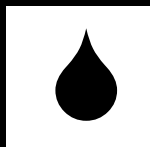




# POLLUTION PREVENTION FACT SHEET

Pollution Prevention Program - Federal Programs Division

## Fact Sheet #16:



## Clean Marinas: Marina Breakwall Design

This Pollution Prevention Fact Sheet is one in a continuing series prepared under the Pollution Prevention Program of the Federal Programs Division of Environment Canada, Ontario Region. This Program is intended to help federal departments in Ontario become model environmental citizens by managing beyond compliance. This Fact Sheet presents the following:

- Problems at marinas related to breakwalls
- Alterations to breakwall design that may reduce the negative impact of breakwalls on the marine environment



### The Problem:

Breakwalls are an essential part of most marina operations. Breakwalls protect the marina basin and its boats from damaging winds and waves. However, if they are not properly designed, breakwalls can dramatically reduce water circulation within the basin, resulting in stagnant water, and increased weed growth. Poor water circulation can also lead to an increase in sediment loading in the basin which can have a damaging effect on fish habitat.



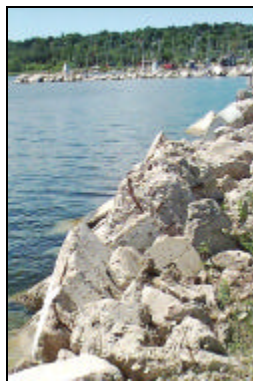
### The Objective:

Ensure that marina breakwalls protect and enhance water quality within the marina basin.



### The Process:

From the very beginning of construction, Bay Port Marina sought to limit the environmental impacts of their new breakwall. In 1992-93, with the help of Robert Baird and Associates, Bay Port designed and assembled a new breakwall, replacing a poorly built wall that no longer suited the marina's needs. The new wall has a number of features designed to reduce its impacts on the marine environment.



Concrete Break wall: Recycled from an old Grain Elevator

First, Bay Port Marina installed a silt curtain in the marina basin to control sediment loading during breakwall construction.

Second, rather than buying new material for use in the breakwater, Bay Port built their wall out of recycled concrete, acquired from the demolition of a nearby grain elevator. The reuse of this "waste" concrete not only saved the marina thousands of



Bay Port's Environmentally Friendly Break Wall

dollars in material costs, but also the additional expense of sending tonnes of concrete to landfill.

Third, to address the issue of poor water circulation within the marina basin, Bay Port installed three 3.7 metre culverts in the breakwall. The culverts keep the water in the marina basin circulating and clean, and also provide a means for fish to reach their natural spawning grounds. Riprap was used on the marina side of the break wall to improve fish habitat. Additionally, Bay Port actually halted the breakwall's construction in May and June of 1993 to encourage bass spawning!

Bay Port looks forward to improved aesthetics and more greenery, as they plan to add trees and grass to the top of their "recycled" breakwall.

### **Success Stories**

Does your department have a pollution prevention success story to share? Other government departments in Ontario would like to hear about your experience in dealing with a particular problem. Please provide relevant information to the Pollution Prevention Advisor, Federal Programs Division, Environment Canada. We will ensure that all interested parties receive this information.

### **Further Sources of Information**

For more information on the benefits of Pollution Prevention at Marinas, please contact:

#### **The Ontario Marina Operators' Association**

Box 105, 2 Poyntz Street  
Penetanguishene, ON, L9M 1M2  
1-888-579-BOAT and  
[www.letsgo boating.com](http://www.letsgo boating.com)

For further information about the Pollution Prevention Program for federal facilities in Ontario, please contact:

Environment Canada  
Ontario Region - Environmental Protection Branch  
Federal Programs Division  
49 Camelot Drive  
Nepean, Ontario, K1A 0H3  
phone: (613) 952-8675  
fax: (613) 952-8995  
e-mail: [fpd@ec.gc.ca](mailto:fpd@ec.gc.ca)

All Fact Sheets can be found on the Internet at:  
[www.on.ec.gc.ca/epb/fpd](http://www.on.ec.gc.ca/epb/fpd)  
(aussi disponible en français)