants, may have affected white sturgeon reproductive success and impacted their prey base.

Major sources of pollution in the Kootenai River basin were effluents from a lead-zinc mine and concentrator; a fertilizer processing plant; and sewage treatment plants on the St. Mary River (an upstream tributary in Canada); and a vermiculite mine and processing plant 11 river km (7 river mi) upstream of Libby, Montana. Significant improvements in Kootenai River water quality were noted by 1977, due in part to waste water control and effluent recycling measures initiated in the late 1960's.

Today, many of these pollutants and contaminants persist, primarily bound in sediments. Apperson (1992) noted that detectable levels of aluminum,

copper, lead, zinc, and strontium were found in sturgeon oocyte (egg) samples from the Kootenai River along with detectable levels of PCB's and pesticides. However, other than copper the detectable levels of these compounds (e.g., PCB's, organochlorines, zinc) were either (1) lower than levels found in other Columbia River basin sturgeon populations that successfully reproduce, or (2) not enough is known regarding the toxicity of these pollutants to sturgeon. Partridge (1983) expressed concerns that contaminants, primarily high concentrations of copper and zinc, may inhibit survival of white sturgeon eggs and larvae. Apperson (1992) believed that " * * * concentrations of copper found in white sturgeon oocytes potentially present the most severe contaminant effect on reproductive success" since some of the copper concentrations found in water samples taken in the Kootenai River were in the range of levels known to inhibit yolk uptake in larval white sturgeon.

One of the initial objectives of the Kootenai Indian Tribe's experimental hatchery was to determine the relationship between water quality (including toxicants) and gamete viability. Initial culture efforts documented successful fertilization and incubation, and that sturgeon gametes (i.e. eggs and sperm) from wild sturgeon are generally viable (Apperson and Anders 1991). While this demonstrates that wild sturgeon eggs are viable when spawned under hatchery conditions, the effects of heavy metals, organochlorines, and other contaminants in Kootenai River waters and sediments on the reproductive success of wild sturgeon is unknown.

Sturgeon eggs and embryos are sensitive to pollutants, with some heavy metals known to be toxic at very minute concentrations (Dettlaff et al. 1993). Georgi (1993) notes that the chronic effects of wild sturgeon spawning in "chemically polluted" water and rearing on contaminated sediments, in combination with bioaccumulation of contaminants in the food chain, is possibly impacting the successful reproduction and early age recruitment to the Kootenai River white sturgeon population. In summary, the degree to which poor water quality, sediment, and prey base contamination are factors threatening Kootenai River white sturgeon survival are not known, and remain potential threats to the species.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the species in determining to issue this rule.

Based on this evaluation, the preferred action is to list the Kootenai River population of white sturgeon (*Acipenser transmontanus*) as endangered because the population has been declining since the mid-1960's. The remaining population in 1993 is estimated at 785 individuals (range 569 to 1,080) based on estimated annual mortality rates and recent zero recruitment, with most individual sturgeon older than 20 years of age. There has been almost no recruitment of juveniles into the population since 1974 and the population may be reaching a stage of reproductive senescence.

The reduced river flows during the critical spring spawning and early rearing season as a result of the operation of Libby Dam has impacted recruitment since the mid-1970's, and threatens the continued existence of this population. The population also faces threats from reduced biological productivity, and possibly poor water quality and the effects of contaminants. Because this distinct population of white sturgeon is in danger of extinction throughout its range, it fits the Act's definition of an endangered species. For reasons discussed below, critical habitat is not being proposed at this time.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. Regulations implementing section 4 of the Act provide that a designation of critical habitat is not determinable when one or both of the following situations exists: (1) Information sufficient to perform required analyses of the impacts of the designation is lacking, or (2) the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat (50 CFR 424.12). The Service has completed its analysis of the biological status of the Kootenai River population of the white sturgeon, yet has not completed the analysis necessary for the designation of critical habitat. The Service has decided to proceed with the final listing determination now and to consider the designation of critical habitat in a separate rulemaking.

Consequently, the Service has determined that critical habitat for the Kootenai River population of white sturgeon is not presently determinable because information sufficient to perform the required analyses of the impacts of such a designation is lacking. The Service will continue to gather and review information concerning habitat

requirements of this sturgeon and has identified several activities that may adversely impact those habitats. For example, the Service has identified the lack of natural flows in the Kootenai River below Libby Dam as the primary threat to this white sturgeon population. Other than a need for basic understanding of streamflow conditions necessary for providing spawning and early rearing habitat during the normal May through July sturgeon spawning season, the life history requirements for other life stages of white sturgeon are not sufficiently well known to permit identification of an area in the Kootenai River basin as designated critical habitat. Additionally, many Kootenai River white sturgeon migrate freely throughout the Kootenai River system and spend part of their life in Kootenay Lake in British Columbia, Canada. Critical habitat designation is not allowed outside the United States since only Federal agencies are under the jurisdiction of section 7 of this Act.

The Service is still gathering and reviewing information on the life history needs of the Kootenai River population of the white sturgeon and the potential economic consequences of designating critical habitat. Additional biological information that may be useful in designating critical habitat for Kootenai River white sturgeon may include identification of specific river areas necessary for spawning, reproduction, and rearing of offspring; and water quantity, temperatures, and velocity in the Kootenai River required to meet some life history need (e.g., spawning and early rearing). Economic considerations in critical habitat designations are only the economic costs and benefits of additional requirements or management measures likely to result from the designation that are above the economic effects attributable to listing the population.

The Service concludes that the threats to the Kootenai River white sturgeon population and the benefits associated with listing justify taking action now, rather than waiting until a full analysis of critical habitat is completed. Protection of the sturgeon's habitat will be addressed through the recovery process and through section 7 consultations to determine whether Federal actions are likely to jeopardize the continued existence of the species.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions

against certain activities. Recognition through listing results in public awareness and conservation actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions may be initiated following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal actions that may be affected by this listing include the continued operation of Libby Dam and Kootenai River flow management by the Corps. The Corps would be required to consult with the Service on the previously mentioned Libby Dam operations. Bonneville Power Administration would be required to consult with the Service regarding the Kootenai River white sturgeon research program authorized by the Northwest Power Planning Council (1987) and funded by BPA. In addition, consultation by the Corps, BPA, and Reclamation may be necessary if the SOR process results in a change in the operation or reauthorization of the Joint Coordination Columbia River System.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture,

collect, or attempt any such conduct), import or export, transport in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing endangered species permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

Requests for copies of the regulations on listed wildlife and inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, Oregon 97232-4181 (telephone 503/231-2063, facsimile 503/231-6243).

National Environmental Policy Act

The Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Idaho State Office (see ADDRESSES section).

Author

The primary author of this final rule is Stephen D. Duke, U.S. Fish and Wildlife Service, Idaho State Office (see ADDRESSES section); telephone (208) 334-1931.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is hereby amended as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Section 17.11(h) is amended by adding the following, in alphabetical

order under FISHES, to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
FISHES							
Sturgeon, white	<i>Acipenser transmontanus</i>	U.S.A. (AK, CA, ID, MT, OR, WA), Canada (BC).	U.S.A. (ID, MT), Canada (BC), (Kootenai R. system).	E	549	NA	NA

Dated: August 19, 1994.

Mollie H. Beattie,

Director, Fish and Wildlife Service.

[FR Doc. 94-21864 Filed 9-2-94; 8:45 am]

BILLING CODE 4310-35-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 663

[Docket No. 931249-3349; I.D. 082294A]

Pacific Coast Groundfish Fishery

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Fishing restrictions; request for comments.

SUMMARY: NMFS announces an increase in the cumulative trip limit for the *Sebastes* complex caught south of Cape Mendocino in the groundfish fishery off California. This action is authorized by the regulations implementing the Pacific Coast Groundfish Fishery Management Plan (FMP). This action is designed to keep landings within the 1994 harvest guidelines for the complex while providing for full utilization of the complex and extending the fishery as long as possible during the year.

DATES: Effective from 0001 hours (local time) September 1, 1994, through December 31, 1994. Comments will be accepted through September 21, 1994.

ADDRESSES: Submit comments to William Stelle, Jr., Director, Northwest Region, National Marine Fisheries Service, 7600 Sand Point Way NE., BIN-C15700, Seattle, WA 98115-0070; or Rodney McInnis, Acting Director, Southwest Region, National Marine Fisheries Service, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802-4213.

FOR FURTHER INFORMATION CONTACT:

William L. Robinson at 206-526-6140, or Rodney McInnis at 310-980-4040.

SUPPLEMENTARY INFORMATION: The FMP and its implementing regulations (50 CFR part 663) provide for rapid changes to specific management measures that have been designated "routine." Trip landing limits (including cumulative trip limits) and frequency limits for the *Sebastes* complex are among those management measures that have been designated as routine at 50 CFR 663.23(c)(1)(i)(B). Implementation and further adjustment of those measures may occur after consideration at a single Pacific Fishery Management Council (Council) meeting. *Sebastes* complex means all rockfish managed by the FMP except Pacific ocean perch, widow rockfish, shortbelly rockfish, and thornyheads. A cumulative trip limit is the maximum amount that may be taken and retained, possessed or landed per vessel in a specified period of time, without a limit on the individual number of landings or trips. Cumulative trip limits for 1994 apply to calendar months.

The coastwide cumulative trip limit in the limited entry fishery for the *Sebastes* complex was set at 80,000 lb

(36,287 kg) per month, including no more than 14,000 lb (6,350 kg) of yellowtail rockfish caught north of Cape Lookout (45°20'15" N. lat.), or no more than 30,000 lb (13,608 kg) of yellowtail rockfish caught south of Cape Lookout, and no more than 30,000 lb (13,608 kg) of bocaccio caught south of Cape Mendocino (40°30'00" N. lat.) effective January 1, 1994 (59 FR 685, January 6, 1994). The 1994 *Sebastes* complex harvest guideline is divided into northern and southern management areas along the Washington, Oregon, and California coast. The northern harvest guideline applies to the Vancouver and Columbia subareas, and the southern harvest guideline applies to the Eureka, Monterey, and Conception subareas. In the southern area, the total harvest guideline for the *Sebastes* complex is 13,440 metric tons (mt), which is further allocated between the limited entry (8,920 mt) and the open-access fisheries (4,520 mt).

At the Council's August 1994 meeting in Portland, OR, a review of the *Sebastes* complex landings in the southern area (Eureka-Monterey-Conception) indicated that, through June 1994, approximately 3,805 mt had been landed in both limited entry and open access fisheries. This catch is 7 percent higher than during the same period in 1993. Even at this higher rate, only 8,371 mt (62 percent) of the 1994 *Sebastes* complex southern area harvest guideline and 4,856 mt (54 percent) of the limited entry allocation would be taken during the year, whereas 3,515 mt (80 percent) of the open access allocation is expected to be taken.

The Council also noted that the catch of yellowtail rockfish in the Eureka-Columbia-Vancouver area through June 1994 was 4 percent above the 1993 catch, and that the combined harvest guidelines for that area could be reached by late November 1994. The catch for bocaccio in the Conception-Monterey-Eureka areas through June 1994 was about 33 percent below that in 1992-1993, and it is possible that the overall harvest guideline for bocaccio may not be attained in 1994. However, changes to bocaccio trip limits are not warranted, due to uncertainties in species composition and distribution of the catch between open access and limited entry fisheries.

In order to encourage limited entry vessels to shift their fishing effort south, where the *Sebastes* harvest guideline is not otherwise likely to be achieved, and to reduce the harvest of yellowtail rockfish in the Eureka through Vancouver areas, the Council recommended that the limited entry cumulative trip limit for the *Sebastes* complex caught south of Cape Mendocino be increased from 80,000 lb (36,287 kg) to 100,000 lb (45,359 kg) monthly, with no changes to the existing limited entry cumulative trip limits for yellowtail rockfish caught either north or south of Cape Lookout, bocaccio caught south of Cape Mendocino, or for the open access fisheries. The limited entry cumulative trip limit for the *Sebastes* complex

caught north of Cape Mendocino remains at 80,000 lb (36,287 kg) per month. This action may provide incentive for the limited entry fleet to move south of Cape Mendocino, increasing their focus on other rockfish species while reducing the pressure on yellowtail rockfish in the Vancouver-Columbia-Eureka areas.

Secretarial Action

NMFS announces the following changes to the management measures for the *Sebastes* complex taken by the limited entry fishery, contained in the 1994 fishery specifications and management measures as published at 59 FR 685, January 6, 1994, and modified at 59 FR 23638, May 6, 1994. All other provisions remain in effect.

Paragraph IV C(2)(a) is revised to read as follows:

(2)(a) No more than 80,000 lb (36,287 kg) cumulative of the *Sebastes* complex north of Cape Mendocino, or 100,000 lb (45,359 kg) cumulative of the *Sebastes* complex south of Cape Mendocino may be taken and retained, possessed, or landed per vessel per month. Within the cumulative trip limit for the *Sebastes* complex, no more than 14,000 lb (6,350 kg) cumulative may be yellowtail rockfish taken and retained north of Cape Lookout; no more than 30,000 lb (13,608 kg) cumulative may be yellowtail rockfish taken and retained south of Cape Lookout; and no more than 30,000 lb (13,608 kg) cumulative

may be bocaccio taken and retained south of Cape Mendocino.

Paragraph IV C(2)(e) is added to read as follows:

(2)(e) If a vessel is used to fish north of Cape Mendocino during the month, then that vessel is subject to the trip limit for the *Sebastes* complex taken and retained north of Cape Mendocino, no matter where the fish are possessed or landed. Similarly, if a vessel is used to take and retain the *Sebastes* complex south of Cape Mendocino and possesses or lands the *Sebastes* complex north of Cape Mendocino, that vessel is subject to the northern trip limit for the *Sebastes* complex.

Classification

This action is based on the most recent data available. The aggregate data upon which the determination is based are available for public inspection at the office of the Director, Northwest Region, NMFS (see ADDRESSES) during business hours.

This action is taken under the authority of 50 CFR 663.23(c), section III.C.1. of the Appendix to 50 CFR part 663, and is exempt from OMB review under E.O. 12866.

Dated: August 30, 1994.

David S. Crestin,

Acting Director, Office of Fisheries Conservation and Management National Marine Fisheries Service.

[FR Doc. 94-21815 Filed 8-31-94; 9:16 am]

BILLING CODE 3510-22-P