

Minnesota Pollution Control Agency

Draft Discussion Document: Defining “Water Used for Production of Wild Rice” Minnesota Rules 7050.0224, subpart 2

Draft Version Date: January 7, 2013

This draft document is to facilitate discussions during the upcoming Wild Rice Standards Study Advisory Committee meeting on January 16, 2013 on the approach Minnesota Pollution Control Agency (MPCA) staff are considering to: 1) identify and list certain waters of the state in Minn. R. 7050.0470 as “water used for production of wild rice”, and 2) establish a process and set of criteria by which additional waters will be considered as water used for production of wild rice as new information becomes available. **This is a draft offered to solicit comment and should not be construed to as a final proposed MPCA staff position or approach.**

Information sources to be used to identify water used for production of wild rice for potential inclusion in Minnesota Rules 7050.0470.

- The inventory listing of wild rice waters contained in the Minnesota Department of Natural Resources’ wild rice study document titled Natural Wild Rice in Minnesota submitted to the Minnesota Legislature on February 15, 2008 (MDNR 2008) will be a primary document used to develop the state-wide listing of waters used for production of wild rice in Minn. R. 7050.0470. [http://files.dnr.state.mn.us/fish_wildlife/wildlife/shallowlakes/natural-wild-rice-in-minnesota.pdf – see Appendix B of this MDNR 2008 report] The MDNR 2008 wild rice study document identifies approximately 1,286 wild rice water body locations. Approximately 60% of these waters (777) have wild rice acreage estimates ranging anywhere from 1 – 4,000 acres. The remaining 509 locations do not have reported wild rice acreage estimates noted in the report.
- In addition to the MDNR 2008 report inventory of wild rice waters, the MPCA will consider wild rice information from the following sources as it makes its recommendations for the Minnesota Rules 7050.0470 listings: MDNR aquatic plant data generated by Fisheries surveys and Wildlife/Shallow Lake program surveys; Minnesota County Biological surveys; the MDNR aquatic plant management permitting program; MPCA Lake surveys and Biological Monitoring surveys; U.S. Fish and Wildlife Service National Wildlife Refuge Systems and Water Fowl Production Area monitoring activities; Tribal information, both written and oral documentations that identify specific lakes, wetlands, or river/stream segments; documentation from the 1854 Treaty Authority and the Great Lakes Indian Fish and Wildlife Commission (GLIFWC); citizen wild rice harvesters; representatives from conservation groups (Ducks Unlimited) or educational institutions.

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Listing Approach – Lakes, Wetlands, Rivers, Streams:

- If there is a wild rice acreage estimate noted for a given water body in the MDNR 2008 report, MPCA staff plan to list this water as a water used for production of wild rice in Minn. R. 7050.0470.
- For those waters in the MDNR 2008 report without wild rice acreage estimates, additional waters will also be listed as water used for production of wild rice in Minn. R. 7050.0470 where documentation of aerial extent can be determined prior to rulemaking.
- Waters from the MDNR 2008 report, and from other information sources, where an aerial wild rice acreage estimate is undetermined will be considered for wild rice production waters designation as information becomes available or as needed for permitting considerations in accordance with the criteria outlined below.

Listing Criteria:

For lake and wetland systems –

- Minimum wild rice acreage of one acre (cumulative lake-wide total) with a minimum average density of one wild rice stem per 0.5 square meter will qualify the water as a candidate water used for production of wild rice.
- Aerial extent of wild rice acreage estimates are to be based on GPS measured polygon areas determined by plotting the rough polygon shape(s) that encompasses the wild rice bed(s).
- Listing evaluations of water bodies less than ten acres will factor in basin size relative to wild rice aerial coverage estimates and densities on a case-specific basis.

For river and stream systems –

- Minimum wild rice acreage coverage for river and stream systems is a 0.1 acre cumulative coverage per river mile using a similar density factor as noted above.
- Additional factors such as stream substrate, stream width, stream depth, average summer time stream velocities, adjacent stream wetland areas, and proximity to wild rice producing lake and wetland systems will also be considered in the listing evaluations.

Other Considerations -

- Assessment decisions, and flexibility in the application of the above criteria, may need to be tailored in order to properly address remnant stands of wild rice in formerly highly productive wild rice waters.
- Survey Frequency: Given the natural cyclic nature of wild rice growth, wild rice surveys conducted over three to five consecutive years may be necessary in order to show that a water is not a water used for production of wild rice.
- To the extent information is available, wild rice harvest by humans will be considered in the evaluations to list a water as a water used for production of wild rice. Absence of available wild rice harvest data will not, however, preclude a water from being listed in Minnesota Rules 7050.0470 as a water used for production of wild rice.

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Context of wildlife wild rice seed consumption relative to one acre with a one stem per 0.5 square meter density factor.

Assumptions & Calculations:

- Average daily intake of white rice by one Mallard duck was reported to be 77.18 grams or 0.17 lbs. Source: J. S. Jordan, Consumption of Cereal Grains by Migratory Waterfowl, Journal of Wildlife Management, Vol. 17, No.2 (Apr. 1953) pp.120 – 123. Cited in Restoring Wild Rice in Nett Lake, Minnesota: A Migratory Songbird and Waterfowl Survey and Assessment of Wild Rice Depredation, Fall 2007, (page 7).
- One acre = 43,560 square feet = 4,047 square meters.
- Assume one wild rice stem (with a viable seed head) per 0.5 square meter yields 8,094 wild rice stems with seed heads per acre.
- Assume each seed head produces 33 seeds that, in total, weigh 0.11 grams (dry weight). Source: Barr 2011 Polymet Report. Mean seed count and seed weight for wild rice plants collected from the Partridge River upstream of Second Creek.
- $8,094 \text{ stems} \times 0.11 \text{ grams of seed per seed head} = 890 \text{ grams (approximately two pounds)}$
- $890 \text{ grams} / 77.18 \text{ grams per day} = 11.5 \text{ days-worth of feeding for one mallard, assuming total seed consumption}$
- Calculation Summary – Based on above Mallard duck consumption rate, one acre of wild rice at a density of one wild rice stem per 0.5 square meter provides 11.5 days-worth of feeding for one Mallard duck.