OFFSETTING POLICY FOR BIODIVERSITY

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

Cat. No.: xxx
ISBN: xxx

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Table of Contents

Disclaimer
This document is not a substitute for the legislation to which it applies. In the event of any inconsistency between this document and the aforementioned acts and their regulations, the latter will prevail. This policy may be updated periodically on a recurring 5-10 year timeframe.

Introduction

The Offsetting Policy for Biodiversity outlines Environment and Climate Change Canada's (ECCC) approach to the application, design, and implementation of offsets for biodiversity. It replaces ECCC's 2012 *Operational Framework for the Use of Conservation Allowances*. Offsetting is an approach to managing residual adverse effects to biodiversity for proposed project developments. The principles described or referenced in this policy reflect international best practices which promote consistent application of offsets across regulatory and policy regimes. The policy will complement, to the extent practical, federal, provincial and territorial (FPT) acts, regulations, and policies in managing residual adverse effects arising from project developments.

Scope and application

The policy describes ECCC's approach to offsetting for biodiversity. It was developed to assist individuals with responsibilities for, or interests in, project developments and related assessment, and management of adverse environmental effects, including cumulative adverse effects. It is intended for the public and private sectors, including project proponents, government officials (federal, Indigenous, provincial, territorial, municipal), environmental consultants and other non-government organizations, and the general public.

The policy will apply to all residual adverse effects and cumulative effects where ECCC has a role (regulatory or expert) within its mandate and it has been determined that offsetting is required. Legislation and policies where ECCC has a role include:

- *Impact Assessment Act*
- *Canadian Environmental Assessment Act*
- *Yukon Environment and Socioeconomic Assessment Act*
- *Mackenzie Valley Resource Management Act*
- *Nunavut Project Planning and Assessment Act*
- *Species at Risk Act* (SARA)
- *Migratory Birds Convention Act* and associated regulations
- *Canada Wildlife Act* and associated regulations
- *Federal Policy on Wetland Conservation*

- Non-federal impact and environmental assessment processes involving ECCC.

The biodiversity (e.g. migratory birds, species at risk, wetlands) incorporated into any given offset proposal is determined by the prevailing legislative or policy frameworks. Design and implementation of offsets for biodiversity may require evaluations at different spatial and temporal scales. Depending on the nature of the residual adverse effects, offsets may be aligned with strategic, regional, or project-specific planning processes.

ECCC is currently developing operational guidance and decision support tools to support policy implementation that will be made available in the coming years.

Policy goal

The policy identifies no net loss (NNL) as the goal for all project developments that adversely affect biodiversity under ECCC's wildlife mandate. Aligned with international standards, an offset designed to achieve NNL or net gain for biodiversity is specifically referred to as a biodiversity offset.

Policy objectives

The objectives of this policy are to provide:

- a framework for the application, design and implementation, of offsets using the mitigation hierarchy
- consistent, clear, and predictable policy guidance for those with responsibilities for, interest in, or a rights-based approach to, project developments and the assessment and management of adverse effects to biodiversity
- support and assist in the development of offsets that achieve improved conservation outcomes for biodiversity

Policy statements and guidance

The following sections present policy statements and supporting descriptions that reflect ECCC's approach when considering, designing, and implementing biodiversity offsets for project developments. The policy situates offsetting within the mitigation hierarchy, identifies NNL or net gain as the goal for

biodiversity offsets, recognizes that there are limits on the extent to which offsets can achieve NNL, and identifies key elements to consider for offset design and implementation.

Indigenous use of lands and resources and Indigenous Knowledge

Policy statement 1:

Offsets developed to address the environmental changes that affect the current and/or traditional use of lands and resources by Indigenous peoples or that occur on reserve land will be designed through engagement with the rights holders or First Nation. Indigenous knowledge and perspective will be factored into the offset plans.

The design and implementation of offsets plans will account for and reflect the following:

- commitment to respect Indigenous rights in our decision making
- consideration and adoption of Indigenous knowledge, values, and perspectives, including cultural significance:
    - access by Elders
    - hunting, fishing, trapping and gathering relationships
    - sacred sites
    - social, ceremonial, or economic importance

Mitigation hierarchy

Policy statement 2:

The mitigation hierarchy is followed by applying measures to avoid, minimize, and restore on-site to address, by avoiding or reducing, the adverse effects on biodiversity resulting from project developments. Offsetting is the last step in the mitigation hierarchy for replacing the residual adverse effects on biodiversity.

The mitigation hierarchy establishes an order of preference that promotes project development designs with the least environmental effect (for a visual illustration of the description provided in next three sections, please see Figure 1[1]). It functions to eliminate as many potential adverse effects through the impact assessment process, prioritizing measures in the following order:

- avoidance (e.g. re-design or re-locate project)
- minimization (e.g. adjusting the project construction schedule to protect critical life stages of species and implementing erosion and sediment control measures)
- on-site restoration (e.g. revegetating disturbed areas after construction)

[1] Adapted from Barbé, H. and Frascaria-Lacoste, N. 2021. Integrated ecology into land planning and development: between disillusionment and hope, questioning the relevance and implementation of the mitigation hierarch. Sustainability 13, 12726 https://doi.org/10.3390/su132212726

- offsetting (e.g. habitat restoration, enhancement, creation or protection projects)

Offsets are used to address residual adverse effects, including cumulative adverse effects, after it has been determined that all options in the previous steps of the mitigation hierarchy have been fully considered and applied.

Avoidance and minimization measures take priority because they address adverse effects proactively, thereby reducing environmental harm and reliance upon on-site restoration and offsetting measures. All technically feasible measures should be assessed. Analysis of the success of the measures should be conducted and be proportional to the level of risk and uncertainty posed to biodiversity, the uncertainty of the measures, and expected benefits of conducting the analysis. It is important to demonstrate at each step of the mitigation hierarchy that the measures to avoid, or minimize adverse effects are applied to the fullest extent possible.

In situations where adverse effects remain after implementation of all avoidance and minimization measures, on-site restoration measures will be used to rehabilitate impacted ecosystem components and functions at project sites once construction activities are complete (e.g. temporary work areas, laydown area, access roads). The extent to which all preceding mitigation reduces adverse effects informs the need for and extent of offsetting.

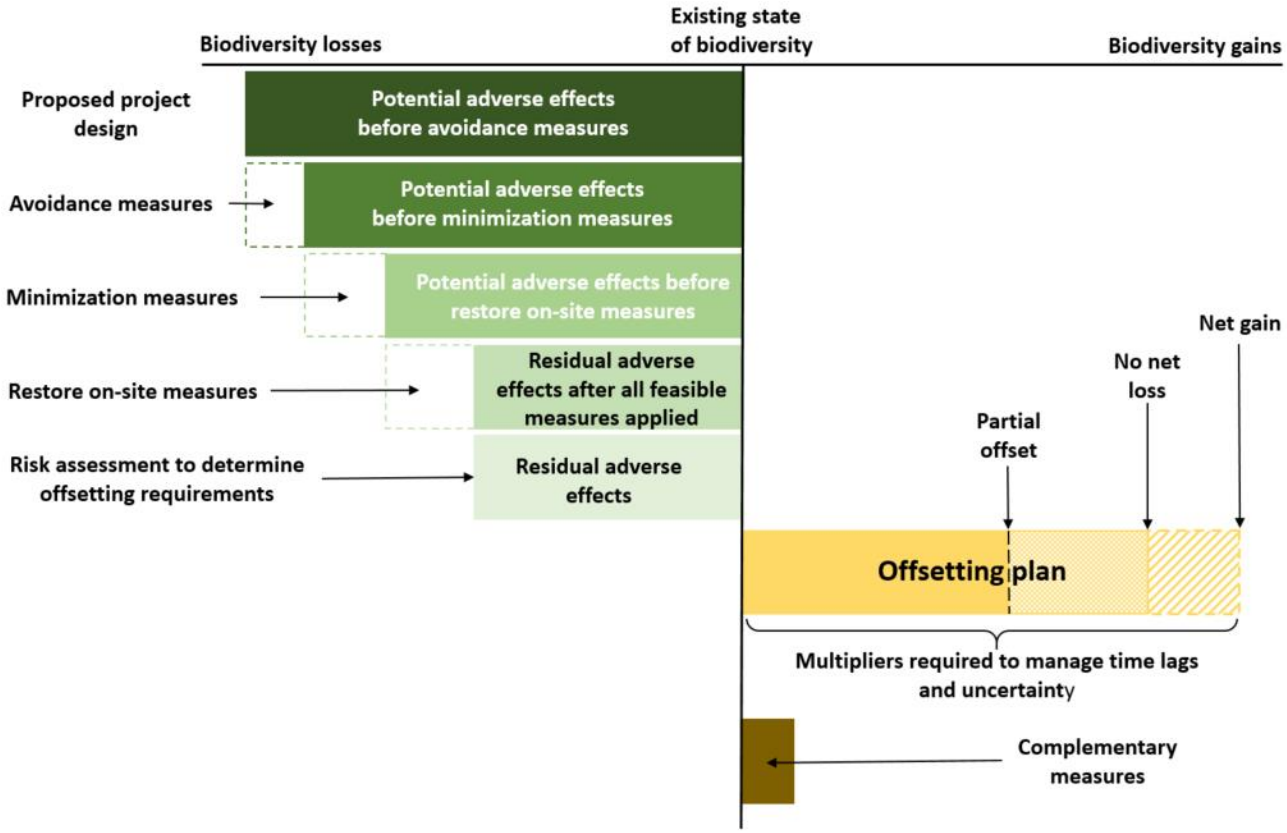


Figure 1: The mitigation hierarchy, showing the residual impact on biodiversity after the application of avoidance, minimization, and on-site rehabilitation/restoration measures. Biodiversity offsets aim to achieve no net loss (NNL) or net gain(Adapted from Barbé and Frascaria-Lacoste, 2021).

Long description of Figure 1:

This diagram illustrates the steps to be taken when there are biodiversity losses to the existing state of biodiversity caused by the design of a proposed development project.

Step 1: Apply all possible avoidance measures to reduce potential adverse effects caused by the project.

Step 2: Apply all possible minimization measures to reduce potential adverse effects further.

Step 3: Apply all possible restore on-site measures to reduce potential adverse effects even further.

After all feasible measures have been applied, any remaining effects are known as residual adverse effects.

A risk assessment is then required to determine the components of an offsetting plan including how much offset is necessary and if an offset is achievable. This assessment includes an equivalency analysis and assessment of the risk associated with time lags and uncertainty of the offset which will determine the size of multipliers.

To balance the residual adverse effects from the project, offsets are implemented to achieve the goal of no net loss or, where possible, net gain for biodiversity. For some development projects, offsets cannot fully balance the residual adverse effects to achieve no net loss and these offsets are known as partial offsets.

Complementary measures may be used in combination with offsetting. These measures can, for example, address knowledge or information gaps associated with the offset plan through scientific and Indigenous-based research and data collection. They are used to support and improve on the design and delivery of future offsets.

Accounting of adverse effects

Policy statement 3:

> All adverse effects, large or small in severity, long-term or short-term, are carried forward in the mitigation hierarchy for a full accounting of residual adverse effects, after which consideration to the development and use of offsets occurs. Limitations in avoidance, minimization, and on-site restoration measures will inform this accounting.

A full accounting of unavoidable residual adverse effects to biodiversity includes describing and measuring the direct, indirect, and cumulative effects. This accounting also incorporates all sources of risk and uncertainty associated with the measures employed at each step in the mitigation hierarchy. Accurately characterizing these will help inform on the need, extent, and feasibility of offsetting residual adverse effects. Higher risk and uncertainty will require larger offsets. Offsetting may not be a viable

option where technical limitations (e.g. species at risk) and uncertainty prevent attainment of NNL or net gain conservation targets.

Biodiversity offsets – no net loss and net gain

Policy statement 4:

> Biodiversity offsets must balance against residual adverse effects with offset measures such that NNL in target biodiversity is achieved. In some situations, biodiversity offsets must achieve net gains in biodiversity.

Offsets are applied as the last step in the mitigation hierarchy to address any remaining unavoidable residual adverse effects, including those that contribute to landscapes under pressure due to cumulative adverse effects NNL is the defined target for biodiversity offsets such that they balance against the residual adverse effects of project developments and no loss to target biodiversity remains. The goal of NNL and where possible, net gain, applies to the components that make up the target biodiversity, namely species composition, habitat structure, and ecosystem function.

Limits to achieving no net loss – partial offsets

Policy statement 5:

> There are limits to what can be offset, and there are limits on the extent to which offsets can achieve NNL or, net gain. An offset that cannot achieve NNL or net gain for target biodiversity is a partial offset.

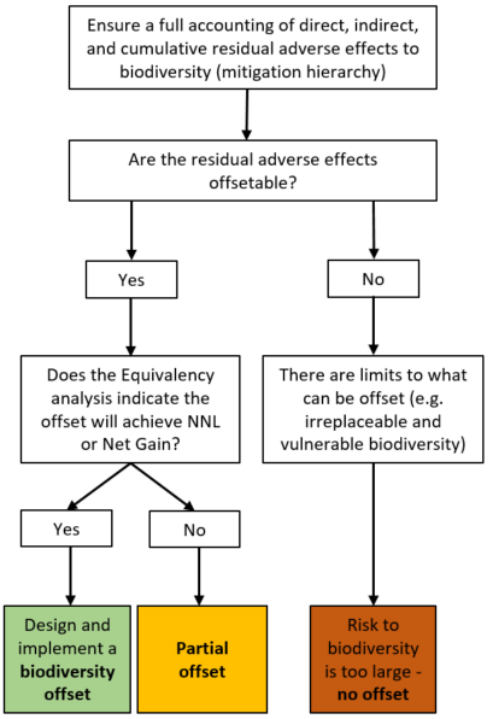
The limits to what can be offset are determined through an assessment of technical feasibility, risk, and uncertainty. Offsets are likely not feasible where the biodiversity cannot be replaced due to technical limitations, i.e. certain sensitive ecosystems and habitats for some biodiversity, especially species at risk, cannot be replaced. Similarly, offsets are likely not feasible for addressing high severity effects to vulnerable species where the uncertainties of offset success are high. Assessments of biodiversity vulnerability (e.g. species status) and irreplaceability (e.g. few remaining habitat sites) can support determinations of offsetability in the context of any given project development[2].

Situations should be anticipated where, after consideration of all available design and implementation options, biodiversity offsets are not feasible, i.e. NNL or net gain cannot be achieved. Any loss in biodiversity should be evaluated against national, provincial/territorial, regional, and local conservation objectives and its risk characteristic assessed quantitatively to determine whether partial offsetting is appropriate. Where the prevailing legislation under which project developments are reviewed make allowance, consideration should be given to the design and implementation of offsets to balance, in part, against the residual adverse effects. In this policy, offsets that cannot achieve NNL or net gain are referred to as partial offsets.

[2] For example, see: Business and Biodiversity Offsets Programme (BBOP). 2012. Resource Paper: Limits to What Can be Offset. BBOP, Washington, D.C. (http://bbop.forest-trends.org/guidelines/Resource_Paper_Limits.pdf)

Partial offsets do not align with the stated minimum NNL conservation goal of the policy. If appropriate, e.g., a project in the national interest, then consideration may need to be given to the development of measures that reduce overall risk and uncertainty, and support improved conservation outcomes for the effected biodiversity than would otherwise be the case. In this context, complementary measures may play an important role (please refer to Policy statement 7 below for more information).

Please refer to Figure 2 in relation to all of the above.



Long description for Figure 2:

This diagram illustrates the steps required to determine whether the residual effects of the project can be offset and the type of offset to be considered.

Step 1: Ensure a full accounting of direct, indirect and cumulative residual adverse effects to biodiversity by using the mitigation hierarchy (Figure 1).

Step 2: Determine if the residual adverse effects can be offset.

If yes, the next step is to determine if the equivalency analysis indicates that the offset will achieve a no net loss or net gain.

If yes, the next step would be to design and implement a biodiversity offset.

If no, the option would be a partial offset.

Step 3: Where the residual adverse effects cannot be offset, there are limits to what can be offset. For example, if there is irreplaceable and vulnerable biodiversity, the risk is too large to offset.

Offset design and implementation elements

Policy statement 6:

Offsets must be designed and implemented based on the concepts of equivalency, additionality, location, timing, duration, monitoring and evaluation, accountability, and governance

In accordance with international standards for the conservation of nature, the following concepts apply in the design and implementation of offsets, regardless of the desired conservation objective (i.e. NNL or net gain). The same principles should be considered in the design and implementation of offsets for project developments where losses in biodiversity are anticipated such as in partial offsetting or no offsetting scenarios.

Equivalency

Equivalency is the state when benefits from the offsetting measures are equal to the impacts of the development project. Equivalency analyses are used for determining the amount of biodiversity offset needed to balance against the residual adverse effects to achieve NNL. To conduct equivalency analyses there are three core steps[3]:

Step 1: Quantify losses, i.e. residual adverse effects, incorporating any associated uncertainties. The losses assessment is conducted with respect to the baseline (existing) conditions, following application of avoidance, minimization and on-site restoration measures.

Step 2: Quantify the anticipated gains from the offsets.

Step 3: Scale the offset activity so that the total increase in biodiversity from the offset at least equals the target biodiversity lost from the impact.

Designing and implementing offsets to achieve equivalency as defined by specific conservation targets, e.g. NNL, can be technically complex. For example, offsetting for species at risk, where legal thresholds apply, demand careful and precise evaluations to ensure the required conservation targets are met.

The following statements are guiding principles when considering equivalency, and aim to support highly equitable and high quality offsets for biodiversity:

- offset measures should reflect the best options for addressing the adversely affected (target) biodiversity, including those that prioritize in-kind offsets and that avoid or minimize risk to biodiversity and associated uncertainty (e.g. habitat banking)

[3] Adapted from Keith D. Clarke and Michael J. Bradford, *A Review of Equivalency in Offsetting Policies*, CSAS, Research Document 2014/2019, p.4

- the order of priority for habitat based offset measures is restoration, enhancement, creation, protection (averted loss)

- to facilitate equivalency analyses, the range and extent of offset measures, whether in-kind, out-of-kind, or combination thereof, should be converted to a common 'currency'. The equivalency analysis needs to convert any habitat and non-habitat based measures to a common metric, and then scale these measures so that equivalency is achieved

- equivalency analyses should be pre-cautionary based. All sources of uncertainty arising from the assessment of the adverse effects to the design and implementation of offsets should reflect conservative estimates. Further, offsets need to be implemented in such a way that non-target wildlife, including any species at risk, are not (unintentionally) adversely affected.

- ecosystems are dynamic and complex, with natural variability in biodiversity in space and over time. To attain a reasonable degree of confidence for offsets to meet their conservation targets or goals necessitates the collection of quantitative data, and the range and extent of variability, including natural variability.

- contingency measures should be described and formalized in accountability and governance mechanisms and structures to manage for potential failures in offset implementation

- where available and as appropriate, consideration should be given to proponent-led biodiversity habitat banking and third-party led offsetting (e.g. market-based biodiversity habitat banking, in-lieu fee programs)

- the use of 'adaptive management frameworks' (i.e. monitoring-mitigation) for managing certain types of risk and uncertainty will be necessary and appropriate in some instances (e.g., in the use of novel techniques)

- complementary measures, including scientific research and data collection, should be considered if they can facilitate better outcomes for biodiversity (e.g. increased ecosystem resiliency, greater diversity of food supply)

Use of multipliers

Multipliers are employed in the design of biodiversity offsets to support achieving equivalency. Multipliers may reflect the ratio of biodiversity offset area to impact area where habitat loss is a primary threat to biodiversity. As a general principle, greater uncertainty, time lags, or severity of effects require larger multipliers. As these increase, the multipliers also increase. Multipliers greater than 1:1 are necessary since all sources of uncertainty and other such factors are difficult to eliminate, irrespective of the currency or unit of measure used. In most cases, multipliers need to be appreciably larger to achieve NNL or net gain, and will in some instances be an order of magnitude or more than 1:1. While there are measures to reduce sources of uncertainty, such as the establishment of habitat banks, multipliers will often still be necessary.

While many sources of uncertainty exist and can be categorized in various ways, they generally arise in relation to knowledge (e.g. data quantity and quality), and limitations in design and implementation. The following are some key considerations for determining appropriate offset multipliers:

- The size of the multiplier needs to account for the irreplaceability and vulnerability of the biodiversity at the impact site. As the risks to biodiversity and uncertainties associated with these criteria increase, so too will the multiplier. The limits of offsets depends on these criteria and are specific to the ecosystem, habitat, and species.
- The size of the multiplier needs to account for the time lag before the offset is fully functional for the target biodiversity. Longer time lags will necessitate larger multipliers. Using habitat banks to avoid time lags may address many sources of uncertainty.
- A large source of uncertainty is likely to arise in the use of untested offset measures. Guidance and decision-support tools used in equivalency analyses need to be precautionary.
- The use of multipliers may not be effective for addressing every source of uncertainty.

Additionality

Offsets must provide ecological outcomes beyond what would be provided under a *business-as-usual* scenario. The outcomes must be demonstrably new and would not have resulted without the offset. The following criteria should be assessed to establish whether an offset is additional:

- the offset must result in benefits to biodiversity, and must be further to any existing requirements, incentives, or benefits arising from legislation, regulations, plans and programs, land-use plans, or government funding
- where there is overlap in requirements between jurisdictions, a single offset may be able to meet all requirements. However, the measures put in place by another level of government or federal department should meet the design criteria of this policy.

Location

Describing and assessing how an offset fits into the landscape is a critical first step when considering offset location. Ideally, offsets are situated close to the impact site to support goals and objectives for the target biodiversity. It is important that offsets are incorporated into the landscape so that offset is connected to the ecosystem functionality. For example, if the impacted habitat provides species movement between habitats, then the offset should be designed to maintain this connection. Situations may arise where offsets need to be designed to address broader, regional management objectives. In these situations, consideration is given to:

- how the offset can align and support strategic or regional management objectives
- implications to local biodiversity at the impact site
- implications to Indigenous and local communities

Timing and duration

Ideally, offset measures are fully implemented and have reached maturity prior to when the impacts occur. Habitat-based offsets, such as restoration or enhancement, often do not become fully functional for decades. When this is the case, there is a time lag between the impact from the project and maturity of the offset. To address this temporal loss in biodiversity, a larger amount of offsets will be needed. This will also address any uncertainties arising from the time lag (see Use of multipliers).

Offsets must be durable which means that they are in place and functioning for at least the length of time of the biodiversity loss at the impact site. The benefits they provide are to be protected and maintained over this period. For some projects, the responsibility for managing offsets will likely to extend beyond the duration. For other projects, where permanent and irreversible impacts occur, offsets will need to be permanent.

Monitoring and evaluation

Effectiveness and compliance monitoring programs are key components in the design, implementation, and assessment of offsets. While there are many factors to consider, it is important that effectiveness and compliance monitoring programs provide or support:

- frameworks within which survey methodologies, statistical designs, and data between impact and offset sites are standardized
- determinations of success based on the goals of the offset (e.g., NNL, net gain)
- quantitative-based assessments that determine the need for contingency measures and adaptive management

In some situations, data may be collected by a proponent and a jurisdiction (e.g., provincial, territorial or Indigenous government agency, or habitat banking institution) or entirely by a jurisdiction. In these situations, it is important that the roles and responsibilities of each party be identified prior to the implementation of the offset.

Accountability and governance

The person(s) responsible for the adverse effects to biodiversity is accountable for delivery, success, and protection of the offset measures, whether proponent-led or third party led (e.g. habitat banking, in-lieu fees). Accountability extends to the protection of offsets, whether through conservation covenants, easements, or other approach.

Mechanisms available to project developments will vary by region and jurisdiction.

It is important that governance structures responsible for delivery, management, oversight, review and evaluation of an offset program are clearly articulated, and include:

- roles and responsibilities of each party
- legal and financial arrangements

- milestones, monitoring and evaluation, including accounting frameworks to track losses (impact site(s)) and gains (offset site(s)) in biodiversity

Complementary measures

Policy statement 7:

Complementary measures may be employed to address knowledge or information gaps associated with the design or implementation of offset plans

Complementary measures, which include scientific and Indigenous-based research, data collection and other initiatives that do not result directly in on-the-ground conservation, are used to support and improve on the design and delivery of offsets. In the context of offsetting design and delivery, complementary measures can play an important role in addressing, for example, knowledge or information gaps associated with the baseline data, in the assessment of adverse effects, or in the design and implementation of the offsets. The use of complementary measures to support offset plans may be determined by the prevailing legislation, existing policy frameworks, or through project-level assessments. Proposed complementary measures should illustrate how they will facilitate and yield better outcomes for biodiversity. Further, for biodiversity offsets, costs associated with complementary measures will be small relative to the overall cost of offset plans. On the other hand, costs associated with complementary measures will be likely be much larger where NNL or net gain is not achievable and consideration to Partial offsets is determined to be appropriate. The nature and extent of complementary measures should be considered on a project-by-project basis.

Annex - Definitions

Definitions presented in this policy are based on or adapted from internationally based standards to promote consistency in the use of biodiversity offsetting nomenclature[4].

Additionality is a property of a biodiversity offset where the conservation outcomes it delivers are demonstrably new and additional and would not have resulted without the offset.

Averted risk (loss) means protection and maintenance actions implemented at a site to protect existing biodiversity and prevent future loss to that biodiversity.

Avoidance measures are options taken in project location, siting, scale, layout, technology and phasing to avoid impacts on biodiversity.

Biodiversity means the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species (genetic diversity), between species and of ecosystems. Loss of biodiversity

[4] Unless indicated otherwise, the definitions presented here are adapted from Business and Biodiversity Offsets Programme (BBOP). 2012. Glossary. BBOP, Washington, D.C. 2nd updated edition; BBOP. 2012. Resource Paper: Limits to What Can Be Offset. BBOP, Washington, D.C. ; and (2) WCC-2016-Res-059-EN. IUCN Policy on Biodiversity Offset. https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2016_RES_059_EN.pdf

can mean loss of individuals, populations or habitat. This policy applies to wildlife species that are not aquatic species defined under the section 2 of the *Fisheries Act*.

Biodiversity offsets are measurable and demonstrable offsetting outcomes resulting from actions designed to achieve no net loss or net gain for the target biodiversity and thereby balance against the residual adverse effects of project developments after implementation of all feasible avoidance, minimization, and on-site restoration measures. The goal of NNL or net gain applies to species composition, habitat structure and ecosystem function of the target biodiversity.

Complementary measures are actions, including scientific research and data collection that support the delivery of biodiversity or partial offsets.[5]

Compliance monitoring is monitoring of measures (e.g. avoidance, minimization, restoration on-site, offsetting) to ensure they are being implemented as intended and existing regulations and guidelines are being followed.

Contingency Measures are planned secondary measures which would be implemented if the offset measures did not meet their conservation objectives.

Ecosystem function is a process carried out or enabled by an ecosystem that is necessary for the self-maintenance of that ecosystem, such as seed dispersal, primary production, nutrient cycling and pollination.

Ecological equivalence generally refers to species that occupy similar niches in different geographical regions. This similarity can be observed in terms of species diversity, functional diversity and composition, ecological integrity or condition, landscape context, and ecosystem services

Effectiveness monitoring is monitoring of measures (e.g. avoidance, minimization, offsetting) to ensure they are successfully functioning as intended

Equivalency analysis refers to the process to determine the amount and nature of biodiversity offsets to achieve a fair balance (no net loss or net gain) between project impacts and gains associated with offset measures[6].

Habitat is the area or type of site where an individual or wildlife species naturally occurs or depends on directly or indirectly in order to carry out its life processes or formerly occurred and has the potential to be reintroduced (from *Species at Risk Act*).

Habitat creation involves the creation of an ecosystem at a location where that type of ecosystem did not exist previously.

Habitat enhancement involves a management activity that increases one or more ecosystem functions.

Habitat restoration involves reestablishing an ecosystem where it previously occurred.

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[5] Adapted from Policy for Applying Measures to Offset Adverse Effects on Fish and Fish Habitat Under the *Fisheries Act*. 2019. Fish and Fish Habitat Protection Program. Fisheries and Oceans Canada.

[6] Adapted from Bradford, M.J., Smokorowski, K.E., Clarke, K.D., Keatley, B.E and Wong, M.C. 2016. Equivalency metrics for the determination of offset requirements for the Fisheries Project Program. DFO Can. Sci. Advis. Sec. Res. Doc. 2016/046. vi+32 p.

In-kind (like-for-like) means conservation of biodiversity of the same type of biodiversity (species, habitats, etc.) as that is affected by the project.

In-lieu fee means a payment made by a person proposing a project or activity, to fund offsetting and/or complementary measures that will be carried out by a jurisdiction or third party[7].

Irreplaceability reflects the number of additional spatial options available for conservation if the biodiversity affected by the project were irreversibly lost. Where biodiversity occurs at many sites (low irreplaceability), many options exist for conservation, whereas where biodiversity is restricted to one or few sites (high irreplaceability), few options exist for conservation elsewhere. Measures of irreplaceability must be clearly referenced to geographic scale. Something is considered irreplaceable if conservation goals for that component cannot be achieved without it.

Minimization measures are alternatives taken in project location, siting, scale, layout, technology and phasing to minimize impacts on biodiversity.

Mitigation hierarchy is the order of priority for selection of mitigation measures to prevent or limit residual adverse effects.

Multipliers represent the increase in amount (e.g. area) of an offset relative to the impacted site.

Net gain means a target for a project proposal in which measures to avoid, minimize, restore on-site, and offset, exceed the adverse effects such that a gain in biodiversity is achieved.

No net loss is a target for project developments where measures to avoid, minimize, restore on-site, and offset, balance against the adverse effects so that no loss to biodiversity remains.

Offsets are measurable and demonstrable actions designed to balance against, in part or in whole, the residual adverse effects of project developments to biodiversity after implementation of all feasible avoidance, minimization, and on-site restoration measures.

Offsetting[8] is the last step in the mitigation hierarchy and is a system through which in-kind, and out-of-kind offsets, or combinations thereof, are determined.

Out-of-kind (not like-for-like) means conservation of biodiversity that differs from the biodiversity impacted by the project. Specifically, the biodiversity conserved may differ in form or in function from that which is lost. Negotiations to determine appropriateness and sufficiency of the offset will be required between the proponent and government as well as rights holders.

Partial in-kind are measurable and demonstrable offsetting outcomes resulting from actions designed to reduce the residual adverse effects of project developments after implementation of all feasible avoidance, minimization, and on-site restoration measures. Partial offsets may be applied where NNL or net gain is not technically feasible. Therefore, partial offsets do not prevent a loss in biodiversity.

Precautionary principle states that 'Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation'.

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[7] Adapted from British Columbia. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Version 1.0. May 27, 2014.
[8] Adapted from British Columbia. Procedures for Mitigating Impacts on Environmental Values (Environmental Mitigation Procedures). Version 1.0. May 27, 2014; BBOP. 2012. Resource Paper: Limits to What Can Be Offset. BBOP, Washington, D.C.

Residual adverse effect means the adverse effects that remain after all mitigation measures are applied and before offsets are applied.

Restore on-site refers to measures taken to restore or rehabilitate areas where project impacts were unavoidable but are returned to a near-natural state after construction is completed.

Target biodiversity is the biodiversity to which the residual adverse effects of the project development apply.

Technically feasible means the scientific/management techniques and technology required to achieve the biodiversity offset are achievable. This policy recognizes there is an interplay between technical and economic feasibility to offsetting, and that prevailing legislation, policy and decision-support frameworks provide the necessary guidance to identify the appropriate balance.

Trading up means conserving biodiversity that is of higher conservation priority than that affected by the development project

Vulnerability is the likelihood of biodiversity loss due to imminent threats.