

Talking with Albertans About a New Wetland Policy and Implementation Plan

Alberta Water Council
Wetland Consultation Workbook

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Welcome

Welcome to the Alberta Water Council's Wetland Policy Consultation Workbook! The purpose of this workbook is to gather your thoughts and ideas on how a new Wetland Policy and Implementation Plan can improve wetland conservation in Alberta.

In 2002, the Government of Alberta conducted a widespread public consultation on water management in the province, which led to the development of *Water for Life: Alberta's Strategy for Sustainability* (www.waterforlife.gov.ab.ca). At the core of the *Water for Life* strategy are three goals:

- Safe, secure drinking water
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy

In order to achieve these goals, the strategy calls for a number of actions, including the development of a new provincial Wetland Policy and supporting Implementation Plan. To undertake this work, the Alberta Water Council (AWC), a multi-stakeholder organization established in 2004 to provide direction and advice to the Government of Alberta regarding water-related issues, formed the Wetland Policy Project Team. Throughout 2005-06, the Team met with various individuals and organizations to discuss the opportunities and challenges surrounding wetlands. Many of the ideas discussed at these initial meetings are reflected in this workbook. However, before the Team develops the details of this new policy, they would like to get your thoughts on what you think is required for successful wetland conservation in Alberta.

In this workbook, you will find:

- Information about current wetland policy, legislation, and initiatives;
- A proposed new wetland policy statement;
- Several tools to achieve this new goal;
- Five key outcomes the new policy would strive for;
- The strategies required to achieve these outcomes; and
- Space for you to provide your feedback.

An independent contractor, IMI *strategics*, will collect and analyze the workbooks and report their cumulative results to the Wetland Policy Project Team. In turn, the Team will use this information to guide their next steps in drafting a new Wetland Policy and Implementation Plan for Alberta. Finally, the Team's work will be reviewed by the Alberta Water Council and ultimately presented as recommendations to the Government of Alberta.

We look forward to hearing your comments! Please be sure we receive your input by October 15, 2007 by:

- 1) Filling out the workbook and leaving it with one of our workshop organizers
(Dates and locations will be available on the website below).
- 2) Mailing your completed workbook to:
IMI *strategics*
Suite 326, 10909 Jasper Avenue
Edmonton, AB T5J 3L9
- 3) Filling out a workbook on-line at www.waterforlife.gov.ab.ca/
Please note that workbooks must be submitted by October 15, 2007.

If you require printed copies of the workbook or have questions about this consultation process, please contact:

Ian Rudland,
Wetland Policy Project Team Co-Chair
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Thank you for your time and commitment!

Sincerely,

The Alberta Water Council's Wetland Policy Project Team:

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Privacy Statement

The Alberta Water Council is seeking information, views, and opinions to assist in developing recommendations on a Wetland Policy and Implementation Plan for Alberta. The collection of this information is authorized under section 33 (c) of the Freedom of Information and Protection of Privacy (FOIP) Act and is being managed in accordance with the FOIP Act.

IMI *strategics* who has been contracted on behalf of the Alberta Water Council's Wetland Policy Project Team to compile input from this process will receive completed wetland workbooks. The personal or corporate information of individuals who have made submissions will only include identification of the sector that they are affiliated with or represent unless the respondent requests making their specific affiliation and position known. If you have any questions about the collection or use of this information, please contact the Project Manager, Wetland Policy Project Team, 9820 - 106 Street, Edmonton, AB, T5K 2J6 or by telephone (780) 427-9457.

What is a Wetland?

A wetland is defined as land having water at, near, or above the land surface, or which is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained (hydric) soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to the wet environment.¹

Generally speaking, a wetland is a body of standing water plus the riparian area, or transition zone, surrounding it. In Alberta, wetlands fall into one of two broad categories: peatlands and non-peatlands. Peatlands are wetlands with organic, peat-based soils, such as bogs and fens. Non-peatlands are wetlands with mineral-based soils including marshes, swamps, and shallow open water. While both types of wetlands occur throughout the

province, peatlands tend to dominate Alberta's boreal north (Green Area), while non-peatlands are primarily found in the Parklands and Prairies (White Area). Various wetland classification systems further divide wetlands into sub-categories based on several factors, including the length of time water is present, water depth, and presence of specific species of plant.



Did You Know?

Did you know? The area surrounding a wetland is sometimes referred to as the *riparian area*. Riparian areas are important for maintaining healthy, functioning wetlands and are characterized by hydrophytic (water-loving) vegetation such as cattails, sedges, and willows.

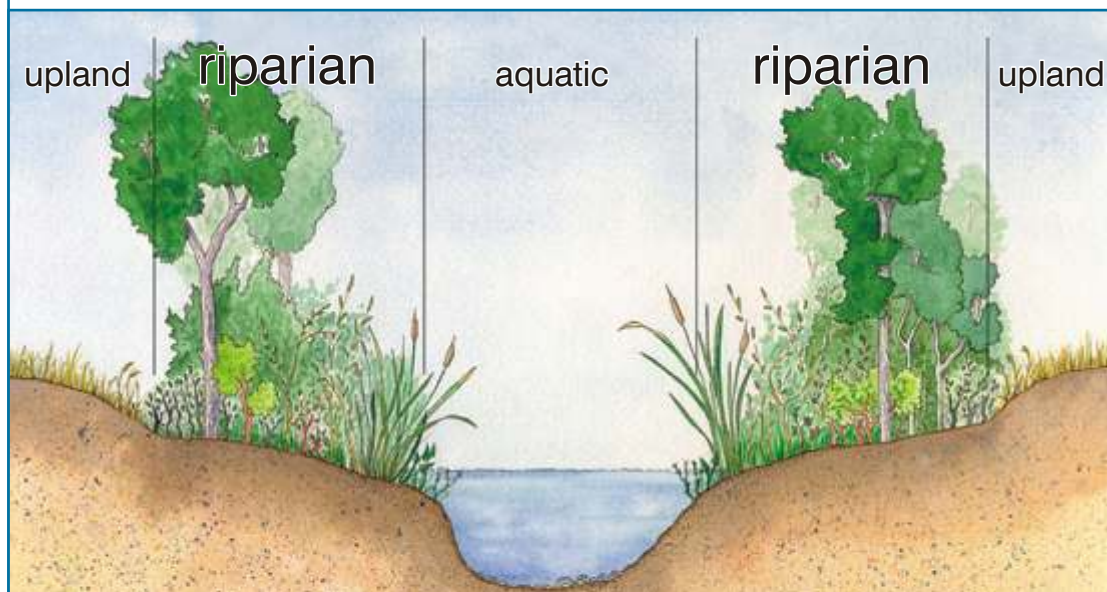


Image Provided by Liz Saunders

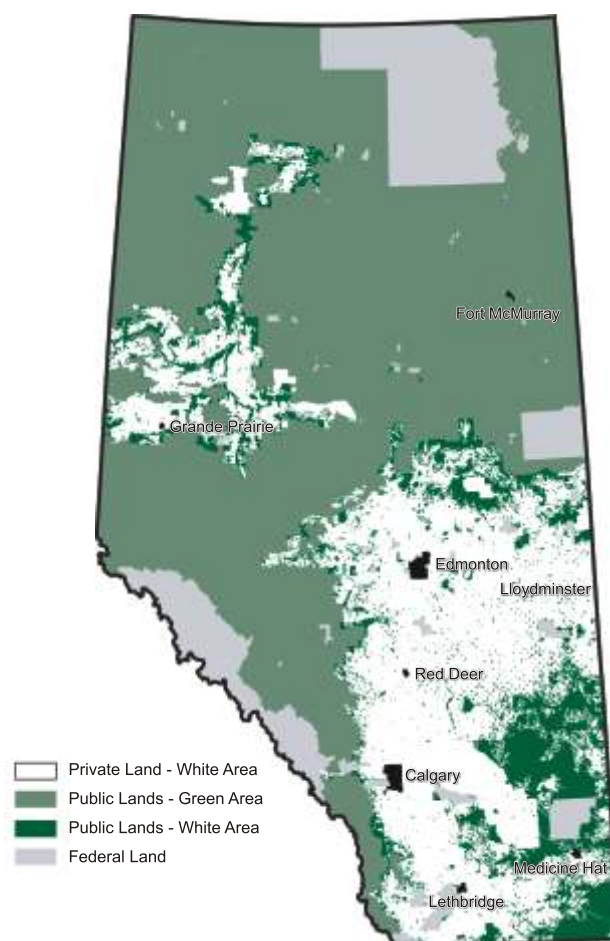
¹Tarnocai, C. 1979. Canadian Wetland Registry in Proceedings of a Workshop on Canadian Wetlands Environment. C. D. A Rubec and F. C. Pollett, eds., Canada Land Directorate, Ecological Land Classification Series No. 12.



Wetlands of all types are integral components of Alberta's landscape and play an important role in sustaining healthy watersheds. (For a list of some beneficial wetland functions, see the following page.) In turn, wetland health is influenced by a variety of factors including climate, groundwater, surface water, vegetation, soils, and human and animal activity.

The Green and White Areas of Alberta

For land management purposes, Alberta historically was divided into two areas: the Green Area and the White Area. The area suitable for agriculture and settlement (the White Area) occurs predominately in the Parkland and Prairie Ecozones. The area of forested lands (the Green Area), important for forest management planning and upper watershed protection, is found in the northern Boreal Forest and Foothills Ecozones. These areas are also sometimes referred to as Settled and Non-settled Areas, respectively. The Green Area is predominantly crown land, and the White Area is mostly privately owned land.



Wetlands and Watersheds: What's The Connection?

Wetlands provide many benefits that contribute to watershed health. These benefits, in turn, help us achieve the three outcomes of the *Water for Life* strategy² as outlined below:

Safe, Secure Drinking Water Supply:

- **Accumulate Peat:** The peat found in some wetlands can retain nutrients, carbon, and naturally occurring heavy metals, which helps to maintain water quality and lower greenhouse gas production.
- **Improve Water Quality:** Wetlands can improve water quality by removing excess nutrients, and reducing the amount of sediments and other pollutants found in surface water.
- **Recharge Groundwater:** Many wetlands serve as a source of water to maintain local and regional groundwater supplies.
- **Store Water:** Wetlands provide an easily accessible source of surface water for domestic and agricultural use.

Reliable, Quality Water Supplies for a Sustainable Economy:

- **Agricultural Production:** Temporary and seasonal wetlands can be used as a source of hay or forage for livestock.
- **Buffer Drought:** Wetlands can provide a valuable source of water for livestock during drought conditions.
- **Buffer Flooding:** Wetlands reduce the intensity of flooding by storing and slowly releasing water to their watershed. This reduces the need to construct flood control structures.
- **Regulate Soil Salinity:** Wetlands with intact riparian areas can help moderate the movement of salts and thus keep soils healthy.

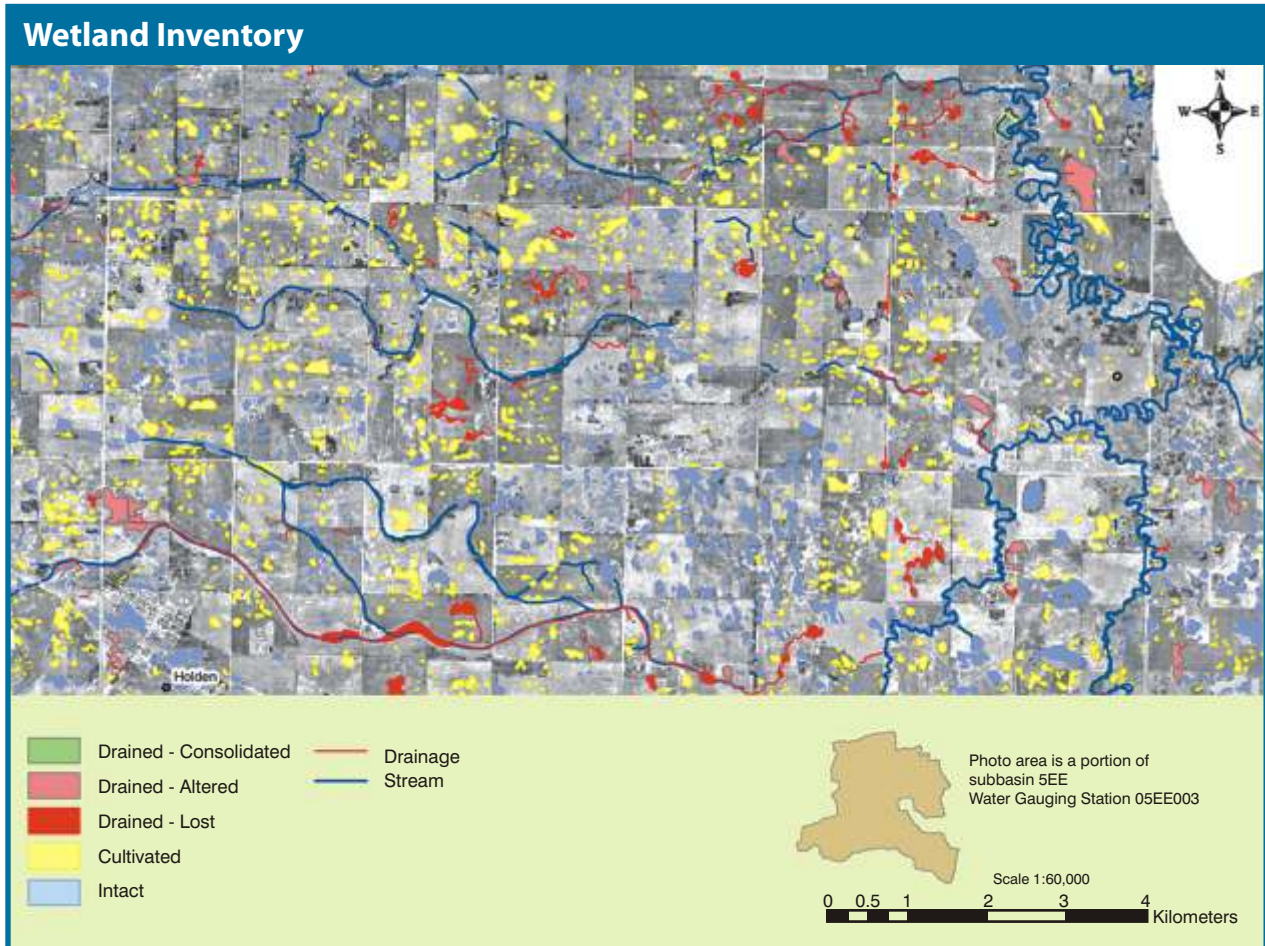
Healthy Aquatic Ecosystems:

- **Biodiversity:** Wetlands increase the complexity of landscapes and provide habitat for a wealth of different plants and animals, including many threatened and endangered species. This diversity can provide many ecological services like crop pollination and seed dispersal.
- **Buffer Shorelines:** Wetlands and the riparian area surrounding them can protect shorelines against excessive erosion that may impact water quality and aquatic health.
- **Cultural Heritage Areas:** Many wetlands are important to First Nations and other cultures. Some are key historical and archeological sites.
- **Provide Aesthetic and Recreational Opportunities:** Wetlands are complex natural areas that may enhance an individual's appreciation of the natural world. They also provide numerous opportunities for tourism, boating, bird watching, nature photography, hunting, fishing, and other activities.
- **Provide Educational Opportunities:** Wetlands can provide educational and scientific research opportunities.
- **Provide Fish Habitat:** Wetlands provide critical nursery habitat for many species of fish.
- **Release Nutrients:** Wetlands gradually release the nutrients that fuel many freshwater ecosystem food webs.
- **Store Carbon:** Many types of wetlands can store atmospheric carbon in their vegetation and soils. Since storage removes carbon that would otherwise be found in the atmosphere, healthy wetlands can help moderate greenhouse gas levels.

²For more information on *Water for Life: Alberta's Strategy for Sustainability* see www.waterforlife.gov.ab.ca.

Why Do We Need a New Wetland Policy and Implementation Plan?

About two-thirds (64%) of the wetlands in Alberta's White Area have been drained or altered over the past 100 years and although we are increasingly aware of their importance, the loss of wetlands has continued. The current estimated rate of wetland loss in the White Area is between 0.3 and 0.5% per year.³ The rate of wetland loss in the Green Area is unknown.



To address wetland loss, an Interim Wetland Policy was developed in 1993 by the Government of Alberta after extensive public discussion and research. "*Wetland Management in the Settled Area*

of Alberta: An Interim Policy," is available online at <http://www3.gov.ab.ca/env/water/reports/1wmsa.pdf>. The 1993 Interim Wetland Policy currently guides the approval process for all proposed developments

³References - Turner, B. C., G. S. Hochbaum, F. D. Caswell, and D. J. Nieman. 1987. Agricultural impacts on wetland habitats on the Canadian Prairies, 1981-85. Transactions of the 52nd North American Wildlife and Natural Resources Conference 52:206-215 and Watmough, M., D. Ingstrup, D. Duncan, and H. Schinke. 2002. Prairie Habitat Joint Venture Habitat Monitoring Program Phase 1: Recent habitat trends in NAWMP targeted landscapes. Canadian Wildlife Service, Environment Canada, Technical Report Series No. 391. Edmonton. 94p.

that would impact slough/marsh wetlands or peatlands in the White Area. As our understanding of the 1993 Interim Wetland Policy and its supporting legislation (see detailed explanation on the right) has increased, wetland conservation in the White Area has improved. However, no similar policy currently exists to provide direction for wetland conservation in the Green Area of Alberta.

Since 1993, many challenges surrounding Alberta's wetlands have been addressed by governments, industries, and environmental groups through existing policy, legislation, strategies, industry codes of practice, and agricultural beneficial management practices. However, several issues still need to be resolved to ensure effective wetland conservation in Alberta.




Wetland Legislation

Currently, the 1993 Interim Wetland Policy provides direction for wetland management in the White Area of Alberta. Provincially, several other pieces of legislation are relevant to wetlands, including but not limited to:

Municipal Government Act – This Act requires that developments be approved under a municipality's land use bylaw. It can be used to prohibit or regulate developments that may negatively affect wetlands.

Public Lands Act – This Act states that, except in certain cases, the Crown in right of Alberta owns the beds and shores of all permanent and naturally occurring wetlands. The Crown's ownership and "title" to this land is inherent, whether the wetland bed and shore is located on Crown, municipal, or private land. The government may grant individuals or companies the right to use Crown Land for grazing, peat harvesting, or timber harvesting, but land ownership remains with the province.

Water Act – This Act states that all water in wetlands belongs to the province and is a public resource. It also prohibits anyone from draining, altering, or infilling wetlands on private or public land unless authorized to do so by the Province through an approval.



Section 1 – Finding the Right Balance

The challenge for all Albertans is to balance our growth and economic development while safeguarding our environment. Retaining wetlands on the landscape provides us with many ecological benefits, such as groundwater recharge and water purification, but may come at the expense of other land use activities. For example, the decision to build a road improves transportation (a public need), but may result in the loss of a wetland that enhances local water quality (also a public need). Choosing one land use over another has many implications that must be considered carefully. Ultimately, choices must be made. A new policy and implementation plan, carefully thought out, should provide the direction and tools required to make such choices wisely.



Getting Your Feedback:

Please indicate your level of agreement with the following statements:

Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree No Opinion

Wetland conservation is important to me, even if it means foregoing other land use activities in a particular area.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Like other land uses and values, the costs and benefits of wetland conservation should be a consideration in land-use planning and decision-making.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Please provide your comments: _____

Section 2 – A Policy for the Entire Province

The 1993 Interim Wetland Policy identifies the need for wetland conservation, but only applies to slough/marsh wetlands and peatlands in the White Area of Alberta. During the *Water for Life* strategy consultation, Albertans indicated their support for a new policy that would protect wetlands throughout the entire province. The new Wetland Policy and Implementation Plan proposes to include the whole province and provide a unified direction for wetland conservation in Alberta.

Reasons for a unified Wetland Policy in Alberta include:

- The *Water Act* does not distinguish between wetlands in the White Area versus those in the Green Area. Thus, the proposed changes would align the new Wetland Policy with current legislation.
- Tools and programs currently used for wetland conservation in the White Area could be applied fairly and consistently throughout the province.

Implications of a unified policy in Alberta include:

- Compensation tools currently being used in the White Area to offset wetland losses, such as restoration and creation, would be required throughout the province, including the Green Area.
- Wetland conservation in Alberta will take time. In order to be successful, we will need new conservation tools, methods, and programs, while refining those that already exist. This work may require partnerships and a financial commitment between governments, industry, conservation organizations, and others.



Getting Your Feedback on a Unified Policy:
Please indicate your level of agreement with the following statement:

A new Wetland Policy should apply to all areas of Alberta including both the Green and White Areas.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	No Opinion
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you do not agree with extending the Policy to the entire province, can you suggest another approach to conserving wetlands in Alberta's Green Area? _____

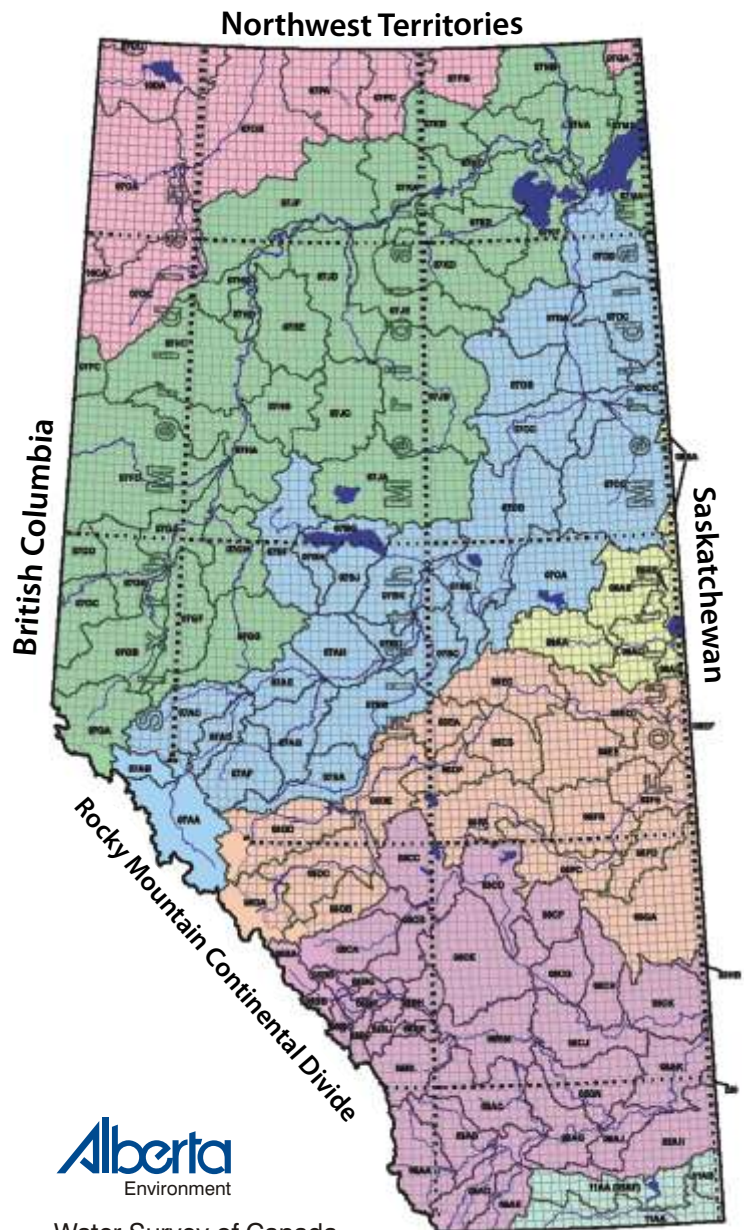
Section 3 – Setting a New Provincial Goal

The Policy Goal of the 1993 Interim Wetland Policy is to *sustain* the benefits that functioning wetlands provide, yet wetland loss has continued. In response to this loss, the Project Team is proposing a new wetland policy goal that reflects the desire for an improved policy in the face of increasing pressure on Alberta's wetlands and watersheds. A new proposed Wetland Policy goal for Alberta is:

The Government of Alberta will maintain or increase wetland area (and hence wetland functions) in Alberta to maintain the ecological, social, and economic benefits that wetlands provide. To achieve this goal, the Government of Alberta will work with Albertans to proactively protect, conserve, and encourage the restoration of wetlands, thereby helping to ensure healthy watersheds that provide safe and secure drinking water supplies, healthy aquatic ecosystems, and reliable, quality water supplies for a sustainable economy.

Under the new Wetland Policy, the proposed goal would be to *maintain or increase* wetland area on the landscape so that wetlands can continue to contribute to overall watershed health.

Healthy wetlands contribute to healthy watersheds.



Reasons for a new policy goal to maintain or increase wetland area include:

- To reduce the ongoing loss of wetlands in Alberta.
- To reduce the loss of beneficial wetland functions such as groundwater recharge, water filtration, and flood buffering, among others. These functions are necessary to maintain watershed health.
- The *Water for Life* strategy encourages a watershed approach to water management. The new wetland policy would also adopt this approach by recognizing that wetlands are an important component of Alberta's watersheds.
- Wetland losses are associated with social, environmental, and economic costs, as well as repair costs when wetlands and watershed functions must be restored. Reducing wetland losses would lower these associated costs.

Implications for a new policy goal to maintain or increase wetland area include:

- Proponents may be more restricted in their activities and other land uses may not be realized.
- Conserving, restoring, and protecting wetlands may come at an additional economic cost.



Getting Your Feedback on a Policy Goal:

Please indicate your level of agreement with the new proposed policy goal (in blue type on previous page):

Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree No Opinion

If you agree with the proposed policy goal, how do you think maintaining or increasing wetlands can be achieved in Alberta? _____

If you do not agree with the proposed policy goal, what do you suggest as an alternative goal to achieve wetland conservation in Alberta? _____

Section 4 – Setting Outcomes to Achieve the Goal

Many activities will be needed to achieve the proposed policy goal of maintaining or increasing Alberta's wetland area. To organize these actions, the Project Team identified several key outcomes that will be necessary if successful wetland conservation is to be achieved in Alberta. This section describes five proposed outcomes and provides some examples of implementation strategies that could be used to achieve them.

Outcome #1 – Creating Awareness

While growth and development are important to economic sustainability, the cost of wetland losses resulting from these activities is also significant. Wetland losses can impair water quality, alter water

quantity, and affect groundwater systems in a watershed. Not all Albertans are aware of the beneficial functions that wetlands perform.

Desired Outcome

Albertans are aware of, and value, the functions and benefits that wetlands and wetland riparian areas provide.

Potential Strategies to Achieve this Outcome:

- **Develop Educational Materials and Programs**– Expand current efforts to fund and develop educational materials and programs on wetlands and wetland riparian areas, including their beneficial functions.
- **Professional Development** – Encourage Government of Alberta staff, industry, and environmental practitioners to participate in professional development opportunities that improve their understanding of the benefits of functioning wetlands.



Getting Your Feedback on Outcome #1:

Please indicate your level of agreement with the Outcome proposed above:

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	No Opinion
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please comment on the potential strategies outlined above. Are there other strategies you think are necessary to achieve this outcome? _____

Outcome #2 – Improving Our Knowledge

Recently, we have improved our understanding of the benefits provided by functioning wetlands; however further work is required to more fully understand these important parts of our landscape.

Additional research, monitoring, and inventory are required to supply us with the necessary information to improve wetland protection, conservation, and restoration efforts in Alberta.

Desired Outcome

Albertans have the knowledge to effectively protect, conserve, and restore wetlands.

Potential Strategies to Achieve this Outcome:

- **Wetland Research Plan** – Develop a research strategy to identify gaps and improve our knowledge of wetlands, riparian areas, the benefits they provide, and the tools needed to conserve them.
- **Wetland Classification System** – Develop and communicate to wetland managers and others a consistent provincial wetland classification system.
- **Wetland Inventories** – Compile a comprehensive wetland inventory of the types and distribution of wetlands within the province to support decision-making.
- **Restored and Created (Constructed) Wetland Design** – Research and develop appropriate guidelines for restoring wetlands and creating functioning wetlands in various landscapes.



Getting Your Feedback on Outcome #2:

Please indicate your level of agreement with the Outcome proposed above:

Strongly Agree

Somewhat Agree

Somewhat Disagree

Strongly Disagree

No Opinion

Please comment on the potential strategies outlined above. Are there other strategies you think are necessary to achieve this outcome? _____

Outcome #3 – Recommending Wetland Objectives

To achieve the proposed policy goal of maintaining or increasing wetlands in Alberta, we need to be able to work at various scales: provincial, regional, and local. Because watersheds exist at several nested scales, (i.e. major watersheds are comprised of sub-watersheds, which are made of local waterbodies), it makes sense to look at wetlands from a watershed perspective.

We also need to recognize that there are regional differences in land-uses, values, and visions of an appropriate balance. Gathering this local perspective requires input from landowners, industry, governments, and others in each individual watershed. Local multi-stakeholder watershed groups, such as *Watershed Planning and Advisory Councils* and *Watershed Stewardship Groups*, are in an ideal position to gather this input because they work at a watershed scale and are composed of industry, government, non-profit environmental organizations, and other stakeholders.

These groups could assess the state of their wetlands and develop more specific recommendations. The recommendations to the Government of Alberta could include, for example:

- A list of significant wetlands that should be protected,
- A map of locations where wetland restoration would be beneficial, or
- A list of degraded wetlands that could be enhanced.

These recommendations would go to regulators, local governments, and other land managers to be incorporated into watershed, municipal, and other planning processes as wetland objectives. In turn, these wetland objectives would inform proponents and decision-makers about where to avoid development, where restoration should occur, and other types of land use decisions.

Desired Outcome

Recommendations for wetland protection, conservation, and restoration are made for watersheds across Alberta.

Potential Strategies to Achieve this Outcome:

- **Wetland Objectives** – Develop a process for multi-stakeholder groups, such as Watershed Planning and Advisory Councils, to recommend wetland protection, conservation, and restoration measures to appropriate land and resource managers.
- **Identify Significant Wetlands** – Develop a process and define criteria that identify locally, regionally, provincially, nationally, and internationally significant wetlands.
- **Protect Significant Wetlands** – Develop a suite of tools to protect significant wetlands. These tools could include, but are not limited to, purchasing the area and placing it under a conservation easement, or protecting it through legislation such as the Parks Act.



Getting Your Feedback on Outcome #3:

Please indicate your level of agreement with the Outcome proposed on the previous page:

Strongly Agree

Somewhat Agree

Somewhat Disagree

Strongly Disagree

No Opinion

Please comment on the potential strategies outlined above. Are there other strategies you think are necessary to achieve this outcome? _____

Multiple horizontal lines for writing comments.

Outcome #4 – Using Incentives

The population of Alberta has grown substantially over the last century and while human activity has created many benefits, population growth, development and land use changes have resulted in moderate to severe impacts on the province's wetlands, and consequently, its watersheds. There are costs associated with maintaining and restoring wetlands, however, by improving incentives and removing disincentives, all stakeholders will be encouraged to conserve Alberta's wetland resources.

Examples of Incentives and Disincentives to Wetland Conservation:

Incentives are enticements that encourage land and resource managers (including landowners, lessees, project proponents, developers, etc.) to make decisions that tend to protect and conserve wetlands. For example, the Canada-Alberta Farm Stewardship Program provides financial assistance to producers so they can implement beneficial management practices on their land. Financial support for incentives may be provided through government programs, license levies, or donations to environmental organizations.

In contrast, disincentives encourage wetland degradation or loss. A disincentive might be a barrier to a positive action, or an incentive to perform a harmful behaviour. For example, programs that promote wetland drainage, infilling, or alteration are disincentives to wetland conservation.

Desired Outcome

Where appropriate, incentives to promote wetland protection, conservation, and restoration are available, while disincentives to these activities are removed.

Potential Strategies to Achieve this Outcome:

- **Identify and Promote Incentives** – Undertake a review of existing incentives for wetland protection, conservation, and restoration and ensure wetland managers are aware of them.
- **Develop New Incentives** – Develop and communicate new incentives to wetland managers.
- **Identify and Eliminate Disincentives** – Undertake a review to identify existing disincentives for wetland protection, conservation, and restoration and take steps to eliminate them.



Getting Your Feedback on Outcome #4:

Please indicate your level of agreement with the Outcome proposed on the previous page:

Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree No Opinion

Please comment on the potential strategies outlined above. Are there other strategies you think are necessary to achieve this outcome? _____

Outcome #5 – Coordinating Activities

A wide range of legislation, policies, activities, and programs directly or indirectly affect our wetlands. With this myriad of statutes, regulations, policy directives, and common law rules, it is difficult to

coordinate activities and ensure that wetland protection, conservation, and restoration objectives are being achieved.

Desired Outcome

The Wetland Policy and Implementation Plan is successfully integrated into the legislation, policies, and programs of the Government of Alberta and its partners.

Potential Strategies to Achieve this Outcome:

- **Internal Policies, Programs, and Directives** – Integrate and coordinate the new Wetland Policy and Implementation Plan with other policies, programs, general regulations, and directives.
- **Authority Role** – Ensure the new Wetland Policy and Implementation Plan fit with government regulatory processes.



Getting Your Feedback on Outcome #5:

Please indicate your level of agreement with the Outcome proposed above:

Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree No Opinion

Please comment on the potential strategies outlined above. Are there other strategies you think are necessary to achieve this outcome? _____

Section 5 – Tools and Approaches for Achieving a New Wetland Policy

We have now discussed the need for a new provincial wetland policy, proposed a new policy goal, and examined several outcomes and strategies to achieve that goal. In this last section, we will look at some specific approaches to the management of individual wetlands.

#1 – The Proposed Wetland Mitigation Approach

It is important to acknowledge that the loss of some individual wetlands is unavoidable. Because of this, we need a mechanism to offset wetland losses in one area by creating or restoring wetlands in another location. Currently in Alberta, the *1993 Interim Wetland Policy* requires all proponents in the White Area to enhance, restore, or create wetlands to replace any slough or marsh wetlands they have removed or reduced in size.

It is proposed that the new Wetland Policy broaden the *Wetland Mitigation Approach* to better reflect the new goal of maintaining or increasing wetland area throughout Alberta:

When a development is proposed that affects a wetland, the Government of Alberta, through the *Water Act* approval process, will require the proponent to use the following Wetland Mitigation Approach in their proposal and planning, in descending order of preference:

- a) Avoid loss or degradation of wetlands.
- b) Minimize wetland loss or degradation⁴ where avoidance is not achievable. (This may still trigger compensation if loss of wetland area occurs – see C. below).
- c) Compensate where loss of wetland area occurs. A suite of compensation options to replace lost wetland area, and hence function, using science-based methods, listed in order of preference, include:

- i. Restoration of wetlands,
- ii. Creation of wetlands, and
- iii. Enhancement of existing wetlands.

Under the new policy, all proponents seeking a *Water Act* approval for work that impacts a wetland would be required to use the Wetland Mitigation Approach. This approach requires that proponents first try to avoid all wetland loss. Where this is impossible, a proponent who receives an approval under the *Water Act* to drain, infill, or alter a wetland, will be required to present a plan to compensate for this loss.

A potential suite of compensation options is available, including wetland restoration, creation, and enhancement. Restoring previously existing wetlands is more practical than wetland creation or enhancement because restored wetlands perform the full suite of wetland functions more quickly than created or enhanced wetlands. Wetland creation (the construction of man-made wetlands where they did not previously exist, usually for the purposes of stormwater management) may be considered as compensation based on how closely the constructed wetland mimics a natural wetland. Finally, wetland enhancement may be partially considered as wetland mitigation, but alone, does not address the loss of natural wetland area.

⁴Several codes of practice, beneficial management practices, and other guidelines provide direction to industry, agriculture, and others to avoid activities that degrade wetlands (e.g. Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body).

Addressing Wetland Function in the Wetland Restoration and Compensation Guide

The Provincial Wetland Restoration/ Compensation Guide, (available online at http://www3.gov.ab.ca/env/water/reports/Prov_Wetland_Rest_Comp_Guide.pdf) currently applies to Alberta's White Area. The Guide explains how applications to drain or alter wetlands are reviewed under the *Water Act* and how wetland compensation is applied to reduce the proposed loss. A proponent is encouraged to provide a wetland mitigation plan to compensate for the wetland loss instead of defaulting to the Guide each time.

For compensation purposes, wetland loss is measured by the loss of wetland area. Area is a proxy for wetland functions, which are difficult to measure. It is assumed that if we maintain adequate wetland area, we will maintain adequate wetland function. However, because it is almost impossible to fully replicate the complexity of a

natural wetland ecosystem, compensation ratios are used to ensure both area and functions are restored. For example, a compensation ratio of 3:1 means three hectares of equivalent wetland must be restored for each hectare of natural wetland lost. The compensation ratio applied to a proponent's application will vary depending on its impacts to the wetland. The ratios will also change as they are reviewed and updated to reflect new information and techniques to measure and restore wetland functions. Currently, several government and industry partners are working together to identify and improve wetland restoration techniques and guidelines in peatlands. Similarly, research will improve our ability to mimic wetland functions in man-made wetlands.

Reasons for a Wetland Mitigation Approach include:

- This approach favours the avoidance of wetland loss over other options.
- Because we cannot always avoid the loss of wetlands, compensation provides us with a management tool to help us replace them.
- Compensation is an incentive for proponents to give due consideration to wetland avoidance or alternatively, to consider the cost of restoring wetlands.
- Implementing the Wetland Mitigation Approach will ensure that wetland impacts are considered in a fair and consistent manner by all proponents throughout the province in the early stages of land-use and watershed planning.

Implications of the Wetland Mitigation Approach include:

- Where wetlands are maintained, other land uses or activities may not be realized.
- Where wetlands are maintained, development may still occur in the uplands and thus move the impacts of development to these areas.
- Compensation places the cost of wetland restoration on the proponent.
- Appropriate areas for restoration may need to be identified through surveys, inventories, inspections, etc.



Getting Your Feedback on the Wetland

Mitigation Approach:

Please indicate your level of agreement with the following statements:

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	No Opinion
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The proposed Wetland Mitigation Approach will effectively contribute to wetland conservation in Alberta.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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The proposed Wetland Mitigation Approach should be applied throughout the province.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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The proposed Wetland Mitigation Approach should be applied to all proponents.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Until we know how to measure and restore wetland function, using a science-based ratio of wetland area restored to wetland area lost is appropriate.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Water bodies constructed primarily for stormwater management and wastewater treatment should be considered as one option for compensation for wetland loss if they can mimic at least some natural wetland function.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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If you do not agree with the Wetland Mitigation Approach proposed above, what do you suggest as an alternative(s) to address wetland loss throughout Alberta? _____

#2 – Recognizing the Role of Ephemeral Waterbodies

The *Water Act* provides the framework for regulating activities that affect all waterbodies, including wetlands. It does not, however, provide regulators with specific guidance on how to apply this authority to all waterbodies, especially those that only have open water for part of the year. The *1993 Interim Wetland Policy* provides some direction on this issue because it applies to “slough/marsh wetlands that are permanently *or periodically* covered by standing or slowly moving water (water levels often fluctuate and *open water may or may not be present*)”.

Ephemeral waterbodies have open water present for less than three weeks, and typically, for only a few days of the year. For one description of an ephemeral waterbody, see page 30 – the Stewart and Kantrud Wetland Classification System. Ephemeral waterbodies provide important

watershed benefits such as storing vast quantities of snowmelt runoff, replenishing local soil moisture, and recharging shallow groundwater aquifers, in addition to having high biodiversity. On the ground however, they are more difficult to recognize and delineate than frequently or permanently flooded waterbodies and are therefore challenging to regulate under the *Water Act* or other legislation.

Given their contribution to watershed functions, the Project Team is currently seeking advice regarding whether or not ephemeral waterbodies should be identified as wetlands in the new policy, and if so, whether or not they should be subject to the mitigation approach. If ephemeral waterbodies are identified as wetlands and are subject to the mitigation approach, a proponent seeking a *Water Act* approval would have to compensate for any loss of ephemeral waterbody area.

Reasons for identifying ephemeral waterbodies as wetlands in the policy and including them in the Wetland Mitigation Approach include:

- Providing policy and regulatory consistency with other non-permanent wetlands (e.g. Class II-temporary and Class III-seasonal wetlands).
- Ephemeral waterbodies provide many functions that contribute to watershed health.

Reasons for identifying ephemeral waterbodies as important wetlands, but not including them in the Wetland Mitigation Approach include:

- While ephemeral waterbodies play an important role in some watersheds, their highly unpredictable nature makes it difficult to regulate activities that impact them. Applying the Wetland Mitigation Approach to these areas may not be practical and may be difficult to enforce.
- Ephemeral waterbodies may be better protected through voluntary actions rather than legislation. Continuing to recognize them as important and promoting voluntary protection via public education and awareness may be more effective than a regulatory approach.



Getting Your Feedback on Ephemeral Waterbodies:

Please indicate your level of agreement with the following statements:

Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree No Opinion

Ephemeral waterbodies should be recognized as wetlands in Alberta.

Ephemeral waterbodies should be included in the Wetland Mitigation Approach proposed in the new Wetland Policy for Alberta. (This would require compensation for loss of area.)

Education and awareness programs and initiatives should be developed to encourage the conservation of ephemeral waterbodies.

Do you have other suggestions for conserving ephemeral waterbodies? _____

#3 – Wetland Restoration

If the new proposed Wetland Policy Goal is to “maintain or increase wetland area,” then we must replace lost wetlands through wetland restoration. Restoration involves re-establishing a previously lost wetland by reversing the initial impacts that caused its loss. As discussed previously, restoration may be required as compensation by a proponent under the Wetland Mitigation Approach; however restoration can also be voluntarily undertaken by an individual, government, or conservation organization. In both cases, restoration on private land can only be undertaken with willing landowners.



Before Wetland Restoration



After Wetland Restoration

Reasons for including Wetland Restoration activities in a new policy include:

- Wetland restoration will help maintain or improve water quality and the health of Alberta's watersheds. There are many examples of successful wetland restoration in the province, particularly for previously drained wetlands in the White Area.
- Restoring previously lost wetlands is easier and less costly than creating new ones because many of the underlying physical attributes like soil types and seed banks are often still present. Some ecological functions may be performed by man-made wetlands; however, more research is required to maximize these benefits.
- Wetland restoration in the Green Area is more challenging at this time, particularly where development has removed the peat layer and

altered the underlying drainage. There are cases in the Green Area, however, where wetland restoration can be achieved simply by re-establishing water flow through the introduction of a culvert or bridge where the wetland has been compromised by a linear disturbance, such as a road.

Implications of including wetland restoration in a new policy include:

- Suitable areas for wetland restoration may not always be available.
- Where restoration activities are undertaken, other land uses or values may not be realized (i.e. restoring a wetland may preclude other land use activities).
- Restoration required as compensation under the Wetland Mitigation Approach may add costs for the proponent.



Getting Your Feedback on Wetland Restoration:

Please indicate your level of agreement with the following statements:

Strongly Agree Somewhat Agree Somewhat Disagree Strongly Disagree No Opinion

Wetland restoration is an important and effective tool for ensuring the new Wetland Policy Goal is achieved.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Please provide your comments: _____

Getting Your Final Thoughts

Wetlands are a valuable resource that merits a comprehensive policy to protect and conserve them. While acknowledging the importance of conserving, preserving, and restoring wetlands for the benefits they provide, it is also important to consider the social and economic impacts of doing so. The new Wetland Policy and Implementation

Plan needs to find an appropriate balance between preserving the ecological integrity of our province and adding costs to development. Your feedback on the issues and ideas presented in this workbook will provide invaluable input into the creation of a successful wetland policy and implementation plan.



Please provide any final comments on the ideas presented in this workbook and tell us what you think is needed to make Alberta's new Wetland Policy and Implementation Plan successful. Are there any other desired goals, outcomes, strategies, or tools that should be included?

Please provide your comments:

A Guide to Wetland Terminology

Avoid: – To prevent impacts to a wetland by identifying an alternate project, activity, design, or site, or by abandoning the proposed project or activity altogether. Avoidance applies to both direct impacts (changes that alter a wetland's area or function), as well as indirect impacts (changes that alter drainage areas or adjacent uplands that are integral to maintaining a wetland).

Bog: – A wetland characterized by peat deposits, acidic water, and extensive surface mats of sphagnum moss. Bogs receive their water from precipitation rather than from runoff, groundwater, or streams, which decreases the availability of nutrients needed for plant growth. Many plants and animals have specific adaptations to deal with the low nutrient levels, waterlogged conditions, and the acidic waters that characterize bogs.

Compensation: – A variety of alternatives (e.g., wetland restoration, creation, and enhancement) to make up for the loss of a wetland area.

Conservation: – The planned management and wise use of resources to ensure they are available for future generations.

Creation: – The construction of a new wetland in a location that was not previously a wetland, usually for stormwater or wastewater storage. Typically, their construction is designed to mimic natural wetlands.

Degradation: – Disturbing the biophysical characteristics or chemistry of a wetland, and hence causing a decrease in one or more wetland functions due to man-made causes.

Enhancement: – Increasing one or more wetland functions in an existing, but degraded wetland.

Ephemeral "Wetland" or Waterbody: – An area that is periodically covered by standing or slow moving water and that has a basin typically dominated by

vegetation of the low prairie zone, similar to the surrounding lands. Because of the porous condition of the soils, the rate of water seepage from these areas is very rapid. Surface water may only be retained for a brief period in early spring with rapid seepage occurring after the underlying frost seal thaws. Water is retained long enough to establish some wetland or aquatic processes.

Fen: – A wetland characterized by slow internal drainage from groundwater movement and seepage from upslope sources. Fens are characterized by peat accumulation, but due to the seepage of nutrient-rich water, fens are typically less acidic and more nutrient rich than bogs. As a result, fens are able to support a more diverse assemblage of plants and animals.

Hydric: – Soils that are low or deficient in oxygen because of the frequent presence of water. This is often reflected by high iron concentrations.

Hydrophytic: – Water-loving or water-dependent. For example, hydrophytic plants include cattails and sedges.

Loss: – The elimination of a wetland area, or disturbance to a wetland or its drainage basin, such that most wetland functions are lost as a result of human activities.

Marsh: – A wetland characterized by mineral-based soils and periodic inundation by surface water and groundwater. The water depth ranges from a few inches to several feet, though marshes may dry up completely in times of drought. Marshes are nutrient-rich and maintain a relatively neutral pH, resulting in an abundance of plant and animal life.

Minimize: – Reducing adverse effects on the functions and values of wetlands to the smallest practicable degree in the planning, design, and implementation stages of development.

Mitigation: – A process for conserving wetlands by applying a hierarchical progression of alternatives, which includes avoiding impacts, minimizing unavoidable impacts, and compensating for impacts that cannot be avoided.

Peatlands: – Ecosystems that occur in waterlogged, poorly drained areas where the lack of oxygen and increased acidity of the water inhibits decomposition. As a result, plant debris slowly accumulates to form peat.

Proponent: – A person proposing activities in and around a wetland or considering restoring or constructing a wetland.

Protection: – Keeping a wetland in a natural state by preventing any activity that would affect the wetland site through the use of incentives, tenure, securement, formal agreement, policy, or legislation.

Ratio(s): – Numeric expressions of a relationship between one factor and another. Wetland replacement ratios are the ratio of wetland area replaced through restoration to the wetland area lost. For example, a ratio of 3:1 means three units (e.g. hectares) of equivalent wetland must be restored for each unit (e.g. hectare) of natural wetland lost.

Restore: – The re-establishment of a wetland with a functioning natural ecosystem whose characteristics are as close as possible to pre-disturbance conditions.

Riparian Area: – Land and vegetation surrounding a wetland that is at or below the demarcation between aquatic and terrestrial vegetation, not including the flooded area.

Shallow Open Water: – Small bodies of standing water less than 2m deep that act as transitional areas between lakes and marshes. Shallow open waters do not contain emergent aquatic vegetation like cattails and reeds, but may support floating vegetation, like lily pads.

Significant Wetland: – Designated wetlands with local, regional, provincial, national, or international importance for one or more reasons.

Slough: – An informal term commonly used in Alberta to describe marshes and ponds.

Temporary Wetland: – A wetland that is periodically covered by standing or slow-moving water and that has a basin typically dominated by wet meadow zone vegetation. Water seepage is fairly rapid, but surface water usually lingers for a few weeks after spring snowmelt and for several days after heavy rainstorms at other times of the year. Water is retained long enough to establish wetland or aquatic processes.

Upland: – An area of dry land surrounding or upstream of a wetland.

Waterbody: – Under Alberta's *Water Act*, any location where water flows or is present; whether or not it is continuous, intermittent, or occurs only during a flood, including but not limited to, wetlands and aquifers.

Wetland: – Land having water at, near, or above the land surface or which is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained (hydric) soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to the wet environment. Degraded wetlands may not show all of these characteristics, but remain important.

Wetland Area: – Includes the flooded portion of a wetland up to and including the boundary between aquatic and terrestrial vegetation. The same definition shall be used in the case of climatically dry wetlands.

Stewart and Kantrud Wetland Classification System

In Alberta, the most commonly used wetland classification system is the Stewart and Kantrud Wetland Classification System. Developed primarily for prairie and parkland wetlands, this system recognizes different wetland types ranging from temporary to permanent. The following classes do not imply a level of importance.

Class I – Ephemeral Wetlands

Typically have free surface water for only a short period of time after snowmelt or storm events in early spring. Because of the porous condition of the soils, the rate of water seepage from ephemeral wetlands is very rapid after thawing of the underlying frost seal. They may be periodically covered by standing or slow moving water. Water is retained long enough to establish some wetland or aquatic processes. They are typically dominated by vegetation such as Kentucky bluegrass, goldenrod and other wetland or low prairie species.

Class II – Temporary Wetlands

A wetland that is periodically covered by standing or slow moving water. They typically have open water for only a few weeks after snowmelt or several days after heavy storm events. Water seepage is fairly rapid, but surface water usually lingers for a few weeks after spring snowmelt and for several days after heavy rainstorms at other times of the year. Water is retained long enough to establish wetland or aquatic processes. They are dominated by wet meadow vegetation such as fine-stemmed grasses, sedges and associated forbs.

Class III – Seasonal Ponds and Lakes

Shallow marsh vegetation generally occurs in the deepest zone, which is usually dry by midsummer. They are typically dominated by emergent wetland grasses, sedges, and rushes.

Class IV – Semi-permanent Ponds and Lakes

Deep marsh vegetation is found in the central zone, and coarse emergent plants or submerged aquatics like cattails, bulrushes, and pondweeds are present. They frequently maintain surface water throughout the growing season.

Class V – Permanent Ponds and Lakes

Have permanent open water in central zone that is generally devoid of vegetation. Submergent plants may be present in the deepest zone, while emergent plants are found along the edges.

Class VI – Alkali Ponds and Lakes

Deep water is typically not permanently present. Alkali wetlands are characterized by a pH above 7 and a high concentration of salts. The dominant plants are generally very salt tolerant. These wetlands are especially attractive for shore birds.

Some Information About You

This information will be used for statistical purposes.

Where do you live? Please check one.

- City
- Town or village
- Municipal District or County
- Other (please specify) (_____)

What are the first three digits of your postal code?

Which would best describe your perspective? (Check only one)

Business/Industry

- Oil and Gas
- Mining
- Forestry
- Agriculture
- Professional/Services
- Educational/Research

Government

- Local
- Provincial
- Federal
- Aboriginal
- Interest/Advocacy Group
- Multi-stakeholder Organization
- Private Citizen
- Other (Please specify _____)

How Can You Get Involved?

Please be sure the Alberta Water Council Wetland Policy Project Team hears your comments on a new Wetland Policy and Implementation Plan for Alberta.

Please submit your completed workbooks by October 15, 2007.

Copies of this workbook are available at www.waterforlife.gov.ab.ca/

You can submit this workbook:

1) Online at www.waterforlife.gov.ab.ca/

2) By mail to:

IMI strategics

Suite 326, 10909 Jasper Avenue

Edmonton, AB T5J 3L9

3) Stakeholders Workshops - In addition to this workbook, a series of workshops to hear your comments will be held across the province in September and October 2007. Check the Alberta Water Council's website to find the dates and nearest locations.

If you have any questions about this workbook or the consultation process please telephone 310-4455 (toll free across Alberta) or go to www.waterforlife.gov.ab.ca/

