



Mussels of the Missouri National Recreational River

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Abstract

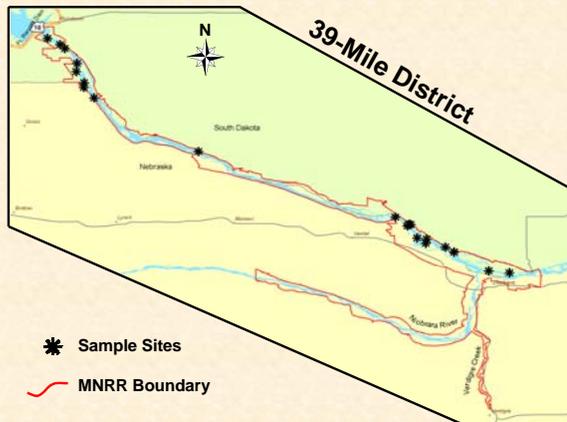
Mussel (*Bivalvia:Unionoida*) surveys of the 59- and 39-mile districts of the Missouri National Recreational River (MNRR) were completed in 1999 and 2004. A total of 1709 dead shells (16 species) and 355 live mussels (8 species) were collected at 47 sites on the 59-mile district. One hundred seventy-one dead shells (7 species) and 51 live mussels (5 species) were collected at 19 sites on the 39-mile district. Mussel beds immediately below Gavin's Point Dam had the highest abundance and diversity within the MNRR. Conversely, no mussel beds were present immediately below Ft. Randall Dam. Gravel substrates within the main channel and silt / clay substrates in backwater and side channel areas provided the best areas for mussel colonization. Shifting sand substrates, such as those found at the Niobrara River delta, were devoid of mussels. Management actions that alter habitat and flow conditions have the potential to impact South Dakota's most diversity mussel community.

Methods

- The 59- and 39-mile districts were surveyed by boat.
- Sandbars, islands and backwater areas were investigated on foot.
- All mussel shells were collected to the practical extent.
- Where large numbers of shells were collected a search for live mussels was conducted.
- Live mussel searches were conducted by wading and diving using hands and feet to sift through the substrate.
- All shells and select vouchers were identified in a lab. Most live mussels were easily identified and returned to the water.

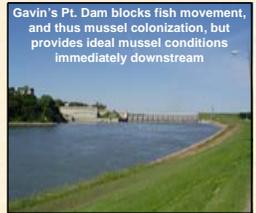


a - present in 59-mile district; b - present in 39-mile district; c - state species of concern; d - federally endangered; e - exotic species



Results

- Mussels were collected at 47 sites from Gavin's Point Dam to Ponca State Park, NE and 19 sites from Ft. Randall Dam to Running Water, South Dakota.
- 19 species were present on the 59-mile district while 7 species were present on the 39-mile district.
- The fragile heelsplitter and pink papershell were the two most abundant species in both districts.
- The pink heelsplitter, white heelsplitter, giant floater and deertoe were common. All other species were rare and only represented by a few specimens.
- The pistolgrip was reported from museum collections, collected in 1977 (Hoke 1983).
- Of the federally listed species within the river one record of the scaleshell exists from 1982 (Hoke 1983). A fresh dead shell of a Higgins eye mussel was collected in 2004. Within South Dakota both species have only been reported in the MNRR and are extremely rare.
- Zebra mussel veligers were documented below Gavin's Point and Ft. Randall Dams during 2003 but not 2004. Asian clams were first documented below Gavin's Point Dam in 2003 and are now present throughout the 59-mile district.



Discussion

- The MNRR, especially the 59-mile district, contains the most diversity mussel community found in South Dakota.
- Habitat alterations (e.g. sandbar construction) and flow changes (e.g. navigation vs. non-navigation) have the potential to severely impact mussel communities.
- Management decisions must ensure that consideration is given to mussel fauna to prevent a loss in community diversity.

Acknowledgements

- Hoke, E. 1983. Unionid mollusks of the Missouri River on the Nebraska border. American Malacological Bulletin 1: 71-74.
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