

**STRENGTHENING  
SUSTAINABLE WETLAND  
AGRICULTURE AND  
MANAGEMENT**

# WETLAND MANAGEMENT

**Management** is the manipulation of an ecosystem to ensure maintenance of all functions and characteristics of the specific **wetland** type.

What are the steps that should be taken to manage the

wetlands? 1. Measures for protection of Wetlands

2. Audit of emerging environment issues

3. International Centre for Environmental Audit and Sustainable Development 8th to 12th June, 2015

4. Water supply

5. Water purification and detoxification of wastes

6. Flood Control

7. Mitigation of climate change

8. Wetlands as Climate Regulators

**Three pollutant** removal processes provided by **wetlands** are particularly important:

sediment trapping

nutrient removal and

chemical detoxification

As **water from** a stream channel or surface runoff enters a **wetland**, the **water** spreads **out** and flows through dense vegetation.

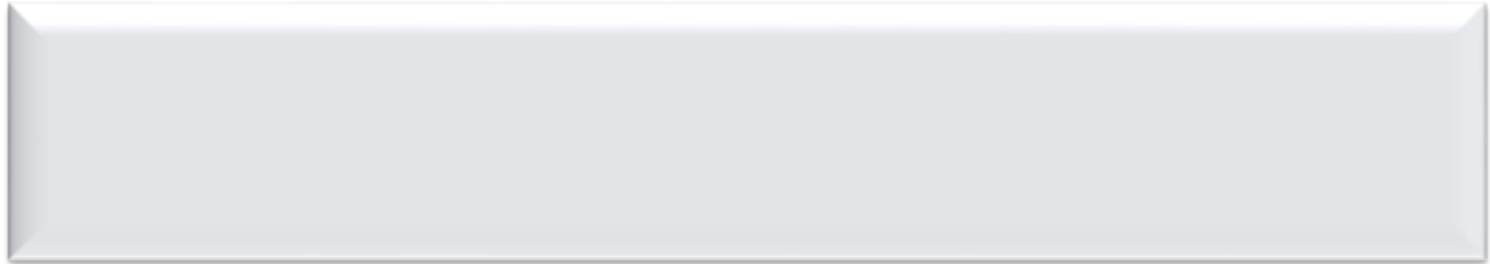


**wetlands**

**The two main types of**

**Bogs** and **fens** are the dominant peat land classes in Alberta

Although some swamps and **marshes** can also accumulate peat



In

contrast, shallow open water wetlands and many **marshes** and

swamps do not accumulate peat

**Some are the Four  
types of wetlands**

There are 4 main types of Freshwater Wetlands in North

America; **1. Ponds**

**2. Marshes**

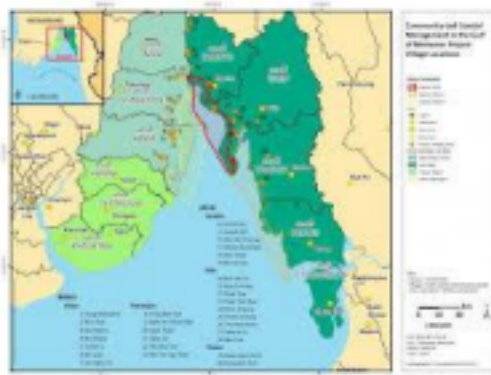
**3. Swamps**

## 4. Peat bogs

### What is the use of wetland?

- ❑ Wetlands are vital for human survival
- ❑ They are among the world's most productive environments; cradles of biological diversity that provide the **water** and productivity upon which countless species of plants and animals depend for survival.





How would the loss of the wetland impact the plants and animals that live there?

- ❖ **Loss** or degradation of **wetland** habitat and a **loss** of **plant and animal** biological diversity.
- ❖ Increased occurrence of algae blooms caused by nutrient overload from land adjacent to a **wetland**
- ❖ Increased sedimentation, which negatively **impacts**

## natural filtration

### ❖ Loss of flood plain land and flood plain protection



❖ The analysis and modeling of soil moisture retention with drainage level controls, vegetated buffer zones and nutrient retention in wetlands for water management will consider the need for adaptation to climate change and its impact on ecosystem services such as flood control

❖ WATERAGRI will evaluate long-term benefits for the farm and the

local ecosystem from the implementation of water retention systems and measures with the support of water management organizations such as CER in Italy

e.g., ANBI (Italian association of 151 agricultural water boards) and Irrigants d'Europe (about 75% of the irrigated land in the EU)





**Figure: Farm constructed wetlands for water retention**

Can you drink water from wetlands?

**Can you drink**

**water from wetlands?**

- ❖ Wetland plants also absorb and use nutrients like nitrogen and phosphorus, helping to keep them out of rivers, lakes, and water supplies.
- ❖ The next time you drink a glass of cool, clear, refreshing water, remember to thank the wetlands that helped make it possible.



**Three** criteria for an area to be considered a wetland For purposes of this classification **wetlands** must have one or more of the following **three** attributes:

- (1) at least periodically, the land supports predominantly hydrophytes
- (2) the substrate is predominantly un-drained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water



## **Five** benefits of **wetlands**

**Wetlands** provide many societal **benefits**: food and habitat for

fish and wildlife, including threatened and endangered species;

1. water quality improvement
2. flood storage
3. shoreline erosion control
4. economically beneficial natural products for human use and
5. opportunities for recreation, education, and research

**What are three important jobs of wetlands? Wetland benefits depend on health**

- Water purification. Wetlands protect water quality by trapping sediments and retaining excess nutrients and other pollutants such as heavy metals

- Shoreline Stabilization
- Groundwater recharge and stream flow **maintenance** ▫
- Flood protection
- Fish and wildlife habitat
- Economic **benefits**

## Wetlands contribution

- ❑ Wetlands contribute in diverse ways to the livelihoods of millions of people.
- ❑ They are often inextricably linked to agricultural production systems.
- ❑ In many places, growing population, in conjunction with efforts to

increase food security, is escalating pressure to expand agriculture within wetlands.

## **Wetlands contribution (Cont.)**

- ❑ The environmental impact of wetland agriculture can have profound social and economic repercussions for people dependent on ecosystem services other than those provided directly by agriculture
- ❑ If wetlands are not used sustainably, the functions which support agriculture, as well as other food security and ecosystem services, including water-related services, are undermined
- ❑ Currently, the basis for making decisions on the extent to which,

and how, wetlands can be sustainably used for agriculture is weak.

## **Wetlands contribution (Cont.)**

- ❑ There is a dearth of knowledge on the best agricultural practices to be applied within different types of wetlands and a lack of understanding on how to establish appropriate management arrangements that will adequately safeguard important ecosystem services.
- ❑ Often, wetland policies are underpinned by a conservationist perspective that regards agriculture simply as a threat and disregards its important contribution to livelihoods.

