



Fundy Model Forest

~Partners in Sustainability~

Report Title: Macroinvertebrates as Indicators of Water Quality in the FMF. What bugs tell us about water quality and biodiversity

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***The Fundy Model Forest...
...Partners in Sustainability***

“The Fundy Model Forest (FMF) is a partnership of 38 organizations that are promoting sustainable forest management practices in the Acadian Forest region.”

Atlantic Society of Fish and Wildlife Biologists
Canadian Institute of Forestry
Canadian Forest Service
City of Moncton
Conservation Council of New Brunswick
Fisheries and Oceans Canada
Indian and Northern Affairs Canada
Eel Ground First Nation
Elgin Eco Association
Elmhurst Outdoors
Environment Canada
Fawcett Lumber Company
Fundy Environmental Action Group
Fundy National Park
Greater Fundy Ecosystem Research Group
INFOR, Inc.
J.D. Irving, Limited
KC Irving Chair for Sustainable Development
Maritime College of Forest Technology
NB Department of the Environment and Local Government
NB Department of Natural Resources
NB Federation of Naturalists
New Brunswick Federation of Woodlot Owners
NB Premier's Round Table on the Environment & Economy
New Brunswick School District 2
New Brunswick School District 6
Nova Forest Alliance
Petitcodiac Sportsman's Club
Red Bank First Nation
Remsoft Inc.
Southern New Brunswick Wood Cooperative Limited
Sussex and District Chamber of Commerce
Sussex Fish and Game Association
Town of Sussex
Université de Moncton
University of NB, Fredericton - Faculty of Forestry
University of NB - Saint John Campus
Village of Petitcodiac
Washademoak Environmentalists



HOW IS THIS INFORMATION USED?

Water quality concerns us all, not only because it is essential to our health but for the life that our rivers and streams support. Macroinvertebrates are a true measure of the integrity of our aquatic ecosystems as they represent the living component. When used in conjunction with water chemistry testing, macroinvertebrates enables us to evaluate the effects of activities such as forestry on the diversity of life in our rivers and streams.

IS MY STREAM POLLUTED?

Macroinvertebrates respond not only to chemical pollution but also to habitat destruction. Habitat destruction can result in increased sedimentation and higher water temperatures, which eliminate more sensitive species. The absence of all sensitive species should be taken seriously and investigate further. However, the presence or absent of any one species may not be significant in itself.

HOW CAN I FIND OUT MORE?

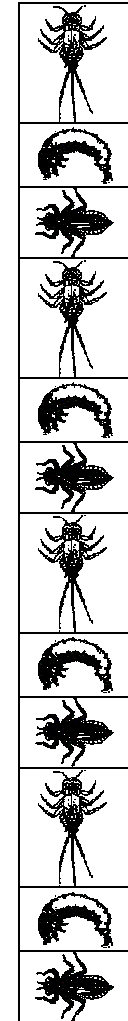
Contact the Fundy Model Forest for information on recent activities and available publications. The New Brunswick Department of the Environment can also help you get in touch with the various water quality monitoring groups in the province. By joining one of these groups you can participate directly in improving water quality in New Brunswick. Alternatively, you can establish your own volunteer group in your area.

All macroinvertebrate sketches used with permission from Save Our Streams, Izaak Walton League of America. Reproduction is granted for non-profit educational use.

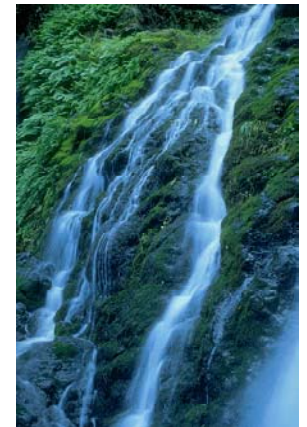



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MACROINVERTEBRATES AS INDICATORS OF WATER QUALITY IN THE FUNDY MODEL FOREST



**What bugs tell us
about water quality
and biodiversity**



 **A quick visual
guide to identifying
common macro-
invertebrates**

Macroinvertebrates are aquatic organisms that live in the sediment and gravel of streams, rivers and lakes. They can be divided into three main groups: 1) those that are very sensitive to pollution, 2) those that show moderate tolerance and 3) those that are very resistant. In order to find them, turn over some larger rocks or stir up some gravel. You can catch the drift into a small dip net of the type available at local aquarium shops. Some of these insects bite, so be careful.

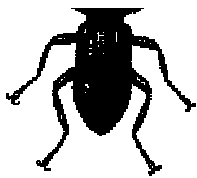
**Sensitive organisms
Good water quality**

Stonefly



Riffle Beetle

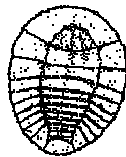
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Water Penny



Dobsonfly

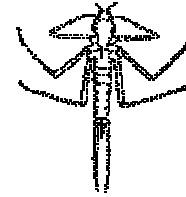


**Somewhat tolerant organisms
Good or fair water quality**

Alderfly



Damselfly



Crane Fly



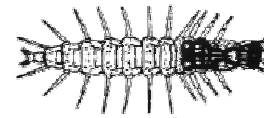
Beetle Larvae



Fishfly Larva



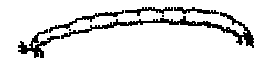
Dragon Fly



**Tolerant organisms
Any quality water**



Aquatic Worm



Midge Fly
Larvae



Leech

