

petition presents substantial scientific or commercial information indicating that listing the lower Kootenai River burbot may be warranted. We are initiating a status review to determine if listing this population is warranted.

DATES: The finding announced in this document was made on September 14, 2001. To be considered in the 12-month finding for this petition, information and comments should be submitted to us by November 27, 2001.

ADDRESSES: Information, comments, or questions concerning this petition should be submitted to the Supervisor, Upper Columbia River Basin Field Office, U.S. Fish and Wildlife Service, 11103 E. Montgomery Drive, Spokane, Washington 99206. The petition finding, supporting data, and comments are available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Scott Deeds at the above address or telephone (509) 893-8007.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(A) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), requires that we make a finding on whether a petition to list, delist, or reclassify a species, or to revise a critical habitat designation, presents substantial scientific or commercial information to demonstrate that the petitioned action may be warranted. To the maximum extent practicable, we make this finding within 90 days of receipt of the petition and publish the finding promptly in the **Federal Register**. If we find that substantial information was presented, we are required to promptly commence a review of the status of the species involved. After completing the status review, we will issue an additional finding (the 12-month finding) determining whether listing is in fact warranted.

On February 7, 2000, we received a petition, dated February 2, 2000, from American Wildlands and the Idaho Conservation League requesting the emergency listing of Kootenai River burbot (*Lota lota*) in Idaho as endangered and the designation of critical habitat concurrent with the listing. Accompanying the petition was supporting information relating to taxonomy, ecology, biology, threats, and past and present distribution.

The petitioners requested listing for the Kootenai River burbot that occur only in Idaho; however, we believe that a consideration of an ecologically based delineation of the population is needed.

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 90-day Finding and Commencement of Status Review for a Petition To List the Lower Kootenai River Burbot as Threatened or Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of petition finding and initiation of status review.

SUMMARY: We, the U.S. Fish and Wildlife Service, announce a 90-day finding on a petition to list lower Kootenai River burbot (*Lota lota*) as an endangered or threatened species pursuant to the Endangered Species Act of 1973, as amended. We find that the

Our analysis addressed a population of burbot that is potentially isolated in the lower Kootenai River, but has the ability to freely migrate between Kootenai Falls in Montana and Kootenay Lake in British Columbia. In all further references to burbot in this potentially isolated portion of the Kootenai basin in Montana, Idaho, and British Columbia, we identify this fish as the lower Kootenai River burbot.

Burbot, also referred to as eelpout or ling, were first described in Europe by Linnaeus in 1758 (American Fisheries Society 1991). They are a cold-water, bottom-dwelling species and the only freshwater member of the otherwise marine cod family (Gadidae). Burbot are extremely elongate or eel-like with marbled body coloration from dark olive to brown on the back contrasted with brown or black; the sides are lighter than the back; and the belly is yellowish white (Simpson and Wallace 1982). Burbot have a distinguishing single slender barbel on the chin. In the lower Kootenai River, burbot can weigh up to 4.5 kilograms (10 pounds) and live up to 15 years (Vaughn Paragamian, Idaho Department of Fish and Game, pers. comm. 2000; Burbot Recovery Strategy [BRS], in draft).

Burbot distribution is circumpolar. In North America, the historic range includes a majority of mainland Canada and several northern States from coast to coast (Scott and Crossman 1973; Simpson and Wallace 1982). Burbot that occur in the Kootenai River basin exhibit three life history strategies in several potentially isolated groups. The burbot that constitute the lower Kootenai River population spend a portion of their life in the South Arm of Kootenay Lake, and then migrate up the Kootenai River during the winter months to spawn in the mainstem river or tributary streams in British Columbia or Idaho (an adfluvial life form, *i.e.*, one that migrates from lake to river and tributary streams for spawning). Kootenai Falls in Montana, present for approximately 10,000 years, physically isolates this population of burbot from the population that occurs above the falls (Paragamian *et al.* 1999). Burbot above the falls are believed to spend their entire lives in the river system (a fluvial life form, *i.e.*, one that spends its entire life in the river or migrates from river to tributary streams for spawning). A burbot population also exists in Lake Koocanusa, a reservoir formed when Libby Dam was constructed near Libby, Montana, in the early 1970s. In the North Arm of Kootenay Lake is a remnant population of burbot that is believed to spend its entire life cycle within the lake ecosystem (lacustrine

life form). A lacustrine population was also known to spawn in the West Arm of Kootenay Lake, but is now believed to be extirpated. Mixing is not believed to currently occur among any of these potentially isolated populations (Paragamian, pers. comm. 2000).

Genetic studies support the belief that the adfluvial burbot that occur in Kootenay Lake and Kootenai River in Idaho and British Columbia constitute the same population, and that they are genetically dissimilar and separate from the burbot above Kootenai Falls (Paragamian *et al.* 1999). Tagging and telemetry studies performed on burbot from Kootenay Lake and the Kootenai River in Idaho and British Columbia also support the conclusion that these fish are likely of the same population (Paragamian 1995a). In addition, none of the more than 400 burbot that have been tagged above Kootenai Falls have ever been documented moving downstream into Idaho or British Columbia (Paragamian *et al.* 1999).

Under natural conditions, burbot in the Kootenai River basin spawn under ice during the winter months in water temperatures below 4° C (39° F) (Simpson and Wallace 1982). The burbot of the lower Kootenai River that spawn in Idaho generally begin migrating up the Kootenai River in November and travel up to 120 kilometers (75 miles) to traditional spawning sites (Paragamian, in draft). Spawning commences in early February and lasts 2 to 3 weeks, as both gamete maturation and arrival to spawning sites are highly synchronous (Arndt and Hutchison, in draft; Eveson, in draft).

Most information suggests that river spawning burbot prefer low velocity areas in main channels or in side channels behind deposition bars, with the preferred substrate consisting of fine gravel, sand, or silt (Fabricius 1954 in McPhail and Paragamian, in draft; McPhail and Paragamian, in draft). Spawning is also known to occur in small tributary streams and is generally believed to take place at night (Simpson and Wallace 1982; McPhail and Paragamian, in draft).

Female burbot are larger than males and, depending on their size, may produce between 50,000 and 1,500,000 eggs (Simpson and Wallace 1982). Male burbot typically reach sexual maturity in 3 to 4 years, with females maturing in 4 to 5 years (BRS, in draft). During spawning, burbot typically collect in a large mass referred to as a spawning ball, with one or more females in the center surrounded by many males (Simpson and Wallace 1982; McPhail and Paragamian, in draft). There is no site preparation during spawning, and

eggs are broadcast into the water column well above the substrate. The eggs are semi-buoyant and eventually settle into cracks in the substrate. Newly hatched burbot drift passively in open water until they develop the ability to swim (McPhail and Paragamian, in draft). Young burbot initially select shoreline areas among rocks and debris for feeding and habitat security.

Burbot prefer cold water and, during summer months, move to the hypolimnion (lower zone of a thermally stratified lake) areas of lakes or deep water pools of large rivers (Simpson and Wallace 1982). Feeding is mostly done at night, with adult burbot feeding almost exclusively on fish. Young burbot feed on a variety of aquatic organisms, such as insects, amphipods, snails, and small fish (Simpson and Wallace 1982). Burbot are most active in the winter when they move great distances to spawn, but are rather sedentary during the non-spawning seasons.

In accordance with our distinct population segment (DPS) policy (61 FR 4721), three elements must be considered in decisions regarding the status of a possible DPS as endangered or threatened under the Act: (1) discreteness of the population segment in relation to the remainder of the taxon to which it belongs; (2) significance of the population segment in relation to the remainder of the taxon; and (3) conservation status of the population segment in relation to the Act's standards for listing. Criteria for all three elements must be satisfied to list a DPS.

Discreteness refers to the separation of a population segment from other members of the taxon based on either (1) physical, physiological, ecological, or behavioral factors; or (2) international boundaries that result in significant differences in control of exploitation, habitat management, conservation status, or regulatory mechanisms. Lower Kootenai River burbot may be discrete in that (1) they are physically isolated from other burbot in the Kootenai River by a natural barrier (Kootenai Falls) and unsuitable habitats between the two populations below the falls, and are believed to be behaviorally isolated from those that occur in the North Arm of Kootenai Lake; (2) they are genetically distinct from burbot above Kootenai Falls (Paragamian *et al.* 1999); and (3) they may be ecologically isolated in that they have a different life history (adfluvial) than those above the falls (fluvial) and in the lake (lacustrine).

Significance refers to the biological and ecological importance or

contribution of a discrete population to the species throughout its range. Examples of significance criteria used in our DPS analysis for burbot in the lower Kootenai River basin include (1) persistence of the discrete population segment in a unique or unusual ecological setting; (2) evidence that loss of the discrete segment would result in a significant gap in the range of the taxon; (3) evidence that the discrete population segment represents the only surviving natural occurrence of the taxon that may be more abundant elsewhere as an introduced population outside of its historic range; or (4) evidence that the discrete segment differs markedly from other populations in its genetic characteristics (61 FR 4721). Lower Kootenai River burbot may be significant in that (1) the loss of this potentially isolated population may cause a significant gap in its range in the U.S., as well as eliminate their only occurrence in Idaho; and (2) they differ genetically from burbot that occur upstream of Kootenai Falls in Montana (Paragamian *et al.* 1999).

The lower Kootenai River once supported a significant number of burbot and provided an important winter fishery to the region. Although declines in burbot numbers in Idaho and British Columbia had been documented as early as 1959, they were still considered relatively stable through the 1960s. Despite fishery regulations implemented in the 1970s, the burbot fisheries in the Idaho and British Columbia portion of the basin collapsed after the construction of Libby Dam in 1972. Only 145 adult burbot have been captured in the Kootenai River in Idaho and British Columbia since 1993 (Paragamian *et al.* 1999). Spawning was known to occur in many tributary streams in Idaho and likely occurred in the river (BRS, in draft). However, recent studies reveal scant evidence of burbot reproduction in Idaho, as no larval fish and only one juvenile fish have been captured since 1993 (Paragamian and Whitman 1999). Currently, the only tributary known to support spawning burbot is the Goat River, which is just north of the Idaho border in British Columbia (Paragamian 1995a; Paragamian, in draft).

Prior to the collapse of the lower Kootenai River burbot population in the 1970s, anglers reported catching more than 40 burbot a night during the winter using setlines. It was estimated that the annual harvest for the sport and commercial fishery was in the tens of thousands of kilograms or several thousand fish annually (BRS, in draft; Paragamian, pers. comm. 2000). However, the annual harvest of burbot

between 1979 and 1983 was estimated at about 250 fish. In Kootenay Lake, the harvest of burbot in 1969 and 1970 was estimated to be 25,000 and 20,000 fish, respectively (BRS, in draft). These estimates represent harvest levels throughout Kootenay Lake and include the adfluvial and lacustrine lifeforms. Concurrent with the decline of burbot in Idaho was the decline in British Columbia and, despite numerous harvest regulations implemented in both Idaho and British Columbia, burbot continued to decline and both fisheries were closed in the 1990s.

The earliest record of burbot sampling by the Idaho Department of Fish and Game (IDFG), from the winter of 1957–58, showed that 199 burbot were collected with only a few days worth of effort (Partridge 1983; Paragamian, pers. comm. 2000). The nets were reported to be full of both young and adult fish. From 1979 to 1983, IDFG personnel captured 108 burbot. They concluded that the abundance of burbot was substantially less than in the 1950s, as the effort in 1979 (8 burbot captured) was similar to that in 1957–58 (199 burbot captured). In 1993, IDFG personnel began a follow-up study to determine the abundance, distribution, reproductive success, movement, and possible limiting factors on the population in the lower Kootenai River. Extensive sampling effort over the last 7 years has resulted in the capture of only 145 adult burbot at a rate of approximately 1 burbot per 30 net days of sampling (Paragamian pers. comm. 2000).

Declines in lower Kootenai River burbot appear to be most strongly associated with habitat modification resulting from the construction and operation of Libby Dam (Paragamian 1993; Paragamian *et al.* 1999). Temperature and flow changes that alter spawning patterns and poor fry survival due to a reduction in food productivity in the river are believed to be the primary threats to burbot (Paragamian 1993; Paragamian and Whitman 1998; Paragamian *et al.* 1999).

Libby Dam was built for power production and flood-water control in the early 1970s. Consequently, the seasonal characteristics of water flow and velocity of the Kootenai River have changed markedly. During the winter, flows are now 300 percent higher than natural levels (Paragamian, in draft). Paragamian (in draft) reported that as a result of power production peaking within any given day, discharge from Libby Dam can range from 113 to 765 cubic meters per second, depending on power demand. Prior to the construction of Libby Dam, the natural conditions of

the lower Kootenai River in Idaho and British Columbia during winter months were relatively stable, with flows ranging from roughly 125 to 200 cubic meters per second. With wintertime flows being more erratic and greatly increased as a result of power peaking and flood control, the spawning migration of burbot is disrupted. This disruption is believed to reduce spawning fitness, stamina, and spawning synchrony, as well as gamete maturation (Paragamian, in draft).

Many studies (*e.g.*, Paragamian 1995a; Paragamian, in draft) since 1993 have determined that burbot movement up the Kootenai River during the pre-spawning migration is significantly greater during low flow test periods (113 cubic meters per second), which were designed to replicate pre-dam conditions, than when Libby Dam is being operated for normal water management and power production (383 to 510 cubic meters per second). The studies showed that once discharge was increased to 510 cubic meters per second after the test periods, burbot drifted back to where they were previously or even further downstream (Paragamian 1995a; Paragamian, in draft).

Laboratory studies have shown that even the largest burbot cannot maintain their position for more than 10 minutes in current velocities greater than 24 centimeters per second (Jones *et al.* 1974). Paragamian (1995b) determined that a discharge velocity of 24 centimeters per second in the lower Kootenai River near Copeland, Idaho, occurs when the discharge is approximately 255 cubic meters per second, indicating that when flows are greater than this, burbot may have difficulty maintaining their position or moving upstream.

In addition to flow change, winter water temperature has increased by 2 to 3°C (4 to 5 °F) since the construction of Libby Dam. This temperature increase is believed to influence the activity level and location of burbot during the pre-spawn migration. Prior to the construction of Libby Dam, many portions of the lower Kootenai River would freeze allowing burbot to spawn under ice in water temperatures between 1 and 3 °C (34 and 37 °F) (Becker 1983 in Paragamian 1995a). Lower Kootenai River temperatures are now 4 to 5 °C (39 to 41 °F) during the winter months and many sections no longer freeze over (Paragamian 1995a). It has also documented that once burbot did ascend the Kootenai River to spawning areas in Idaho, it was after the spawning season, and water temperatures were warmer (7 °C (45 °F))

than burbot prefer for spawning. In addition, behavior indicative of spawning was not documented. Paragamian (1995b) concluded that the prolonged travel time for ripe burbot and the disparity between prevailing water temperatures and preferred spawning temperatures may preclude spawning in Idaho. Since 1994, the examination of five female and ten male burbot (all mature) caught shortly after the spawning season in the spring has indicated all were unspawned (Paragamian, pers. comm. 2000).

The decline in the productivity of the Kootenai River and in Kootenay Lake following the construction of Libby Dam may also be linked to the decline of burbot. Sediment nutrients settle behind Libby Dam in Lake Kooconusa and reduce the nutrient loading to the river. Analyses of macrozooplankton in the lower Kootenai River indicated that there is a scarcity of important foods such as *Daphnia*, *Diaphanosoma*, and *Cyclops* (Paragamian 1995b).

Considering the available information, the lower Kootenai River burbot may be discrete and significant. In addition, the extensive information regarding the population's conservation status, suggests that the lower Kootenai River burbot may satisfy the criteria for listing as a DPS.

We have reviewed the petition and other available information, including published and unpublished agency reports, and information from our files. On the basis of this review, we find that there is sufficient information to indicate that listing the lower Kootenai River burbot as a threatened or endangered species may be warranted. Declines in lower Kootenai River burbot have been most strongly associated with the construction and operation of Libby Dam since the early 1970s. Discharges at the dam for power production and flood control have caused winter flows to increase by 300 percent. Increased water temperatures and decreased food productivity may also be factors associated with the dramatic decline of burbot. While regulatory mechanisms are in place to protect burbot from harvest in the Kootenai River in Idaho and British Columbia, and Kootenay Lake, no conservation efforts currently appear to be recovering the lower Kootenai River burbot population.

In the information provided, the petitioners state that the lower Kootenai River burbot are at significant risk and near demographic extinction, and requested that we protect them through emergency listing. We may issue an emergency rule when an immediate threat poses a significant risk to the well-being of a species. Although the

lower Kootenai River burbot appear to be in danger of extirpation, we do not believe that the threats are so great that extirpation is imminent. Upon receiving the petition, we reviewed the available information to determine if the existing and foreseeable threats posed an emergency. Consequently, we determined that an emergency listing was not warranted at this time, and we sent a letter to the petitioners on April 7, 2000, documenting this decision. However, if at any time we determine that emergency listing of lower Kootenai River burbot is warranted, we would seek to initiate an emergency listing. The petitioners also requested that critical habitat be designated for this species. The designation of critical habitat is not an action that may be petitioned under the Act. However, if the 12-month finding determines that listing the lower Kootenai River burbot is warranted, then the designation of critical habitat would be addressed in the subsequent proposed rule.

Public Information Solicited

When we make a finding that substantial information exists to indicate that listing a species may be warranted, we are required to promptly commence a review of the status of the species. To ensure that the status review is complete and based on the best available scientific and commercial information, we are soliciting information on burbot throughout the entire Kootenai River basin. We request any additional information, comments, and suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested parties concerning the status of lower Kootenai River burbot. We are seeking information regarding historic and current distribution, habitat use and habitat conditions, biology and ecology, ongoing conservation measures for the population and its habitat, and threats to the population and its habitat. In addition, we request information relating to the designation of critical habitat for burbot in the lower Kootenai River.

Of particular interest is information regarding whether the lower Kootenai River burbot satisfies the criteria for listing as a DPS. This includes information on the discreteness and significance of the population segment. Discreteness is the separation of a population segment from other members of the taxon based on either (1) physical, physiological, ecological, or behavioral factors; or (2) international boundaries that result in significant differences in control of exploitation, habitat management, conservation status, or

regulatory mechanisms. The significance of the population segment refers to the biological and ecological importance or contribution of a discrete population to the species throughout its range. For additional information concerning the listing of DPSs under the Act, please refer to our DPS policy (February 7, 1996; 61 FR 4721).

If you wish to comment, you may submit your comments and materials concerning this finding to the Supervisor, Upper Columbia River Basin Field Office, U.S. Fish and Wildlife Service, 11103 E. Montgomery Drive, Spokane, Washington, 99206. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Respondents may request that we withhold their home address, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold a respondent's identity, as allowable by law. If you wish us to withhold your name or address, you must state this request prominently at the beginning of your comment. However, we will not consider anonymous comments. To the extent consistent with applicable law, we will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

References Cited

A complete list of all references cited herein is available on request from the Upper Columbia River Basin Field Office (see **ADDRESSES** section).

Author

The primary author of this document is Scott Deeds, U.S. Fish and Wildlife Service, 11103 E. Montgomery Drive, Spokane, Washington, 99206.

Authority

The authority for this action is the Endangered Species Act (16 U.S.C. 1531 *et seq.*).

Dated: September 14, 2001.

David B. Allen,

Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 01-23913 Filed 9-27-01; 8:45 am]

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