Minnesota Center for
Environmental Advocacy

The legal and scientific voice protecting and defending Minnesota's environment

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July 30, 2008 By electronic mail

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Re: Comments of Minnesota Center for Environmental Advocacy on the State Disposal System (SDS) Permit MNG300000 Ballast Water Discharge General Permit.

These comments are submitted on behalf of the Minnesota Center for Environmental Advocacy ("MCEA"), a Minnesota-based non-profit environmental organization whose mission is to use law, science and research to protect and enhance Minnesota's natural resources, wildlife and the health of its people. One of MCEA's five program areas is wildlife and natural resources, and as part of that program, MCEA has become engaged in issues related to ballast water and the significant threats posed by introducing and spreading aquatic invasive species (AIS) to the Minnesota waters of Lake Superior. We have reviewed the permit and the permit fact sheet to develop these comments. The comments follow the parts specified in the permit fact sheet.

Six reference documents are referenced in this comment letter. These documents are listed here and attached if a web reference is unavailable.

1) Examination of Aquatic Nuisance species introductions to the Great Lakes through commercial shipping ballast water and assessment of control options Phase I & II final report (ASI PROJECT E9225/E9285 Submitted August 1996 Aquatic Sciences Inc. St. Catharines, Ontario in association with Philip T. Jenkins & Associates Ltd. and RNT Consulting). Referred to as "Aquatic Sciences report". (attached)
2) S. Bailey, M. Rup, C. Wiley, M. Minton, W. Miller, G. Ruiz, H. MacIsaac. Looking at Lakers: Domestic shipping as a vector for introduction or spread of aquatic nonindigenous species in the Great Lakes. Slides from a paper presentation at the 2008 meeting of the American Society of Limnology and Oceanography. Referred to as "Bailey presentation". (attached)
3) Great Lakes Shipping, Trade, and Aquatic Invasive Species: Special Report 291 Committee on the St. Lawrence Seaway: Options to

Eliminate Introduction of Nonindigenous Species into the Great Lakes, Phase 2, National Research Council ISBN: 0-309-12437-9, 148 pages, 8.5 x 11, (2008). Referred to as "National Research Council Report". (available at: http://www.nap.edu/catalog.php?record_id=12439)

4) Dobroski, Takata, Scianni & Falkner, *Assessment of the Efficacy, Availability and Environmental Impacts of Ballast Water Treatment Systems For Use in California Waters*, California State Lands Commission, Dec. 2007. Referred to as "California Ballast Water Report".(available at: http://www.slc.ca.gov/Spec_Pub/MFD/Ballast_Water/Documents/Final_TechReport_121307_2.pdf)
5) Grigorovich, I. A., A. V. Korniushin, D. K. Gray, I. C. Duggan, R. I. Colautti, and H. J. MacIsaac. 2003. Lake Superior: An Invasion Coldspot? *Hydrobiologia*, Vol. 499, pp. 191–210. (available at: http://web2.uwindsor.ca/courses/biology/macisaac/55-437/superior.pdf)
6) Ricciardi, A. 2001. Facilitative interactions among aquatic invaders: is an "invasional meltdown" occurring in the Great Lakes? Canadian Journal of Fisheries and Aquatic Sciences 58: 2513 -2525. (available at: http://redpath-staff.mcgill.ca/ricciardi/Ricciardi2001.pdf)

The permit and fact sheet clearly recognize that ballast water discharges into the Minnesota waters of Lake Superior put these waters at risk for additional invasions of AIS. This permit is a long overdue step in the right direction to reduce the risks of new introductions of AIS to the Minnesota waters of Lake Superior from oceangoing vessels and "laker" vessels; however, we believe that the permit is incomplete or falls short in several key areas as follows.

Part II. General Description of ballast water discharge.

This section provides a good overview of the magnitude of ballast water discharges into the Minnesota waters of Lake Superior, the fact that Lake Superior receives substantially more ballast water than any other Great Lakes port, and that both No Ballast on Board (NOBOB) vessels and vessels that are generally restricted to the Great Lakes (lakers) can carry AIS. We suggest adding a reference to the 1996 Aquatic Sciences Report in the fact sheet. The executive summary of this 1996 report states:

"It was found that most ocean going and laker shipping harboured live freshwater organisms which included phytoplankton, zooplankton, and bacteria (human pathogens) in some ballast water samples, regardless of salinity."

Similarly, we suggest you include a reference to the ongoing investigation being conducted by Dr. Bailey of Fisheries and Oceans Canada. Preliminary results of Dr. Bailey's investigation were presented to a ballast water group meeting convened by the U.S. Coast Guard last December. PCA staff were present at this meeting. Additional preliminary results were presented by Dr. Bailey and her colleagues in June, 2008. The preliminary results in the Bailey presentation in June included:

- 69 distinct taxa identified in Laker ballast
- Rotifers are most numerically abundant taxon

- 7 established aquatic nuisance species (ANS) detected (at least 1 in 88% samples)
- ANS comprise 11% cumulative zooplankton abundance

These researchers concluded that *"Lakers are an unlikely source of new ANS, but they are likely very important for the spread of ANS in the Great Lakes"*.

These are the only two investigations that we are aware of that have ever sampled and analyzed the ballast water of laker vessels. Both these studies sampled very small quantities of ballast water but found live organisms capable of reproducing. In our view this scientific evidence clearly demonstrates that ballast water discharges from laker vessels can be a vector for the introduction of AIS to the waters of Lake Superior. This scientific evidence along with our knowledge that large quantities of ballast water are discharged into Lake Superior clearly demonstrate that discharge of ballast water from laker vessels are a significant risk of introducing AIS to Lake Superior from the other Great Lakes.

It is also important to note in this discussion that an estimated 30-40% of all AIS introduced to the Great Lakes are not introduced by ballast water from transoceanic vessels. It is reasonable to assume that some of these AIS not introduced by ballast water could be spread by ballast water movement within the Great Lakes. If other control measures are taken to significantly reduce the introduction of AIS from ballast water into the Great Lakes this permit will still be needed to significantly reduce the risks of spreading these AIS throughout the Great Lakes by all vessels.

We also recommend that the revised permit reference the just released National Research Council report which has completed an extensive review of ballast water discharges in the Great Lakes.

<u>Part III. Criteria for Coverage under this general permit.</u>
The criteria chosen in this permit appear to be reasonable and justified; however, we suggest that another category of vessel be added to the list called "other high risk vessels". Adding this category will give the PCA additional flexibility and authority to require a permit for other vessels that may pose a significant risk of discharging AIS to the waters of Lake Superior. For example, if there is a known "hot spot" for an AIS and commercial vessels not covered under the existing criteria are known to bring ballast water from the hot spot they pose a substantial risk of introducing AIS. Adding a category for high risk vessels would enable the PCA to require a permit for these situations in order to protect Lake Superior.

<u>Part IV. Vessels not required to obtain permit coverage.</u>
The exemptions listed appear to be reasonable and justified.

<u>Part V. How to obtain coverage under the general permit.</u>

By ocean-shipping standards, the inland fleet is elderly, with the older vessels built in the 1960s and the last completely new vessel delivered in 1985. It is, however, a fleet best described as a work in progress, since life extension is a specialty of the Great Lakes shipping industry. Such life extension is possible because the vessels operate for the most part in a relatively benign freshwater environment, as opposed to a saltwater ocean environment, and the winter layup of almost 3 months provides an opportunity for extensive steel replacements and major machinery replacements without a forced withdrawal from commercial service. Replacement of the complete forebody (the cargo carrying section) is not unusual, and at the same time the vessel dimensions can be changed to benefit from draft and beam tolerance changes implemented by the seaway corporations. In the case of self-unloaders, cargo systems can also be upgraded with the latest technology. Many older vessels in the inland fleet now include only a part of the original vessel.

Given this history, it seems highly unlikely that any "new" laker vessels will be placed into service before 2016 unless the definition of "new" is clearly defined to include substantial upgrades to existing vessels.

The permit fact sheet justifies this long delay in the implementation schedule because of treatment technology development and practical considerations for the shipping industry. Treatment technology based on the PCA review and the review in the California ballast water report suggests that technologies that meet or exceed IMO standards are likely to be available by the end of this year. There are also a number of other systems in final phases of development and testing including some that are undergoing freshwater testing by the Great Ships Initiative this year. If multiple treatment technologies will be available by January, 2009 we do not see a need to delay implementation for all vessels for another 7 years from a technological perspective.

Since technological considerations are not the primary cause of a delayed implementation schedule we conclude that the primary cause is based on practical considerations for the shipping industry. While we can appreciate some of the practical considerations for installing treatment technologies we also recognize the fact that the Great Lakes laker fleet are subject to substantial physical and technological upgrades on a regular basis. Ballast water treatment technology should be treated similarly. If the normal dry dock schedule is five to six years it is not unreasonable to expect the industry to accelerate their schedule to install technology to reduce the risk of introducing AIS to Lake Superior. California will require new vessels under 5,000 metric tons to meet their performance standards by 2010. This permit should adopt the same timeline for new vessels. In regards to other vessels, treatment technology should be required no later than 2013. This gives the industry six winter seasons to upgrade their ballast water systems with the latest technology.

<u>Part VII. Nondegradation considerations.</u>

The permit does not comply with anti-degradation rules. Lake Superior has been designated, by rule, an outstanding resource value water. As a result, much of the introductory language related to "nondegradation" does not apply. The only section of Minnesota Rules relevant to the general permit under consideration is Minn. R. 7050.0180.

Minn. R. 7050.0180 prohibits *any* discharge of *any* pollutant in certain parts of Lake Superior. This must be acknowledged in the permit and the factsheet. The rule prohibits, in other portions of the Lake, any discharge "unless there is not a prudent and feasible alternative to the discharge." Minn. R. 7050.0180.

PCA's anti-degradation analysis is based on the assumption that current and future discharges of ballast water contain the same pollutants as discharges prior to 1984. There is no substantial evidence in the record to support that assumption. Current and future discharges contain new pollutants and are subject to the antidegradation rules regardless of whether they are from ships that existed prior to 1984. Numerous AIS have been introduced and established in Lake Superior since 1984 and without active treatment technologies in place its waters will continue to be at risk for additional introductions. The VHS virus is a prime example of this. VHS was not a pollutant that was in the discharge of any vessel prior to 1984. It now presents a major threat to Lake Superior and its fisheries. VHS will clearly lower water quality in violation of non-degradation principles. This is true regardless of whether the vessel that introduces it was built and working in the Great Lakes region prior to 1984 or not. The distinction the PCA is making is fallacious and lacks any substantial evidence. It is inconsistent with the Ramsey County District Court's order requiring the Agency to enforce its anti-degradation rule.

The fact sheet analyzes discharges to Lake Superior under 7052.0320. This section applies to OIRW's. Lake Superior is not an OIRW. Minn. R. 7052.0300, subp 3 (OIRW's are surface water of the state in the Lake Superior Basin, other than waters designated as ORVW's). Lake Superior is an ORVW. Minn. R. 7050.0180, subp. 2A. The relevant anti-degradation analysis is set out in 7050.0180. The requirements of that rule have not been demonstrated.

<u>General Comment on Economic and Ecological impacts of AIS</u>. The permit fact sheet mentions the potential economic impacts to the shipping industry for implementing the standards but it fails to mention the economic impacts and ecological consequence of AIS to Lake Superior. The science is clear that AIS have had significant economic and ecological impacts to residents in the Great Lakes and the Great Lakes Region. As discussed in the National Research Council report, zebra mussels alone cost Great Lakes residents hundreds of millions of dollars a year and up to five billion dollars since they were introduced by ballast water. Like all AIS introduced to date in the Great Lakes, once an AIS becomes established their cost to society is permanent and cumulative and until now the industry has done nothing but implement best management practices. It is well past time to take action to require those that introduce AIS to lower the risk future introductions to Lake Superior.

It is also important to recognize the ecological effects of AIS in Lake Superior. We have been fortunate that Lake Superior has fewer AIS than other Great Lakes and there are a good number of scientific reasons for this (see Grigorovich et. al. 2003). We need to enact adequate standards to protect this resource from future AIS. Zebra mussels and other AIS have disrupted the ecology of each of the Great Lakes and as more AIS become established the integrity of the ecosystem of each Great Lake is put more at risk for to other invaders (Riccardi 2001). These ecological and economic effects from establishment of AIS go

beyond Lake Superior to the “inland” waters of Minnesota where they cause additional ecological harm and have negative economic impacts.

Thank you for the opportunity to comment on this draft permit.

Sincerely,

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