

Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat

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Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat

Politique sur l'application de mesures visant à compenser les effets néfastes sur le poisson et son habitat

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Table of Contents

Context and Purpose of this Policy.....	4
Disclaimer	5
Approval Authority, Effective Date and Review Date	5
Part 1. Legislative Context related to Offsetting.....	5
1.1. Relevant Fish and Fish Habitat Protection Provisions of the <i>Fisheries Act</i>	5
1.1.1. The Authorizations Concerning Fish and Fish Habitat Protection Regulations.....	6
1.2. The <i>Species at Risk Act</i>	7
1.3. Obligation to Consider the Rights and Perspectives of Indigenous Peoples.....	8
Part 2. Measures to Offset Harmful Impacts to Fish and Fish Habitat	9
2.1. Guiding Principles for Offsetting	9
2.1.1. Principle 1: Offsetting is last in a Hierarchy of Measures.	9
2.1.2. Principle 2: There are limits to what can be offset.	11
2.1.3. Principle 3: Offsetting measures must counterbalance the harmful impacts.	12
2.1.4. Principle 4: Measures to offset are in addition	12
2.1.5. Principle 5: Offsets should be located to optimize ecological outcomes.	13
2.1.6. Principle 6: Measures to offset should generate self-sustaining benefits.	14
2.1.7. Principle 7: Time lags should be avoided or minimized.	14
2.1.8. Principle 8: Indigenous Peoples should be engaged.....	15
Part 3. Measures to Offset	16
3.1. Types of Measures to Offset	17
3.1.1. Habitat Restoration and Enhancement.....	17
3.1.2. Habitat Creation.....	18
3.1.3. Stocking and Translocation	19
3.1.4. Chemical or Biological Manipulations	19
3.1.5. Averted Loss	20
3.1.6. Complementary Measures.....	20
3.1.7. A Combination of Measures	21
3.2. Options for Implementing Measures to Offset.....	21
3.3.1. Project-specific Measures	21
3.3.2. Fish Habitat Banks	22

Part 4. Preparing an Offsetting Plan.....	23
4.1. Content of the Plan	24
4.2. Using the 'Factors to Consider' to Guide Offsetting Plan Development.....	25
4.3. Key Steps in Preparing an Offsetting Plan	26
4.3.1. Step 1: Identify potentially affected Indigenous communities	26
4.3.2. Step 2: Characterize the anticipated harmful impacts on fish and fish habitat.....	26
4.3.3. Step 3: Select measures to offset.....	27
4.3.4. Step 4: Determine the amount of offsetting required	28
4.3.5. Step 5: Establish the monitoring plan and reporting	30
4.3.6. Step 6: Submit the offsetting plan as part of an application	30
4.4. Cost of implementing the offsetting plan and financial guarantee.....	31
4.5. Access and approvals for implementing offsetting plan	31
4.6. Additional Guidance.....	32
Annex A: Additional guidance on preparing an offsetting plan.....	33

Context and Purpose of this Policy

Fish and fish habitat across Canada provide social, cultural, economic and ecological benefits that were once thought unlimited, but are now realized to be finite and in delicate balance with the biological, chemical, and physical factors of the aquatic environment. They should, therefore, be conserved and protected to maintain the benefits they provide for present and future generations. Fish and fish habitat can be negatively affected by development activities resulting in loss of ecological function and reduced productivity of fish and fish habitat.

Fisheries and Oceans Canada (DFO) conserves and protects fish and fish habitat by regulating works, undertakings or activities that could result in death of fish or the harmful alteration, disruption or destruction of fish habitat (collectively referred to in this document as “harmful impacts to fish and fish habitat” or simply “harmful impacts”). The Minister or delegate (referred to as “DFO”) may issue authorizations under paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act* following a site-specific review of works, undertakings or activities that pose, respectively, a risk of death of fish or the harmful alteration, disruption or destruction of fish habitat. In making the decision to issue such an authorization, the Department must, among several other factors, consider whether there are measures and standards to avoid, mitigate or offset death of fish and harmful alteration, disruption and destruction of fish habitat.

The [*Fish and fish habitat protection policy statement, August 2019*](#), describes how avoidance, mitigation and offsetting form a hierarchy of measures to limit harmful impacts to fish and fish habitat, emphasizing that efforts should be made first to prevent (avoid) and then minimize (mitigate) harmful impacts to limit harm to fish and fish habitat. Death of fish and harmful alteration, disruption, and destruction of fish habitat that occur following the implementation of avoidance and mitigation measures must then be addressed by measures to offset, with the goal of counterbalancing these harmful impacts. However, because it is more difficult and uncertain to restore, enhance or create, aquatic ecosystems than it is to preserve them in the first place, offsetting should always be a means of last resort, with maximal efforts directed at avoidance and mitigation of harmful impacts.

This *Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat* (hereafter “this Policy”) provides guidance to proponents and DFO staff on the use of offsetting measures to counterbalance harmful impacts to fish and fish habitat. It also provides guidance on the development of offsetting plans when seeking authorization under paragraph 34.4(2)(b) for death of fish and/or paragraph 35(2)(b) for harmful alteration, disruption or destruction of fish habitat or on the development conservation project plans for habitat banks. This Policy is organized into four parts:

Part 1 provides background information on the legal context related to the conservation and protection of fish and fish habitat;

Part 2 provides the guiding principles for proposing measures to offset;

Part 3 provides information on the types of offsetting measures and their application as well as the options for implementing measures to offset; and,

Part 4 provides the key steps in preparing an offsetting plan under the *Authorizations Concerning Fish and Fish Habitat Protection Regulations* and links for more information.

Disclaimer

The *Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat* is not a substitute for the *Fisheries Act*, the *Species at Risk Act* or their regulations. In the event of an inconsistency between this Policy and the *Fisheries Act*, the *Species at Risk Act* or their regulations, the legislation will prevail.

Approval Authority, Effective Date and Review Date

The *Policy for Applying Measures to Offset Harmful impacts to Fish and Fish Habitat* was approved by Fisheries and Oceans Canada and it is in effect as of [to be determined]. It will be reviewed at least every five years.

Part 1. Legislative Context related to Offsetting

Proponents of works, undertakings or activities are responsible for complying with the *Fisheries Act*, the *Species at Risk Act*, and their associated regulations. When the carrying on of a proposed work, undertaking or activity is likely to result in harmful impacts to fish and fish habitat that might contravene the *Fisheries Act*, it is the proponent's responsibility to apply for a *Fisheries Act* authorization, and, if granted, comply with all of its terms and conditions. When applying for a *Fisheries Act* authorization, the proponent must explain how the harmful impacts will be counterbalanced by the implementation of measures to offset, which can be done either by using credits from a fish habitat bank or by providing an offsetting plan. This chapter on legislative context describes the legal provisions that lead up to the need for offsetting measures.

1.1. Relevant Fish and Fish Habitat Protection Provisions of the *Fisheries Act*

The *Fisheries Act* provides the legislative framework for the conservation and protection of fish and fish habitat that gives rise to the requirement for measures to offset harmful impacts to fish and fish habitat resulting from projects that may occur near or in waters. It includes prohibitions against the carrying on of a work, undertaking or activity that results in certain harmful impacts to fish and fish habitat, more specifically:

- a prohibition against the carrying on of works, undertakings or activities that result in the death of fish (subsection 34.4(1)); and,
- a prohibition against the carrying on of works, undertakings or activities that result in the harmful alteration, disruption or destruction of fish habitat (subsection 35(1)).

Proponents of works, undertakings or activities are responsible for complying with the *Fisheries Act* by ensuring that their works, undertakings or activities do not result in the death of fish or the harmful alteration, disruption or destruction of fish habitat.

If the proponent's works, undertakings or activities will result in the death of fish or the harmful alteration, disruption or destruction of fish habitat, they will need to apply for an authorization under subsections 34.4(2)(b) and 35(2)(b) of the *Fisheries Act* in order to allow them to lawfully conduct them. Proponents applying for an authorization must comply with the [Authorizations Concerning Fish and Fish Habitat Protection Regulations](#).

Once an application has been submitted and deemed adequate and complete by DFO, under subsection 34.1(1) of the *Fisheries Act*, the Minister must take into account several factors before making a decision with regard to an application for authorization. This Policy provides guidance on two factors in particular:

- Whether there are measures and standards to avoid the death of fish or to mitigate the extent of their death or offset their death or to avoid, mitigate or offset the harmful alteration, disruption or destruction of fish habitat (paragraph 34.1(1)(c));
- Whether any measures and standards to offset the death of fish and the harmful alteration, disruption or destruction of fish habitat give priority to the restoration of degraded fish habitat (paragraph 34.1(1)(f)).

Part 4 of this Policy outlines how the proponent can provide the information in their offsetting plan as part of an application for authorization to support the DFO's consideration of these factors.

The *Fisheries Act* also contains provisions empowering the Minister to enter into a fish habitat bank arrangement with any proponent and to establish a system for the creation, allocation and management of a proponent's habitat credits (section 42.02). The *Fisheries Act* also specifies what needs to be included in the habitat banking arrangement, for example, a description of the bank, the area to which the bank applies (the "service area"), and the administration of the arrangement, including how habitat credits get certified and tracked. More information about habitat banking can be found in the *Guidelines for Establishing and Managing Fish Habitat Banks*.

1.1.1. The Authorizations Concerning Fish and Fish Habitat Protection Regulations

The *Authorizations Concerning Fish and Fish Habitat Protection Regulations* identify the information and documentation requirements for proponents, and include process and time limits for DFO to review non-emergency applications for *Fisheries Act* authorizations. Schedule 1 of these regulations specifies the information and documentation that must be submitted with such an application, which includes the number of habitat credits from a fish habitat bank that the proponent plans to use to offset harmful impacts, and an offsetting plan for any harmful impacts that were not offset using habitat credits. Section 16 of this schedule explains what must be included in an offsetting plan.

For more detailed information about the *Authorizations Concerning Fish and Fish Habitat Protection Regulations* and the process for applying for a *Fisheries Act* authorization,

please see the [Applicant's Guide Supporting the "Authorizations Concerning Fish and Fish Habitat Protection Regulations"](#)

1.2. The *Species at Risk Act*

The Minister of Fisheries and Oceans is the competent minister who is responsible for the administration and enforcement of the *Species at Risk Act* with respect to aquatic species at risk, except for those located in or on federal lands administered by the Parks Canada Agency. The *Species at Risk Act* includes provisions to protect aquatic species at risk¹ and their critical habitat, and the residences of their individuals, which includes prohibitions against:

- killing, harming, harassing, capturing or taking an individual of a species that is listed as extirpated, endangered or threatened (subsection 32(1));
- damaging or destroying the residence of one or more their individuals (section 33); and,
- destroying any part of their critical habitat (subsection 58(1)).

Proponents are responsible for ensuring that their activities do not contravene these prohibitions. If that is not possible, the proponent will require a permit under subsection 73(1) of the *Species at Risk Act* or may use another authorization issued under another Act of Parliament that would act as a permit pursuant to section 74 of the *Species at Risk Act* (such as a *Fisheries Act* authorization). In making this decision, the competent minister considers and must be of the opinion that the requirements of subsections 73(2) to (6.1) are met. Of particular interest is the requirement of subsection 73(3) which states that the competent minister must be of the opinion that:

- all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;
- all feasible measures will be taken to minimize the impact of the activity on the species, its critical habitat or residences; and,
- the activity will not jeopardize the survival or recovery of the species.

The *Fisheries Act* authorization will generally be the instrument considered if the death of an aquatic species at risk or damage or destruction of the residence or destruction of critical habitat may occur as the result of the carrying on of a work, undertaking or activity. While the *Species at Risk Act* does not speak to offsetting, the application of properly designed measures to offset (as set out above in the *Fisheries Act*) could help ensure that the survival and recovery of an at-risk species is not jeopardized or, better yet, it can contribute to recovery of the species. Addressing jeopardy with biodiversity offsets is discussed in more detail in the [Species at Risk Act Permitting Policy \(2016\)](#).

¹ The term "aquatic species at risk" will be used to mean aquatic species listed under Schedule 1 of the *Species at Risk Act* as endangered, threatened or extirpated.

1.3. Obligation of the Crown to Consider the Rights and Perspectives of Indigenous Peoples

The Government of Canada recognizes that reconciliation is the fundamental purpose of section 35 of the *Constitution Act, 1982*. Section 35 recognizes and affirms the existing Aboriginal and treaty rights of First Nations, Inuit and the Métis Nation. As a way to protect these rights, the doctrine of the duty to consult and accommodate was developed by Canadian courts. DFO consults with Indigenous Peoples when Aboriginal and treaty rights may be adversely impacted by a contemplated decision, including any decision under the *Fisheries Act* or the *Species at Risk Act*, and, if appropriate, accommodates Indigenous Peoples for adverse impacts to Aboriginal and treaty rights.

In addition, section 2.4 of the *Fisheries Act* requires, when making a decision under the Act, the Minister to consider any adverse effects that the decision may have on the rights of Indigenous Peoples of Canada. This includes any decision to authorize any work, undertaking or activity and the accompanying measures to offset, as well as any decision associated with habitat banking such as approving conservation projects, and the associated defined service area and authorizing the use of habitat credits (as offsetting measures).

There are also additional obligations under subsections 73(4) and (5) the *Species at Risk Act* regarding consultations with a First Nation or a Wildlife Management Board. If a listed aquatic species at risk is found in an area in which a wildlife management board is authorized by a land claims agreement to perform functions, then the Minister must consult the wildlife management board before issuing a permit or authorization that acts as a permit under the *Species at Risk Act* (subsection 73(4)). Similarly, if the species is found in a reserve under the *Indian Act*, the Minister must consult the band (subsection 73(5)).

For more information about the Crown's duty to consult please see the [Updated Guidelines for Federal Officials to Fulfill the Duty to Consult²](#).

Proponents who are not taking Crown actions (i.e., proponents that are not the Crown) do not have a legal duty to consult and accommodate. DFO, however, strongly encourages all proponents to engage early and often with potentially affected Indigenous Peoples in all phases of offsetting and habitat banking (i.e., planning, design and implementation). A proponent's offsetting plan that has been designed and developed with agreement by Indigenous Peoples can aid the Crown's consultation and reduce the likelihood of lack of support by a potentially affected Indigenous Nation or community and by DFO.

Under the Fish and Fish Habitat Protection provisions of the *Fisheries Act*, subsection 34.1(1) requires that the Minister consider eight factors prior to making certain decisions, including whether or not to issue a *Fisheries Act* authorization. One of the factors that

² Government of Canada. Department of Aboriginal Affairs and Northern Development Canada. 2011. Updated Guidelines for Federal Officials to Fulfill the Duty to Consult. (https://www.rcaanc-cirnac.gc.ca/DAM/DAM-CIRNAC-RCAANC/DAM-CNSLTENGE/STAGING/texte-text/intgui_1100100014665_eng.pdf).

must be considered is Indigenous knowledge of the Indigenous peoples of Canada that has been provided to the Minister (paragraph 34.1(1)(g)):

As stated in paragraph 34.1(1)(g) of the *Fisheries Act*, when Indigenous Knowledge is provided to FFHPP it **must** be considered. What this means is, if an Indigenous Nation / community provides Indigenous Knowledge to DFO in relation to a *Fisheries Act* authorization decision, it will not be dismissed or disregarded. DFO practitioners are expected to work with the Indigenous Nation or community to ensure DFO's understanding of the knowledge is accurate, prior to its consideration. Indigenous Knowledge provided may go beyond fish and fish habitat aspects. Indigenous Knowledge may provide information about the potential impacts of the proposed work, undertaking or activity on asserted or established Aboriginal and treaty rights, identify the importance of the fish and fish habitat to the Nation or community and how the proposed work, undertaking or activity could affect their ability to practise their rights related to fish and fish habitat, etc. Specific to offsetting, Indigenous Knowledge may provide insights into whether the proposed offsetting plan adequately addresses the concerns of the Nation or community, information about uncertainties associated with the proposed measures to offset, and whether changes are required to the offsetting plan.

Part 2. Measures to Offset Harmful Impacts to Fish and Fish Habitat

The goal of measures to offset are to support the conservation and protection of fish and fish habitat by, after exhausting avoidance and mitigation measures, counterbalancing harmful impacts to fish and fish habitat resulting from works, undertakings or activities taking place in or near water.

2.1. Guiding Principles for Offsetting

The following principles are intended to guide the development of offsetting measures, and proponents should clearly demonstrate in their offsetting plans how these principles have been considered in the development of proposed offsets.

2.1.1. Principle 1: Offsetting is last in a Hierarchy of Measures.

Aquatic ecosystems are dynamic and complex. It is more difficult and uncertain to restore, enhance or create aquatic ecosystems than it is to preserve them by avoiding or mitigating changes to fish and fish habitat in the first place. For this reason, an internationally recognized "hierarchy of measures" of "avoid, mitigate, and offset" is considered a best practice for reducing risks of biodiversity loss³ (in this case loss of fish and fish habitat). This hierarchy of measures is as follows:

1. *Avoid* working in or near water, whenever possible.

³ References for the hierarchy of measures include: [Business and Biodiversity Offsets Programme](#) and the [IUCN/ICMM Independent Report on Biodiversity Offsets](#).

2. Where work in or near water is unavoidable, *mitigate* harmful impacts by reducing their spatial scale, duration and intensity to a level where harmful impacts to fish and fish habitat are prevented.
3. As a last resort, counterbalance any harmful impacts to fish and fish habitat that absolutely cannot be avoided or mitigated, through *implementation of offsetting measures*.

This hierarchy of measures is found in paragraph 34.1(1)(c) of the *Fisheries Act*, which states that the Minister must take into account whether there are measures and standards to avoid the death of fish or to mitigate the extent of their death or offset their death or to avoid, mitigate or offset the harmful alteration, disruption or destruction of fish habitat. The emphasis on avoidance and mitigation is also reinforced by subsection 73(3) of the *Species at Risk Act*. If an activity affects a listed aquatic species at risk, the residences of its individuals or the its critical habitat, the competent minister must be of the opinion that *all* feasible mitigation measures to minimize any unavoidable effects are taken.

Therefore, as indicated in Schedule 1 of the *Authorizations Concerning Fish and Fish Habitat Protection Regulations*, proponents are required to demonstrate that measures to first avoid, then mitigate have been fully considered for all life cycle phases of the works, undertakings or activities, before finally contemplating measures to offset any harmful impacts to fish and fish habitat.

A conceptual diagram of the hierarchy of measures is provided in Figure 1.

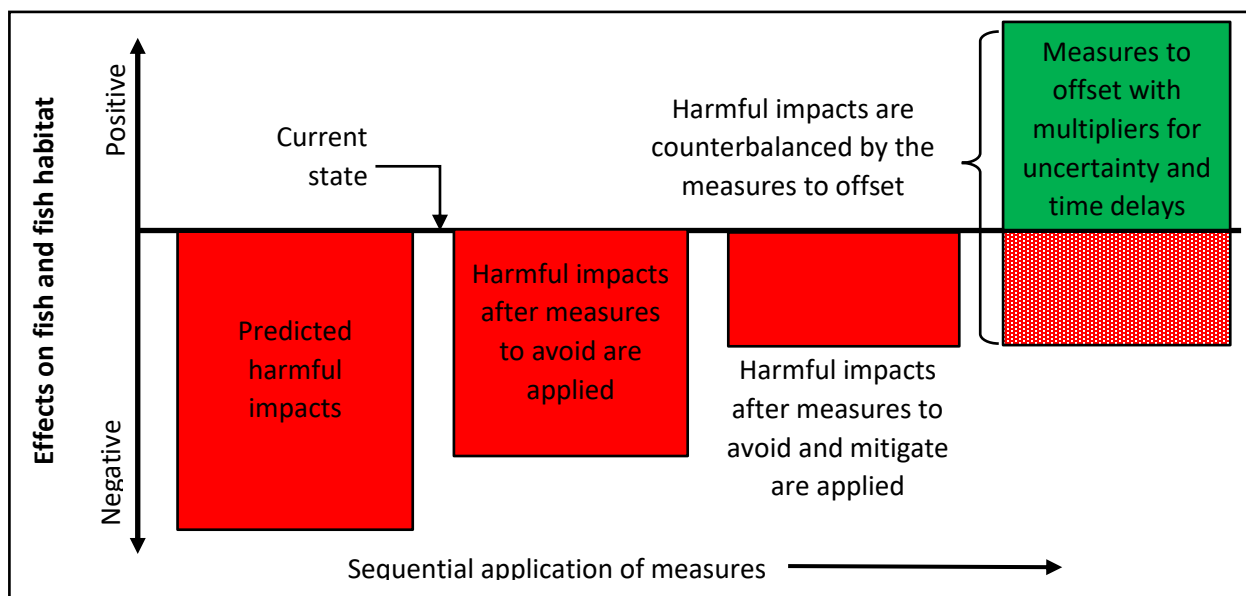


Figure 1. Conceptual diagram of the hierarchy of measures. (note: the size of these boxes is for illustrative purposes only)

These measures are interpreted as follows:

Measures to avoid are actions taken to prevent harmful impacts to fish and fish habitat, and include the choice of design, location, and timing so that there is no interaction with

fish or fish habitat. For some works, undertakings or activities, harmful impacts may be fully avoided, while for others, it may only be partially avoided. When harmful impacts to fish and fish habitat cannot be fully avoided, mitigation measures must be undertaken.

Measures to mitigate are actions taken to reduce the spatial scale, duration or intensity of harmful impacts to fish and fish habitat that cannot be avoided. Mitigation measures include the implementation of best management practices during planning, construction, operation, maintenance, temporary or permanent closures, and decommissioning of a work, undertaking or activity. The best available measures to mitigate should be implemented.

DFO's [Projects Near Water](#) website provides additional information on measures to avoid and mitigate harmful impacts to fish and fish habitat, as well as standards and codes of practice.

Measures to offset are actions taken to benefit fish and fish habitat that will counterbalance harmful impacts to fish and fish habitat that cannot be avoided or mitigated. The different options for measures to offset are described in Part 3 of this document.

2.1.2. Principle 2: There are limits to what can be offset.

There are some areas or types of aquatic habitat that are rare, of exceptional ecological or cultural value, particularly difficult to artificially replicate (e.g., eelgrass beds) or are of a sensitive nature where the magnitude of the harmful impact is difficult to predict. For example, the area may be home to a species that is found nowhere else or that provides essential ecosystem services⁴ or is of particular importance to Indigenous Peoples. Another example is an area recognized in the [Guidance for recognizing marine Other Effective Area-Based Conservation Measures](#) (OECM).

In such cases, the consideration of measures and standards to offset the harmful impacts, as outlined in paragraph 34.1(1)(c) of the *Fisheries Act*, would lead to the conclusion that measures to offset would not adequately counterbalance the harmful impacts, and, as such, the proposed harmful impacts should be considered unacceptable and an authorization should be refused. Also note that if the loss of habitat could jeopardize survival and recovery of a listed aquatic species at risk, the *Species at Risk Act* compels the competent minister to refuse to authorize the work, undertaking or activity under any of the legislation under their responsibility.

⁴ "Ecosystem services are the benefits people obtain from functioning ecosystems composed of species and ecological communities. They are commonly classified as being either 'provisioning' (food, fibre, water, fuel, genetic resources, etc), 'regulating' (air quality, climate regulation, pest and disease control, etc), 'cultural' (spiritual, aesthetic, educational, etc) or 'supporting' (soil formation, nutrient cycling, etc). Biodiversity both supplies ecosystem services and depends upon them for its persistence. Human survival and well-being depends utterly on ecosystem services, and thus also on the health of ecosystems and the biodiversity on which they are based." from *Business and Biodiversity Offsets Programme (BBOP)*. 2012. *Biodiversity Offset Design Handbook-Updated*. p. 6. BBOP, Washington, D.C. http://bbop.forest-trends.org/guidelines/Updated_ODH.pdf

2.1.3. Principle 3: The benefits from offsetting measures must counterbalance the harmful impacts, including time lags and uncertainties, and should aim to provide an overall improvement.

The benefits from measures to offset should counterbalance the harmful impacts resulting from the proposed work, undertaking or activity by compensating for the loss itself, the associated uncertainty of success, and the time required for offsetting measures to be fully functional in supporting the life processes of fish. Counterbalancing harmful impacts should be interpreted as generating positive net benefits to fish and fish habitat from the implementation of measures to address pressures and to improve the conservation and protection of fish and fish habitat.

The benefits of measures to offset are in comparison to a reference scenario of what is likely to have occurred in the absence of the work, undertaking or activity and the offsetting measure. It is important that the proponent collect baseline data that accurately reflects the reference scenario. Measures to offset can either support the same fish life processes as those that are impacted by the proposed works, undertakings or activities (“in-kind” or “like-for-like”) or can undertake restoration that would result in more habitat that is more rare or limiting than the habitat that was altered or destroyed (“trade-up” or “better than like-for-like”). See Part 3 for more information about types of measures to offset.

If a work, undertaking or activity is likely to affect one or more aquatic species at risk, in addition to offsetting the effects on non-listed aquatic species, the measures to offset must be specifically designed to provide measurable and tangible benefits that counterbalance the adverse effects of the work, undertaking or activity on the affected aquatic species at risk, and promote their recovery. These offsetting measures may include rehabilitation or enhancement of habitat features that are important to the species or address another pressure on recovery. Offsetting measures must support the objectives of the Recovery Strategy and/or Action Plan for the species (or Management Plan for species listed as Special Concern). If a Recovery Strategy has not yet been developed, offsetting measures should be based on the needs of the species as determined from the Status Report or the Recovery Potential Assessment for the species. These documents can be found at www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html.

For more information see Part 4: Preparing an Offsetting Plan.

2.1.4. Principle 4: Measures to offset are in addition to what would have otherwise occurred.

The principle of additionality means that measures to offset must be specifically intended to deliver gains beyond those that would otherwise be achieved by planned or ongoing activities required for the implementation of the work, undertaking or activity, including post-project remediation or rehabilitation. That is to say, the baseline against which additionality is measured is what would have occurred in the absence of the requirement to undertake measures to offset (i.e., whether the proponent would undertake the measure if the requirement to offset did not exist).

For example, if the proponent is expected to restore or remediate a degraded site (e.g. post-project decommissioning), then this would not be considered an appropriate offsetting option as it would be part of the usual course of business. The measures to offset would be a requirement that is additional to post-construction remediation. Likewise, if a proponent is required to bring a non-compliant structure into compliance with the *Fisheries Act* or the *Species at Risk Act*, it is not acceptable to consider this as a measure to offset.

Another example is the reservoir created behind a hydroelectric dam, which may provide fish habitat; however, its existence is essential for generating electricity, and therefore, it cannot be considered creation of fish habitat for the purpose of offsetting the harmful impacts from construction of the hydroelectric dam. Similarly, publicly or privately funded habitat restoration programs should not be considered measures to offset.

In some cases, proponents may choose to incorporate their offsetting measures into the design of their work, undertaking or activity. This is acceptable if the measures are additional efforts done primarily to benefit fish and fish habitat, and are over and above what is required fulfill the function of the work, undertaking or activity. To return to the example above, a hydroelectric dam would not function without the reservoir. However, if a watercourse needs to be relocated to avoid creating a safety hazard to a road, and the design of a new watercourse includes a number of habitat features for fish (at added expense) that are over and above what is needed to simply remove the hazard, this could be considered an incorporated offset.

2.1.5. Principle 5: Offsets should be located to optimize ecological outcomes, taking into account the needs of rights holders and resource users.

Under most circumstances, offsets should be in close proximity to the impact to maintain the function and integrity of the affected ecosystem, and to ensure that rights holders and resource users who will be impacted by the work, undertaking or activity are the ones who benefit from the measures to offset. In particular, if the impact of a work, undertaking or activity occurs in the traditional territory of an Indigenous Nation or community, locating the offsetting measures outside of their traditional territory could adversely affect the exercise of their Aboriginal or treaty rights.

There are some circumstances where it may be appropriate to undertake measures to offset at a more distant location, for example, if the area where the death of fish or harmful alteration, disruption or destruction will occur is largely ecologically intact and there are few meaningful offsetting opportunities available nearby. It may also be necessary to expand the focus of the offsetting measure to a larger scale to address the need to conserve the ecosystem's most critical biological, social and cultural areas. This consideration must be done in dialogue with Indigenous Peoples, with relevant resource managers, and other rights holders and stakeholders.

Overall, an ecosystem approach should be applied when designing and situating offsetting measures, taking into account the landscape-level processes and cumulative effects on fish and fish habitat (as per paragraph 34.1(1)(d), as well as the full range of biological, social and cultural values of the fish and fish habitat in question). Measures to offset should be applied to complement and contribute to local or regional fish and fish habitat conservation and restoration priorities or to conservation and restoration priorities

of Indigenous Peoples. Engagement with Indigenous groups and discussions with resource users, land owners and stakeholders are important parts of understanding the scope and intricacy of how resources are utilized in a given location.

If listed aquatic species at risk are affected by the works, undertakings or activities, then the offsetting measure must be located at a site that will support the population and distribution objectives for the species, including any objectives for place-based sub-populations. These are found in the relevant recovery strategy, action plan or management plan.

In all cases, the scale of the offsetting measures should be proportional to the scale of the harmful impacts. If local offsetting opportunities are not adequate to counterbalance the harmful impacts, then additional opportunities to contribute to restoration priorities should be sought elsewhere, in accordance with the needs of rights holders, broader scale fisheries management objectives and restoration priorities. Note that DFO will be consulting with Indigenous Peoples and, if offsetting measures do not address either partially or in full adverse effects on Aboriginal and treaty rights, additional measures to accommodate these effects will be required.

2.1.6. Principle 6: Measures to offset should generate self-sustaining benefits that last over the long term.

Measures to offset should aim to generate self-sustaining long-term benefits to fish and fish habitat. The benefits must last beyond the harmful impacts of the works, undertakings or activities subject to an authorization decision. If aquatic species at risk are affected, it is particularly important that the benefits continue to support long-term recovery of the species.

In practice, this means that the design of the offsetting measure should be such that the restored or enhanced ecosystem will behave and function similar to a natural system, with a comparable level of natural variability. It is understood that some natural systems are highly dynamic, but these tend to naturally recover from periodic disturbances, and the offsetting measure should behave likewise. An offset that requires perpetual ongoing maintenance in order for the system to continue providing necessary ecosystem services and prevent it from degrading permanently should not be considered. Active maintenance in the short- to medium-term is acceptable while new ecosystem components become established and fully functional (e.g., re-planting of riparian vegetation with native species, and periodic removal of invasive species until the native vegetation has successfully established itself).

2.1.7. Principle 7: Time lags between the impact and offsetting measure should be avoided or minimized.

It is preferable that measures to offset are implemented before undertaking the commencement of any work, undertaking or activity that results in harmful impacts to fish and fish habitat. When this is not possible, proponents should make all reasonable efforts to avoid time lags between when the harmful impacts to fish and fish habitat occur and when measures to offset are functioning effectively. When a time lag is unavoidable, additional measures to offset must be implemented to make up for the harmful impacts to fish and fish habitat resulting from the time lag (i.e., accounting for any losses in

productivity and impairment of ecosystem functions during the time when neither the original habitat nor the offset was fully functioning). For example, measures to offset may include restoring, creating or enhancing more habitat than is harmed so that once the habitat becomes functional it will produce enough fish to make up for the fish and fish habitat that is impaired during the time lag.

For aquatic species at risk, measures to offset must be implemented before the harmful impact occurs, and will ideally be fully functional so as to avoid a temporary loss from which it may be difficult for the species to recover. If there is an anticipated delay between the construction of the offsetting measures and it becoming fully functional, the effect of the delay on the species will be taken into account when determining whether the work, undertaking or activity will jeopardize the survival and recovery of the species. Works, undertakings or activities can only be authorized if they will not jeopardize survival and recovery of the aquatic species at risk.

Please see Part 3 of this Policy for further details about the concepts behind managing uncertainty and time lags.

2.1.8. Principle 8: Indigenous Peoples should be engaged in the planning, design, implementation and monitoring of measures to offset

Section 35 of the *Constitution Act, 1982* recognizes and affirms the Aboriginal and treaty rights of Indigenous Peoples in Canada, including fishing rights. As such, special consideration must be given to the established or asserted Aboriginal and treaty rights of Indigenous Peoples since a work, undertaking or activity and/or its offset may result in impacts to the exercise of Aboriginal and treaty rights, including beyond fishing rights.

The success and fairness of offsetting requires the full participation of Indigenous Peoples whose rights may be affected by the work, undertaking or activity and the measures to offset. When works, undertakings and activities or measures to offset, are located on the traditional territories of Indigenous Peoples or in area that may affect an Indigenous Nation or community, proponents are encouraged to engage early and often with potentially affected Indigenous Nations or communities in all phases of their projects. This should start during the planning phase, and continue through the design, implementation and monitoring phases.

There are a number of benefits to the proponent that arise from early and sustained engagement with Indigenous Peoples. Meaningful participation of Indigenous Peoples helps proponents understand potential impacts on rights and address any impacts on rights to the satisfaction of the rights holders, and it may increase the support of Indigenous Peoples. Proposed works, undertakings and activities, and measures to avoid, mitigate and offset should be designed from the outset to address Indigenous concerns. Early engagement will help the process of identifying potentially suitable offsetting sites and measures that align with the interests and rights of Indigenous Peoples including priorities for habitat restoration, remediation or enhancement.

Indigenous Peoples may possess science and/or Indigenous Knowledge systems⁵ that may be relevant to the design and implementation of a proposed work, undertaking or activity and offsetting measure. DFO encourages proponents to work directly with Indigenous Nations / communities in relation to whether and how Indigenous Knowledge may inform their projects and offsetting plans. The Indigenous Knowledge may not be primarily focused on fish and fish habitat; it may also provide information on the Indigenous community's Aboriginal or treaty rights, and any potential adverse impacts on those rights. Early and sustained engagement with Indigenous Peoples will lead to good outcomes for fish and fish habitat, aquatic ecosystems, as well as Indigenous Nations and communities.

The proponent must provide a description and the results of any consultations with Indigenous communities or groups as part of the application for authorization, in accordance with the *Authorizations Concerning Fish and Fish Habitat Protection Regulations*. As DFO has an obligation to ensure that impacts to Aboriginal or treaty rights are mitigated and/or accommodated, information provided by the proponent relative to how concerns from Indigenous Peoples are being addressed will be beneficial in DFO in addressing its duty to consult obligations. If offsetting measures do not address either partially or in full adverse effects on Aboriginal and treaty rights additional measures to accommodate these effects may be required.

Part 3. Measures to Offset

There is flexibility in the selection of types of measures to offset provided they benefit fish and fish habitat. The choice of measures to offset will vary based on the state, resiliency and natural biodiversity of the impacted and restored ecosystem; the limiting factors affecting fish and fish habitat productivity; and, the spatial extent, duration and intensity of the harmful impacts. DFO gives priority to measures to offset that focus on the restoration of degraded fish habitat pursuant to paragraph 34.1(1)(f) of the *Fisheries Act*.

Offsetting plans can be complex with lasting changes to fish habitat or ongoing death of fish. Therefore, qualified environmental professionals should be engaged to help identify suitable measures to offset the harmful impacts to fish.

With a “like-for-like” or “in-kind” approach to offsetting the fish and fish habitat that is harmed is replaced by an equivalent habitat component with an equivalent function that supports the same fish community, with additional measures to offset required to account for uncertainty and time lags. With this approach, quantifying and balancing the harmful impacts to fish and fish habitat with the benefits resulting from measures to offset is less complicated.

With a “better than like-for-like” or a “trade-up” approach to offsetting measures, the fish and fish habitat that is harmed is replaced by an appropriate quantity and higher quality of fish or fish habitat that is different that which was harmed, with additional measures to

⁵ The term ‘Indigenous Knowledge’ is not universally used, and so other terms such as Indigenous Knowledge Systems, Traditional Knowledge, Traditional Ecological Knowledge or Aboriginal Traditional Knowledge, which all convey the same concept, may be used instead.

offset required to account for uncertainty and time lags. This approach will aim to address a threat or limiting factor to the productivity of fish and fish habitat.

Measures to offset should be designed to complement and contribute to the objectives identified in fisheries management plans and restoration plans, where they exist. These include, but are not limited to, regional restoration plans developed under DFO's [Framework to identify fish habitat restoration priorities](#); restoration plans developed as part of ESA designations; federal and provincial fisheries management plans; conservation and restoration priorities of Indigenous Peoples; marine protected areas objectives [marine refuges](#) established as "other effective area-based conservation measures"; and recovery strategies, action plans, and management plans related to listed aquatic species at risk. Where such objectives do not exist or where they do not give priority to the restoration of degraded fish habitat, fisheries managers, Indigenous Peoples, local organizations and stakeholders may help to identify sites that would benefit from restoration or enhancement.

Note that under the federal *Aquatic Invasive Species Regulations* (2015) it is prohibited to engage in any activity that may lead to the release of aquatic invasive species or to introduce them to an area where they are not indigenous. Therefore, care must be taken to ensure measures to offset do not facilitate the spread of invasive species.

Measures to offset may be grouped into the general categories described below. The proponent's selection of one or more measures should respect the guiding principles above and reflect the specific circumstances of a work, undertaking or activity for which the measures to offset are required.

3.1. Types of Measures to Offset

3.1.1. Habitat Restoration and Enhancement

DFO gives priority to measures to offset that focus on the restoration of degraded fish habitat pursuant to paragraph 34.1(1)(f) of the *Fisheries Act*. Habitat restoration involves actions to return fish habitat to an improved or unimpaired condition using physical manipulation of existing fish habitat to improve its capacity to support the life processes of fish⁶.

Habitat enhancement involves taking actions to improve fish habitat quality in areas that have been altered by human development to the extent that the natural dynamic cannot be properly restored.

DFO's *Framework to identify fish habitat restoration priorities* includes several principles that provide the foundation for what restoration should aim for in planning, design and implementation to achieve the greatest benefits ecologically, culturally and socio-economically. According to the *Framework*, habitat restoration activities should:

- address the root causes of degradation;
- result in self-sustaining improvement to habitat;
- consider ecological, cultural and socioeconomic contexts;

⁶ See Fisheries and Oceans Canada. 2023. Framework to identify fish habitat restoration priorities. Fish and Fish Habitat Protection Program. iii+12 pp.

- be based on the best available information from all sources;
- assess effectiveness through monitoring, and be subject to adaptive management;
- incorporate engagement and collaboration; and,
- integrate policies and activities across programs or jurisdictions.

Habitat restoration projects are best focused on areas where habitat conditions are considered poor or degraded because restoring such areas can provide the most ecological benefit. Alteration of intact natural habitat should be avoided, as there may be unexpected effects on ecosystem dynamics that provide no benefit to fish and may even harm other ecological components. Moreover, care must be taken to ensure measures to offset do not facilitate the spread of invasive species.

Habitat-related offsetting measures for aquatic species at risk should aim to create or enhance habitats that support a part of the species' life cycle that has been a limiting factor to its survival or recovery. Recovery strategies and action plans provide insights into these habitat needs.

Habitat restoration is most successful when plans are designed to tolerate extreme events, introduce or improve habitat features that limit fish production, address all life stage requirements, and do not adversely affect downstream or proximal habitats. Furthermore, under a changing climate, habitat restoration should consider whether the habitat will be able to function effectively under conditions anticipated with climate change (e.g., warmer temperatures, highly seasonal variable flows, changes in fish community assemblages, etc.).

3.1.2. Habitat Creation

Habitat creation is the development or expansion of aquatic habitat into a terrestrial area. Examples of measures to offset for habitat creation may include but are not limited to the creation or expansion of natural stream channels, lakes, side channel habitats, wetlands or bays. These measures to offset can be used when the fish habitat that was degraded cannot be restored by manipulation of the original or surrounding fish habitat.

Experience has shown that habitat creation can be a challenge and long-term effectiveness of habitat created can be uncertain; therefore, it is recommended that reliable and proven techniques are used that are shown to benefit fish and the larger ecosystem, along with long-term effectiveness monitoring. Habitat creation projects should be designed to complement existing ecological processes and increase the ecosystem's capacity to support necessary life processes of fish. When undertaking habitat creation, it is important to consider the larger scale impacts of converting terrestrial habitat into aquatic habitat. The biodiversity value of the terrestrial habitat that will be lost or impacted by such measures to offset must be taken into account. Destruction of sensitive or high value terrestrial habitat must be avoided.

There may be land ownership issues or other resource uses that will need to be respected. If there are potential adverse effects on Aboriginal or treaty rights, DFO must consult the affected Indigenous Nations and communities. Impacts from habitat creation may also affect downstream communities (including infrastructure), ecological processes, hydrology or fish communities. Careful consideration needs to be given to all aspects of the environment that may be impacted upstream and downstream of the site where the habitat creation is being contemplated.

3.1.3. Stocking and Translocation

Stocking is the practice of releasing fish into a natural ecosystem to augment the natural supply of individuals, increase productivity of a wild population, overcome a recruitment limitation, increase fishery yields or boost declining fish stocks. Stocking may occur through the translocation of wild adults (trap, truck and transfer), harvesting eggs from wild adults which are then hatched and released or releasing individuals that have been reared from domesticated stock.

Stocking has been used both as an ongoing enhancement program and as a temporary measure to overcome bottlenecks or limitations. It has been found to be most appropriate when local and wild-origin brood stocks are used, proper location and timing windows are identified, reintroductions occur within the species historic range, the receiving environment is relatively stable, and stocked fish are unlikely to displace or compete with natural populations.

As a measure to offset, stocking can be an effective replacement for the death of fish when the receiving ecosystem is stable and unimpaired with no significant bottlenecks.

Stocking is not a recommended measure to offset harmful impacts to habitat, but could be used in conjunction with habitat restoration and enhancement to speed up the establishment of fish communities. It may also be considered as a measure to offset temporary losses of fish habitat associated with time lags between harmful impacts occurring and habitat offsets becoming fully functional or when natural reproduction and self-sustaining populations become re-established.

For aquatic species at risk, stocking should only be used to augment natural reproduction when it enhances other recovery efforts, is identified as a recovery implementation measure in the Recovery Strategy, Action Plan or Management Plan for the species and appropriate genetic strains are used (e.g., local, wild-origin brood stocks).

3.1.4. Chemical or Biological Manipulations

This group of measures to offset includes nutrient alteration or chemical manipulation of water bodies to address water quality issues or actions to control or eliminate aquatic invasive species.

Chemical or biological manipulations are best used to re-establish ecological equilibrium of fish habitat that has been shifted by chemical or biological changes towards an alternative state. Otherwise, few chemical or biological nutrient manipulations are likely self-sustaining and would need ongoing intervention to prevent their success from eroding over time, similarly to stocking and translocation.

These measures should be used only when opportunities for habitat restoration and enhancement are not available, site-specific issues are well understood, the limitations to fish production are known and fisheries management objectives are clear. For aquatic species at risk, chemical or biological manipulations should only be used when it is identified as a recovery implementation measure in the Recovery Strategy, Action Plan or Management Plan for the species.

When chemical or biological manipulations are proposed as potential offsetting measures, the proponent should provide a sound rationale to demonstrate how the measure will conserve and protect fish and fish habitat. The rationale should also provide scientifically defensible evidence of the successful application of the measure under similar conditions (e.g., similar aquatic ecosystems). Generally, given the complexity of effects associated with chemical or biological manipulations, this form of offsetting is not preferred and its use will require sound validation and justification.

3.1.5. Averted Loss

Averted loss offsets generate a gain by protecting existing habitat which otherwise would be lost in the future. There is some debate about the value of this as a measure to offset. Preserving natural habitat is preferable to attempting to re-create it, particularly habitat that is rare, limiting or the result of processes that would be difficult to replicate. However, in order for averted loss to meet the principle of additionality, it must be assumed that the reference scenario (i.e., the business-as-usual scenario) is one of declining natural habitat. That is, there would be loss of habitat if the requirement for offsetting did not exist.

Averted loss as a form of offsetting should only be considered in exceptional circumstances, such as when:

- the habitat being preserved is rare, limiting or otherwise of exceptional value;
- there is a high probability that the habitat would otherwise be lost in the foreseeable future, that is, its loss is not just a speculative possibility (e.g., plans and permits are already in place to develop it or extract resources from it); and,
- other options to protect the habitat (including the prohibitions under the *Fisheries Act*) are not available (e.g., riparian habitat or hydrologically important upland habitat).

The financial guarantee for an averted loss offset should include the cost of land acquisition or other costs that would be associated with securing the land in a protected state (e.g., buying up resource extraction rights).

3.1.6. Complementary Measures

Complementary measures are actions like data collection and scientific research related to maintaining or enhancing the conservation and protection of fish and fish habitat. Complementary measures are not regarded as measures to offset on their own because they generally do not give rise to measurable, on-the-ground conservation outcomes. However, they may indirectly support meeting these outcomes.

Complementary measures should only be considered in exceptional circumstances where there are limited opportunities for on-the-ground measures to offset harmful impacts to fish and fish habitat, such as in remote, pristine areas and/or where there is a lack of information or data regarding fish and fish habitat, and research would be pivotal to restoration efforts. Complementary measures may comprise up to 10% of the cost of the all of the measures to offset (e.g., restore or enhance fish habitat); the remaining 90% of the amount of measures to offset must consist of measures that result in concrete

benefits for fish and fish habitat. Calculation of the value of the proposed complementary measures is derived from the estimated cost of implementing measures to offset.

Data collection and scientific research should be designed to fill knowledge gaps regarding fish and fish habitat conservation and protection, and provide benefits that are supplemental to existing research or data collection programs. For example, research may be critical in better understanding the life cycle of an aquatic species at risk and how to alleviate threats to its survival and recovery.

Complementary measures should be undertaken in a transparent, scientifically robust and timely manner by qualified individuals or organizations approved by the Department. Monitoring requirements related to the measures to offset are not to be considered complementary measures.

The appropriateness and application of these measures is determined on a case-by-case basis with before proponents include this in their applications for authorization. A sound rationale describing why other measures to offset are not appropriate for fulfilling the entire offset requirement, and a detailed plan outlining how the proposed complementary measure will be valued, carried out, evaluated and communicated, will both be required.

3.1.7.A Combination of Measures

Measures to offset may incorporate more than one of the types described above, provided that the principles are adhered to and the objectives of counterbalancing the harmful impacts and providing benefits to fish and fish habitat are reached. Depending on the circumstances, a combination of types of offsetting measures may complement one another with great effectiveness. For example, a habitat restoration project may include a habitat creation component, and may include chemical or biological manipulation during the construction phase to accelerate effectiveness. There may even be a research component to the offsetting project.

Like with all other types of measures to offset, the proposal for combined measures needs to be justified in the offsetting plan.

3.2. Options for Implementing Measures to Offset

3.2.1 Project-specific Measures

Measures to offset are typically applied by proponents in two ways: through project-specific measures; or through fish habitat banks, as described below.

Project-specific measures to offset are carried out by the proponent of a particular work, undertaking or activity in order to counterbalance harmful impacts to fish and fish habitat resulting from their authorized works, undertakings or activities. Project-specific measures to offset should ideally be carried out in advance of the work, undertaking or activity, but can be carried out afterwards if this is not possible. If the measures to offset are not carried out in advance, the scope of the measures to offset will need to be increased to take into account time lags and uncertainty and the amount of the financial guarantee (e.g., letter of credit, performance bond) will be scaled accordingly to guarantee the implementation of the offsetting plan.

3.2.2 Fish Habitat Banks

The *Fisheries Act* defines a fish habitat bank as an area of fish habitat that has been restored, enhanced or created by the carrying on of one or more conservation projects⁷ within a service area⁸ and in respect of which area the Minister has certified habitat credits⁹ under paragraph 42.02(1)(b) of the *Fisheries Act*. The credits generated from conservation projects carried out under a banking arrangement can be later used by the proponent to offset harmful impacts on fish and fish habitat. When the balance of habitat credit in the habitat bank reaches zero, no more “withdrawals” can be made. At this time, there are no provisions in the *Fisheries Act* that allow proponents to sell or trade their credits to a third-party.

There are a number of benefits that a fish habitat bank can provide:

- Fish habitat banks may be useful for proponents who are considering multiple development projects, project phases, or programs that may result in adverse effects on fish and fish habitat, since having larger offsetting measures can provide more ecological benefits than multiple smaller measures.
- The bank is established in advance of future works, undertakings or activities. Consequently, the risk of defaults on the implementation of an offsetting plan is eliminated, there is less uncertainty related to the effectiveness of the measures to offset and less delay for the habitat to become functional. (This advantage also applies to site-specific offsets that have been undertaken in advance.)
- Banks may help reduce the time and resources required to process applications for authorizations. Since the value of the habitat credits within the habitat bank is known, the development of the offsetting plan is simplified.
- Since the offsetting measure is already built, the need for financial assurance (e.g., a letter of credit) can be reduced or eliminated.
- Banks built with the participation and support of Indigenous Peoples can support the consultation process that needs to occur during the authorization stage.

The use of habitat banks is particularly encouraged for proponents of proposed works, undertakings or activities that will affect an aquatic species at risk, the residence of their individuals and their critical habitat. When employing banks under such circumstances, the allocated credits will specify which species benefit from the bank. When withdrawing credits, only credits that have been specified to target the particular listed aquatic species can be used for impacts on that species. These credits cannot be used for impacts to

⁷ Section 42.01 of the *Fisheries Act* defines ‘conservation project’ as a work, undertaking or activity that is carried on by a proponent for the purpose of creating, restoring or enhancing fish habitat within a service area in order to acquire habitat credits

⁸ Section 42.01 of the *Fisheries Act* defines ‘service area’ as the geographical area that encompasses a fish habitat bank and one or more conservation projects and within which area a proponent carries on a work, undertaking or activity.

⁹ Section 42.01 of the *Fisheries Act* defines ‘habitat credit’ as a unit of measure that is agreed to between any proponent and the Minister under section 42.02 that quantifies the benefits of a conservation project.

another species at risk, though they may be transferred for use for impacts to general fish habitat if they are not being used to offset impacts to the species. For example, offsetting measures that benefit eastern sand darter could not be used to counterbalance the harm to pugnose shiner or its habitat. If the species is subdivided into designable units or populations for the purpose of recovery, the credits will be specific to that designable unit or population.

Prior to building a conservation project for a bank, the proponent must enter into an arrangement with DFO. This arrangement governs the administration, management and general operation of the bank, defines its service area and describes the habitat credit certification process.

While it is recognized that a habitat bank conservation project can represent a significant investment, the availability of habitat credits within a fish habitat bank does not automatically obligate DFO to authorize any future work, undertaking or activity. All projects will be reviewed on a case-by-case basis using the same approach that is used for applications with project-specific offsetting plans. For example, if a work, undertaking or activity may cause the harmful alteration, disruption or destruction of irreplaceable fish habitat, an authorization may be refused even though a habitat bank exists.

More information about fish habitat banks can be found in *Guidelines for Establishing and Managing Fish Habitat Banks*.

Part 4. Preparing an Offsetting Plan

Development of a complete and comprehensive offsetting plan at the outset of project planning will reduce delays in the approval process and better protect fish and their habitat. The information requirements and documentation that proponents must submit in an application for authorization under paragraphs 34.4(2)(b) and 35(2)(b) or 35(2)(b) are set out in the [Authorizations Concerning Fish and Fish Habitat Protection Regulations](#)¹⁰. These regulations include a requirement for proponents to submit an offsetting plan with their application (see Part 1 of this Policy).

Development of an offsetting plan should also include the proponent undertaking early engagement with Indigenous Peoples and stakeholders potentially affected by the proposed work, undertaking or activity, and/or offsetting plan, prior to submitting an application for authorization.

This part of the Policy outlines the content and key steps for preparing an offsetting plan. Proponents are encouraged to review the '[Applicants Guide Supporting the Authorizations Concerning Fish and Fish Habitat Protection Regulations](#)' for more information on the process to consider the application, the time limits and information/documents requirements for submitting an application for a *Fisheries Act* authorization.

These steps can be used to guide the development of conservation projects under a Fish Habitat Bank Arrangement. More specific information on habitat banks is available in the

¹⁰ Additional guidance on these regulations may be found in the [Applicant's guide in support of Authorizations Concerning Fish and Fish Habitat Protection Regulations](#).

Guidelines for Establishing Fish Habitat Banks to Support the Administration of the Fisheries Act and the Species at Risk Act.

4.1. Content of the Plan

The requirements for the Offsetting Plan are set out in section 16 of Schedule 1 of the *Authorizations Concerning Fish and Fish Habitat Protection Regulations*. Proponents must provide a detailed description of a plan to offset the death of fish and the harmful alteration, disruption or destruction of fish habitat and include, among other things:

- (a) the geographic coordinates of the location where measures to offset will be implemented;
- (b) a small-scale site plan identifying the general location and boundaries of the location where the measures will be implemented;
- (c) a detailed description of the measures and an explanation of how those measures will meet their objectives;
- (d) a detailed description of the monitoring measures that will be put in place to assess the effectiveness of the selected measures to offset;
- (e) a description of the adaptive management or contingency measures, and associated monitoring measures that will be put into place if the selected measures are not successful in meeting their objectives;
- (f) a detailed description of any adverse effects on fish and fish habitat that could result from the implementation of the plan;
- (g) a detailed description of the measures that will be implemented to avoid or mitigate the adverse effects, and an explanation of how those measures will meet these objectives;
- (h) the timeline for the implementation of the plan;
- (i) an estimate of the cost of implementing each element of the plan; and,
- (j) if the implementation of the plan requires access to lands, water sources or waterbodies that are not owned by the proponent, a description of the steps proposed to be undertaken to obtain the authorization required for the applicant, DFO, and anyone authorized to act on DFO's behalf to access the lands, water sources or waterbodies in question. This information is not required in some circumstances¹¹.

If a listed aquatic species at risk will be affected by a work, undertaking or activity, and the proponent is also seeking approval under the *Species at Risk Act* (i.e., the *Fisheries Act* Authorization is to also act as a *Species at Risk Act* permit) then in addition to the requirements set out in the Regulations, the offsetting plan should also provide:

¹¹ This information is not required if the proponent is His Majesty in right of Canada or His Majesty in right of a province or the government of a territory.

- a description of the measures that will be implemented to counterbalance the effects to listed aquatic species, their residences or their critical habitat;
- an analysis of how those measures will benefit the listed aquatic species, their residences or their critical habitat, and will support recovery of the species;
- a description of the measures and standards that will be put in place during the implementation of the offsetting plan to avoid or minimize any adverse effects on listed aquatic species, their residences or their critical habitat that could result from the offsetting plan's implementation, and an analysis of how those measures will avoid or mitigate those adverse effects; and,
- a description of the adaptive management or contingency measures and associated monitoring measures that will be put into place if the measures are not successful in offsetting the effects to listed aquatic species.

Note that a precautionary approach will be used in situations of uncertainty or in the absence of information. It is, therefore, essential that DFO be provided with adequate information to determine that all measures to avoid, mitigate or offset any effects on species at risk are adequate to ensure ongoing survival and recovery of the species.

The application for an authorization must also include a description and the results of any consultations undertaken in relation to the proposed work, undertaking or activity, including with Indigenous communities and the public. The description should include the results of consultations that the proponent has undertaken regarding the offsetting plan.

4.2. Using the 'Factors to Consider' to Guide Offsetting Plan Development

The factors to consider in subsection 34.1(1) of the *Fisheries Act* provide a framework to focus the application of the fish and fish habitat protection provisions on achieving the purpose of the *Fisheries Act*. They provide a decision-making framework to manage harmful impacts to fish and fish habitat of proposed works, undertakings or activities before they are carried out through a consistent, coherent and defensible process.

Proponents are encouraged to review the factors when designing their offsetting plan as the Department will consider these factors when making a decision with respect to an application for authorization. For more information on the factors to consider, please refer to the [Fish and Fish Habitat Protection Policy Statement 2019](#).

Specifically, the offsetting plan should clearly outline how the proposed measures to offset:

- contribute to the productivity of fisheries and fish and fish habitat;
- align with or support fisheries management objectives;
- address cumulative effects from the carrying on of the work, undertaking or activity on fish and fish habitat;
- give priority to restoration of degraded fish habitats; and,

- incorporate the interests of Indigenous Peoples that may be affected by the work, undertaking or activity.

4.3. Key Steps in Preparing an Offsetting Plan

Offsetting plans should be developed by proponents in a manner that is specific to the harmful impacts resulting from their proposed work, undertaking or activity.

4.3.1. Step 1: Identify potentially affected Indigenous communities

Consistent with Principle 8, it is important and good practice, for proponents to engage Indigenous Peoples early in the planning phase of the offsetting plan or habitat bank and maintain this relationship during the design and implementation stages.

As mentioned in Part 1 of this document, the Department must consider any adverse effects on the rights of Indigenous Peoples when making the decision to issue or refuse an authorization and accept the offsetting plan associated with it and, concerning habitat banks, when making any decision to enter into arrangements respecting fish habitat banks, including a proposed conservation project and service area and the use of credits from the bank. If the duty to consult and/or if other consultation requirements apply in relation to its authorization decision, DFO will undertake consultation, regardless of whether the proponent has engaged with Indigenous Peoples which may be affected by the work, undertaking or activity and/or offsetting plan. Offsetting measures or habitat banks that are designed from the start to take into account and accommodate Indigenous interests and Aboriginal and treaty rights, and has the support of Indigenous communities, will considerably support the application review process.

The Aboriginal and Treaty Rights Information System (ATRIS) is a Web-based system intended to show the location of Indigenous communities and display information pertaining to their potential or established Aboriginal or treaty rights. This system can also provide contact information and leadership of Indigenous communities in the area of a proposed work, undertaking or activity and information on consultation protocol agreements between Canada, Indigenous communities and provinces/territories.

Respectful relationship-building is a key component to Indigenous engagement. It is recommended that proponents take the time to learn more about the Indigenous communities; and their concerns, issues and opportunities; and how they wish to collaborate with the proponent.

4.3.2. Step 2: Characterize the anticipated harmful impacts on fish and fish habitat

After considering the application of all appropriate measures to avoid and mitigate adverse effects on fish and fish habitat, the proponent should determine and quantify the death of fish and harmful alteration, disruption or destruction of fish habitat that remains. While this information forms part of the application for authorization, rather than the offsetting plan, it is important to quantify accurately these harmful impacts to fish and fish habitat because they are what should be counterbalanced by the proposed measures to offset. The best available scientific information, Indigenous Knowledge (if provided) and

local knowledge should be used. The [Pathways of Effects](#)¹² diagrams are tools developed by the Department that can be used to identify and characterize the harmful impacts to fish and fish habitat that cannot be avoided or mitigated.

Proponents should collect and provide data describing the nature and state of fish and fish habitat prior to their proposed works, undertakings or activities. Anticipated effects should be quantified as the changes from this baseline, pre-project condition of fish and fish habitat, to the post-project condition that results from the work, undertaking or activity. The pre-project condition should be well documented using the same parameters that will be used for the monitoring process and must be based on scientifically defensible methods and techniques.

The harmful impacts should then be described and quantified for each phase (e.g., construction, operations, maintenance, decommissioning) of the proposed work, undertaking or activity. This may include estimating the geographic extent, duration and intensity of the harmful impacts, the types of habitat that are impacted, as well as the species and fish communities and life stages that depend on that habitat and how they might be affected directly or indirectly.

Proponents should engage with Indigenous Peoples when characterizing the nature and extent of harmful impacts. Indigenous Knowledge can provide important information about the state of the fish and fish habitat. It is up to the Indigenous community whether they wish to provide Indigenous Knowledge. Indigenous Peoples will guide the understanding of the context and meaning of any Indigenous Knowledge they provide.

If the proponent would like to share Indigenous Knowledge provided by the Nation / community with DFO, for example, as part of the information shared in their applications for authorization, then they **must** have approval from the Indigenous Nation / community to do so and must demonstrate this approval to FFHPP in writing. If the Indigenous Nation / community has not provided their consent, the proponent should not share the Indigenous Knowledge with DFO, and DFO will not accept the Indigenous Knowledge. Proponents should also clarify the confidential nature of the Indigenous Knowledge being provided.

4.3.3. Step 3: Select measures to offset

The offsetting plan must include a detailed description of the proposed measures to offset and explain how those measures will meet the objective to counterbalance the harmful impacts to fish and fish habitat. As well, the offsetting plan must include contingency measures that will be implemented if the measures to offset do not meet their objectives within the specified timelines.

When selecting measures to offset, consideration of landscape or watershed-level management objectives or restoration goals, and Indigenous restoration priorities should receive particular attention. Potential conflicts, risks and trade-offs between the development goals of the proponent and other management objectives should be identified in advance of decisions and investments. Efforts must be made to work with other agencies to ensure the offset is supported. Each DFO Region is identifying

¹² Government of Canada. 2012. Pathways of Effects National Guidelines. Fisheries and Oceans Canada. <https://waves-vagues.dfo-mpo.gc.ca/Library/365312.pdf>

regionally important fish species, areas and ecosystem functions as part of the *Framework to identify Fish Habitat Restoration Priorities*.

Regardless of whether an in-kind (“like-for-like”) or trade-up (“better than like-for-like”) approach is undertaken (see Part 3 in this Policy for more information), the proposed measures to offset should meet the guiding principles for measures to offset described in Part 3 of this Policy, and provide real benefits to fish and aquatic ecosystems.

4.3.4. Step 4: Determine the amount of offsetting required

The amount of offsetting required to counterbalance the harmful impacts associated with a proposed work, undertaking or activity should not only consider the area of the offset, but the function it provides and the needs of the fish assemblages being targeted. As mentioned in principle 3, this includes adequate measures to offset that will counterbalance uncertainty associated with the proposed offset as well as any time lag between the harmful impacts to fish and fish habitat and the time it takes for the measures to offset to become functional. Furthermore, the long-term viability of the offsetting measure should be considered under climate change, and scaled appropriately to ensure benefits are provided over the long-term.

Anticipated gains from the measures to offset should be quantified relative to what would occur in the absence of the measure to offset. Evidence and assumptions used to predict the outcome of the offset should be included and must be based on scientifically defensible methods and techniques. It is important to carefully describe and quantify the fish and fish habitat benefits in order for them to be used as measures to counterbalance the proposed losses of a proposed work, undertaking or activity.

Equivalency analysis is a term used to describe an analysis of whether the benefits provided by proposed measures to offset will counterbalance the anticipated harmful impacts of a proposed work, undertaking or activity. A variety of equivalency analysis methodologies exist. Generally, they require the calculation of a common unit of measure that may be used to compare the harmful impacts and measures to offset across fish life stages, species and habitat types (e.g., in-kind habitat; habitat functions and ecosystem services; habitat indices, fish biomass or abundance). Trade-up measures to offset require more complex equivalency analyses to determine whether the measures to offset counterbalance the harmful impacts.

Some methods may be data intensive and require more specific expertise than others. An overview of equivalency analyses is provided in publications by Fisheries and Oceans Canada’s Canadian Science Advisory Secretariat¹³. Quantifying equivalency creates opportunities for more flexible approaches to offsetting. However, in the absence of data to support the calculation of equivalency, in-kind measures to offset may be a simpler option.

It should be noted that ecosystem functions and features that could be considered interchangeable from an ecological perspective may have unique values for Indigenous

¹³ Bradford, Michael J; Smokorowski, K.E; Clarke, Keith D; Keatley, B.E; Wong, Melisa C. 2016. Equivalency metrics for the determination of offset requirements for the Fisheries Protection Program. Canadian Science Advisory Secretariat. National Capital Region. (https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2016/2016_046-eng.html)

communities or other local resource users, and, by engaging these communities the proponent will come to a better understanding of these values, which in turn should influence the design of measures to offset harmful impacts to fish and fish habitat.

4.3.4.1. Accounting for uncertainty

There are many sources of uncertainty when developing and implementing measures to offset. For example, uncertainty may arise in the initial prediction of the extent of death of fish and/or harmful alteration, disruption or destruction of fish habitat; in the effectiveness of measures to mitigate changes; in the measures to offset themselves being compromised through design or implementation failure; from the overestimation of the ecological benefits of a particular measure to offset; or from the unknown nature of the future state of fish habitat. In addition to the variability associated with the measures to offset themselves, uncertainty may also arise from the natural variability of fish populations and ecosystem dynamics, a changing climate, and invasive species. For more information on managing uncertainty related to offsetting plans, please refer to publications available from DFO's Canadian Scientific Advisory Secretariat^{14, 15}.

In general, the approach to address the uncertainty associated with working in natural environments is to further increase the measures to offset (e.g., to restore additional fish habitat). Building in a buffer against unforeseen outcomes helps ensure that the conservation and protection objective is still achieved.

Equivalency analyses for trade-up measures to offset account for uncertainty in a more precise and quantitative fashion; however, the analytical approach to determine whether harmful impacts have been fully counterbalanced depends on the type of equivalency analysis employed. Any equivalency analysis used should be accompanied by a clear rationale demonstrating its appropriateness for the offset in question.

In addition to increasing the measures to offset to account for uncertainties, contingency measures to remediate any failed elements of the offsetting plan should be developed. This will ensure that the objectives of the offsetting plan are met despite failing to function as intended, or the impacts of the authorized work, undertaking, or activity exceeded what was predicted.

4.3.4.2. Accounting for time lags (if any)

Time lags between the occurrence of the harmful impacts and the benefits from the offset becoming fully effective can range from months to even years and may contribute to further loss of fish or fish habitat. Time lags should be avoided where possible by implementing the measures to offset prior to carrying on the work, undertaking or activity or through the establishment of a habitat bank. When a time delay is unavoidable, the

¹⁴ Fisheries and Oceans Canada. 2014. Science Advice for Managing Risk and Uncertainty in Operational Decisions of the Fisheries Protection Program. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2014/015 (<https://waves-vagues.dfo-mpo.gc.ca/Library/363993.pdf>)

¹⁵ Bradford, Michael J; Smokorowski, K.E; Clarke, Keith D; Keatley, B.E; Wong, Melisa C. 2016. Equivalency metrics for the determination of offset requirements for the Fisheries Protection Program. Canadian Science Advisory Secretariat. National Capital Region. (<https://waves-vagues.dfo-mpo.gc.ca/Library/364029.pdf>)

harmful impacts of the delay on fish and fish habitat must be taken into account and the offset should include additional measures that counterbalance the harmful impacts resulting from the time delay.

4.3.5. Step 5: Establish the monitoring plan and reporting

Proponents are responsible for establishing a monitoring plan to verify that the measures to offset have counterbalanced the death of fish or harmful alteration, disruption or destruction of fish habitat. To achieve this, monitoring plans must include a set of clear performance goals and measurable parameters with targets that will demonstrate performance goals have been met. The type of monitoring (e.g., compliance, effectiveness¹⁶, functional¹⁷) should also be considered and described. The rationale for the criteria established to determine success of offsetting must be explained and is expected to reflect the scale and complexity of the measures to offset.

Recovery strategies, action plans and management plans for aquatic species at risk are good sources of information for the ecological requirements for these species and may help in setting performance goals, choosing parameters to measure, and selecting appropriate targets. Indigenous communities may also wish to be involved in the selection criteria for monitoring, as well as in carrying out the monitoring itself.

The decision of whether performance goals have been met will often need to be based on an evaluation of the outcomes associated with a suite of parameters and associated targets. As previously discussed, there can be a high level of uncertainty associated with predicting the outcomes of offsetting projects given the dynamic nature of ecosystems. Therefore, not meeting a single target may not indicate that overall performance goals have not been achieved. As well, the plan should identify how adaptive management will be applied. The plan should include contingency measures, and monitoring associated with those measures that will be implemented when predictions regarding the attainment of specific targets within a required time scale are not within an expected or required range.

Monitoring and reporting on targets should be undertaken at intervals that coincide with the expected achievement of targets, and for a sufficient timeframe to determine that the offsetting project is stable, self-sustaining and functioning as intended. Requirements associated with the monitoring plan, including contingency measures and reporting will be included as conditions of the *Fisheries Act* authorization.

4.3.6. Step 6: Submit the offsetting plan as part of an application for authorization to Fisheries and Oceans Canada

When it is determined that the proponent's application is complete and adequate, the Department will either issue an authorization or notify the applicant that the authorization is refused within 90 calendar days. There are several circumstances under

¹⁶ Smokorowski, K.E., Bradford, M.J., Clarke, K.D., Clément, M., Gregory, R.S., Randall, R.G. 2015. Assessing the effectiveness of habitat offset activities in Canada: Monitoring design and metrics. Can. Tech. Rep. Fish. Aquat. Sci. 3132: vi + 48 p.

¹⁷ Braun, D.C., Smokorowski, K.E., Bradford, M.J., and Glover, L. 2019. A review of functional monitoring methods to assess mitigation, restoration, and offsetting activities in Canada. DFO Can. Sci. Advis. Sec. Res. Doc. 2019/057. vii + 75 p.

which the time limit ceases to apply. Detailed information on the process and time limits is provided in *Authorizations Concerning Fish and Fish Habitat Protection Regulations* and the *Applicant's Guide Supporting the "Authorizations Concerning Fish and Fish Habitat Protection Regulations"*.

4.4. Cost of implementing the offsetting plan and financial guarantee

All costs associated with measures to offset are the responsibility of the proponent. If conditions of the offsetting plan subject to the authorization are not completed, the Department requires funds to implement all remaining elements of the plan. The proponent's offsetting plan must, therefore, include a financial guarantee¹⁸, which can be an irrevocable letter of credit issued by a recognized Canadian financial institution or another equivalent financial guarantee, including a performance bond.

The monetary value of the financial guarantee is determined by estimating the cost for implementing all elements of the offsetting plan, including elements related to monitoring, and maintenance of the measures to offset and contingency measures. The estimate should consider any additional expenses that could be incurred by the Department to complete the offsetting plan (e.g., costs for administration, costs for mobilization, cost of external expertise), and allow for cost overruns for remobilizing machinery onto the work site, as well as inflation.

Flexibility in these agreements is possible; the amount of finances secured can be reduced after a certain progress point is achieved, or if measures to offset are implemented prior to the harmful impacts taking place. Conversely, should the risk of failure persist, the security could be renewed in order to ensure compensation remains in place, provided the ability to do so is set out in the original authorization. The financial security should cover the full period over which the compensation activities, including monitoring and maintenance, will be carried out. The financial security should explicitly outline the conditions that must be met by the proponent for the financial security to be reduced and released.

Additional guidance on financial guarantees is available in the *Applicant's Guide Supporting the "Authorizations Concerning Fish and Fish Habitat Protection Regulations"*.

4.5. Access and approvals for implementing offsetting plan

Where measures to offset are proposed on provincial, territorial or treaty lands, engagement and approvals may also be required with the relevant authority. It is important to note that such approvals may be necessary to secure the site to implement the offsetting plan, and that obtaining these approvals are the responsibility of the proponent.

Land ownership and access must be taken into consideration when negotiating measures to offset. Land ownership or land tenure (e.g., lease or permit) is important to safeguard

¹⁸ The *Authorizations Concerning Fish and Fish Habitat Protection Regulations* exempt an applicant who is His Majesty in right of Canada, His Majesty in right of a province or the government of a territory from the requirement of providing financial guarantee.

the protection of offsetting project sites and the fish habitat benefits they provide. Proponents may require access to land not owned by them and may require permits from other federal, provincial or municipal jurisdictions. Proponents should have the appropriate permission and permits prior to an offsetting plan being submitted to DFO. Land tenure agreements can be effective at restricting harmful activities that might otherwise jeopardize achieving the objectives of the offset or conservation project site.

As well, while the proponent may have permission to work on land owned by another individual, this does not automatically apply to DFO in exercising a letter of credit (or other financial guarantee). If land ownership and access have the potential to become an issue, the authorization will contain a provision acknowledging that the proponent has obtained written agreement from the landowner to allow DFO to complete the measures in the offsetting plan and monitor them, should it be necessary. This permission should be received prior to approval of the Authorization.

It is the proponent's responsibility to comply with the *Fisheries Act* and its regulations, the *Species at Risk Act*, and to meet all other federal, territorial, provincial and municipal requirements that apply to the offsetting plan.

4.6. Additional Guidance

The following Departmental guidance documents are available from the Department's [Projects Near Water](#) website:

- [Applicants Guide Supporting the Authorizations Concerning Fish and Fish Habitat Protection Regulations](#)
- [Fish and fish habitat protection policy statement, August 2019](#)
- [Framework to identify fish habitat restoration priorities](#)
- [Pathways of Effects](#)

This website also provides information on how to contact your local [Departmental office](#).

Annex A: Additional guidance on preparing an offsetting plan

Fish and Fish Habitat Found at the Location of the Proposed Offset Site (Baseline of the Freshwater or Marine Environment)

- Describe the fish and fish habitat found at the location of the proposed offsetting project site and within the area likely to be affected by the proposed offsetting project, including:
 - a) the type of water source or water body;
 - b) the characteristics of the water source or water body and how those characteristics directly or indirectly support fish in carrying out their life processes;
 - c) the fish species that are present and an estimate of the abundance of those species, in particular any aquatic species at risk listed on Schedule 1 of Species at Risk Act and their status;
 - d) the aquatic invasive species (including non-indigenous species) that are present in proposed offsetting project site and its vicinity; and,
 - e) a description of how the information provided under paragraphs (a) to (d) was derived, including the sources, methodologies and sampling techniques used.

Location and boundaries of the location where the proposed offset site will be implemented

- Describe the location where the proposed measures to offset will be carried out, including:
 - a) the geographic coordinates; and,
 - b) a small-scale site plan identifying the overall location and boundaries.

Objectives of the measures to offset

- Describe the objectives of the measures to offset including any benefits to aquatic species at risk and their habitat making reference to how the objectives of the measures to offset support any relevant:
 - Fisheries management objectives;
 - Regional or local restoration objectives;
 - Recovery strategies, action plans or management plans for species at risk;
 - Marine protected area objectives; and,
 - Indigenous restoration or ecological management priorities.

Measures to offset that will be implemented to meet objectives

- Describe the measures to offset that will be implemented, making reference to any relevant engineering specifications and drawings, construction methodologies, building materials, machinery and other equipment that will be used.
- Describe the predicted effects of the proposed measures to offset on fish and fish habitat found at that location, and how these effects will support the objectives described.

Monitoring measures to assess effectiveness

- Describe in detail the monitoring measures that will be implemented to assess the effectiveness of the measures to offset in meeting their objectives, including indicators and progress targets.

- Include the sampling methodology and the monitoring frequency of the fish habitat indicators.

Contingency Measures and Related Monitoring Measures

- Describe in detail the contingency measures and associated monitoring measures that will be implemented if the measures to offset do not meet their objectives.
- Describe the measures to ensure that the offset continues to achieve fish habitat benefits over the long-term.

Measures and Standards to Avoid or Mitigate Harmful impacts on Fish and Fish Habitat for the Proposed Measures to offset

- Provide a detailed description of whether the measures to offset are likely to result in the death of fish or the harmful alteration, disruption or destruction of fish habitat, or harmful impacts on listed aquatic species at risk, their critical habitat and residences, and to what extent.
- Describe the measures and standards that will be implemented to avoid or mitigate the adverse effects on fish and fish habitat while building and maintaining the proposed measures to offset.
- Describe the monitoring measures that will be put in place to assess the effectiveness of the measures and standards to avoid and mitigate the adverse effects on fish and fish habitat referred to above, and the measures that will be implemented if these are not successful.

Timeline for the implementation of the offsetting plan

- Provide the timeline for the implementation of the offsetting plan including the start and end dates.
- Describe the anticipated phases, including the sequencing of the phases, of the proposed measures to offset.

Fish Habitat Benefits of the Proposed Measures to offset

- Describe the structure and function of the fish habitat that will result from the habitat creation, restoration or enhancement measures that will be implemented (e.g., in terms of physical, chemical and biological characteristics).
- Describe the fish habitat indicators, and the progress target for each fish habitat indicator.
- If the measures to offset are anticipated to benefit species at risk, indicate which species will benefit and describe the structure and the function of the habitat that will benefit that species.

Land Ownership/Tenure

- Describe the land ownership/tenure status of the lands, water sources or waterbodies that are necessary for the implementation of the measures to offset.
- The description may also include the steps proposed to be undertaken to obtain the authorization required for the Proponent, DFO, and anyone authorized to act on DFO's behalf to access the lands, water sources or waterbodies in question, if the implementation of the plan requires access to lands, water sources or waterbodies that are not owned by the proponent and the proponent is not a federal, provincial, or territorial government.

Indigenous and Stakeholder Consultation and Accommodations

- Describe any engagement or consultation activities undertaken and the results in relation to the proposed measures to offset, including with Indigenous communities, interested stakeholders, and the public.