

Strategy Implementation

Duration

The Strategy is a working document subject to revision and updating on a routine basis, as dictated by new findings, changes in species status, evolving priorities, and completion of conservation actions. It is intended to guide—not mandate—conservation actions and provides a forum for collaboration and coordination. The goals, objectives, and management actions in this Strategy were developed for conservation implementation over a 20-year period. Though some UTRB mussel species live 60 years or longer, within the 20-year timeframe of the Strategy successful recruitment for long-lived mussels can be measured and evaluated. Many of the imperiled fish species live 1–3 years and multiple generations will occur during a 20-year time period, allowing for evaluation of the effectiveness of the Strategy for their conservation. See the Adapting and Monitoring the Strategy and Monitoring Implementation and Effectiveness sections below for additional details.

Approach

To conserve and recover imperiled aquatic species and the UTRB ecosystem upon which they depend, USFWS will focus personnel and financial resources on implementing management actions (Table 4, Appendix 4), as defined by the population management emphasis approach, for species (Tables 10 and 11) and habitats in locations (Table 12) most likely to benefit from these activities. The Strategy will be implemented by USFWS when (1) making decisions regarding priority species on which to focus recovery efforts, both in terms of staff time and resource dollars; (2) discussing species and management priorities for expending traditional Section 6 funds and State Wildlife Grant funds with State agencies; and (3) determining where to focus USFWS recovery and restoration program (e.g., National Fish Hatchery, Partners for Fish and Wildlife, National Fish Habitat and National Fish Passage) efforts. USFWS will implement/complete these management actions with the assistance of our partners and stakeholders.

Implementation, Review, and Revision

As a working document, the Strategy will be implemented, reviewed, and revised as needed. This will entail an annual planning meeting to review projects and set action priorities, and meetings to review and modify the Strategy framework based on experience obtained and data that becomes available during Strategy implementation. A Strategy framework review may be triggered sooner than the 4-year cycle described below if monitoring observations indicate a significant inconsistency with underlying assumptions or it is determined that the framework no longer reflects adequately the current state of knowledge or policies. Additional Strategy framework review and project planning efforts could be triggered by factors such as funding increases/decreases, organizational changes, or other events.

Annual project planning

The USFWS will host annual project planning meetings to discuss completed and ongoing conservation efforts, evaluate lessons learned, and plan future actions and projects. Other agencies and organizations will be asked to participate and help build and strengthen partnerships for shared missions captured by the Strategy. In advance of each project planning meeting, a pre-meeting survey will be sent to a coordinating contact within each participating partner office to request a list of all recently completed, ongoing, and planned actions or projects that may help meet the goals and objectives of the Strategy. The survey will ask respondents to provide (1) titles and brief descriptions, including project purpose, of their organization's recently completed, ongoing, and planned projects/actions; (2) target completion dates; (3) funding details; and (4) project contact information. Survey results will be compiled, disseminated, reviewed, and discussed at project planning meetings. Examples of projects/actions for consideration could involve fish and mussel propagation, stream habitat restoration, population monitoring, and other activities related to conservation and recovery of imperiled aquatic species within the UTRB.

Duties associated with organizing project planning meetings will rotate among the USFWS's Ecological Services Field Offices in North Carolina, Tennessee, and Virginia since these offices have primary responsibility for conservation and recovery of imperiled species within the UTRB. However, other offices/entities may occasionally host the meeting. The office/entity hosting the meeting will (1) solicit and compile pre-meeting survey responses, (2) distribute meeting information, (3) chair the meeting, (4) compile meeting minutes, and (5) make all meeting materials and minutes available to project planning participants via electronic media.

Strategy review and revision

The USFWS will host meetings to review and evaluate the Strategy's effectiveness based on monitoring results, lessons learned, and other available information. Other agencies and organizations will be asked to participate and help build and strengthen partnerships for shared missions captured by the Strategy. This effort will result in modification and/or adaptation of the Strategy, as appropriate. The initial review will take place four years after finalization of the initial Strategy document, and will be coordinated by the USFWS's Southwestern Virginia Field Office. Subsequent reviews will be initiated within four years after the date any new or revised version of the Strategy is signed or deemed final and coordinating offices for future reviews will be determined.

The coordinating office will start the process by reaching out to USFWS staff and partners involved in implementing the Strategy to solicit comments on the most current version of the Strategy and request input on any modifications needed. After reviewing responses, the coordinating office will (1) draft an agenda for a meeting to address comments and suggested modifications, (2) draft a revised Strategy, and (3) propose any other action that will address responses and lead to completion of the review process. Draft agendas, draft Strategy revisions, and other proposed actions will be distributed to all concerned for additional comments and approval. Once agreement is reached on how to move forward with any review, the coordinating office will host the meeting, lead further editing and finalization of any Strategy modifications,

and take other actions agreed to by the group. The coordinating office will be responsible for meeting arrangements; arranging conference calls; distributing/providing access to materials, meeting minutes, and draft products; achieving broad distribution of final products; working toward group consensus on decisions; ensuring any needed modifications to the Strategy are accomplished in a timely fashion; and cooperating with the next coordinating office to ensure a smooth transition for accomplishing future reviews.

Adapting and Monitoring the Strategy

How management can be adapted to new information depends on the frequency that decisions are made and the degree to which uncertainty affects those decisions. For recurrent (e.g., annual) management decisions, management can adapt to changing conditions (e.g., species status) at each decision point. For conservation strategies that are set in place for a period of time, perhaps indefinitely, strategies can employ adaptive management: (1) by periodic review of the framework that provided the rationale for the Strategy; (2) when monitoring observations are significantly inconsistent with assumptions underlying Strategy framework; or (3) at any time when the decision maker(s) determines that Strategy framework components should be revised to reflect new information, new methodologies, or changing values. The framework review and modification (see above) will provide the opportunity to review and adapt the Strategy as warranted.

As the Strategy is translated into specific projects (Figure 8), there will be many opportunities to use formal adaptive management methodologies (Williams et al. 2009, Runge 2011) to reduce key uncertainties and improve management effectiveness. For example, there is some uncertainty in BMPs when augmenting or establishing a population. Adaptive management in combination with controlled research could be a relatively rapid approach to develop BMPs, guiding population management into the future.

Monitoring Implementation and Effectiveness

A monitoring program will provide feedback on implementation and effectiveness of the Strategy. Inference from monitoring must account for multiple management scales—both landscape and local—where management projects are implemented. The monitoring program will measure attributes associated with conservation objectives including measures of recovery (e.g., trend in abundance, occupancy, habitat quality) and operational efficiencies and costs (e.g., staff and operational costs). Status of threats should be considered so that management effectiveness can be determined. Learning can occur by comparing predictions of management effectiveness to observed results, and in that way learning can be used to improve future management implementation. Other design considerations, such as sampling units and frequency, sample size, and location of units, may be determined by examining tradeoffs between the value of the information obtained and associated monitoring costs.

Methods to define sampling units and techniques should follow established guidelines (e.g., Strayer and Smith 2003). Procedures for database management and periodic reporting should be established and followed. Because of the complexity of designing an effective monitoring program, a separate workshop may be needed to coordinate among Federal, State, and NGO