

A National Strategy for the Conservation of Native Freshwater Mollusks

The purpose of this National Strategy is to conserve our nation's native freshwater mollusk fauna and ensure that their ecological, social and economic values to society are maintained at a sustainable level. Specifically, the goal of this document is to identify conservation, management, research, and monitoring actions necessary to maintain and recover mollusk fauna.

Issue 1 – Increase knowledge of the distribution and taxonomy of mollusks at multiple scales over time and make that information available.

Goal: Understand the status and trends of mollusk populations to better manage and conserve species.

Strategies:

1. Continue to refine knowledge of systematics, taxonomy, and genetic structure of species.
2. Update and maintain a database of the accepted scientific nomenclature.
3. Use survey methods that provide data needed for trend analyses.
4. Identify uniform data collection and reporting standards that will support periodic status assessments.
5. Encourage reporting of distribution data.
6. Assess and publish the conservation status of mollusks every 10 years.

Issue 2 – Address the impacts of past, ongoing, and newly emerging stressors on mollusks and their habitats.

Goal: Minimize threats to mollusks and their habitat.

Strategies:

1. Prepare white papers on known stressors (e.g., impoundments, dredging, contaminants, runoff, invasive species, disease) describing the risk and magnitude of effects on mollusks.
2. Describe the impacts of emerging stressors (e.g., climate change, increased energy development, water use conflicts, unregulated contaminants, hormone disruptors) and possible synergistic effects on mollusk populations.
3. Compile comprehensive threats assessments on community, river, watershed, and faunal province spatial scales.
4. Predict how species and communities will change in response to threats.
5. Work with the states and the U.S. Environmental Protection Agency (USEPA) to modify water quality criteria, develop new standards, and modify total maximum daily loads to protect mollusk populations.
6. Advocate for consistent and effective enforcement of environmental protection laws and regulations and evaluate whether existing regulations adequately protect mollusks and their habitats.
7. Develop an early detection and rapid response system for new aquatic invaders.
8. Develop and publish protocols to avoid the spread of disease and invasive species.
9. Describe the ecological and economic impact of parasites on fish, wildlife, livestock, and human health.

Issue 3 – Understand and conserve the quantity and quality of suitable habitat for mollusks over time.

Goal: Increase understanding of physical, chemical, and biological characteristics of habitat to support sustainable assemblages of mollusks.

Strategies:

1. Define habitat requirements at multiple spatial scales (e.g., organismal, population, community, river, watershed, faunal province).
2. Define habitat requirements at multiple temporal scales (e.g., seasonal, annual, long-term), including the quality, quantity, and timing of ecological flows.
3. Quantify the amount of occupied and unoccupied habitat.
4. Identify and conserve habitats that will be resilient to changing climates.
5. Reduce habitat fragmentation and increase connectivity of historical habitats.
6. Conserve and restore habitat through land protection actions such as easements, acquisitions, and landowner agreements along riparian and upland areas within watersheds.
7. Identify best habitat management and restoration practices through evaluation, monitoring, and modeling.
8. Develop and test effective mitigation alternatives for activities that affect habitat.

Issue 4 – Understand the ecology of mollusks at the individual, population, and community levels

Goal: Increase fundamental knowledge of the biology of mollusks so managers can more effectively conserve them.

Strategies:

1. Describe life history and host-species relationships at the appropriate scale.
2. Define environmental and nutritional requirements necessary for physiological maintenance, reproduction, and persistence of all life stages.
3. Describe the ecological functions of mollusks in the environment.
4. Increase knowledge of negative and positive interactions among mollusk species.
5. Increase understanding of demographic, genetic, and physiological characteristics that influence long-term population viability.
6. Encourage development of population viability analyses to better predict species' persistence.
7. Develop population goals for managing rare and common species.

Issue 5 – Restore abundant and diverse mollusk populations until they are self-sustaining.

Goal: Conserve and restore viable populations and communities of mollusks.

Strategies:

1. Develop population and community indices to monitor and evaluate sustainability over time.
2. Develop conservation and restoration plans (e.g., reintroduction or augmentation) at the river, watershed, and faunal province level.
3. Implement restoration that results in self-sustaining populations and does not adversely affect resident fish and mollusk populations and their habitats.
4. Maintain a database of translocation, propagation, and stocking events.
5. Identify uniform methods and metrics for monitoring outcomes of augmentations and re-introductions.

Issue 6 – Identify the ecosystem services provided by mollusks and their habitats.

Goal: Improve science-based consideration of the social and economic values of mollusk communities and functioning aquatic systems.

Strategies:

1. Describe ecosystem services provided by mollusks to humans and river ecosystems.
2. Develop and publish the social and economic values of healthy mollusk communities to society.
3. Update the values and replacement costs of mollusk communities.
4. Publish a comparison of mollusk replacement costs with other biologically engineered mitigation alternatives.

Issue 7 –Strengthen advocacy and build support for the conservation of mollusks and their habitats.

Goal: Increase information sharing and communication among citizens and decision-makers at multiple levels (e.g., local, state, regional, national, international) regarding conserving mollusk resources.

Strategies:

1. Develop a formal communication plan to guide conservation of mollusks into the future.
2. Develop science-based communication tools for local decision makers to build organizational and public support for land-use practices that support healthy aquatic systems including mollusks.
3. Develop communication and outreach materials targeting the general public, and to build awareness, appreciation, and support for conservation of mollusk resources.
4. Empower citizens with necessary outreach materials to advocate for consistent and effective enforcement of laws and regulations or to develop new regulations.
5. Recruit communication specialists to the mollusk conservation community.
6. Work with international partners to develop a global strategy for the conservation of mollusks.
7. Increase collaboration with other aquatic societies.
8. Increase collaboration with other resource agencies and resource groups.

Issue 8 – Educate and train the conservation community and future generations about the importance of mollusks to ensure conservation efforts continue into the future.

Goal: Provide a suite of training opportunities to the greater conservation community, and inspire future generations to work on the conservation of mollusks.

Strategies:

1. Develop and recommend a list of key skills and competencies for mollusk conservation biologists and the supporting disciplines such as communication.

2. Develop and recommend new coursework for the study and conservation of mollusks based on the skills and competencies identified in Strategy 1.
3. Manage a database of training courses, internships, details, and other professional opportunities for students and practicing professionals to gain hands-on experience with mollusk conservation.
4. Provide travel funds for FMCS members to attend training courses, outreach events, educational institutions, college fairs, and job fairs to encourage students interested in biology and natural history to consider careers in mollusk conservation.
5. Develop a FMCS grant program for students and other conservation groups to advance the conservation of mollusks through research and management activities.

Issue 9 – Seek consistent, long-term funding to support mollusk conservation efforts.

Goal: Increase funding for mollusk conservation.

Strategies:

1. Identify and create a database of existing sources of funding for mollusk research and management activities.
2. Take advantage of existing international, national, state, and local grant programs wherever possible.
3. Advocate for prioritization of existing funding to mollusk research and management.
4. Develop guidelines for monetary mitigation banking.