

believe that the inclusion of an area that has the potential for periods of low or no flow as critical habitat will ensure the conservation of the silvery minnow. As such, we believe that the primary constituent elements as described in this final rule could allow for short periods of low or no flow. Because of the difficulties in describing the existing conditions of this area (*see above*) and defining the primary constituent elements to reflect such a flow regime, we solicited comments in the proposed critical habitat designation rule for information related to the designation of critical habitat in this area that may experience periods of low or no flow, and, in particular, the primary constituent elements and how they related to the existing conditions (*e.g.*, flow regime). We did not receive any additional information or comments on these areas to refine the primary constituent elements in this final designation.

Federal agencies with discretion over water management actions that affect critical habitat will be required to consider critical habitat and possibly enter into consultation under section 7 of the Act. These consultations will evaluate whether any Federal discretionary actions destroy or adversely modify critical habitat to the extent that the action appreciably diminishes the value of the critical habitat for the survival and recovery of the species. The adverse modification analysis will likely evaluate whether the adverse effect of prolonged recurring periods of low or no flow is of sufficient magnitude (*e.g.*, length of river) and duration that it would appreciably diminish the value of critical habitat for the survival and recovery of the silvery minnow. For example, the effect of prolonged periods of low or no flow on the habitat quality (*e.g.*, depth of pools, water temperature, pool size) and the extent of fish mortality is related to the duration of the event (Bestgen and Platania 1991). All of these factors will be analyzed under section 7 of the Act, if they are part of an action proposed by a Federal agency. Additionally, any Federal agency whose actions influence water quantity or quality in a way that may affect critical habitat or the silvery minnow must enter into section 7 consultation with us. Still, these consultations cannot result in biological opinions that require actions that are outside an action agency's legal authority and jurisdiction (50 CFR 402.02).

We determined the primary constituent elements of critical habitat for the silvery minnow based on studies on their habitat and population biology,

including, but not limited to the following studies: Bestgen and Platania 1991; Service 1999; Dudley and Platania 1997, 2001, 2002a; Platania and Altenbach 1998; Platania 1991, 2000; Service 2001; Smith 1998, 1999; Hoagstrom 2000; Remshardt *et al.* 2001. The primary constituent elements are as follows:

1. A hydrologic regime that provides sufficient flowing water with low to moderate currents capable of forming and maintaining a diversity of aquatic habitats, such as, but not limited to the following: Backwaters (a body of water connected to the main channel, but with no appreciable flow), shallow side channels, pools (that portion of the river that is deep with relatively little velocity compared to the rest of the channel), eddies (a pool with water moving opposite to that in the river channel), and runs (flowing water in the river channel without obstructions) of varying depth and velocity—all of which are necessary for each of the particular silvery minnow life-history stages in appropriate seasons. The silvery minnow requires habitat with sufficient flows from early spring (March) to early summer (June) to trigger spawning, flows in the summer (June) and fall (October) that do not increase prolonged periods of low or no flow, and a relatively constant winter flow (November through February);

2. The presence of low-velocity habitat (including eddies created by debris piles, pools, or backwaters, or other refuge habitat (*e.g.*, connected oxbows or braided channels)) within unimpounded stretches of flowing water of sufficient length (*i.e.*, river miles) that provide a variety of habitats with a wide range of depth and velocities;

3. Substrates of predominantly sand or silt; and

4. Water of sufficient quality to maintain natural, daily, and seasonally variable water temperatures in the approximate range of greater than 1 °C (35 °F) and less than 30 °C (85 °F) and reduce degraded water quality conditions (decreased dissolved oxygen, increased pH, etc.).

We determined that these primary constituent elements of critical habitat provide for the physiological, behavioral, and ecological requirements of the silvery minnow. The first primary constituent element provides water of sufficient flows to reduce the formation of isolated pools. We conclude this element is essential to the conservation of the silvery minnow because the species cannot withstand permanent drying (loss of surface flow) of long stretches of river. Water is a necessary component for all silvery minnow life-

history stages and provides for hydrologic connectivity to facilitate fish movement. The second primary constituent element provides habitat necessary for development and hatching of eggs and the survival of the silvery minnow from larvae to adult. Low-velocity habitat provides food, shelter, and sites for reproduction, which are essential for the survival and reproduction of silvery minnow. The third primary constituent element provides appropriate silt and sand substrates (Dudley and Platania 1997; Remshardt *et al.* 2001), which we and other scientists conclude are important in creating and maintaining appropriate habitat and life requisites such as food and cover. The final primary constituent element provides protection from degraded water quality conditions. We conclude that when water quality conditions degrade (*e.g.*, water temperatures are too high, pH levels are too low, and dissolved oxygen concentrations are too low), silvery minnows will likely be injured or die.

Criteria for Identifying Critical Habitat

The primary objective in designating critical habitat is to identify areas that are considered essential for the conservation of the species, and to highlight specific areas where management considerations should be given highest priority. In determining critical habitat for the silvery minnow, we have reviewed the overall approach to the conservation of the silvery minnow undertaken by the local, State, Tribal, and Federal agencies operating within the species' historic range since the species' listing in 1994, and the previous proposed (March 1, 1993; 58 FR 11821) and final critical habitat rules (July 6, 1999; 64 FR 36274). We have also outlined our conservation strategy to recover the species (*see* "Exclusions Under Section 4(b)(2) of the Act" section above) and considered the features and steps necessary for recovery and habitat requirements described in the Recovery Plan (Service 1999). We considered information provided by our New Mexico Fishery Resources Office and other biologists, and also utilized our own expertise. We also reviewed the biological opinion issued June 29, 2001, to the BOR and the Corps for impacts to the silvery minnow from water operations in the middle Rio Grande (Service 2001b), and the biological opinion issued to the BOR for discretionary actions related to water management on the Pecos River in NM (Service 2001a). We reviewed available information that pertains to the habitat requirements of this species, including material received during the initial