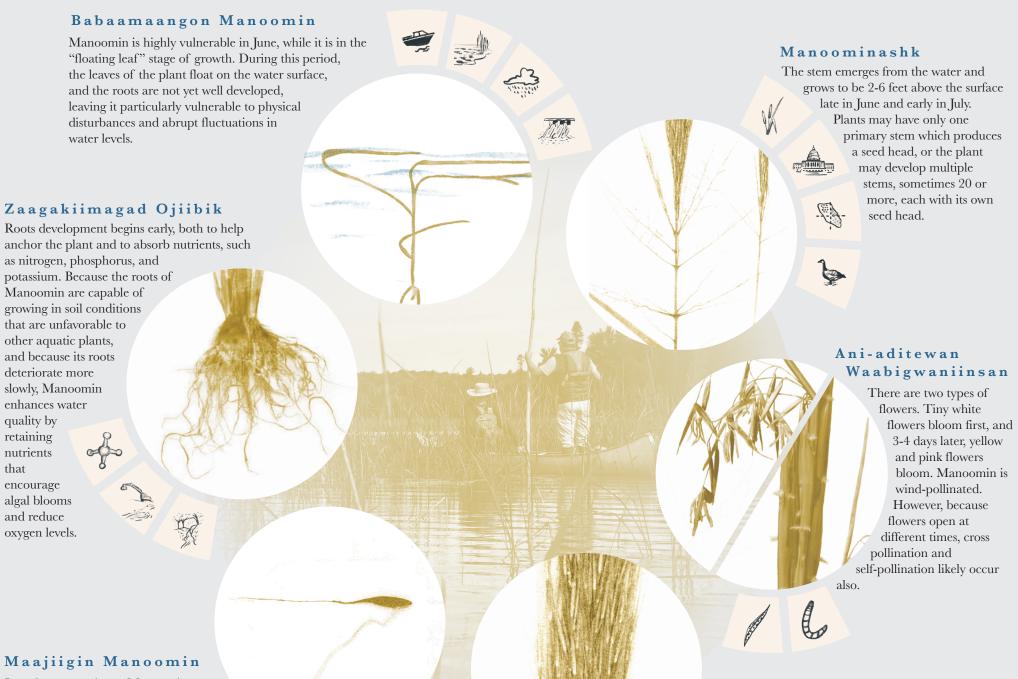
## Ezhi-bimaadizimagak Manoomin

How wild rice lives



#### In order to germinate, Manoomin requires cold water temperatures below 35°F. In Spring, when water temperatures rise above 45°F, germination begins. If conditions are unsuitable, seeds may remain dormant until the following Spring. Some seeds remain dormant for five or more years. This extended dormancy



## Impacts on Manoomin

## **PIPELINES**

landscape, alter hydrology, and are susceptible to spilling and leaking crude oil.

Manoomin generally matures later in August

from water to water. Harvesting should only begin

when seeds are fully developed, and are ready

or early in September, but maturation varies

Manoomin

to drop off.



associated with extractive industries, wastewater facilities and transportation infrastructure can harm Manoomin.

### **CLIMATE CHANGE**

allows Manoomin to survive occasional crop failures.

increases the frequency and threats of disease, pests, and extreme weather events.

### BOATING

through Manoomin and disregarding "No Wake" designations can uproot rice plants.

drastically modify the



#### **HEAVY RAIN**

SEVERE STORMS.

and other extreme weather events can damage Manoomin.

#### **BROWN SPOT DISEASE**



is a fungus that causes lesions on Manoomin leaves and interferes with seed development.

#### **RICE WORMS**

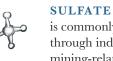


(Apamea apamiformis) are more prevalent in warmer weather conditions and feed on Manoomin leaves and seeds.



#### **OVERGRAZING**

by geese, trumpeter swans, muskrats red-winged blackbirds, etc. can prevent Manoomin from reseeding.



is commonly discharged through industrial- and mining-related activities.

feed on Manoomin seeds and

physically disturb and uproot

**NON-TRADITIONAL** 

methods and equipment may

bawa`iganaakoog (smooth,

and a gaandakii`iganaak

rounded wooden ricing sticks)

(push pole) to navigate is best.

HARVESTING

reduce and damage

Manoomin. Using

**COMMON CARP** 

Manoomin.

# MINING-RELATED

**ACTIVITIES** directly lead to fluctuations in water levels and increases in sulfate and other pollutants and toxins.

#### **PHOSPHOROUS**

is a common nutrient found in agricultural fertilizers, manure and animal feed. In excess, phosphorous can cause harmful algal blooms that limit sunlight and oxygen in water.

#### **BAKAAN INGOJI GAA-ONDAADAK**

such as milfoil, cattail (Typha angustifolia), common reed and other species compete with Manoomin for necessary nutrients.

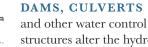




of environmental laws and policies that establish water quality standards and protection harm Manoomin.



#### **EROSION** diminishes water quality and clarity.



structures alter the hydrology and cause rapid fluctuations in water levels.



before Manoomin is mature often results in "ghost rice" or empty rice hulls that never fill.

A collaboration between Wisconsin Sea Grant & Chroma Press

Ojibwe language elicited by Dustin Morrow, Lac Courte Oreilles

Source: Aakweyaashiik Lac La Croix, Ontario

