

CANADIAN WETLANDS ROUNDTABLE (CWR)
WETLAND MANAGEMENT AND CONSERVATION -
Scoping Wetland Offsetting & No Net Loss in Canada

Final Report to the CWR Steering Committee

A. Introduction

The Canadian Wetlands Roundtable (CWR) is a multi-stakeholder partnership of conservation and resource organizations committed to advancing the sustainability, health, and responsible management of Canada’s wetlands through engagement, influence and action. As a national organization the CWR is dedicated to connecting Canada’s network of leaders in the wetland industry through common mission and vision. For more information on the CWR, visit the website: <https://wetlandsroundtable.ca/>

This report forms part of the work being undertaken by the CWR on national wetland policy issues. The report content is organized into seven sections: Introduction, Project Description, Terminology, Background, Findings, Discussion, and Recommendations. Four attachments are included: Interview Questions; Information Sources; CWR – Policy Workshop Report Appendix B. June 2016; and, The Mitigation Sequence – Key Moving Parts.

Acknowledgements

Over twenty individuals were interviewed for this project over the May – October 2018 period. All interviewees gave graciously of their time and advice. Many also provided additional background information and suggested the names of other experts and contacts should further inquiries and/or CWR engagement be undertaken. The Steering Committee and the CWR Coordinator - Greg Thompson sincerely thank all who participated in this project, particularly the interviewees.

B. Project Description

CWR Deliberations – 2016 & 2018

A key objective of the Canadian Wetland Roundtable (CWR) *Wetlands Policy Workshop*, held on June 21-22, 2016 in Ottawa, was the identification of broadly accepted principles that will inform the development of effective wetland policies in Canada. Workshop participants considered the element of a policy framework and in particular explored the principle of “no net loss of wetland function”. This principle is nested with a larger theme of mitigation actions that may be required to address the unavoidable loss or degradation of wetlands resulting from land use practices.

A full report on the benefits and costs of no net loss, as identified by participants during a facilitated discussion held during the June 21-22 2016 CWR Policy Workshop, can be found in Attachment Three. Participant findings highlighted the significant operational challenges and costs that are associated with the successful implementation of a fully-functional no net loss approach to wetland loss compensation.

As reported, workshop participants were divided regarding whether or not “no net loss of wetland function” could be adopted as a goal for CWR. Further, it was concluded that *“A better understanding of the barriers to adopting this goal... could lead to the development of an alternative.”*

In early 2018 the CWR Steering Committee directed that further work be undertaken to scope both barriers and alternatives to the implementation of a no net loss policy, including loss of wetland function. Further, the Committee directed that the project rely heavily on structured interviews with conservation and resource sectors, EIA specialists and others. This report is the result of the work undertaken as directed by the CWR Steering Committee.

Going forward, the results of this work will help guide CWR Steering Committee deliberations on this and related national wetland policy issues. In the meantime the findings of this report will contribute to the planning for a CWR-led session on wetland conservation to be held in conjunction with the Canadian Agricultural Economics Society (CAES) 2019 policy workshop.

Purpose and Methodology - 2018

This report scopes the issues surrounding conservation offsets with a major focus on no net loss in order to set the scene for CWR to undertake a more-comprehensive review of issues and options than was possible through this scoping project.

The purposes of this project are twofold: scope the issues associated with the dual function of no net loss (policy goal and compensation tool); and, recommend follow-up actions for the CWR Steering Committee's consideration. The project methodology included a literature review, as well as structured interviews with both conservation specialists and resource industry representatives. As these evolved the 2018 project milestones included:

- Research and literature search (April - November)
- Interview questions prepared (April)
- Interview scheduling (May-October)
- Interim Reports to CWR Steering Committee (April, June & September)
- Interviews (May – October)
- Final report to Steering Committee (December)
- Distribution of report to Interviewees (December)

Document search, review, and compilation has established a modest data base of existing analysis on wetland offset issues and options (Attachment Two). By mid-October 2018 the author had completed 21 interviews with government managers, wetland conservation specialists, economists, biologists, policy experts and resource sector representatives. An interview guide and questions were used to support the conduct of the interviews (Attachment One). The interviews were conducted by the CWR Coordinator – G. Thompson. This report summarizes the interview findings rather than attributing findings to individuals and is based on interim reports provided to the CWR Steering Committee.

Findings and Analysis

While this report scopes the issues surrounding conservation offsets with a major focus on no net loss, it suffers from a number of weaknesses. First, the author was not able to negotiate interviews with all resource sectors. As a result the private sector perspective is likely underrepresented in this analysis.

Second, the bulk of criticisms that were directed at a no net loss policy focused on the practicality in some circumstance of adoption and less on the implementation challenges and details – particularly where a policy of no net loss includes loss of function and benefits. As a result, the analysis in this report of the loss of *function and benefits* dimensions of no net loss policies is also limited.

Third, this project has not examined the practices, challenges or outcomes of wetland construction/reconstruction, nor reverse auctions – two critically important dimensions of wetland conservation offsetting.

Finally, it is widely acknowledged that conservation offsetting has a role to play in regards to wetland management and loss on both public *and* private lands: the former through EIA processes; and the latter mostly through water/drainage regulation. With the exception of two interviews with EIA specialists, the author has not delved into the interface between no net loss policy and its application in formal EIA processes. Additionally, only one landowner was interviewed by the author in the conduct of this scoping project.

At the same time, a thorough and contemporary examination of wetland offsetting (including the implementation of no net loss policies) application in federal, provincial and territorial environment assessment process would add much to our understanding, as would the solicitation of landowner views.

Fortunately our literature review, guided by interviewee advice, has unearthed two recent national-level reports that contribute significantly to our understanding of the contemporary situation. Included in the attached Information Sources of particular note in this regard are the following two reports: *A Study of Canadian Conservation Offset Programs*. W. Noga and V. Adamowicz. Sustainable Prosperity Research Paper. 2014; and, *Navigating the Swamp: Lessons on Wetland Offsetting for Ontario*. D.W. Poulton and Dr. Anne Bell. Ontario Nature. July, 2017

These observations point to areas of further investigation going forward.

C. Terminology

The following generally-accepted interpretations of key wetland, conservation-related and environmental impact mitigation terms have been adopted for this scoping paper. A more-contemporary set of definitions can be found on page 25

of the May 2018 *Report of the Wetland Conservation Strategy Advisory Panel* (see Attachment Two – Information Sources in this report)

- *Wetland*: A wetland is land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophilic vegetation and various kinds of biological activities which are adapted to a wet environment. Wetlands include bogs, fens, marshes, swamps and shallow waters (usually 2m deep or less) as defined in the *Canadian Wetland Classification System* published in 1987 by the National Wetlands Working Group of the Canada Committee on Ecological Land Classification (Source: FPWC, 1991)
- *Wetland Functions*: Wetland functions include the natural processes and derivation of benefits and values associated with wetland ecosystems, including economic production (e.g. peat, agriculture crops, wild rice, peatland forest products), fish and wildlife habitat, organic carbon storage, water supply and purification (groundwater recharge, flood control, maintenance of water regimes, shoreline erosion buffering) and soil and water conservation, as well as tourism, heritage, recreational, education, scientific, and aesthetic opportunities. (Source: FPWC, 1991)
- *Mitigation Hierarchy & Sequence*: Is a process for achieving wetland conservation thorough the application of a hierarchical progress of alternatives which include: a) avoidance of impacts; b) minimization of unavoidable impacts; and c) compensation for residual impacts that cannot be minimized (Source: *Wetland Mitigation in Canada: A Framework for Application*, NAWCC (Canada) K. Cox & A. Grose, Editors. 2000)
- *Conservation Offsets (or Allowances)*: Conservation offsets are the third step in the mitigation hierarchy that first examines options to avoid and minimize environmental impacts. Conservation offsets provide a balancing effect by establishing new environmental features (such as habitat or ecosystem types) to compensate for those that have been impacts. Conservation offsets address the “residual impacts’ that remain after measures to avoid and minimize are adopted. By replacing ecosystem functions that would be lost as a result of

proposed land-or resource-use activities, conservation offsets help to conserve and protect important environmental resources. (Source: ECCC Operational Framework for Use of Conservation Allowances, 2012)

- *No Net Loss of Wetland Functions*: One of a number of possible wetland conservation goals. No net loss recognizes that further degradation of the wetland resource is not acceptable. However, all wetland loss cannot be avoided: some loss occurs naturally, some results from past activities, and some losses may result from beneficial human activities. The goal ventures to balance the unavoidable loss of wetland functions, through rehabilitation of former degraded wetland or enhancement of healthy, functioning wetland. As a last resort, compensation for lost functions could be sought through non-wetland replacement of functions, or creation of wetland where there was none before. In short, “no net loss of wetland functions” means that unavoidable losses of wetland functions must be compensated. (Source: Federal Policy on Wetland Conservation (FPWC) 1991 and FPWC Implementation Guide for Federal Land Managers, 1996)

D. Background – Wetland Policy and Conservation Offsetting

Avoidance, impact mitigation and compensation for wetland habitat loss due to agriculture, forestry and other land use in Canada is a key feature of wetland conservation programs across the country. No net loss of wetland function figures prominently in many of these schemes, having first been adopted nearly 30 years ago by the USA Environmental Protection Agency in 1989, and embraced by subsequent federal and state administrations.

In Canada, depending on the jurisdiction, no net loss is one of a number of possible sub-elements of these various mitigation and compensation regimes. Federally, no net loss currently finds formal application in the Federal Wetland Policy (1991). Provisions under this policy for creating and banking habitat are included in ECCC’s Operational Framework for the Use of Conservation Allowances (2012). No net loss of habitat is also included in the proposed amendments to the federal Fisheries Act (Bill C- 68).

To-date, five provincial wetland policies have formally adopt the principal of no net loss, all within a standard hierarchy of avoidance, mitigation and

compensation. These are: New Brunswick – 2002, Prince Edward Island – 2003, Quebec – 2017, Ontario – 2018 and, recently, Manitoba’s *Sustainable Waters Act*, June 2018. The wetland conservation-related policies of Newfoundland and Labrador (2001), Alberta (2003), Nova Scotia (2006), BC (2009) and Saskatchewan (1995 & 2015 – *Water Security Act*), variously include elements of the avoidance, mitigation and compensation hierarchy, but without specifying a policy of no net loss. In the territories, both Yukon and NWT rely on land use regulations and guidelines to conserve wildlife habitat. In Nunavut, conservation objectives are to be achieved through land and water use planning. All three territorial regimes are highly circumscribed by the requirements of comprehensive land claims agreements.

A more-comprehensive review of wetland policies and conservation strategies, than is possible through this current project, would highlight *inter alia* additional policy dimensions as well as policy/program evaluations and audits, such as the June 6, 2018 report on Saskatchewan Water Security Agency. Noteworthy here also is the designation of *significant wetlands* in the southerly more-developed regions of some jurisdictions where high rates of land conversion have occurred. Ontario and Alberta are two jurisdictions, for example, that have placed additional levels of protection on remaining wetlands in highly altered landscapes. Steps to further our understanding of Canadian wetland conservation offset policies and programs would include an examination of the effectiveness of EIA practices federally and at provincial/territorial levels, as well as a comprehensive analysis of the academic literature on reverse auctions and related economic analysis. Finally, an analysis of the literature on the 30-plus years of no net loss implementation in the United States would provide clarity on the effectiveness of implementation and the costs that such a policy has entailed.

E. Findings - Wetland Conservation Offset Challenges & Issues

Setting the Context

Despite policies, programs and laws, some of which include no net loss, Canada is continuing to lose wetlands at an alarming rate. These and other questions are driving the conversation about wetland conservation, land and resource use in Canada today:

1. What are the major factors enabling these losses?
2. What can be done to conserve our wetlands and recover what we have lost?
3. How effective is the avoidance, impact mitigation and compensation for loss hierarchy in managing the direct impacts of land use on Canada's wetlands?
4. How can we balance conservation with resource use and create a more-positive business and operating environment for the private sector?

Wetland loss is attributed to an array of contributing factors, not just policy and its implementation. Among the most-notable of these factors are the following: failure to invest in programs and/or enforce existing rules; distorted land tax regimes; attachment of higher value to alternative uses of wetlands, such as agriculture; impact of competing programs and public investments; and public opinion.

So why the focus here on no net loss? After all, the policy is part of a needed effort to conserve wetlands is it not? The answer is simple. The direct impacts on wetlands due to resource development, land conversion and development are the main causes of wetland loss in Canada. Strengthening the effectiveness and efficiency of policy and programs through avoidance, impact mitigation and compensation for unavoidable loss is a key wetland conservation priority for the working landscapes of Canada. A strategy of protected areas alone, without complementary efforts to address wetland and other conservation challenges on the working landscapes of Canada, will simply not achieve Canada's biodiversity, sustainable development or climate change goals.

Implementing No Net Loss – The Challenges

A review of current literature reveals the complexity and challenges of wetland offsetting (including no net loss) implementation in the US, and more recently in Canada.

The goal of no net loss represents one of a number of possible goals associated with wetland conservation (see FPWC, 1991 pg. 5). In the highly-altered ecosystems of settled parts of Canada, for example, where historical rates of wetland loss have been high and are reported to be reaching upwards of 90% loss rates, some jurisdictions have adopted a policy of avoidance in order to retain

what remains of their wetlands resources. Under these circumstances a policy of no net loss of wetlands has little if any application.

Elsewhere it may be appropriate for the goal of no net loss to be adopted and implemented either formally in policy and regulation, or informally in practice. Here, the application of no net loss can be seen to offer a number of potential benefits including: creating additional opportunities to compensate for losses and particularly for types of industrial land use with limited reclamation potential; greater emphasis on avoidance of wetlands; and, flexibility in remediation and compensation options. Supporters add that a policy of no net loss of wetland function broadens the scope of environmental impact assessment beyond the actual wetland margins, such as in the case of nearby development impact on regional hydrology. Moreover land use regulators and land managers point out that the requirement for operators to implement compensatory mitigation may increase their “receptivity” to the adoption and implementation of the alternate solutions – implementation of avoidance and minimization strategies.

On the other hand, the implementation of a no net loss policy is not without its detractors. Many of the implementation challenges CWR has already identified through the 2016 Policy Workshop (see Attachment Three) . Indeed, the goal of net loss of wetland is now seen by some experts as a constraint on wetland conservation efforts. They argue that the unnecessary complexity, regulatory and scientific uncertainty, and transaction costs that such a formal policy entails is actually getting in the way of effective wetland conservation. They also argue that the presence of an “out” creates a perverse incentive - that is to ignore avoidance and mitigation requirements and instead go immediately to offset as the solution. Going forward, a better understand of the role these incentives play will be of critical importance in more-effective and efficient conservation offset program design and implementation.

Preliminary investigations have revealed the following implementation challenges pertaining to no net loss, including no net loss of wetland function, *inter alia*:

1. The absence of a national wetland resource inventory and ability to monitor the status of Canada’s wetlands, makes it impossible to track wetland loss rates or to even evaluate the effectiveness of wetland conservation regulations, policies and laws.

2. It is difficult for land use operators to know what sites to avoid and the way other sites can be used. These operators quite rightly continue to call for greater guidance in regards to the relative values and importance of different wetland types.
3. Land use operators conducting business in different jurisdictions across Canada also encounter high variability in wetland protection regimes, creating for them even greater operating and therefore economic uncertainty. Added to this, the “project-specific” application of no net loss often occurs with little reference to larger landscape plans or goals (where these exist), foregoing potential opportunities for efficiency.
4. Difficulty in quantifying land use impacts on wetland function makes it impossible to determine equivalent (and cost-effective) mitigating actions that could be undertaken by land use operators where wetlands are being impacted due to their operations. Only some “functions” are readily quantifiable such as water quality. For other functions the science is less readily available.
5. There remains a continued debate as to the feasibility of creating a replacement “wetland” that actually offers equivalent ecological services and functions. While this challenge may be significant in the case of a cattail marsh, constructed wetlands are reported by some experts to be impossible to create in the case of swamps, fens and bogs within any reasonable timeframe.
6. Implementation of wetland conservation and management policies, including those embracing a formal no net loss policy remains problematic in a number of jurisdictions. Aside from the inherent complexity and lack of scientific precision surrounding valuation of wetland function, determining appropriate replacement, and measuring outcomes, program audits are revealing a suite of more-fundamental wetland policy implementation challenges including: lack of trained staff; failure to follow approved policies (where these exist); absence of performance measures; and, under-resourced compliance promotion and enforcement capability.
7. Finally, detractors point out that while no net loss seeks to simply prevent further loss of wetland and wetland function. They suggest that the real goal of wetland conservation and stewardship efforts should instead be to increase the quantity and quality of Canada’s wetlands. According to this view,

maintaining the status quo is simply not good enough given the historical rates of wetland loss in the developed regions of the country.

F. Discussion

No net loss policy for wetlands is a reality in Canada, as is the avoidance, mitigation and compensation policy hierarchy. What is also becoming apparent, however, and what this preliminary study points to, is that the implementation of wetland compensation regimes, including no net loss, faces a suite of scientific, economic, operational and societal challenges. These challenges are interspersed throughout the “compensation process” and are played out in different jurisdictions, often with different outcomes depending on the wetland situation on that landscape. In summary the difficulties that experts have identified include: placing wetlands and their importance in the appropriate landscape context; quantifying wetland functions; determining the economic value of these functions; establishing a defensible replacement ratio that accurately reflects the risks associated with securing equivalent functions through a constructed wetland; establishing a banking system that results in no net loss (rather than simply protecting existing wetlands located elsewhere); finding suitable nearby locations to establish constructed wetlands; and, monitoring the outcomes. Some informed observers would argue that a number of these challenges, including creating a truly workable set of rules for resource sectors, are “show stoppers”, and that simpler methodologies and processes are called for if existing wetlands are to be maintained, and wetland losses restored.

That being said, both no net loss and the avoidance, mitigation and compensation policy hierarchy are key wetland conservation elements in the programs of the federal government and five provinces across the country. Going forward, building on this policy and program framework should be of potential benefit to current and new adopters as jurisdiction update their existing wetland policies over time. Understanding the challenges and finding practical solutions that achieve wetland conservation and at the same time support economic development will be key. The task now requires an exploration of current implementation challenges and the identification of appropriate effectiveness and efficiency measures – the best management practices that contribute to retaining

existing wetlands, restoring lost wetlands and managing successfully human impacts on our wetland resources.

Through this project, interviews with resource sector representatives and wetland conservation experts have so far produced three key findings: objections to no net loss as a wetland conservation goal; concerns about the ability of conservation offsetting (including no net loss) to deliver compensation for unavoidable wetland loss; and, substantial resource sector concerns that the operating environment is less than certain. These key findings are briefly explored in the section immediately below.

Is no net loss an effective wetland conservation goal? Perhaps not. Here are some of the reasons why:

- As a wetland conservation goal, no net loss implies maintaining the status quo. Maintaining, or attempting to maintain our existing wetland resources, through a no net loss policy is not enough.
- Where we can, Canadians also need to address the historic losses that land conversion has brought to the settled parts of the country, by restoring wetlands.
- Rather than embracing the status quo, we need an aspirational goal such as: *Maintain what we have and recover what we have lost.*
- Yet at the same time, we cannot pretend that wetland losses are not part of our use and development of natural resources. Not all wetlands are of equal importance or value. Some will be lost. Managing these impacts with clear, effective and efficient rule and incentives across the landscape that include conservation offsetting that delivers on wetland goals is the only solution.

Is no net loss an effective compensation tool for wetland loss? Currently perhaps, but not in all instances. Here are some of the reasons why:

- Implementation of replacement strategies, including banking, has been found wanting in both Canada and the USA.
- The science on function, value, services, benefits and replacement will need to continue to improve.

- In the meantime, in the absence of a maturity model, jurisdictions can only guess where on the maturity curve their wetland program sits and where best to invest in further program improvements.
- Moreover, absent a national wetland resource inventory, it is impossible to measure the effectiveness of wetland offsetting programs including no net loss, except on a project-by-project basis.
- Yet as proponents and practitioners alike are compelled to acknowledge, monitoring of management and mitigation actions, as is required in an EIC context, remains sadly neglected such that adaptive management is seriously impeded.

Does no net loss provide greater operating certainty for resource sectors?

Irrespective of the presence/absence of a no net loss policy, the current implementation of wetland conservation requirements does not provide Canada's resource sectors with certainty in all Canadian jurisdictions. Here are some examples of management regime arrangements that underline this concern:

- Interim and voluntary guidelines imply a lack of serious commitment to wetland conservation and send mixed signals to the resource sector.
- Policies adopted by one agency, while the authority for land use decisions rests with another agency in the same jurisdiction, is a recipe for both conservation and resource project failure.
- Absence of reliable land and resource information to support planning adds to resource project risks, costs and uncertainty.
- The lack of process certainty adds additional risk for project proponents.
- And finally, in some resource sectors the extent of the land use involved and the regional presence of an abundance of wetlands may preclude a policy of no net loss.

G. Recommendations

Conclusions

This project has succeeded in elucidating some of the complexity and debate surrounding wetland policies and their apparent failure to address continued wetland losses across the country.

It is clear from the supporting information, interviews with policy and program specialists as well as resource sector representatives, that the responsible management of wetlands and associated loss entails a framework of comprehensive and complementary research, policy, legislation, regulations and programs, of which conservation offsets are only one element. This framework needs to be constructed and applied on a landscape basis. It is equally clear in the absence of such a comprehensive and complementary wetland conservation and management framework, that the component parts, including conservation offset and no net loss policies, will never be able to function as they are intended. Further, it is also evident that solutions to wetland loss may best be achieved without the application of a formal no net loss policy, either because of the extent of the land use impacts in an otherwise wetland-rich landscape, or because the landscape is so highly altered that all of the remaining wetlands are of such high importance that no further losses can be tolerated.

A quick look at the main elements – inventory, value, mitigation and private land solutions - serves to support these general conclusions. The management framework must begin with current knowledge of the extent, quality, function, benefits, value and status of the wetland base – something that Canada has only partially accomplished in the case of inventories and much less so in the case of fully understanding and assigning value to wetland function and benefits. This needed framework of activities also extends to the adoption of a wetland loss mitigation framework that assigns priority to avoidance – something that seems to be less of an imperative than the perhaps too-readily available go-to option of wetland loss accompanied with some sort of conservation offset. In-turn, the absence of tools and methods to quantify the function, services, values and benefits of wetlands, implementation of an offset program entails high risk of program failure. A further and equally important dimension of responsible management of wetlands pertains to the conservation and management of wetland on private lands. Here, in contrast to formal EIA processes for industrial resource development of crown land resources, processes that bring scrutiny and accountability to bear on ecological impacts including affected wetlands, the conservation and management of wetlands on private lands is treated in some jurisdictions in a much-less formal fashion. This includes widespread disregard for the rules and regulations including the absence of compliance promotion and enforcement action. This is the case even when remnant wetlands in highly-altered landscapes are at stake. When wetlands on private lands are viewed as

costly and highly-undesirable landscape features the incentives for conservation are entirely absent. And finally, it may be that landscape and resource development- sensitive wetland conservation policies make more sense than adoption of a formal but ineffective conservation offset policy.

This analysis of wetland offsetting and no net loss approaches has shown the challenges facing Canadian jurisdictions as they go about implementing conservation offset programs. In some cases no net loss makes sense and in other instances the appropriate policy objective may very well be one of increasing wetlands rather than attempting to maintain the status quo.

Recommendations

It is recommended that CWR undertake the development of best management practices for various wetland conservation/use scenarios across the full mitigation hierarchy including no net loss of wetland functions and benefits. A number of contributing activities are suggested:

1. Case studies on local and regional wetland conservation issues focused on wetland loss drivers, processes, management responses and conservation outcomes – *to better understand the contributing socio-economic factors in order to develop informed strategies going forward*
2. Assessment of the status, issues and needs associated with the assessment and valuation of wetlands, their functions, services and benefits, building on existing expert analysis (see Attachment Two – Information sources and Attachment Four – An admittedly rudimentary analysis framework) and the network of practitioners and other experts this study has identified – *a growing need as recent no net loss policy goals now include the problematic and untried objectives of actually offsetting loss of function and loss of benefits.*
3. Assessment of the current state and effectiveness of wetland reconstruction and construction including a comparison between stated goals and actual outcomes – *critical to assessing the validity of current claims, efficacy of current efforts and the feasibility of real solutions to wetland loss through this approach.*

4. An examination of wetland loss mitigation processes (including valuation, monitoring & reporting), building on existing analysis and audits of program effectiveness, where these are available – *critical to successful conservation offsetting and program improvements over time.*

Current Initiatives and Next Steps - CWR

The analysis presented here points to a significant opportunity for the Canadian Wetlands Roundtable to play a leadership role at this juncture in the ongoing development of an effective and efficient responsible management framework including wetland loss mitigation and conservation offset policies. Leading an examination of the lessons learned, supporting the development of best management practices, and promoting effective and efficient policy design and implementation of such a framework would all be part of this effort. Here are a number of CWR initiatives currently underway:

- Developing and maintaining an up-to-date inventory of wetland policies, regulations, laws, and supporting programs, including EIA – *Preliminary data and report collection conducted for this project*
- Undertaking regular assessment of the status of the implementation of wetland programs in each jurisdiction, including all program implementation audits – *Preliminary analysis conducted for this report*
- Monitoring leading edge social, economic and biological research on wetland functions, benefits, replacement and EIA – *see Information Sources (Attachment Two)*
- Leading development of a national wetland resource inventory (including the drained landscapes) – *Underway led by CWR Inventory Team*
- Hosting expert workshops on wetland function and valuation, wetland restoration and replacement, banking, efficient business processes with the purpose of developing contemporary BMPs– *Currently CWR is engaged in developing a Session on wetland offsetting in conjunction with the CAES Annual Policy workshop, February 2019. At the same time, the CWR WHC Grant*

*Application 2020-21 to WHC is seeking resources to develop BMP's
Conservation Offsetting leading to an experts workshop in early 2020*

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INTERVIEW QUESTIONS

The interview questions are as follows:

1. *Wetland conservation in Canada is important to all Canadians, even as the goal (maintain current quantity and function or enhance quantity and quality) continues to be debated.*
 - What should be Canada’s overall wetland conservation goal?
2. *Canadian governments have adopted wetland conservations measures to address the unavoidable loss of wetlands through a hierarchy of avoidance, minimization and compensation. Some include a formal goal of no net loss of function. While others undertake to achieve the same objective but without reference to no net loss.*
 - With reference to impact avoidance, minimization and compensation for wetland loss, how best should these three objectives be achieved?
3. *Participants attending CWR’s 2016 Policy Workshop identified a multitude of policy, program and resource challenges facing wetland impact avoidance, minimization and compensation. These issues were particularly evident with respect to implementing the goal of no net loss (see Attachment Four).*
 - Are wetland conservation programs succeeding, or not, in avoiding, mitigating and compensating loss of wetland and wetland function on the working landscapes of Canada and why?
4. *The 2016 CWR Policy Workshop participants were divided on whether or not to adopt a goal of “no net loss of wetland function” even though a number of jurisdictions have already adopted and are implementing this goal. Participants called for “A better understanding of the barriers to adopting this goal... (that) could lead to the development of an alternative.”*

- What are the key barriers to adopting the goal of no net loss of wetland function (as part of the hierarchy of impact avoidance, minimization and compensation for wetland losses) and, if it is possible to overcome these barriers, what improvements are needed?
5. *As noted, some Canadian jurisdictions have adopted a hierarchy of avoidance, minimization and compensation that is intended to achieve the same objective of no net loss but without a formal policy commitment.*
 - Is this approach in your opinion a workable approach to wetland impact compensation and what do you see the benefits and implementation challenges?
 6. In your opinion, what steps should the CWR be taking to assess wetland compensation policies and programs and consider possible improvements in order to make them more effective and cost efficient both for wetland conservation and for land use operators to implement?
 7. Are there other individuals you would recommend that I contact in regards to this project?
 8. Finally, do you have any additional comments and/or background data that you wish to share?

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Attachment Three

CANADIAN WETLAND ROUNDTABLE – POLICY WORKSHOP REPORT

Ottawa, Ontario June 2016. Excerpt – Appendix B

Appendix B - No Net Loss Function Implications and Challenges

Participants engaged in a facilitated discussion, focused on three questions:

- b What would be the implications of “no net loss of wetland function”?
- c What are the challenges that would need to be addressed for its realization?
- d Could we adopt it as a collective goal?

A summary conclusion from question 3 is provided in the body of the report. Detailed notes from small group discussions in response to these questions can be found below. Highlights were shared in plenary.

Implications

Group 1

- ℳ Permanent vs. non-permanent.
- ℳ What functions are being covered?
- ℳ Debate on natural capital vs. natural processes.
- ℳ To determine implications, need to define function, which differs between wetlands types and regions.
- ℳ Choose three functions based on current pressures from biodiversity, GHG, hydrology (Alberta) – as a starting point.
- ℳ Resources required for development of robust indicators and monitoring to ensure “no net loss”.
- ℳ Restoration projects – when private land changes hand – other places have mitigation banks. Ensuring long term protection of the project.

- ℳ Determination of ratios – complexity in different ideas of valuation between regions.

Group 2

- ℳ Concern around scale (blanket objective vs. place-based outcomes).
- ℳ Function makes more sense than area for the Canadian Association of Petroleum Producers (CAPP) – technical constraints in reclaiming mining landscapes to pre-development percentages of wetlands; relative abundance/historic loss on the landscape should be considered.
- ℳ Don't have inventory to make net loss policy – can only do things that are measurable.
- ℳ CAPP – prefer flexible compensation options (non-replacement).
- ℳ CAPP – Typically 10-15 % of the reclamation surface can hydrologically support constructed wetland; remaining area would be reclaimed as upland habitat.
- ℳ Policy – drives science and forces consideration during project planning and implementation. Need to find opportunities – minimal land; need bank-accounting system due to imbalance in areas lost and opportunities to compensate.
- ℳ Is national policy appropriate- what other jurisdiction should be considering this policy?
- ℳ Difficulty on reporting on area – would be more difficult on function.
- ℳ Need legislative.
- ℳ Focus on avoidance and mitigation.
- ℳ Communication on introduction of process.

Report to CWR Steering Committee – Conservation Offsetting

Group 3

- ℳ Need for data to understand function of each wetland.
- ℳ Requires different compensation actions.
- ℳ Higher costs for project proponents, however administrates the compensation project.
- ℳ More focus on avoidance – mitigation as a result.
- ℳ Possible less development.
- ℳ Focus on technological solutions – avoidance, mitigation.
- ℳ Prioritization and trade-offs in functions.
- ℳ More on the ground monitoring and compliance promotion and enforcement.
- ℳ Implications will be different based upon scale of not net loss evaluation.
- ℳ Need for compensation banking system to know where compensation projects could take place.
- ℳ Potential implications for insurance and comp insurance.

Anticipated Challenges

Group 1

- ℳ Identification of landscape change and pressures in each region.
- ℳ Starting from a point of loss – go to net gain?
- ℳ Location of compensation.
- ℳ Flexibility – getting bogged down in trying for perfect instead of moving on “good”.
- ℳ Challenge in quality of project if proponent not responsible for long term – potential for different monitoring method to ease cost of monitoring.
- ℳ MB, AB, NB – require bands from industry and achieve objective/function recovery.
- ℳ Political will and awareness and education is needed.
- ℳ Having the data to know what to replace and housing the structure in place in order to do the proper monitoring.

Group 2

- ℳ Temporal scale – peat.
- ℳ Costs/investment to restore wetlands is too high with no net loss of area and not practical in areas with high abundance/limited historic loss. CAPP: need region specific.

Group 3

- ℳ Need a mitigation agent, conservation banking scheme where lands could be offered up – would this

be based on voluntary land offerings and would supply meet demand? Need for ongoing monitoring to ensure provision of function.

- ℳ Costs for trained individuals and money.
- ℳ Supporting regulations would be required, potentially new legislation to house it.
- ℳ Inefficiency and inconsistency across jurisdictions.
- ℳ Public support and awareness for this approach.
- ℳ Political will.
- ℳ Rapid assessment tools to evaluate wetlands to be lost and replacement. Inventory and trend modelling.
- ℳ Requirements for different types of wetlands differ, and for different type of project.
- ℳ At what point does the net loss start?
- ℳ Incentives, awareness and approach need to be addressed upon launch.
- ℳ Municipalities’ role.
- ℳ Clarity for all jurisdictions and industries/government on how to engage the process.

Collective Goal of No Net Loss

Group 1

- ℳ Yes but how to implement in practical terms will be a challenge.
- ℳ In principle yes – to encourage others to aim for it.

Group 2

- ℳ No – goals need to be set regionally – there is a different context (e.g. Boreal, Alberta North and Alberta South – Alberta is accepting loss of function/area; Alberta South no net loss).
- ℳ Cannot impact functionality of system. CAPP prefers flexibility in approaches (e.g. culvert remediation, research, education programs).
- ℳ Ecological watershed integrity – regional watershed approach.
- ℳ Consider economic, social and environmental aspects – no loss.
- ℳ Areas where no net loss would be supported.

Group 3

- ℳ For selective wetlands/areas of province, in some provinces all land perhaps.
- ℳ “Significant wetlands”.
- ℳ Need to address horizontal inequity.
- ℳ Could be defined as wetlands areas of classes

Attachment Four

THE MITIGATION SEQUENCE- KEY MOVING PARTS

LANDSCAPE SCENARIOS	MANAGEMENT RESPONSE						
	ENGAGE & SUPPORT	ASSESS FUNCTION & VALUE	AVOID & PLAN	MINIMIZE ON-SITE IMPACTS	MITIGATE ON-SITE IMPACTS	COMPENSATE/ OFFSET : FEES & BANKING	MONITOR, REPORT & EVALUATE
HIGHLY ALTERED							
MODEST ALTERED							
UNALTERED							
PROTECTED							
SIGNIFICANT WETLAND							
POLICY REGIME							
WETLANDS							
WATER							
PLANNING							
EIA							
STEWARDSHIP							
LEGISLATIVE & PROGRAM REGIME							
WETLANDS							
WATER							
PLANNING							
EIA							
EVALUATE							
AUDIT/REPORT							
STEWARDSHIP							
PERFORMANCE CRITERIA							
ENGAGEMENT		Land Owners, Resource Sectors, Indigenous & Other Communities					
ADHERENCE		Mitigation Sequence & Enforcement of Rules					
EFFECTIVE		Wetland Status & Trends					
EFFICIENCY		Decision-making & Transactional Costs to Proponents					
FLEXIBILITY		Introduction of Market-based Instruments					
EVALUATION		Including Adaptive Management Practices					
AUDIT/REPORT		Accountability, Transparency & Reporting					