NATIONAL CODE ON INTRODUCTIONS AND TRANSFERS OF AQUATIC ORGANISMS

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Foreword

In 2003, Canada's provincial, territorial and federal governments jointly implemented the National Code on Introductions and Transfers of Aquatic Organisms (Code). The Code established an objective decision-making framework and consistent national process for assessing and managing the potential ecological, disease and genetic risks associated with intentionally moving live aquatic organisms into, between, or within Canadian watersheds and fish rearing facilities.

Under the legislative authority of the *Health of Animals Act* and associated regulations, the Canadian Food Inspection Agency (CFIA) fully implemented the National Aquatic Animal Health Program (NAAHP) on December 31, 2015. Under the NAAHP, the CFIA assumed the federal lead for managing disease risks associated with movements of aquatic animals—a role that had been traditionally performed by Fisheries and Oceans Canada (DFO).

While federal roles and responsibilities changed with regard to the management of disease risks, the goal has not: the Code's signatories remain committed to delivering an effective and integrated Code that effectively manages ecological, disease, and genetic risks.

The Code is an evergreen document that is updated regularly by the National Introductions and Transfers Program Committee, a federal–provincial–territorial group with representation from each Introductions and Transfers Committee across Canada. The Code was last renewed by the Introductions and Transfers Renewal Task Group and endorsed by the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) in September 2013. This latest iteration (2017) represents the commitment of federal, provincial and territorial partners to ensure the Code continues to be efficient and effective.

The Code continues to recognize and reflect the shared federal–provincial–territorial jurisdiction in managing the intentional movements of live aquatic organisms. Deliberate movements of aquatic organisms have served many beneficial purposes historically, and will continue to play a vital role in aquaculture, fisheries management and research. The Code ensures these benefits continue while managing the potential risks to aquatic ecosystems and aquatic animal health effectively, fairly, transparently and sustainably.

Federal, provincial and territorial governments are committed to fulfilling responsibilities described in the Code under the advisory and liaison function of the Introductions and Transfers committees established in each province/territory. While the roles, responsibilities and legal authorities of jurisdictions may differ within the committee structure, the collective expertise in managing the intentional movement of live aquatic organisms ensures a well-coordinated, nationally consistent management structure.

The foundation of the Code remains the utilization of science-based, objective risk assessment frameworks to inform the licensing/permitting process required to move aquatic organisms. The robust risk assessment process contributes to the shared goal of responsible ecological stewardship and sustainable use of aquatic resources for the benefit of Canadians.

As described in this document, the CFIA assesses disease risks associated with aquatic animal imports and domestic movements under a risk framework based on internationally accepted principles of the World Organisation for Animal Health (OIE). For the purposes of import and domestic movements, this framework provides the foundation for assessing permit applications under the NAAHP. The CFIA manages disease risks associated with international and domestic trade and other domestic movements of live aquatic animals, their products, pathogens, and other high risk items in collaboration with the provinces, territories and industry.

The Code also reflects efforts to reduce the red tape associated with the introductions and transfers licensing process. For example, routine movements between aquaculture facilities—having been assessed for risks and declared safe—may be addressed through conditions of licence or subject to a single introduction and transfer licence applicable to multiple/regular movements. This improvement reduces the administrative burden on the governments that make use of the licensing process and the stakeholders that must comply with those licences to conduct their business.

Service delivery under the Code incorporates defined service standards for Introductions and Transfers Committees for each stage of the application, review and decision-making process for authorizations to move aquatic organisms. Jurisdictional collaboration in delivering introduction and transfer licences under a measurable set of standards provides the transparency, predictability and responsiveness that Canadian companies and institutions moving aquatic organisms expect.

Finally, the Code continues to enhance commitments on the part of all jurisdictions to maintain, store and share information on introductions and transfers. A National Introductions and Transfers Database and Risk Assessment Library enables the Introductions and Transfers committees to share information across jurisdictions and support Canada’s domestic and international reporting requirements.

NATIONAL CODE ON INTRODUCTIONS AND TRANSFERS OF AQUATIC ORGANISMS

1 AUTHORITY

1.1 The management of intentional movements of live aquatic organisms in Canada is a shared federal/provincial/territorial responsibility. Federal–provincial–territorial legislative authorities and commitments governing the delivery of responsibilities prescribed in the National Code on Introductions and Transfers of Aquatic Organisms (hereafter, the Code) are provided in the illustrative list in Appendix 1.

1.2 Where there is an inconsistency between the Code and any federal–provincial–territorial legislative authority, that legislative authority will prevail.

2 GUIDING PRINCIPLES FOR INTRODUCTIONS AND TRANSFERS DECISIONS

2.1 Federal, provincial and territorial governments value the objectives of sustainable development and recognise its relevance to the Code's administration.

2.2 Intentional introductions and transfers of live aquatic organisms support a multitude of benefits, including aquaculture, commercial and recreational fisheries, stock enhancement, research, education and ecological restoration.

2.3 Collaboration between federal–provincial–territorial government and industry is essential to ensure the continued benefits of such movements while also managing the potential risks effectively and in an integrated manner.

2.4 The assessment of disease and of ecological and genetic risks is central to the process of assessing applications to move live aquatic organisms.

2.5 In view of the range and number of interests associated with the movement of aquatic organisms, it is important to maintain public and private sector confidence in the decision-making process by ensuring the process is transparent, informed by science, and defensible.

2.6 Principles of the precautionary approach are considered by the Introductions and Transfers decision-making authority.

2.7 Using suitable indigenous species for intentional release into natural waters is preferred to introducing an exotic species or transferring indigenous species from other genetically distinct stocks (within and outside Canada). However, there may be instances where it is believed preferable to use a particular genetic stock or exotic species, if risks are assessed and the practice is deemed acceptable.

2.8 In the spirit of the 1999 Agreement on Interjurisdictional Cooperation with Respect to Fisheries and Aquaculture, dialogue is encouraged among neighbouring Canadian jurisdictions on proposals to introduce exotic species or to extend the range of aquatic organisms in shared watersheds.

2.9 Prior to a decision to introduce an exotic species, or extend the range of a native species to natural waters, dialogue should take place with potentially affected Canadian stakeholders (e.g., local groups, commercial and recreational fishers, and aquaculturists), as well as Indigenous peoples at the discretion of the decision-making authority.

2.10 Proposals to introduce or transfer live aquatic organisms should be managed in accordance with Canada's international obligations, protocols and agreements.

2.11 Established aquaculture industries and fish stocking programs have been actively transferring fish with full approval of both the provincial governments and the Department of Fisheries and Oceans for over 20 years. The Code recognizes the socio-economic importance of ongoing routine transfers that have occurred within Canada. It is the intent of the Code to enable such transfers to continue subject to application of current federal provincial-territorial management regimes.

2.12 While socio-economic criteria and analysis to be factored into the introductions and transfers decision making process are not detailed in this Code, all jurisdictions recognize that such analysis are important and shall be considered in the overall assessment process by the decision-making authority.

2.13 The federal, provincial and territorial governments agree to work through the National Introductions and Transfers Program Committee toward greater harmonization of the introductions and transfer risk assessment process with the other risk assessment processes related to fish enhancement and aquaculture activities in Canadian waters.

3 INTENT

3.1 The federal, provincial and territorial governments intend to work cooperatively to apply this Code. The Code is national in scope and will be applied fairly, equitably and consistently while respecting the different roles, responsibilities and legal authorities of the various federal, provincial and territorial jurisdictions.

3.2 The Code is intended to be a living policy and management framework. As such, it is the intent of jurisdictions to review its content and application regularly. A National Introductions and Transfers Program Committee will review the Code's functionality annually and propose amendments to CCFAM deputy ministers, as necessary, to improve its efficiency and effectiveness.

4 INTRODUCTIONS AND TRANSFERS COMMITTEES

4.1 Introductions and Transfers Committees will operate in each province or territory with representation from DFO, the provincial/territorial government and the CFIA as specified in each committee's terms of reference.

4.2 Each Introductions and Transfers Committee will establish a committee terms of reference that is specific to its jurisdiction and reflects relevant Code provisions. Appendix 2 outlines the jurisdictional roles and responsibilities to be factored into the terms of reference.

4.3 Committees may seek external advice/expertise to assess licensing/permitting applications.

4.4 The nature and scope of legal authorities associated with the departments, agencies and jurisdictions managing the movement of aquatic organisms are not uniform across Canada. Consequently, each department, agency and jurisdiction will participate in the introduction and transfer committee process in accordance with its legal authority, recognizing that federal–provincial–territorial collaboration in assessing requests to move aquatic organisms supports the goal of maintaining an integrated federal–provincial–territorial approach to risk management.

4.5 For the purpose of assessing introduction and transfer licensing requests, the role of DFO and provincial/territorial representatives within the Introductions and Transfers committees is to input into the risk evaluation and provide the results to the decision-making authority.

5 PERMIT/LICENCE REQUIREMENTS COVERED UNDER THE CODE

5.1 The Code addresses separate licensing/permitting processes required to move live aquatic organisms. Section 6 relates to introductions and transfers licensing under the authority of DFO and/or provinces/territories. Section 7 addresses CFIA permit requirements under the *Health of Animals Act* and *Regulations.* Certain provinces/territories may require additional authorizations.

5.2 Federal–provincial–territorial partners under the Code will strive to ensure a coordinated approach in assisting applicants who seek relevant authorizations.

5.3 It is the responsibility of the proponent/applicant to ensure that all relevant authorizations are acquired before introducing or transferring aquatic organisms.

6 INTRODUCTIONS AND TRANSFERS LICENSING (MANAGEMENT OF GENETIC AND ECOLOGICAL RISKS BY DFO–PROVINCES–TERRITORIES)

6.1 Scope of the Code As It Pertains to the Licensing of Introductions and Transfers

6.1.1 The Code applies to the intentional introduction and transfer of live fish and aquatic plants into Canada, between provinces and territories, or within provinces and territories to fish habitat, waters flowing into fish habitat (including those located in accredited aquariums and zoos), and fish rearing facilities, and accounts for risks related to the movements of fellow travellers.

6.1.2 Deliberate movements of fish products of biotechnology, including genetically engineered organisms, will be coordinated, where appropriate, with Environment and Climate Change Canada and Health Canada through DFO headquarters, Ecosystems and Oceans Science Sector.

6.1.3 Deliberate movements of live aquatic invasive species for the purposes of science, education or aquatic invasive species control are encompassed by the Code.

6.1.4 Deliberate movements of aquatic organisms intended specifically for the aquarium and water garden trade, live fish for the food trade, and bait are *not* encompassed by the Code.

6.1.5 The Code also does not cover unintentional movements of live aquatic organisms, such as those associated with the transportation and shipping industry, recreational and commercial boating, and canal and water diversions. However, the potential presence and risks of fellow travellers associated with intentional introductions and transfers are assessed under the Code framework.

6.2 Decision-Making Authorities

6.2.1 Where the *Fishery (General) Regulations* apply, the Regional Director General of DFO may exercise the power to issue introduction and transfer licences pursuant to section 56 of the *Regulations* on behalf of the Minister of Fisheries and Oceans. For administrative efficiency, the power to issue licences for low-risk movements may be undertaken by an appropriate departmental representative.

6.2.2 Where a provincial/territorial minister/official is empowered to authorize the issuance of introduction and transfer licences, anyone authorized by law to exercise the power on the provincial/territorial minister/official's behalf may exercise it.

6.2.3 The decision-making authority or delegate should not be a member of the Introductions and Transfers Committee, given that the Code allows for inputs into the decision-making process that are external to the committee's mandate for transfers requiring formal risk assessments (such as socio-economic criteria and the interests of Indigenous groups).

6.3 Introductions and Transfers Licensing Application and Evaluation Process

6.3.1 Applicants are responsible for obtaining all relevant federal–provincial–territorial licences and permits associated with the movements of aquatic organisms prior to any introduction or transfer.

6.3.2 A separate introduction and transfer licence is not required to address genetic and ecological risks associated with movements already permitted in authorizations issued in provincial jurisdictions where the federal *Fishery (General) Regulations* do not apply.

6.3.3 Applicants will complete an initial application form, specific to the province/territory where the aquatic organisms are to be introduced or transferred, and submit this form to the respective Introductions and Transfers Committee. This initial application form will contain nationally standardized minimum application requirements (see Appendix 3). An applicant may also be required to submit additional information if reasonably regarded as relevant by the Introductions and Transfers Committee.

6.3.4 Introductions and Transfers committees may issue a single licence for the purpose of authorizing multiple equivalent movements over a designated period of time and subject to specific conditions as deemed necessary by the Committee.

6.3.5 Ecological and genetic risks of introductions and transfers are to be assessed prior to movement (see Appendix 4).

6.3.6 Applications are to be screened by the relevant Introductions and Transfers Committee for criteria that may trigger a formal risk assessment. For all applications, the Introductions and Transfers Committee shall retain the discretion to require a formal risk assessment. It is recognized within the Code that ongoing historic as well as routine transfers have occurred within Canada (e.g., salmon smolt transfers to sea cage sites). It is the intent of the Code to enable such transfers to continue.

6.3.7 Introductions and transfers requests may be subject to the application of mitigation measures (see Appendix 5).

6.3.8 Applicants may be required to provide additional information (see Appendix 6) to the committee on the proposed movement following the screening of the initial application or at any time thereafter as part of the formal risk assessment process.

6.3.9 For the purpose of assessing ecological and genetic risks, members of the Introductions and Transfers Committee will follow the formal risk assessment process described in Appendix 7. The quantity and quality of information required to complete the formal risk assessment are at the committee's discretion and are factored into the level of certainty associated with the risk assessment.

6.3.10 The formal risk assessment—based on classifications of high, medium and low risk—will form the basis of the evaluation provided by the Introductions and Transfers Committee to the decision-making authority on all requests for introductions and transfers of aquatic organisms that are subject to the assessment process.

6.3.11 Where the proposed introduction or transfer is deemed to be medium- or high-risk, the Introductions and Transfers Committee may offer the applicant the opportunity to identify further mitigation measures that could be used to reduce the risk.

6.3.12 The Introductions and Transfers Committee will provide the risk assessment and the certainty surrounding the risk assessment as well as how and why it was determined to the decision-making authority.

6.3.13 In addition to science-based information, the Introductions and Transfers Committee may draw on relevant local ecological knowledge, such as from Indigenous groups, aquaculturists, local groups or fishers.

6.3.14 The decision-making authority will consider the risk assessment provided by the Introductions and Transfers Committee and the certainty surrounding it. The decision-making authority may take into account socio-economic factors and Indigenous considerations, and will determine whether the risk is acceptable or not.

6.3.15 Applicants that have been denied a licence may resubmit an application for consideration by the committee after adding new information directly related to the risks associated with the licensing decision.

6.4 Service Standards

6.4.1. Service standards associated with the introductions and transfers licensing application and evaluation process will be applied as prescribed in Appendix 8.

6.5 Compliance Monitoring and Enforcement

6.5.1 Compliance monitoring, reporting and enforcement are central to the management of the introductions and transfers program and essential to ensure transparency and credibility. A risk-based approach will be used in determining compliance monitoring and enforcement activities relevant to authorized aquatic organism movements.

6.5.2 To assist jurisdictions in the monitoring of authorized aquatic organism movements under the Code, licence holders will complete and submit an Introductions and Transfers Notification Form (Appendix 9). Mandatory reporting is required as a condition of licence.

7 DISEASE RISK MANAGEMENT

7.1 The Canadian Food Inspection Agency

7.1.1 The CFIA is the federal lead for the delivery of the National Aquatic Animal Health Program (NAAHP). Its goal is to prevent the introduction and spread of aquatic animal diseases.

7.1.2 The NAAHP is delivered under the authority of the *Health of Animals Act*. The Act authorizes CFIA inspectors to take actions pertaining to any animal that may be affected by any disease.

7.1.3 Under the *Health of Animals Act*, the CFIA has refined its programs through the implementation of the *Health of Animals Regulations*, the *Reportable Disease Regulations*, and published policy documents.

7.1.4 Under the NAAHP, the CFIA utilizes a risk-based disease management approach reflecting defined lists of federally reportable diseases, immediately and annually notifiable diseases, and the species of finfish, molluscs, and crustaceans susceptible to these diseases.

7.1.5 The disease lists contained in the *Reportable Disease Regulations*, and the susceptible species list contained in the *Health of Animals Regulations*, can be amended based on an assessment of emerging risks; action can be taken at any time if deemed necessary in regards to potential diseases not appearing on these lists.

7.1.6 The NAAHP has three major components: the import/export program, the foreign and domestic disease control programs, and a supporting surveillance program. Authorizations to move aquatic animals under the NAAHP are subject to relevant import or domestic program requirements.

7.1.7 A CFIA-issued import permit may be required to import susceptible species of aquatic animals and their products into Canada. The CFIA also has an internationally recognized Compartmentalization Program for International Trade with established national standards and guidelines to facilitate safe trade of aquatic animals.

7.1.8 Through ministerial declarations, the CFIA will assign a specific status to each province or territory or part of a province or territory as well as the territorial seas and contiguous zones (as defined in the *Oceans Act*) for reportable diseases of susceptible species of aquatic animals that occur regionally in Canada.

7.1.9 Subsequent to the disease status declarations, movements between declared areas of lower and higher health status will require a CFIA permit.

7.1.10 For the purposes of domestic movements within Canada, the CFIA will allow facilities whose management and biosecurity practices are amenable to the maintenance of a distinct health status to apply to the CFIA for recognition as a compartment. The CFIA will inspect such facilities and, if they meet the necessary requirements, will assign an elevated health status to that compartment; subsequently it will allow domestic movements of susceptible species out of that compartment regardless of the health status of the area in which the facility is located.

7.2 Fisheries and Oceans Canada

7.2.1 DFO provides diagnostic/laboratory support to the CFIA under the NAAHP through the National Aquatic Animal Health Laboratory System (NAAHLS) and conducts research on fish health and disease interactions for introductions and transfers. Research priorities pertaining to aquatic animal diseases will be discussed between the CFIA and DFO.

7.2.2 DFO and provinces/territories will collaborate to manage disease risks pertaining to the intentional movement of aquatic organisms falling outside the scope of the NAAHP (e.g., aquatic plants).

7.2.3 For greater clarity, DFO will account for *Fishery (General) Regulations* paragraph 56(*a*) and (*c*) transfer authorizations and fish health-related conditions within licences issued under the *Pacific Aquaculture Regulations*.

7.3 Provinces and Territories

7.3.1 Provinces/territories may continue to administer any respective legislative responsibilities, policies and programs relating to aquatic organism disease risk management.

7.3.2 While the 2013 Code does not impose any additional provincial/territorial responsibilities in disease risk management, province/territories may choose to apply:

- standards that are stricter than the national standards developed and implemented by the CFIA; and

- disease controls for diseases or species outside of the current NAAHP (e.g., not currently listed in the *Reportable Diseases Regulations and Health of Animals Regulations*, such as endemic or production diseases).

7.3.3 The CFIA, DFO as well as provinces/territories that have legislation and / or policies in place to regulate aquatic animal diseases will work together in order to clearly define responsibilities and avoid duplicative efforts.

- In Atlantic provinces, provided the applicant has met the CFIA requirements, the Introductions and Transfers Committee will recognize the Certificate of Health for Transfer for live cultured finfish (COHFT) under the Health Policy for the Transfer of Live Cultured Finfish in Atlantic Canada as the disease risk evaluation.

7.4 Introductions and Transfers Committees

7.4.1 The primary function of the CFIA is to provide input to the Introductions and Transfers committees on matters pertaining to the Agency's responsibility as the federal lead in managing disease risks associated with movements of aquatic animals.

7.4.2 Federal and provincial/territorial partners will (as required) maintain dialogue under each relevant Introductions and Transfers Committee on authorization requests to ensure the sharing of knowledge on risks pertaining to each organization's respective mandate associated with a proposed aquatic animal movement while respecting the individual organization's legislative, regulatory, and policy obligations.

8 INFORMATION MANAGEMENT AND REPORTING

8.1 Each Introductions and Transfers Committee will maintain information on movements of live aquatic organisms, including whether they occurred, that are overseen by the committee, as well as any associated risk assessments. This information will be provided annually to the National Introductions and Transfers Coordination Office (see Section 9).

8.2 A National Introductions and Transfers Database will be established to efficiently compile information received from Introductions and Transfers committees.

8.3 To facilitate the compilation and storage of nationally consistent information, a standard data entry program will be developed to register data in the application form (Appendix 3) and the introduction and transfer notification form (Appendix 9). All committee members will retain flexibility to collect additional information relevant to their specific jurisdictions.

8.4 The data provided will only represent movements of live aquatic organisms overseen by each Introductions and Transfers Committee.

8.5 The information provided will be used to support Canada's domestic and international reporting practices and for the purpose of reporting to CCFAM.

8.6 The information shared and used for any purpose will respect all jurisdictional rules and requirements pertaining to proprietary, confidential information and pertinent privacy legislation.

9 NATIONAL INTRODUCTIONS AND TRANSFERS COORDINATION OFFICE

9.1 The National Introductions and Transfers Coordination Office will reside in DFO, Ecosystems and Fisheries Management Sector.

9.2 The Coordination Office will oversee the national administration of the introductions and transfers program, including coordinating meetings of the National Introductions and Transfers Program Committee, organizing a risk assessment library, and overseeing and consulting the National Introductions and Transfers Database to fulfill domestic and international reporting requirements, including reporting to the CCFAM.

9.3 The National Introductions and Transfers Program Committee will include federal and provincial representatives from each Introductions and Transfers Committee across Canada and will be overseen by federal and provincial co-chairs.

10 DEFINITIONS FOR THE INTERPRETATION OF THE CODE

Aquaculture: the cultivation of fish and/or aquatic plants. <aquaculture>

Aquatic animal: any finfish, mollusc or crustacean, or any part of a finfish, mollusc, or crustacean at any life stage, as well as any germplasm of these animals. <animal aquatique>

Aquatic invasive species: non-native aquatic organisms that, when or if introduced into Canadian fisheries waters, have or are likely to have harmful consequences to fish, fish habitat or the use of fish. <espèces aquatiques envahissantes>

Aquatic plant: any plant adapted to grow in water, which includes both plants attached to submerged surfaces/sediments and floating plants. For the purpose of the 2013 Code, this category includes algae (e.g., kelp). <plante aquatique>

Aquarium and water garden trade: the sale of aquatic organisms, including fish, invertebrates, plants, amphibians and reptiles for ornamental use in aquariums, ponds and water gardens without flow into fish-bearing waters. <Commerce d'organismes d'aquarium et de jardins d'eau>

Aquatic organisms: all organisms (finfish, molluscs, crustaceans, echinoderms and other invertebrates and their life stages) defined as "***fish"*** in the ***Fisheries Act,*** as well as marine and freshwater aquatic plants or any other aquatic organism as defined in the provincial/territorial regulatory regime. <organisme aquatique>

Bait: live (or dead) fish (or other aquatic organisms) placed on a hook or in a trap to lure fish. <poisson-appât>

Compartment: one or more aquaculture establishments under a common biosecurity management system, containing one or more aquatic animal populations with a distinct health status with respect to a specific pathogen or pathogens for which required surveillance and control measures are applied and basic biosecurity conditions. Such compartments must be clearly documented by the Competent Authority (modified from the OIE Aquatic Animal Health Code). <compartiment>

Enhancement: the release of fish to augment the public resource. This can be accomplished through fish culture techniques or the introduction or transfer of wild fish. <amélioration>

Environment: key components of the aquatic ecosystem necessary for fish survival and reproduction. <milieu>

Exotic species: see "introduced species." <espèce exotique>

Fellow traveller: an organism that inadvertently accompanies the shipment of a species intended for introduction/transfer. <organisme associé>

Fish: as defined in the *Fisheries Act*, includes: a) parts of fish; b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals; and c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals. For the purposes of this Code, fish is restricted to live fish and includes cryogenically frozen gametes. <poisson>

Fish Rearing Facility: a location at which the growing and/or breeding of fish occurs. <installations d'élevage>

Fishery: includes the area, locality, place or station in or on which a pound, seine, net, weir or other fishing appliance is used, set, placed or located, as well as the area, tract or stretch of water in or from which fish may be taken by the said pound, seine, net, weir or other fishing appliance; and also the pound, seine, net, weir, or other fishing appliance used in connection therewith. <pêcherie>

Genetically engineered organisms: organisms that have had their genomes artificially modified or restructured using molecular biology tools, i.e., recombinant DNA technology. <organismes génétiquemente modifié>

Hazard: any source of potential damage or adverse effect. <danger>

Hybridize: produce offspring with a different species. <hybrider>

Import: move aquatic organisms across national or inter-provincial/territorial boundaries. <importation>

Indigenous (native) species: species that originated naturally in a particular region or environment. <espèce indigène>

Intentional introduction: the deliberate release or holding of live aquatic organisms into waters outside its present range. <introduction délibérée>

Intentional transfer: the deliberate movement of an aquatic organism from one location to another within its present range. <transfert intentionnel>

Introduced species: any species intentionally or accidentally transported and released into an environment outside its present range (also known as exotic species, non-indigenous). <espèce introduite>

Live fish for the food trade: fish destined strictly for human consumption. An example is live fish that are held in restaurants or fish stores. <poisson vivant destiné à la consommation>

Mitigation measures: actions intended to avoid, reduce or offset the potential impacts of hazards (i.e., to reduce risk). <mesures d'atténuation>

Niche: the attribute of an organism that defines the boundaries within which it can carry out its life processes. An organism's potential niche is constrained by the physical environment and interactions with other species, producing a realized niche in a particular ecosystem. <niche>

Precautionary approach: where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (CEPA 1999[1]). <approche de précaution>
Release: the liberation of live aquatic organisms to the natural environment. Release can be unintentional, as in the escape of organisms from aquaculture facilities or during use as live bait. <libération>

Risk: the probability and magnitude of negative or undesirable events; the measure of a hazard's probability and severity of impact. <risque>

Risk analysis: the process that includes risk identification, assessment, management and communication. <analyse des risques>

Risk assessment: the process of identifying and describing the risks of introductions or transfers of aquatic organisms having an impact on fisheries resources, habitat or aquaculture in receiving waters before such introductions or transfers take place; the process of identifying a hazard and estimating the risk it presents in qualitative or quantitative terms. <évaluation des risques>.

Routine: performed as part of a regular procedure rather than for a special reason.[2]

Species: a group of inter-breeding, natural populations that are reproductively isolated from one another. <espèce>

Sustainable development: the integration of environmental, economic and social aspects into policies and programs to meet the needs of the present without compromising the ability of future generations to meet their own needs. <développement durable>

Stock: a population of organisms that, sharing a common gene pool, is sufficiently discrete to warrant consideration as a self-perpetuating system that can be managed (ICES 1988[3]). <stock>

Strain: a group of individuals with common ancestry that exhibits genetic, physiological or morphological differences from other groups of the same species (Porter 1992[4]). <souche>

Unintentional movements: the introduction or transfer of an aquatic organism, including fellow travellers, by chance rather than by design (also known as accidental introduction). <introduction non intentionnelle>

Watershed: an area where all the water drains into the same body of water (river, lake, or ocean). <bassin versant>

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[1] CEPA, 1999. Canadian Environmental Protection Act, 1999. S.C. 1999, c. 33.

[2] Oxford University Press, 2017. Oxford English Dictionary. Available online: https://en.oxforddictionaries.com/definition/routine [Accessed April 12, 2017].

[3] ICES, 1988. Codes of practice and manual of procedures for consideration of introductions and transfers of marine and freshwater organisms. ICES Co-operative Research Report No. 159. 44 pp.

[4] Porter, T.R. (ed.). 1992. Protocols for the introduction and transfer of salmonids. North America Commission, North Atlantic Salmon Conservation Organization, Scientific Working Group on Introductions and Transfers. NAC (92) 24. 119 pp.

Appendix 1: Authorities and Commitments Governing the Management of Introductions and Transfers of Live Aquatic Organisms in Canada

Federal Legislation

Health of Animals Act
Health of Animals Regulations
Reportable Diseases Regulations

Fisheries Act
Aquatic Invasive Species Regulations
Aquaculture Activities Regulations
Fishery (General) Regulations
Fisheries regulations in inland provinces
Pacific Fishery Regulations
Pacific Aquaculture Regulations

Species at Risk Act

Wild Animal & Plant Protection and Regulation of International & Interprovincial Trade Act (WAPPRIITA)
Wild Animal and Plant Trade Regulations

Canadian Environmental Protection Act

Nunavut Land Claims Agreement Act

Provincial & territorial laws and regulations applicable to the movement of live aquatic organisms other than those promulgated under the *Fisheries Act*	
BC	• *British Columbia Wildlife Act* • *Freshwater Fish Regulation* • *Controlled Alien Species Regulations,* 2012
AB	• *Fisheries (Alberta) Act* • *General Fisheries (Alberta) Regulation* • *Fisheries (Ministerial) Regulation*
SK	• *Fisheries Act (Saskatchewan),* 1994 • *The Fisheries Regulations of the Fisheries Act (Saskatchewan),* 1994
MB	• *Fisheries Act (Manitoba)* • *Fishing Licensing Regulation* • *Water Protection Act*
ON	• *Fish and Wildlife Conservation Act* • *Ontario Regulation 664/98 — Fish Licensing*
QC	• *An Act Respecting the Conservation and Development of Wildlife* • *Regulation Respecting Aquaculture and the Sale of Fish, R.Q. c. C-61.1, r7*
NB	• *New Brunswick Fish and Wildlife Act* and *Regulations* • *New Brunswick Aquaculture Act* and *Regulations* • *Clean Water Act (S.N.B. 1989, c. C-6.1)*
NS	• *Nova Scotia Fisheries and Coastal Resources Act* • *Aquaculture Licence and Lease Regulations* • *Aquaculture Management Regulations* • *Live Fish Possession Regulations*
PE	• *Prince Edward Island Wildlife Conservation Act*
NL	• *Newfoundland Aquaculture Act and Aquaculture Regulations* • *Newfoundland Wildlife Act*
NU	• *Nunavut Wildlife Act*
YT	• *Yukon Environmental and Socio-Economic Assessment Act*

Relevant Regional Organizations

- Great Lakes Fishery Commission (GLFC)
- Great Lakes Panel on Aquatic Nuisance Species

Relevant International Organizations

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- International Council for the Exploration of the Sea (ICES)
- International Joint Commission under the *International Boundary Waters Treaty Act*
- North Atlantic Salmon Conservation Organization (NASCO)
- World Organisation for Animal Health (OIE)

- Federal and provincial governments must take into account and abide by all international trade rules and obligations.

Appendix 2: Jurisdictional Roles and Responsibilities to Be Factored Into Introductions and Transfers Committees' Terms of Reference

Each Introductions and Transfers Committee shall include representatives from the Department of Fisheries and Oceans Canada (DFO), the province/territory in which the committee is located, and the Canadian Food Inspection Agency (CFIA) as required.

Each Introductions and Transfers Committee shall prepare and approve a committee Terms of Reference document that reflects the committee's collective purpose, roles and responsibilities as well as the individual roles and responsibilities of jurisdictions. Committees may draw from the points referenced below.

Collective Roles and Responsibilities of Introductions and Transfers Committees

- Follow procedures consistent with the Code and its appendices.
- Evaluate the ecological and genetic risks associated with the intentional movement of aquatic organisms to inform authorization decisions.
- Engage in dialogue with other Introductions and Transfers committees on matters of mutual interest.
- Ensure sound information management, sharing and reporting.
- Ensure collaboration among jurisdictions in support of responsible service delivery.
- Strive for national consistency and coherence in program delivery and service standards.
- Coordinate and streamline, to the extent possible, the introductions and transfers licensing and National Aquatic Animal Health Program (NAAHP) permitting processes.
- Identify key outstanding process and/or policy issues and propose solutions for review and consideration by the National Introductions and Transfers Program Committee.
- Participate and advise on regional/national initiatives that have linkages with introductions and transfers.
- Communicate Code requirements to stakeholders.
- Advise other Introductions and Transfers Committee members when aware of potential violations of the federal or provincial regulations regarding introductions and transfers.

Fisheries and Oceans Canada (DFO)

National

- Maintain the National Introductions and Transfers Coordination Office, which will reside at DFO headquarters, Ecosystems and the Fisheries Management Sector.

- Maintain the National Introductions and Transfers Database based on reporting information compiled and provided by the DFO representative on each Introductions and Transfers Committee.

- Report nationally and internationally on Introductions and Transfers (e.g., DFO's Aquaculture Sustainability Reporting Initiative; International Council for the Exploration of the Sea (ICES); North Atlantic Salmon Conservation Organisation).

- Coordinate and report on introductions and transfers to the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) in collaboration with provinces and territories.

- Coordinate an annual meeting of the National Introductions and Transfers Program Committee as well as additional national discussions, as deemed necessary.

Regional

- Each Introductions and Transfers Committee shall include representation from DFO. Roles and responsibilities within the committee will be carried out in a manner consistent with relevant legislative authorities.

- In coastal provinces, DFO shall act as chair or co-chair of the Introductions Committee.

- If there are two committees in a single coastal province, the chair shall be a representative of DFO for the committee responsible for managing marine introductions and transfers.

- The DFO committee representative shall ensure compliance with the *Fisheries Act* and its attendant *Regulations* respecting the movement of aquatic organisms and activities covered under the Code.

- In accordance with the Code and its appendices, DFO and the provinces/territories shall assess genetic and ecological risks associated with introductions and transfers licence applications, as well as disease risks associated with aquatic plants.

- Where DFO is the chair or co-chair of the committee, the chair or co-chair will present the information on risks assessed by the committee to the regional director general, the decision-making authority where the *Fishery (General) Regulations* apply.

- Where the *Fishery (General) Regulations* apply, the Regional Director General of DFO may exercise the power to issue introduction and transfer licences pursuant to section 56 of the *Regulations* on behalf of the Minister of DFO. For administrative efficiency, the power to issue licences for low-risk movements that respect departmental policy may be undertaken by an appropriate departmental representative.

- A DFO committee representative, in collaboration with the province/territory, will be responsible for providing all reporting information in a timely manner to the National Introductions and Transfers Coordination Office.

Provinces/Territories

- Each Introductions and Transfers Committee shall include representation from the province/territory. Roles and responsibilities within the committee will be carried out in a manner consistent with relevant legislative authorities.

- In the case of inland provinces not administering the licensing of marine introductions and transfers, the chair of the Introductions Committee shall be a representative from the province. Coastal provinces may choose to co-chair Introduction and Transfer committees.

- The province/territory shall ensure compliance with the provincial/territorial legislation and/or federal legislative authorities that have been delegated to the province/territory.

- In accordance with the Code and its appendices, and in collaboration with DFO, the province/territory shall assess genetic and ecological risks associated with introductions and transfers licence applications, as well as disease risks associated with aquatic plants.

- Where the *Fishery (General) Regulations* do not apply, the introductions and transfers committee will present the information on risks assessed to the provincial decision-making authority.

- Where a provincial minister/official is empowered to authorize the issuance of introduction and transfer licences, anyone authorized by law to exercise the power on behalf of the provincial minister/official may do so.

- The province/territory will assist the DFO committee representative(s) in compiling introductions and transfers reporting information for the purpose of submitting this information in a timely manner to the National Introductions and Transfers Coordination Office.

- Provinces/territories and the CFIA will collaborate to manage disease risks.

- Provinces/territories may manage provincial/territorial authorizations associated with the movements of aquatic animals for diseases of provincial/territorial concern. In the case of Atlantic Canadian provinces, these risks are managed through the Health Policy for the Transfer of Live Cultured Finfish in Atlantic Canada and associated Certificate of Health for Transfer for Live Cultured Finfish (COHFT).

The Canadian Food inspection Agency (CFIA)

- The CFIA shall identify liaisons who can provide input to each Introductions and Transfers Committee and be included in committee work, if appropriate. Roles and responsibilities within the committee will be carried out in a manner consistent with relevant legislative authorities.

- The CFIA is responsible for disease risk assessments and permissions for movement of aquatic animals and aquatic animal products and things, as set out in the NAAHP policies as per the authorities of the *Health of Animals Act* and *Regulations*.

- Should the NAAHP establish federal requirements to control aquatic animal disease risks for which provinces or territories also have requirements, the CFIA will collaborate directly with the impacted province to facilitate the coordination and streamlining of control requirements.

Appendix 3: Minimum Information Requirements for the Introduction and Transfer Application Form

Each ITC to develop application forms specific to their province/territory

i. Administrative Information

- Date Received
- Received By
- ITC File #
- Reviewed By
- Trigger Risk Assessment: Y / N

1. Applicant Information

- Contact Name
- Company or Organization
- Business Address (full postal and street address)
- Business Telephone Number
- Business Fax Number
- Business E-mail

2. Purpose of Introduction/Transfer

- Culture
- Education
- Enhancement/Stocking Program
- Public Display
- Research
- Other_____

3. Reason for Introduction/Transfer

4. Origin of Organisms or Supplier

5. Destination of Organisms

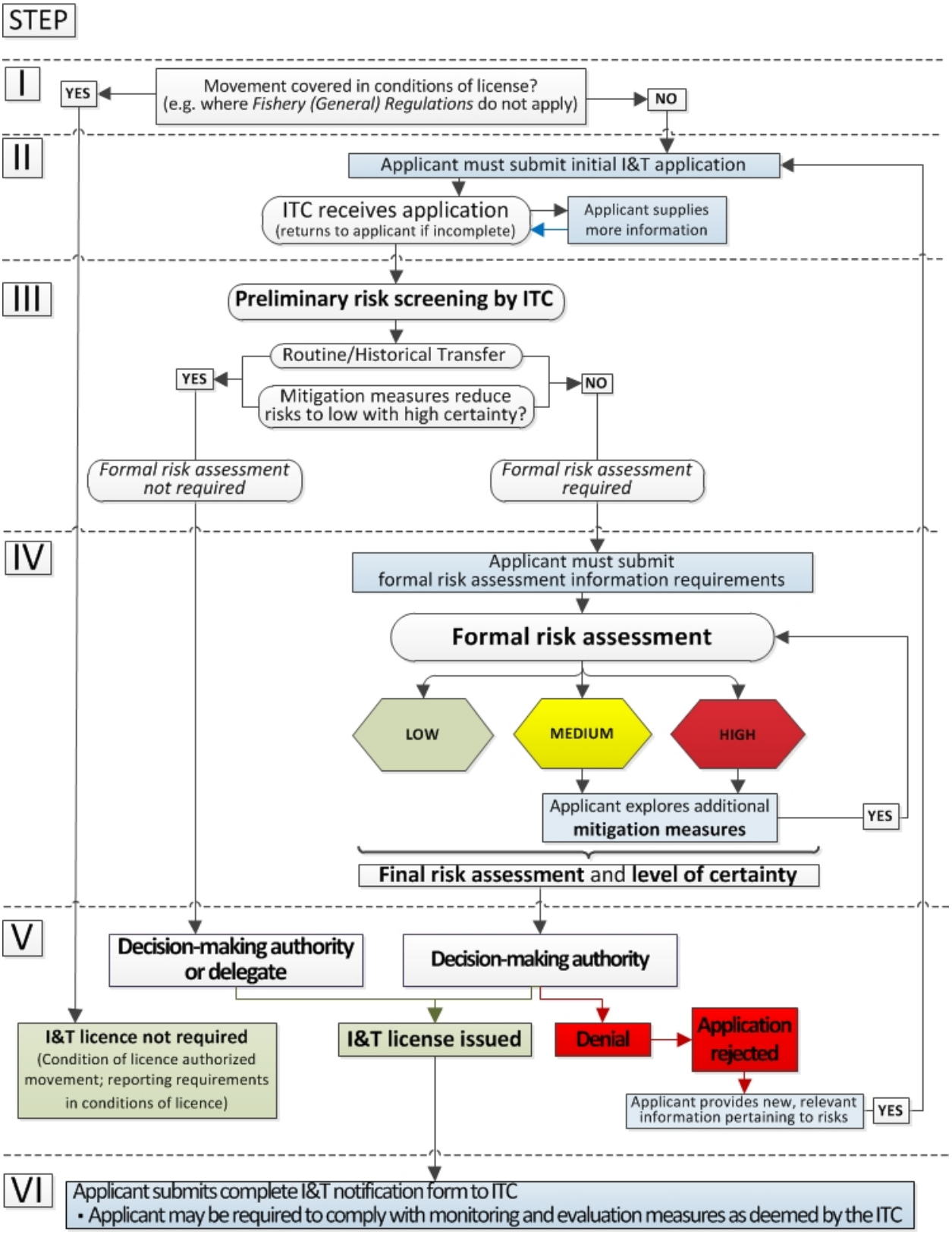
6. Quantity of Organisms to be Moved

- Species Common Name (Scientific Name)
- Strain/Stock Origin
- Genetically Engineered Organism Y / N
- Life Stage
- Source Location
- Destination Location
- Transfer Methods
- Transfer Start Date
- Transfer End Date
- Number of Organisms or Total Weight (kg) to be Moved

7. Additional text in form stating:
"The applicant should provide any additional, relevant information."

8. Applicant Signature Box (Statutory Declaration)

Appendix 4: Introduction and Transfer Licensing Process



Appendix 5: Mitigation Measures

Mitigation measures to be employed by the proponent are a key consideration in reducing any potential risks associated with the movements of aquatic organisms. Mitigation measures are often applied at various points along the production cycle and can take on various forms at the organism, technological and/or management level. Some examples illustrating the breadth of available options are listed below:

- **Organism Level**
  - Reduce reproduction risks associated with potential escapes by using all-female organisms or strains that are reproductively non-viable (e.g., triploids, sterile)

- **Technological Level**
  - Reduce the risk of escape by using robust containment technology and mechanisms (e.g., a contained facility with effluent treatment, multiple physical barriers, novel or enhanced netting materials, etc.)

- **Management Level**
  - Biosecurity (e.g., controlled access to premises for staff, visitors, suppliers)
  - Regular equipment monitoring, testing and maintenance (e.g., net cages, filtration systems)
  - Employee training
  - Imposition of fish health management plans (e.g., feeding, monitoring, contingency plans)
  - Bay management area approaches
  - Best management practices (e.g., inspections and treatments to remove aquatic invasive species)

There are many available mitigation options; their application varies according to the species cultured and the receiving environment. Diverse measures are often employed systematically—and potentially simultaneously—to ensure that potential risks from exceptional breaches or failures associated with any one mitigation measure are adequately accounted for by the other measures. Further development of mitigation measures is science-based and ongoing to account for changing drivers, such as technology and environments.

Introductions and Transfers committees assess proposed mitigation measures based on the best available science for each proposed introduction and transfer activity. However, it is up to the proponent to research and propose the most appropriate mitigation measures.

Appendix 6: Formal Risk Assessment Information Requirements

To be completed by applicant

Wherever possible, information must be supported by references from the scientific literature and notations to personal communications with scientific authorities and fisheries experts. Applications lacking detail will be returned to the proponent for additional material, delaying the proposal's assessment.

A. Executive Summary

Provide a brief summary of the document, including a description of the proposal, the potential impacts on native species and their habitats, and mitigation steps to minimize the potential impacts on native species.

B. Aquatic Organism

1. Provide the name (common and scientific [genus and species]) of the organism proposed for introduction or transfer.

2. Describe the organism's characteristics, including distinguishing characteristics. Include a scientific drawing or photograph.

3. Describe the native range and range changes due to introductions.

4. Describe the factors that limit the species in its native range?

5. Describe the physiological tolerances (water quality, temperature, oxygen and salinity) at each life history stage of the organism (early life history stages, adults, reproductive stages).

6. Describe the habitat preferences and tolerances for each life history stage.

7. Describe the organism's reproductive biology.

8. Describe the migratory behavior.

9. Describe the food preferences for each life history stage.

10. Describe the behavioural traits (social, territorial, aggressive).

11. Describe where the introduced species has been documented or theorized to hybridize with other species.

12. Describe where the introduced species has been documented to compete on the spawning behaviour and spawning grounds of other species.

13. Describe the known parasites or fellow travellers of the species or stock.

14. Describe the organism's history in aquaculture, enhancement or other introductions (if appropriate).

- Record where the species was introduced previously and at what life-history stage, and describe the ecological effects on the environment of the receiving area (predator, prey, competitor, and/or structural/functional elements of the habitat).

C. Source

1. Provide the legal name of the owner and company, the aquaculture licence number, and the business licence (if applicable) and name of the competent authority with a contact name, telephone and fax numbers and email address.

2. Provide a map of the source location watershed with general topography and hydrology layers.

3. List the species composition (major aquatic vertebrates, invertebrates and plants) of the source watershed/facility. Identify any of these species known or theorized to be able to survive in the destination watershed.

4. Describe the original source(s) and genetics of all stocks at the source facility (if known). Describe any selection criteria that may have been used on the source stocks.

5. Describe the water cycle process in the source facility.

6. Describe the chemical, biophysical and management precautions taken to prevent the accidental introduction of any fish, parasites and/or pathogens and their establishment in the source facility/water.

7. Describe contingency plans to be followed in the event of an unintentional, accidental or unauthorized breach of security at the source.

8. Describe precautions taken to ensure that no other species (fellow travellers) accompany the shipment.

D. Destination

1. Provide the proponent's legal name and respective organization, aquaculture licence number and business licence (if applicable), telephone and fax numbers, and email address.

2. Describe the objectives and rationale for the proposed introduction, including an explanation as to why such objectives cannot be met through the utilization of an indigenous species.

3. Provide a map of the destination watershed with general topography and hydrology layers.

4. Provide physical information on the receiving environment and contiguous water bodies, such as seasonal water temperatures, salinity, turbidity, dissolved oxygen, pH, nutrients and metals. Identify those parameters that match the tolerances/preferences of the species to be introduced, including conditions needed for reproduction.

5. Provide information on habitat in the area of introduction, including contiguous waters, and identify critical habitat or overlap with any species of concern or threatened and endangered species as listed by the Committee on the Status of Endangered Wildlife in Canada. Identify which of those parameters match the tolerances/preferences or limitations of the species to be introduced.

6. List the species composition (major aquatic vertebrates, invertebrates and plants) of the destination watershed and facility. Identify any species in the local watershed known to occupy similar niches or to be susceptible to the diseases and parasites found in the source animal/area/region.

7. Describe any natural or man-made barriers that should prevent the movement of the introduced organisms to adjacent waters.

8. Describe the water cycle process in the destination facility.

9. Describe the chemical, biophysical and management precautions taken to prevent the accidental introduction of any fish, parasites and/or pathogens and their establishment in the destination facility and or surrounding waters. Give details of the water source, effluent destination, any effluent treatment, proximity to storm sewers, predator control, site security, and precautions to prevent escapes.

10. Describe contingency plans to be followed in the event of an accidental or unauthorized breach of security at the destination.

11. What is the potential for survival and establishment of the non-native species or life-history stage if it escapes? (This question applies to species intended for aquaculture or for live rearing in a contained facility.)

12. Will the introduced species survive and successfully reproduce in the proposed area of introduction, or will annual stocking be required? (This question applies to species not intended for aquaculture or life in a contained facility.)

13. Describe any plans for follow-up assessments of the proposed introduced species' success and how negative impacts on native species and their habitats will be assessed.

E. References

1. Provide a detailed bibliography of all references cited in the course of preparing the risk assessment.

2. Provide a list of names, including addresses and contacts, of scientific authorities and fisheries experts consulted.

Appendix 7: Aquatic Organism Risk Assessment

To be completed by Introductions and Transfers committees[5]

Introduction

To evaluate the risks associated with the introduction or transfer of aquatic organisms, it is necessary to assess both the probability that a species will become established and the consequences of that potential establishment. The assessment process addresses the major environmental components. It provides a standardized approach to evaluating the risk of genetic and ecological impacts as well as the potential for introducing a "fellow traveller" or parasite that might impact the native species of the proposed receiving waters. The risk assessment process is to be conducted recognizing the existing industries and the historic transfers of the species that have been approved for use.

This risk assessment should consider other non-intentional vectors of live aquatic organisms where known establishments have occurred. It also provides a mechanism for assessment in cases where establishing a population in the wild is the intended outcome. This approach has been adapted from the final draft report to the Aquatic Nuisance Task Force, Generic Nonindigenous Aquatic Organisms Risk Analysis Review Process, 1996.[6]

At each of Steps 1, 2 and 3, the element rating and rationale for the rating should be recorded based on the following criteria:

A **HIGH** rating means the risk is likely or very likely to occur.

A **MEDIUM** rating means a negative impact is probable.

A **LOW** rating means the risk is considered insignificant.

The strength of the review process is not in the ratings but in the detailed biological and other relevant information statements that motivate them.

[5] Unless the authorising jurisdiction requires the risk assessment to be prepared by the proponent.

[6] Anon. 1996. Report to the Aquatic Nuisance Species Task Force. Generic nonindigenous aquatic organisms risk review process. Risk Assessment and Management Committee. US Aquatic Nuisance Species Task Force. Aquatic Nuisance Prevention and Control Act of 1990. Feb 9, 1996.

PART 1—ECOLOGICAL AND GENETIC RISK ASSESSMENT PROCESS

Part 1, Step 1: Determining the Probability of Establishment (beyond the intended area of introduction)

Complete the following table and provide a brief rationale with appropriate references to support the assigned rating.

Element	**Probability of Establishment (H, M, L)[1]**	**Level of Certainty (VC to VU)[2]**
Estimate the probability that the introduced species could successfully colonize and maintain a population in the intended area of introduction[3]		
Estimate the probability of it spreading beyond the intended area of introduction[4] **or**, Estimate the probability of it spreading beyond the intended area of introduction **if it escapes** (applies to cases in which the intended area of introduction is a confined environment)[5]		
Final Rating[5,6]		

Explanatory Notes

1. H High
   M Medium
   L Low

Element ratings should be supported with data and references, including a rationale.

2. VC Very certain
   RC Reasonably certain
   RU Reasonably uncertain
   VU Very uncertain

   The level of certainty is intended to give an estimate of whether the element that is being rated is based on scientific knowledge and/or experience, or whether it is extremely subjective and based on a "best guess." Such uncertainties need to be taken into account when making a decision.

3. Characteristics within this element include: the organism coming into contact with an adequate food resource; suitability of habitat; encountering appreciable biotic and abiotic environmental resistance; and the ability to reproduce in the new environment. If the organism is introduced into a confined facility (land-based, sea cages, etc.), the facility itself is identified as the intended area of introduction.

4. In cases in which the intended area of introduction is a natural habitat (i.e., the wild), the probability of spreading includes consideration of, but is not limited to, factors such as the ability to use human intervention/activity as a means of dispersal.

5. In cases in which the intended area of introduction is a confined environment, such as a land facility or cages, the probability of spreading beyond the area of introduction depends on whether or not the organism escapes from the area of introduction. For example, a **Low** probability of escape from a confined facility will necessarily result in a **Low** probability of spreading in the surrounding natural habitat. If the probability of escape is deemed **Medium**, then the probability of spreading beyond the area of introduction, if estimated as **High**, could still not be rated higher than Medium; whereas if the probability of escape is deemed **High**, the probability of spreading beyond the area of introduction will not be limited by its probability of escape and could be rated as estimated (i.e., High, Medium or Low).

6. The final rating for the **Probability of Establishment** is assigned the value of the element with the lowest rating (for example, **High** and **Low** ratings for the above elements would result in a final **Low** rating). Again, both events—the probability of the organism successfully colonizing and maintaining a population in the intended area of introduction (whether a confined environment, such as a facility, or a natural habitat) and the probability of spreading beyond the intended area of introduction (estimated as explained above)—need to occur in order to result in establishment beyond the intended area of introduction.

   The final rating for the **Level of Certainty** is assigned the value of the element with the **Lowest** level of certainty (e.g**., Very Certain** and **Reasonably Certain** ratings would result in a final **Reasonably Certain** rating).

Part 1, Step 2: Determining the Consequence of Establishment of an Aquatic Organism

The "**Consequence of Establishment**" is assigned a single rating based on environmental impacts.

Element Estimate of magnitude of environmental impacts, if established	**Consequences of Establishment (H, M, L)**[7]	**Level of Certainty (VC to VU)** [8]
Ecological impact on native ecosystems both locally and within the drainage basin[9]		
Genetic impacts on local self-sustaining stocks or populations[10]		
Final Rating[11,12]		

Explanatory Notes

7. See Note 1.

8. See Note 2.

9. Refers to ecological impacts that can affect the distribution or abundance of native species resulting from alterations in relationships, such as predation, prey availability and habitat availability. In assessing the ecological impacts of establishment, assessors should consider whether the non-indigenous stock i) enters or alters the habitat of indigenous species; ii) displaces indigenous species from optimal habitat; iii) affects the quantity, quality and availability of the food supply of indigenous species; or iv) preys on other species of concern.

10. Refers to genetic impacts that can affect native species' capacity to maintain and transfer to successive generations their current identity and diversity. In assessing genetic impacts, assessors should consider whether the non-indigenous stock i) encounters or interacts with species of concern; ii) affects the survival of local species; iii) affects the reproductive success of local species; iv) affects native stocks' or species' genetic characteristics; or v) when conducting a risk assessment it must be taken into consideration that historic transfers using non indigenous strains have occurred and in some regions no negative impacts have been identified.

11. The final rating for the **Consequences of Establishment** is assigned the value of the element (individual probability) with the **highest** rating (for example: a **High** probability of ecological impact and a **Medium** rating for the probability of genetic impact would result in an overall **High** probability of environmental impact), as both events are independent (i.e., additive probabilities).

12. See Note 6.

Part 1, Step 3: Estimating Aquatic Organism Risk Potential

The overall risk is assigned a single value based on the **Probability of Establishment** and the **Consequences of Establishment.**

Component	**Rating (H,M,L)**	**Level of Certainty (VC to VU)**
Probability of establishment estimate[13]		
Consequences of establishment estimate[14]		
FINAL RISK ESTIMATE [15, 16]		

Explanatory Notes

13. As estimated in Step 1: Use the "final rating level" and "final level of certainty," respectively.

14. As estimated in Step 2: Use the "final rating level" and "final level of certainty," respectively.

15. Under "element rating": Table 1 provides a guide for categorizing the final risk estimate. See also explanatory note 29 below Table 1.

16. Under "level of certainty": The final level of certainty for the **Final risk estimate** is assigned the value of the element with the **lowest** certainty level (e.g., a **Very Certain** and **Reasonably Uncertain** estimate for the probability of establishment and consequences of establishment, respectively, would result in an overall **Reasonably Uncertain** level of certainty).

Definition of **Overall Aquatic Organism Risk Potential**

HIGH = Organism(s) of major concern (major mitigation measures are required).

MEDIUM = Organism(s) of moderate concern.

LOW = Organism(s) of little concern.

Part 1, Step 4: Completion of Risk Assessment Documentation

Specific Management Questions (Mitigation Factors or Measures)

Additional Factors and Notes

1. Mitigation measures to reduce risks could include but are not limited to those listed in Appendix 5.

2. Are there any neighbouring jurisdictions to consult?
    - If Yes: Has this been done, and is the neighbouring jurisdiction concerned?

3. Historical transfers that have been conducted to support existing industries should be taken in consideration when conducting the risk assessment.

PART 2—PARASITE OR FELLOW TRAVELLER RISK ASSESSMENT PROCESS

Part 2, Step 1: Determining the Probability of Establishment

Complete the following table and provide a brief rationale with appropriate references to support the rating given.

Steps 1 to 3 must be carried out for each **hazard** (i.e., parasite, fellow traveller).

Element	**Probability of Establishment (H,M,L)** [17]	**Level of Certainty (VC to VU)** [18]
Estimate the probability that a parasite or fellow traveller may be introduced along with the species proposed for introduction. Note that several pathways may exist through which accompanying species can enter fish habitat. Each must be evaluated.		
Estimate the probability that the parasite or fellow traveller will encounter susceptible organisms or suitable habitat.		
Final Rating [19, 20]		

Explanatory Notes

17. See Note 1.

18. See Note 2.

19. The final rating for the **Probability of Establishment** is assigned the value of the element with the **lowest** risk rating (e.g., a **Medium** and **Low** estimate for the above elements would result in an overall **Low** rating). Note that the calculation of the final rating follows the multiplication rule of probabilities (i.e., the probability that a given event will occur corresponds to the product of the individual probabilities). Thus the final risk of establishment is assigned the value of the lowest individual probability estimate. Again, both events—the probability of the parasite or fellow traveller successfully colonizing and maintaining a population in the intended area of introduction (whether in a confined environment, such as a facility, or in a natural habitat) and the probability of spreading beyond the intended area of introduction (see Note 4)—need to occur in order to result in establishment beyond the intended area of introduction.

20. The final rating for the **level of certainty** for the Probability of Establishment is assigned the value of the element with the **lowest** level of certainty (e.g., **Very Certain** and **Reasonably Uncertain** ratings for the above elements would result in a final **Reasonably Uncertain** rating).

Part 2, Step 2: Determining the Consequence of Establishment of a Parasite or Fellow Traveller

Complete the following table and provide a brief rationale with appropriate references to support the rating given. The final rating of the Consequences of Establishment is assigned a single rating based on environmental impacts.

Element	**Consequences of Establishment (H, M, L)** [21]	**Level of Certainty (VC to VU)** [22]
Impacts of establishment of a parasite or fellow traveller on native species and/or aquaculture in the watershed		
Ecological impacts on native ecosystems both locally and within the drainage basin, including reduction in reproductive capacity and habitat changes, etc.		
Genetic impacts on local self-sustaining stocks or populations (i.e., whether or not the parasite or fellow traveler affects the genetic characteristics of native stocks or species)		
Final Rating[23, 24]		

Explanatory Notes

21. See Note 1.

22. See Note 2.

23. The final rating for the **Consequences of Establishment** is assigned the value of the element (individual probability) with highest risk rating (e.g., **High** and **Medium** ratings for the above elements would result in a final **High** rating), as both events are independent (i.e., additive probabilities).

24. See Note 20.

Part 2, Step 3: Estimating Parasite or Fellow Traveller Risk Potential

The overall risk is assigned a single value based on the **Probability of Establishment** and the **Consequences of Establishment.**

Component	**Rating (H, M, L)**	**Level of Certainty (VC to VU)**
Probability of Establishment estimate[25]		
Consequence of Establishment estimate[26]		
FINAL RISK ESTIMATE [27, 28]		

Explanatory Notes

25. As estimated in Step 1: Use "final rating for probability of establishment" and "final rating for the level of certainty," respectively.

26. As estimated in Step 2: Use "final rating for consequences of establishment" and "final rating for the level of certainty," respectively.

27. Under "element rating," Table 1 below provides a guide for categorizing the final risk estimate.

28. See Note 20.

Definition of **"Parasite and Fellow Traveller Organism Risk Potential"**

HIGH = Organism(s) of major concern (major mitigation measures are required).

MEDIUM = Organism(s) of moderate concern.

LOW = Acceptable risk - organism(s) of little concern.

Part 2, Step 4: Completion of Risk Assessment Documentation

Specific Management Questions (Mitigation Factors or Measures)

Additional Factors and Notes

Examples of mitigation measures to reduce risk are included in Appendix 5.

Table 1. How to Categorize the Final Risk Estimate[29]

Probability of Establishment	Consequences of Establishment	Final Risk Estimate
High	High	High
High	Medium	High
High	Low	Medium
Medium	High	High
Medium	Medium	Medium
Medium	Low	Medium
Low	High	Medium
Low	Medium	Medium
Low	Low	Low

Explanatory Note

29. If there is no probability increment between the two estimates (i.e., if the Probability of Establishment is **High** and the Consequence of Establishment is **Medium**), then the final risk estimate takes the value of the highest of the two probabilities to err on the side of safety (precautionary approach).

NATIONAL CODE ON INTRODUCTIONS AND TRANSFERS OF AQUATIC ORGANISMS

Organism Risk Assessment Summary Report Form

To be completed by Introductions and Transfers committees

Name of Proponent:

Summary Prepared By:

Date Submitted:

History, background and rationale for the request:

Description of aquatic organism or activity to be assessed:

Volume, quantity and frequency of importation:

Time schedule associated with introduction and transfer activity:

Hazard Identification

Organism Risk Assessment Summary Information

Summary of the Ecological and Genetic Risk Assessment

Summary of the Parasite/Fellow Traveller Risk Assessment

Parasites:

Other “fellow travellers”:

Comments:

Mitigation Measures:

Concluding Statement on Total Organism Potential Risk:

_____

Approved by

_____ _____

Signature Date

Appendix 8: Services Standards for Routine Movements

Introductions and Transfers Licensing Application and Evaluation Process

- Service standards apply to introductions and transfers licensing application and evaluation processes under routine circumstances where a formal risk assessment process is not required.[7]
    - Individual ITCs may set shorter service delivery times as standards for their jurisdiction.

- The ITC will confirm receipt of an Introduction and Transfer application within five business days after receiving the initial application.

- The ITC will review the application and inform the proponent whether sufficient information to process the application has been provided within 10 business days after receipt of the application.

- For routine, low risk movements of live aquatic organisms, the decision-making authority or ITC (if delegated to do so) will issue a licence within 20 business days after receipt of a complete application.

[7] Time frames for processes that include formal risk assessments may vary considerably, depending on the nature of the application and the existing knowledge available to inform the assessment of associated risks.

Appendix 9: Introductions and Transfers Notification Form

Licence Holder Name: _____ Date: _____

Bus. Phone Number: _____ Bus. E-mail: _____

Introduction and Transfers Licence #: _____

Signature:

INTRODUCTION/TRANSFER Details:

Species Transferred	Life Stage	Source Location	Destination Location	Fish Arrival Date at Destination Location (dd/mm/yy)	Accurate Number of Fish Transferred

Licence holders must also meet any additional reporting requirements identified in the licence.

Please submit this form to: [*insert relevant ITC e-mail address*].

N.B. ITCs shall add additional data fields to retrieve information relevant to their jurisdiction.