Marine Finfish Aquaculture Licence under the Fisheries Act

Licensed for: Aquaculture Date Issued: «DATE_ISSUED»

LICENCE No. «DFO_Prefix» «DFO_Lic_No» «YEAR» Expiry Date: «EXPIRY_DATE»

ISSUED TO:
«LICENCE_HOLDER»
«CORPORATION ADDRESS»

This licence is issued under the authority of the *Fisheries Act* and confers, subject to provisions of the *Fisheries Act* and Regulations made there under, the authority to carry out aquaculture activities including cultivation and harvest of fish and prescribed activities under the conditions included herein and/or attached hereto.

It is the responsibility of the licence holder to obtain all other forms of authorization from federal or provincial agencies that may have jurisdiction for marine finfish aquaculture facilities. As well, it is the licence holder's responsibility to be informed of, and comply with, the *Fisheries Act* and the regulations made there under, in addition to these conditions.

The above licence holder is authorized by this licence to carry out aquaculture activities at the following location and for the following species:

Facility Reference Number	**Location and Legal Description**
«REFERENCENUMBER»	«SITECOMMONNAME» «LEGALDESCRIPTION» «LANDFILENUMBER» «PFMA»

	Licensed Species
1	«SPECIES_1»
2	«SPECIES_2»
3	«SPECIES_3»
4	«SPECIES_4»
5	«SPECIES_5»
6	«SPECIES_6»
7	«SPECIES_7»
Combined Peak Biomass (tonnes):	

Site specific conditions:

«Section_B_Comment_1»

Required Record Keeping and Reporting: Details are contained within the attached conditions of this licence.

Compliance Advisory: No person carrying out any activity under the authority of this licence must contravene or fail to comply with any condition of this licence.

The licence holder is legally required to ensure that annual fees for this licence are paid each year not later than the anniversary date of this licence. The annual licence fee must be calculated as set out in section 3 of the *Pacific Aquaculture Regulations.*

A copy of this licence must be kept on site at the licensed facility and be available for inspection by a Fishery Officer or Fishery Guardian.

This licence includes further conditions that are included herein and/or attached hereto. These conditions form part of the licence and may not be removed.

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PART A. DEFINITIONS

"Acoustical Deterrent" means a device that is used underwater and is intended to generate an aversive response in Marine Mammals and could cause harm, which includes but is not limited to: explosives, incendiary devices, and electronic sound recordings.

"Active Facilities" means Facilities that have live cultivated fish on site. For sea lice counting purposes: Facilities that have three or more stocked Containment Structures of live cultivated fish on site.

"Attestation" means a written declaration made by a Qualified Individual who bears witness to, confirms, or authenticates.

"Biofouling" means the organisms that attach and/or live on nets and other farm structures (excluding herring spawn).

"Broodstock" means fish used to generate gametes.

"Containment Structures" means net pens, bag cages, tanks, and similar structures used to contain finfish for the purposes of aquaculture.

"Containment Structure Array" means a group of Containment Structures physically attached to each other, or in the case of circular structures, up to a maximum of 60 m apart.

"Counting Event" means the physical counting and recording of sea lice on farmed salmon for reporting to the Department. The number of Containment Structures and fish required to be counted are defined in specific conditions of licence and Appendix VI, and counts must be completed within a 5 calendar day period to be considered a Counting Event.

"Department" means Fisheries and Oceans Canada.

"Disease" means an abnormality of structure or function which results in a measureable compromise in physiological or behavioural performance of the individual, which is not a direct result of injury and can be caused by a suite of infectious, non-infectious, and inherent factors. Specifically:

> "Clinical Disease" is a stage of the Disease continuum that reflects anatomic or physiologic changes that are sufficient to produce grossly recognizable signs of a Disease.
>
> "Infectious Disease" means a Disease caused by the invasion and growth of a microorganism in or on a fish in such a way that it affects the form or function of that fish.
>
> "Infectious Outbreak'' means an occurrence of Disease in a population as determined by the attending veterinarian with the indicating morbidity or mortality rate substantially higher than its normal level.

"Diseases of Regional, National or International Concern" means either exotic to BC or have potential to emerge from the ecosystem in the Pacific region. These diseases, listed in Appendix III, can severely impact fisheries and affect regional and national trade so they warrant urgent notification to CFIA and immediate attention.

"Environmental Data" means dissolved oxygen levels, water temperature, plankton species and counts, salinity, turbidity, and other relevant data collected.

"Evidence of Escape" includes, but is not limited to, any visual or physical evidence that demonstrates a release of cultivated fish from the Facility, including unexplained declines in feed demand or inventory discrepancies.

"Facility" means the collective structures used for the purposes of aquaculture, including but not limited to, net pens, walkways, barges, floats and living accommodations, plus associated lines and anchors.

"Fish Health Event (FHE)" means a suspected or active Disease occurrence within an aquaculture Facility that requires the involvement of a veterinarian and implementation of mitigation to reduce associated impact(s) or risk(s). Actions/mitigation could include: treatment(s), targeted sampling, site quarantine, enhanced biosecurity, or culling to control suspected or confirmed Disease.

"Fish Health Staff" means the designated personnel, with veterinary oversight, responsible for: identifying, managing, and minimizing the impact of health risk factors, making health-related decisions, and routine monitoring of health, lice and Disease parameters.

"Gross Signs of Jaundice" means yellow pigmentation of skin and/or internal organs for any physiological reason.

"Harvest" means removal of live cultivated fish for market.

"Harvest/Transfer Pens" means pens that are secured for less than 90 days to the main cage array for the purpose of feeding, handling, holding, Harvesting or moving fish.

"High Slack Tide" means the time when high tide has been reached, and water movement has ceased temporarily before starting to recede.

"Incidental Catch" means any wild finfish (excluding sharks) from within the Facility caught during Harvest, movement of fish between Facilities, or net removal.

"Licence Holder" means the individual or corporation operating the Facility.

"Marine Mammal" means cetaceans, pinnipeds, and sea otters.

"Megafauna" means Marine Mammals, turtles, and sharks.

"Mortalities" means fish that have died within the Containment Structure Array during a Production Cycle but does not include fish killed during Harvest activities.

"Mortality event" means:

(a) fish Mortalities equivalent to 4,000kg or more, or losses reaching 2% of the current Stock Inventory within a 24 hour period; or

(b) fish Mortalities equivalent to 10,000kg or more, or losses reaching 5% of the current Stock Inventory, within a five day period.

"Pathogen" means a microorganism causing damage (pathology) in or on a fish. These include bacteria, fungi, viruses, and other micro-parasites.

"Peak Biomass" means the maximum biomass of cultivated finfish within a Facility during a Production Cycle.

"Production Cycle" means:

(a) the period of time from stocking the Containment Structures to the time of Harvest or removal of all finfish; or

(b) for Facilities containing only Broodstock, the period of time immediately after a Peak Biomass up to and including the next Peak Biomass.

"Production Site" means a Facility where fish of the same age class are entered at the same time, grown, and Harvested until the site is empty. Some may also have Broodstock kept continuously on site in dedicated pen(s) for breeding purposes.

"Recurring Fish Health Event" means any Disease occurrence which has previously been reported on a farm in that Production Cycle but more than 30 days have passed since the last reporting.

"Qualified Individual" means an individual employed by or contracted by an aquaculture corporation who possesses a combination of knowledge, expertise and experience necessary to complete a task.

"Sea Lice Management Measures" means measures such as, but not limited to: use of in-feed therapeutants, topical bath treatments, or mechanical equipment to decrease or eliminate sea lice from the Facility, but does not include Harvesting.

"Fresh Silver Mortalities" means recently dead fish that from the grow-out population that may or may not have outward signs suggestive of disease. These fish most reflect the living production population.

"Stock Inventory" means the number of cultivated fish within a Facility.

"Tonnes(t)" means 1,000kg.

"Transfer" means the movement of live fish to or from a licensed marine Facility or hatchery.

"Treatment Failure" means the failure to achieve a ≥60% reduction in average sea lice number. This is measured by comparing the most proximal pre-treatment sea lice count to any count within 42 days post-treatment.
"Upon Discovery" means the time or day something was discovered. For sea lice threshold exceedance, it means the last day of a Counting Event.

PART B. LICENCE CONDITIONS

Finfish Condition of Licence

1. Production

1.1 The combined Peak Biomass of cultivated fish within an authorized Containment Structure Array must not exceed the amount set out on page 1 of this licence.

1.2 The Licence Holder must report Peak Biomass information as follows:

(a) for Production Sites, the Licence Holder must submit to the Department, starting March 1, 2020, notification of the actual date and tonnage of the Peak Biomass event for each Production Cycle for the term of the licence, within 30 days of its occurrence;

(b) for Facilities with fish continuously on site, the Licence Holder must submit to the Department a notification of the actual date and tonnage of each Peak Biomass event for the term of this licence no later than January 15, 2021 and annually thereafter, and must include data from the previous calendar year.

1.3 The Licence Holder must submit to the Department starting March 15, 2020 and annually on the 15th of each month thereafter for the term of this licence:

(a) a seven month rolling inventory plan for all licensed species using the template set out in Appendix I-A(i), including biomass, number of fish, age class and Harvest activities at this Facility. One month of the plan must reflect the calculated inventory at this Facility for the previous month and the remaining six months must be the projected inventory. This plan will include data when no production is occurring; and

(b) Transfers to and from this Facility for the previous month using the template set out in Appendix I-A(ii). This report is required only if Transfers occurred.

1.4 The Licence Holder must complete the Population Harvest Declaration Form as set out in Appendix I-B which must accompany the Harvested fish and be provided to the processor.

2. Transfer of Fish

2.1 The Licence Holder must apply to the BC Introductions and Transfers (IT) Committee to obtain a licence to Transfer live fish.

2.2 The IT licence, along with the health Attestation signed by the Licence Holder's veterinarian, must:

(a) be kept at this Facility and available for inspection by the Department; and

(b) accompany all shipments of live fish to and from this Facility.

3. Containment Structure Array Requirements

3.1 The Licence Holder must comply with the Containment Structure Array Plan(s) attached to this licence with respect to location and Containment Structures. The number of Containment Structures at the Facility may be less than that in the Containment Structure Array Plan(s), but must not exceed it.

3.2 If the Containment Structure Array is anchored for the first time or re-anchored, the Licence Holder must submit to the Department, prior to Transferring fish to this Facility, or within 30 days if fish are already on site:

(a) an Attestation completed by a Qualified Individual(s) confirming that the Facility infrastructure is installed in such a way and using such equipment as to withstand the oceanographic and meteorological conditions of the licensed location; and

(b) an accurate Containment Structure Array Plan including locational information (+/- 10m) for each corner of the Containment Structure Array at High Slack Tide, and cage number.

3.3 The Licence Holder must notify the Department when planning to change from one approved Containment Structure Array to another 10 days prior to Transferring fish to this Facility.

3.4 Harvest/Transfer Pens may be used in the same location for up to 90 calendar days. The Licence Holder must ensure that:

(a) Harvest/Transfer Pens remain empty or in an alternate location for the equivalent time that they are in operation; and

(b) Facility records of Harvest/Transfer Pen usage are maintained and available upon request of the Fishery Officer or Fishery Guardian. These records must include location, start and end dates of Harvest/Transfer Pen use.

4. Fish Health

4.1 Licence Holders culturing salmonids must comply with the Salmonid Health Management Plan (HMP) as set out in Appendix IV. Any proposed amendments to the HMP will be considered a request for licence amendment by the Licence Holder to the Department.

4.2 Starting October 15, 2020 and annually on October 15th thereafter for the term of the licence, Licence Holders culturing salmonids must submit to the Department, for its considered response:

(a) the complete Facility-specific proprietary Health Management Standard Operating Procedures (HMSOPs), with modified sections identified; or

(b) inform the Department if no changes made to the HMSOPs.

4.3 The Licence Holder must comply with carcass management, including when a Mortality Event occurs, as described in the Salmonid HMP or, in the case of non-salmonid Licence Holders, as described in a separate Carcass Management Plan (CMP) and as set out in Appendix IV-A.

4.4 The Salmonid HMP or the non-salmonid CMP must include procedures for the following measures:

(a) collecting, categorizing, recording, storing, and disposing of fish carcasses, including:

(i) the regular removal of carcasses to carcass storage containers; and

(ii) bio-security protocols; and

(iii) the secure location of stored carcasses while awaiting Transfer to land-based facilities; and

(iv) the procedures to prevent contents from leaking into receiving waters; and

(v) the secure Transfer of stored carcasses to land-based facilities; and

(vi) the methods used to sanitize carcass storage containers, equipment and other handling facilities or vessels; and

(b) a Mortality Event, including:

(i) actions to handle the additional biomass on site associated with the Mortality Event; and

(ii) identification of vessels that will be used to collect and transport Mortalities to land-based facilities in the case of a Mortality Event.

4.5 The Licence Holder must notify the Department of a Mortality Event within 24 hours Upon Discovery, using Appendix V-A; and

(a) ensure carcass numbers are assigned to the date they are recovered, rather than averaged out over previous days if carcass recovery was delayed; and

(b) ensure carcass recovery occurs in a timely manner. If the Licence Holder is unable to do so, they must provide reasons and supporting evidence.

4.6 If it is suspected that a Mortality Event has occurred and mortality retrieval was not possible, the Licence Holder must still submit a Mortality Event notification as per Section 4.5 with supporting rationale.

4.7 Not later than 10 calendar days after the initial Mortality Event notification pursuant to Section 4.5 or 4.6, the Licence Holder must submit to the Department a complete Appendix V-A, as well as:

(a) Environmental Data for seven days leading up to and during the event; and

(b) any laboratory results related to the Mortality Event that were requested during the disease investigation, as soon as they are available; and

(c) the Mortalities reported by day, updates on cause of mortality, pens affected, and actions taken; and

(d) all supporting documentation for the Mortality Event that clarifies the primary and any other contributing factor(s) must be retained and made available to the Department upon request; and

(e) until the Mortality Event is reported as resolved, the Licence Holder must provide the Deparment subsequent update reports every 10 days thereafter as long as the specific cause of mortality continues; and

(f) all Mortality Events occurring during Transfers are to be reported as occurring at the destination Facility.

4.8 Should a Fish Health Event occur, the Licence Holder must:

(a) submit a Fish Health Event notification to the Department within seven days of initiating mitigation using Appendix V-B and indicate if this is a new, ongoing, or Recurring Fish Health Event; and

(b) if concurrent Diseases are present, each Disease requires a separate Fish Health Event notification, response, and follow up reporting; and

(c) take immediate action to manage the Fish Health Event by implementing response procedures to minimize the potential spread of Pathogens if an Infectious Disease is diagnosed; and

(d) undertake follow up measures to evaluate the Fish Health Event and the efficacy of the mitigation measures taken; and

(e) submit to the Department the therapeutic management measures as set out in Appendix V-C.

4.9 For Facilities growing Atlantic salmon (*Salmo salar*), the Licence Holder must investigate any increase in mortality following a known stressful event and:

(a) if this qualifies as a Mortality Event, notify the Department as per 4.5-4.7; and

(b) if this qualifies as a Fish Health Event, notify the Department as per 4.8; and

(c) for mortality that does not fit into (a) or (b), notify the Department within seven days Upon Discovery using Appendix V-D; and

(d) collect 10 Fresh Silver Mortalities representing the fish with the elevated mortality for diagnostic testing at the direction of the Department; and

(e) submit to the Department this follow-up information as it becomes available:

(i) Environmental Data as outlined in Appendix VI-C or as directed by the Department, for seven days leading up to and during the event; and

(ii) any laboratory results that were requested by the veterinarian; and

(iii) all supporting documentation that clarifies the primary and any other contributing factor of the increased mortality.

4.10 For Facilities growing Pacific salmon, the Licence Holder must record all Mortalities that exhibit Gross Signs of Jaundice and make available for review by a Fishery Officer or Fishery Guardian upon request.

4.11 For Facilities growing Pacific salmon, in a situation where Mortalities exhibit Gross Signs of Jaundice in >0.03% of the Stock Inventory within a one week time period, the Licence Holder must do the following the first time it occurs in a Production Cycle:

(a) notify the Department within seven days using Appendix V-D; and

(b) take a sample of 10 Fresh Silver Mortalities, of which half (if available) must show Gross Signs of Jaundice; and

(c) submit these fish for diagnostic testing at the direction of the Department; and

(d) submit the results of the diagnostic testing to the Department as soon as they are available.

4.12 The Licence Holder must record "Mortality by Category" for fish within the Containment Structures. The reports must be submitted to the Department, not later than March 15, 2020 and every three months thereafter for the term of this licence, using Appendix V-C. A report is required for all Facilities in operation.

4.13 Starting March 1, 2020 and quarterly thereafter for the term of this licence, the Licence Holder must maintain and submit to the Department, records of all wild or enhanced fish Mortalities collected during routine carcass recovery, following the template set out in Appendix VII-B.

5. Fish Health Records

5.1 The Licence Holder must keep at this Facility, unless otherwise indicated, complete, up-to-date and accurate written or electronic records of stocking and fish health activity for the Facility. Records must include the following:

(a) stocking and fish health activity for the Facility as set out in Appendix V-E; and

(b) the use of all therapeutants, pest control products and anaesthetics as set out in Appendix V-F.

5.2 The Licence Holder must ensure that Fish Health Event and carcass assessment records, in written or electronic form, are reviewed by the Licence Holder's veterinarian and/or Fish Health Staff to assess patterns in fish health and to facilitate reporting of Fish Health Events as per Section 4.8 and Mortality by Category as per section 4.12.

6. Sea Lice Management

6.1 The Licence Holder must follow all area-based and site-specific sea lice monitoring Windows listed in this licence. If the licence does not list this information, the following generic dates will apply:

(a) Non-migration Window: July 1 – January 31;

(b) Pre-migration Window: February 1 – February 29;

(c) Out-migration Window: March 1 – June 30.

6.2 The Licence Holder must follow all area-based and site-specific sea lice thresholds listed in this licence. If the licence does not list this information, the following generic threshold will apply:

(a) sea lice by fish threshold: an average of 3.0 motile *Lepeophtheirus salmonis*.

6.3 For Active Facilities growing Atlantic salmon (*Salmo salar*), the Licence Holder must conduct sea lice monitoring following protocols in Appendix VI, and report data from Counting Events and threshold exceedances to the Department as described in Sections 6.4 - 6.13.

6.4 During the Non-migration Window, the Licence Holder must:

(a) conduct a Counting Event on a minimum of three stocked Containment Structures once per month; and

(b) submit the results to the Department by the 15th of the following month, using Appendix VI-A; and

(c) Upon Discovery of threshold 6.2 being exceeded, the Licence Holder must:

(i) notify the Department within seven days using Appendix VI-B; and

(ii) conduct Counting Events on a minimum of three stocked Containment Structures every two weeks thereafter so long as the exceedance continues and submit the results to the Department within seven days of each Counting Event, using Appendix VI-B; and

(d) conduct and report additional sea lice counting as per Section 6.10.

6.5 During the Pre-migration Window, the Licence Holder must:

(a) ensure all stocked Containment Structures are assessed at least once by conducting two Counting Events, each of which includes a minimum of three Containment Structures:

(i) the first on half of all stocked Containment Structures within the first two weeks of the month; and

(ii) the second on the other half of all stocked Containment Structures (a duplication is only allowed for the index pen and if there are less than six stocked Containment Structures) within the last two weeks of the month; and

(iii)submit the results to the Department within 48 hours of each Counting Event and prior to March 1, using Appendix VI-B; and

(b) within 48 hours Upon Discovery of threshold 6.2 being exceeded, notify the Department using Appendix VI-B, and describe the measures that will be taken to ensure that the sea lice levels are below the threshold by the start of the Out-migration Window; and

(i) conduct Counting Events on all stocked Containment Structures once every two weeks thereafter so long as the exceedance continues; and

(ii) submit the results to the Department within 48 hours of each Counting Event, using Appendix VI-B; and

(c) conduct and report additional sea lice counting as per Section 6.10.

6.6 The Licence Holder must ensure that sea lice numbers are below threshold 6.2 at the time of the first Counting Event of the Out-migration Window.

6.7 During the Out-migration Window, the Licence Holder must:

(a) conduct Counting Events on a minimum of three stocked Containment Structures within the first week of the Window, and once every two weeks thereafter throughout the Window; and

(b) submit the results to the Department by the 15th of the following month, using Appendix VI-A; and

(c) if the sea lice threshold set in 6.2 is exceeded:

(i) within 48 hours Upon Discovery and prior to any Sea Lice Management Measure being taken, notify the Department of the planned Sea Lice Management Measures, including harvest, to reduce sea lice levels below the threshold within 42 days using Appendix V-B; and

(ii) within 7 days Upon Discovery, conduct a Counting Event on all stocked Containment Structures; and

(iii) submit the results to the Department within 48 hours of the Counting Event, using Appendix VI-B; and

(d) conduct and report additional sea lice counting as per Section 6.10.

6.8 Within the Out-migration Window, the Licence Holder must bring the sea lice levels below the threshold set in 6.2 within 42 days Upon Discovery of an exceedance.

6.9 The Licence Holder:

(a) is not required to count sea lice in an individual Containment Structure if:

(i) the Containment Structure(s) will be Harvested within the next 10 days; or

(ii) fish are being medicated or otherwise managed for a Fish Health Event which precludes handling; or

(iii) an ongoing environmental issue would reasonably lead to additional fish stress or harm if handled; or

(iv) written approval was sought and received from the Department's veterinarian for reasons other than prescribed in 6.9(i), (ii) and (iii); and

(b) must note if any Containment Structure(s) were missed in a required Counting Event for the reasons set out in 6.9(a) in the required reporting to the Department; and

(c) must notify the Department if an entire Counting Event could not occur for the reasons set out in 6.9(a) within 24 hours Upon Discovery.

6.10 At any time of the year, if Sea Lice Management Measures are undertaken, the Licence Holder must:

(a) Using Appendix V-B; notify the Department what the Sea Lice Management Measures will be:

(i) within 48 hours Upon Discovery of an exceedance of the threshold set in 6.2 during the Pre-migration and Out-migration Windows (as per 6.5 and 6.7); and

(ii) if there was no exceedance during the Pre-migration or Out-migration Window preceeding Management Measures, and during the Non-migration Window, at least 24 hours in advance of undertaking the Measures; and

(b) conduct a Counting Event on all stocked Containment Structures in the seven days prior to the Sea Lice Management Measure; and

(c) conduct Counting Events on all stocked Containment Structures following Sea Lice Management Measures as follows:

(i) for in-feed treatments, conduct Counting Events every two weeks until at least 42 days post-treatment or until sea lice counts are below the threshold set in 6.2; and

(ii) for all other treatments, conduct at least one Counting Event within seven days of Sea Lice Management Measure completion; and

(d) submit the results of (b) and (c) to the Department within 48 hours of each Counting Event using Appendix VI-B; and

(i) based on these results, if a sea lice Treatment Failure is detected, notify the Department within 48 hours Upon Discovery.

6.11 If a sea lice Treatment Failure is detected as per 6.10(d)(i), the Licence Holder is prohibited from further use of that treatment at the facility during the current production cycle without prior written approval from the Department.

6.12 By March 1, 2020, the Licence Holder must ensure that all mechanical treatment options have technology in place to capture sea lice, and sea lice that are removed through mechanical treatments are not returned to the marine environment.

6.13 By June 1, 2022, the Licence Holder must complete and submit a scientific analysis, to the satisfaction of the Department, regarding the viability of sea lice that are captured before, during, and after sea lice bath treatments.

6.14 For Active Facilities growing Pacific salmon, the Licence Holder must:

(a) at least quarterly, conduct sea lice monitoring during fish handling events; and

(b) make sea lice count data available for review by a Fishery Officer or Fishery Guardian upon request; and

(c) notify the Department within 48 hours Upon Discovery if threshold 6.2 is exceeded using Appendix VI-B.

6.15 All data from sea lice monitoring on wild salmon conducted under a DFO scientific permit must be submitted to the Department annually or upon request of a Fishery Officer or Guardian.

7. Escape Prevention, Reporting and Response

7.1 The Licence Holder must have in place and follow an Escape Prevention and Response Plan, including all elements outlined in Appendix X, to prevent the escape of cultivated fish.

7.2 If an escape or a suspected escape of cultivated fish from the Containment Structure Array occurs, the Licence Holder must take immediate action to prevent further escapes.

7.3 The Licence Holder must notify the Department of any escape or Evidence of Escape of cultivated fish from this Facility within 24 hours Upon Discovery. The notification must include the date and time of escape and any therapeutants administered through feed as set out in Appendix XI.

7.4 The Licence Holder must submit to the Department a complete follow-up report, as set out in Appendix XI, not later than seven calendar days after the escape or suspected escape.

8. Interactions with Wild Fish and Megafauna

8.1 The Licence Holder must design and use nets and equipment and conduct operations in a manner that causes the least amount of harm to Incidental Catch or the residence of the individuals of any species listed as threatened or endangered under the *Species at Risk Act* or its critical habitat, and does not jeopardize the survival and recovery of these species.

8.2 The Licence Holder must have mitigation in place to sort farmed fish from wild fish during Transfer between Facilities, Harvest, and net removal, and take reasonable efforts to minimize the Transfer of wild fish between Facilities and to processing plants.

8.3 Unless otherwise directed by the Canadian Food Inspection Agency or the Department, the Licence Holder must ensure that any live Incidental Catch are immediately returned to waters outside the aquaculture Facility in a manner that causes the least harm.

8.4 The Licence Holder must retain all dead Incidental Catch and dispose of them in the same manner that cultivated stock carcasses are disposed of, as set out in Section 4.3.

8.5 The Licence Holder must maintain Incidental Catch records using Appendix VII-A and must submit to the Department in the following manner:

(a) for Facilities that have fish continuously on site, a report must be submitted on January 15, 2021 and annually every January 15th thereafter for the duration of the licence. Records from the previous calendar year must be included; or

(b) for all other Facilities, a report must be submitted within 15 calendar days of the final date of Harvest that includes all records generated during the production and Harvest cycle. The Licence Holder must submit a follow-up report if more Incidental Catch and/or herring spawn is discovered after all Containment Structures are removed; either at the Facility or the processing plant.

8.6 The Licence Holder must have in place and follow a Megafauna Interaction Management Plan that includes all the elements of Appendix VIII.

8.7 The Licence Holder must not use Marine Mammal Acoustical Deterrents.

8.8 Upon Discovery of live entangled or entrapped Megafauna within the farm's infrastructure, the Licence Holder must follow the reporting requirements in 8.10 and 8.11 and:

(a) make all reasonable attempts to free the animal with least harm if it is a pinniped, sea otter, turtle (see also 8.8c) or cetacean smaller than 2m in length; and

(b) make all reasonable attempts to free the animal with least harm, including following guidance in the Code of Conduct for Shark Encounters and the Code of Conduct for Basking Sharks Encounters, if it is a shark; and

(c) contact the Department's Observe, Record, Report (ORR) number (1-800-465-4336) if it is a cetacean greater than 2m in length or a leatherback turtle; identifying the Facility, location, species, situational details, and call-back information and wait to receive explicit guidance from the Department before attempting to release the animal; and

(d) excluding harbour seals and California sea lions, farm personnel must collect photographs or video of entangled or entrapped Megafauna for submission to the Department.

8.9 Upon Discovery of dead entangled or entrapped Megafauna within the farm's infrastructure, the Licence Holder must follow the reporting requirements in 8.10 and 8.11 and:

(a) dispose of pinnipeds following all municipal, regional, provincial, and federal government legislation; and

(b) seek advice from the Department within 24 hours Upon Discovery on what to do with the animal if it is a sea otter, turtle, shark, or cetacean smaller than 2m in length; and

(c) immediately contact the Department's ORR number (1-800-465-4336) if it is a cetacean greater than 2m in length; identifying the Facility, location, species, situational details, and call-back information. Do not move the animal before receiving explicit advice from the Department unless there is an immediate risk to human safety or of harm to the infrastructure that could result in a significant fish escape event; and

(d) excluding harbour seals and California sea lions, farm personnel must collect photographs or video of entangled or entrapped Megafauna for submission to the Department.

8.10 The Licence Holder must immediately record on-site and then notify the Department in writing of any Megafauna drowning, entanglement (live or dead) not later than 24 hours Upon Discovery, in addition to any specific requirements set out above. The notification must include the date and time of discovery and as much of the detail set out in Appendix IX as possible.

8.11 Not later than seven calendar days after the initial notification pursuant to Section 8.10, the Licence Holder must submit to the Department a complete follow-up report of any Megafauna drowning, entrapment or entanglement (live or dead), using Appendix IX.

8.12 In the event that deterrent efforts fail, the Licence Holder must contact the Department if there are any Marine Mammals that represent an imminent risk to human safety or harm to the infrastructure that could result in a significant fish escape event, in order to receive guidance on how to manage the situation.

9. Protection of Fish Habitat

9.1 The installation and removal of this operation is authorized under section 35(2)(a) of the Fisheries Act.

9.2 The Licence Holder must maintain records at this Facility of in-water net cleaning for the purposes of Biofouling removal, as set out in Appendix XII.

9.3 The Licence Holder must ensure that only anchoring equipment is in contact with the sea bed.

9.4 The Licence Holder must collect and retain, with minimal leakage, blood generated during Harvest and dispose of it at a licensed processing facility.

9.5 The Licence Holder must ensure all debris generated or used at this Facility is collected or treated and disposed of in accordance with applicable Federal, Provincial, and Municipal legislation.

10. Operation of Vessels

10.1 The Licence Holder must post signage directing all vessels not involved in the cultivation of fish to dock at the designated docking station.

10.2 The Licence Holder must monitor and post restricted use signs in those areas where vessels not involved in the cultivation of fish are not permitted access.

11. Annual Aquaculture Statistical Report

11.1 Starting January 25, 2021 and annually on January 25th thereafter for the term of this licence, the Licence Holder must complete and submit to the Department the Annual Aquaculture Statistical Report as set out in Appendix XIII for the previous calendar year.

12. Use of Lights

12.1 The Licence Holder may use lights to promote fish growth and alter fish physiology and must record the following:

(a) type of lights used; and

(b) the intensity of lights used; and

(c) the number of lights used; and

(d) dates and times when the lights are used (period of day; season).

12.2 Starting February 15, 2021 and annually on February 15th thereafter for the term of this licence, the Licence Holder must submit to the Department annual light use reports using Appendix XIV, summarizing results from Section 12.1 for the previous calendar year.

13. Administrative Matters

13.1 Unless otherwise noted under specific conditions of this licence, the Licence Holder must keep all records required by these conditions in the following manner:

(a) with respect to duration:

(i) at this Facility for the duration of the Production Cycle; and

(ii) in a suitable location: at this Facility, in a corporate office, or other accessible storage off-site, for a minimum of four additional years;

(b) accessible, legible, and protected from damage; and

(c) in either electronic or paper versions.

13.2 Unless otherwise noted in specific licence conditions, all reports and submissions required by this licence must be submitted to the Department as follows:

(a) AQFF.General@dfo-mpo.gc.ca for reports required from Sections 1, 3, 9, and 12 of this licence;

AQFF.FishHealth@dfo-mpo.gc.ca for all reports required from Sections 2, 4, 5, and 6 of this licence;

AQFF.FishEscapes@dfo-mpo.gc.ca for all reports required from Section 7 of this licence;

AQFF.MarineMammals@dfo-mpo.gc.ca for all reports required from Section 8 of this licence;

fishstats@dfo-mpo.gc.ca for all reports required from Section 11 of this licence; or

(b) to the Departmental aquaculture database.

CONTAINMENT ARRAY PLAN

APPENDIX I-A(I): INVENTORY PLAN

Date of Submission: _____

All sections of this appendix must be completed unless otherwise directed in applicable licence conditions or by the Department.

LEGEND (Colour Indicates Status and Year Class)	
	Transfers (see transfer details in Appendix I-A(II)
Harvest	Harvest
0	Fallow
	Year 1
	Year 2
	Brood

Facility Name	Facility Ref. #	Fish Species		Previous Month	Current Month	Month 2	Month 3	Month 4	Month 5	Month 6
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							
			Biomass (T)							
			Population							

Notes: _____

APPENDIX I-A(II): DETAIL OF MONTHLY STOCK TRANSFERS

All sections of this appendix must be completed unless otherwise directed in applicable licence conditions or by the Department.

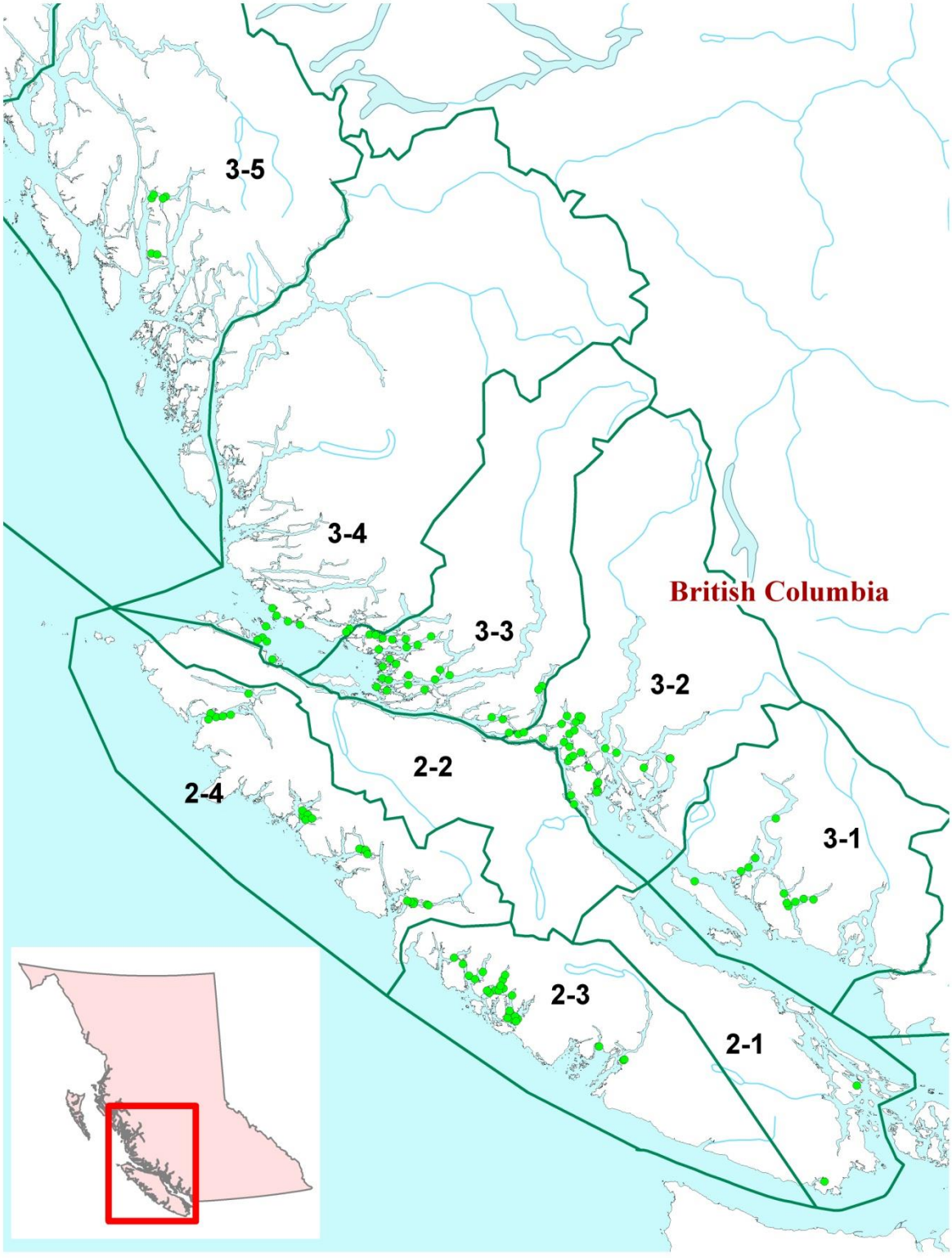
Company Name: _____

Month/Year: _____

					Source			Receiving		
Introductions & Transfers (I&T) Licence #	Fish Species	Transfer Start Date	Transfer End Date	# Fish Transferred	Facility Name	Facility Reference #	Fish Health Zone (see Appendix I-A(iii))	Facility Name	Facility Reference #	Fish Health Zone (see Appendix I-A(iii))

Notes: _____

APPENDIX I-A(III): FISH HEALTH ZONES



APPENDIX I-B: POPULATION HARVEST DECLARATION FORM

All sections of this appendix must be completed unless otherwise directed in applicable licence conditions or by the Department

PART A.

Company Name:

Address:

Phone number:

Aquaculture Facility Number:

Fish ID or Lot #	Date of Harvest	Fish Species and Common Names	Quantity Shipped (pieces)

Name of Market Venue, Distributor, Next Grower, or Processor:

PART B. Details of Drug/Chemical Treatment While Fish in this Lot Held at the Licence Facility
Details of Last Drug/Chemical Treatment:

1. Name of Drug and Prescription No. (if any)	2. Date Treatment Commenced	3. Date Treatment Ended
• •		

4. Treatment Information (withdrawal time prescribed, how applied to animals (in-feed or bath), amount per Kg of feed, etc.)

Treatment file and details are available at rearing site: Yes No

5. Name of Prescribing Veterinarian

Name of Person Responsible for Administering the Treatment	Signature of Person Responsible for the information of this declaration Date:

This form may be used by a licence holder or their agent to satisfy the information requirements specified in licence condition 1.4 concerning shipping of fish/seafood to a market venue or processing plant. This form must accompany the fish/seafood and must be retained by the market or processing licensee for a period of one year. Please note that this form must be submitted even if there has been no drug treatment of the animals in the shipment.

APPENDIX II: SALMONID TRANSFER ZONES

APPENDIX III: DISEASES OF REGIONAL, NATIONAL OR INTERNATIONAL CONCERN

The diseases and pathogens listed below are considered either exotic to British Columbia (BC) or, such as IHN that is known to exist in BC, have the potential to emerge from the ecosystem in the Pacific region. These diseases can severely impact fisheries and affect regional and national trade so they warrant urgent notification and immediate attention.

Infectious Hematopoietic Necrosis (IHN) (causative agent: Infectious hematopoietic necrosis virus (rhabdovirus)
Infectious Pancreatic Necrosis (IPN) (causative agent: Infectious pancreatic necrosis virus (birnavirus)
Viral Hemorrhagic Septicemia (VHS) – other than the endemic VHS Genotype IVa (causative agent: Viral hemorrhagic septicemia virus (rhabdovirus)
Infectious Salmon Anemia (ISA) (causative agent: Infectious salmon anemia virus (orthomyxovirus)
Oncorhynchus masou Virus Disease (OMV) (causative agent: *Oncorhynchus masou* virus (herpes virus)
Any other filterable replicating agent causing cytopathic effects in cell lines specified by the Minister or is causative of identifiable clinical disease in fish
Whirling Disease (causative agent: *Myxobolus cerebralis*)
Cold Water Vibriosis (Hitra disease) (causative agent: *Vibrio salmonicida*)

Appendix IV

Salmonid Health Management Plan (HMP)
of [corporate entity name]

[NB. This template is designed to facilitate the principles of HMPs applicable to a number of cultured finfish types or facilities - aspects common to: salmonids, non-salmonids (eg. sablefish), marine open-water netpens, fresh open-water netpens, marine solid-wall arrays].

To complete, the Licence Holder will:

1. **fill-in names/items highlighted in blue,**
2. **in some paragraphs, select or delete the applicable item in blue,**
3. **remove the "Template" watermark,**
4. **remove all yellow highlights, and**
5. **adjust the footer (pages 2 to 12) to reflect the latest update.**

Template updated May 2016. Fisheries and Oceans Canada, Aquaculture Management Division (DFO- AMD) of British Columbia

1 OBJECTIVES, PERSONNEL & EXECUTIVE SUMMARY

The Health Management Plan (HMP) submitted to Fisheries and Oceans Canada as part of both the Marine and Freshwater/Land-based Finfish Aquaculture Licences serves three purposes: i) to outline good health conditions for cultured finfish raised by [corporate entity name] within the [marine] [freshwater/land-based] ecosystem; ii) to reflect a commitment by [corporate entity name] to comply with the principles, concepts, and required elements of fish health management when culturing finfish or gametes thereof in, or destined for, the marine environment, unless otherwise depicted by site-specific conditions of licence (i.e. culturing finfish in any open-water ecosystem) and; iii) to be used by [corporate entity name]'s facility staff for training and for day-to-day interaction with the fish, and by other fish health staff who are responsible for maintaining and monitoring good health status of the fish, and by the Licence Holder's Health Management Team who makes decisions related to fish health.

This document forms one of two components of [corporate entity name]'s overall Health Management Plan (HMP): i) concepts; and ii) proprietary Standard Operating Procedures (SOPs). As an appendix of the Finfish Aquaculture Licence, this document is the publicly available component and commits [corporate entity name] to ensure and maintain the health and wholesomeness of its cultured finfish. It also commits [corporate entity name] to abide by four key principles of the management of health:

1. Characterizing the health status of the animal population
2. Identifying and managing risks
3. Reducing exposure to disease-causing agents
4. Judicious application of chemicals and drugs

Functionally, this document applies to [corporate entity name]'s open-water containment arrays (net pens or solid wall) [and to open-water body broodstock-rearing facilities, when present]. A number of health concepts herein may refer to an SOP that coincides with other health concepts (eg. both biosecurity and fish handling may refer to the same net changing SOP (eg. SOPs of sections 3 and 7), common to both concepts. In addition, SOPs may be identified as either site-specific or practiced at all Licence Holder's facilities.

The proprietary SOPs cited in this HMP document are initially submitted in their entirety to Fisheries and Oceans Canada's Aquaculture Management Division (DFO-AMD) for review and response. Annually thereafter a complete facility specific proprietary Health Management Standard Operating Procedures (HMSOPs), with sections modified in the previous calendar year identified, to be submitted for Departmental review and response. If no changes were made in the past calendar year the Department to be advised and no submission required.

[Yellow highlights in this template depict tangible indicators of each concept easily verified and inspected].

1.1 Personnel Duties and Responsibilities

1.1.1 Veterinarian

[Corporate entity name]'s attending Veterinarian (either staff or private contract vet), in conjunction with fish health staff, has agreed to be responsible in overseeing matters of fish health management for [corporate entity name]. The Veterinarian is licensed in BC and fosters a lawful Veterinarian-client-patient relationship with the Licence Holder. The Veterinarian is responsible for disease diagnoses, interpretations, and writing prescriptions and is expected to exercise good medical judgment in matters of fish health. Veterinary contact information is posted and available to on-site fish health staff.

1.1.2 Fish health manager / technicians / team

Job descriptions for the Fish Health Manager, Fish Health Technicians, Fish Health Biologist and other positions are available at the Head Office of [corporate entity name]. This "Fish Health Management Team" refers to those persons, including the Veterinarian, who are responsible for major fish health decisions. The Team is responsible for identifying and managing risks in an attempt to maximize fish health.

1.1.3 Facility staff play a role

As per conditions of licence, all facility staff have read and abide by this HMP and relevant operational SOPs, signed-off, and practice appropriate hygienic procedures supportive of fish health. General farm staff may be assigned specific fish health duties from time to time.

1.1.4 Contact names and numbers

Contact names and numbers for key fish health personnel, including emergency numbers for regulatory authorities and services, are posted in readily accessible location(s) at each facility.

2 HEALTH CONCEPTS & REQUIRED ELEMENTS

2.1 Biosecurity

Disease-causing agents (pathogens) may be spread by sick fish (wild or cultured) through the water, on shared equipment, other animals, or inadvertently by personnel, visitors or their personal gear. Entrance of potential pathogens is minimized by supporting an effective biosecurity "barrier" at each facility. Biosecurity measures apply to all personnel, visitors, divers, suppliers, regulators, vessels, and all equipment. Biosecurity has three main goals: keeping fish healthy, keeping pathogens out, and keeping disease from spreading. See the heading below: "Keeping Pathogens Out' for operational SOPs.

2.2 Keeping Fish Healthy

Keeping fish as healthy as possible is critical in preventing disease from arising at the containment facility, and/or from spreading within a facility.

2.2.1 Single year-class farms

Containment arrays (i.e. production farms, not including broodstock holding facilities) ideally contain a single year-class of finfish livestock to minimize the transmission of pathogens between age classes of fish. In other words, an 'all stock in; all stock out' approach is encouraged. However, due to siting or production limitations [corporate entity's name] is acknowledged by the Department to raise multi-year-class fish at this specific location.

2.2.2 Suitable rearing environment and security

[Corporate entity name] is responsible for ensuring a suitable rearing environment for the fish so they remain healthy. Requirements related to materials used in the construction and maintenance of rearing units provide security and minimize risk of potential escape or harm to fish. Active facilities are staffed daily or are locked, alarmed, secured or otherwise monitored to control entry and deter vandalism.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.2.3 Normal fish behaviour is observed

Fish are routinely monitored for signs of normal health and disease. All staff are familiar with normal fish appearance and behaviour. Early detection of altered activity is key to maintaining health and disease management so changes in behaviour and physical condition are logged and reported to facility managers upon discovery. To minimize stress and mortality, fish are held at cost-effective, species-specific densities.

2.2.4 Predator control

Predators include birds, other fish, and mammals. Reasonable, due diligent attempts are made to exclude predators from the facility and from interacting with the fish. As detailed and required in the conditions of licence [corporate entity name] follows mitigation procedures striving toward minimal predator interaction with the cultured fish.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.2.5 Feed and nutrition

The objective of good nutrition is to optimize fish health and growth so fish receive sufficient quantity and quality of feed. [Corporate entity name] has procedures in place for healthy, hygenic delivery of feed to fish. Proper storage of feed is essential to maintaining its nutritional quality. Feed is stored in structures designed to minimize spillage, spoilage, and wildlife's access to feed. Feed is also protected from extremes of heat, sunlight and moisture.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.3 Fish Handling Techniques

2.3.1 Routine handling techniques

[Corporate entity name]'s fish handling procedures - including types of equipment used and equipment maintenance - are designed to minimize stress, injury, escape and predisposing fish to disease. Observing fish during handling, and for a period after handling, ensures any negative effects are noted and steps are taken to mitigate impact. Staff minimize the time fish are exposed to stressful events such as crowding and out-of-water events (i.e. moving, counting, grading, tagging, injecting, etc.). Each handling event is logged.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.3.2 Harvesting

If fish are being live-hauled to a processing plant measures are taken to minimize their stress during handling and transport. If fish are stunned and bled at the containment array they are stunned using humane procedures. Stress reduction is practiced to as great a degree as possible. [Corporate entity name]'s specific slaughter objectives and conditions vary yet specific harvest procedures (i.e. seine, brail, pump, etc.) are detailed in the SOP. Blood water is contained to the best of [corporate entity name]'s ability to minimize leakage. For specific diseases of concern, eg. IHN viral infections, special harvest SOPs apply.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.4 Monitoring Water Quality

[Corporate entity name] routinely monitors and records water quality parameters at its facilities to ensure optimal fish health. Monitoring varies between specific licence holdings depending on location and hydrographic specifics of the local environment yet dissolved oxygen, water clarity, and temperature monitoring are minimal requirements.

2.4.1 Contingency plans

[Corporate entity name] maintains a contingency of procedures in the event of deterioration of water quality and procedures vary depending on cause. Cessation of feeding is immediate. Water quality monitoring is enhanced to determine the problem and to estimate how long the problem may persist. Fish are monitored more closely for the duration of the event and will not be handled until water quality is deemed acceptable. Records of these events, findings and actions are kept.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.5 Keeping Pathogens Out

Reasonable and necessary precautions are taken to mitigate infections at the facility. Often pathogens indigenous to the ecosystem are difficult to exclude from open or semi-open ecosystems but the development of disease can be minimised or prevented.

2.5.1 Personnel / Visitor / Diver / Supplier movement

Where possible, personnel and visitors avoid travel between [corporate entity name]'s containment arrays. If such travel is unavoidable, personnel and visitors adhere to all biosecurity procedures at each facility. Procedures are posted or explained to all visitors as part of the visitor log-in event. Suppliers are advised of containment array procedures and delivery-order in advance. Suppliers attending multiple facilities may be denied access. Staff will notify suppliers [and divers] if any specific disease of concern arises.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.5.2 Equipment / Vehicle movement

Where possible, [corporate entity name] equipment is not shared between containment arrays. This includes fish handling equipment, vehicles, feeding, monitoring and other equipment. Equipment is kept as clean as possible at all times to prevent possible spread of pathogens; it is cleaned and disinfected after each use and re-stored to its proper location. Equipment drying is also practiced when possible. Items which must be used at more than one facility are subject to biosecurity and disinfection measures.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.5.3 Moving fish between facilities

Transferring fish between culture facilities is minimized; however, due to siting or production objectives [corporate entity's name] may relocate fish provided required licences issued by the Introductions and Transfer Committee are obtained in advance, carried during transport, and filed at both source and receiving facilities. Particular care is taken to avoid undue fish stress, transmission of pathogens, or the possibility of escape. [Where well-boats are used, water quality is closely maintained and monitored to minimize stress during transport.]

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.6 Monitoring Fish Health and Disease

[Corporate entity name]'s fish are monitored at least once daily for any unusual behaviour, visible lesions or other signs of illness. Changes in behaviour and physical condition are reported to management or fish health staff. Water quality is also routinely monitored (as above).

2.6.1 Carcass collection

Mortality is natural in all populations. All efforts are made by [corporate entity name] to minimize infection and disease within a containment array. Optimal hygiene, disinfection, and carcass collection helps to maintain population health. Carcasses are collected, classified and recorded on a routine and frequent basis to minimize the potential spread of pathogens and to minimize the attraction of predators. If mass mortality arises, it is managed according to licence conditions and its specific SOP.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.6.2 Carcass classification

Carcasses are examined for obvious cause(s) of mortality and/or signs of disease. As detailed and required in the conditions of licence, [corporate entity name] records and reports the classifications of mortality at least as follows, and the Fish Health Management Team of [corporate entity name] is notified of any unusual counts or types of lesions / mortality:

- Environmental (oxygen, water quality, storms, entrapment, nutritional)
- Fresh "silvers"
- Handling or transport damage (trauma)
- Maturation
- Old (decomposed)
- Poor performers
- Predator attack
- Dead wild finfish carcasses (number and type, eg. herring-like, rockfish-like, etc.)

Diagnostic sampling is conducted as per [corporate entity name]'s procedures, or upon instruction by the Veterinarian, the Fish Health Management Team, or the Department (DFO-AMD), and recorded and reported as per licence.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.6.3 Specific fish health procedures

2.6.3.1 Anaesthetizing and sedating fish

A variety of fish health procedures require that fish be sedated or anaesthetized for welfare and to minimize stress. Registered anaesthetics are obtained through a veterinarian. Anaesthetized fish are monitored closely at all times. Adequate water quality of the anaesthetic bath, in particular available dissolved oxygen, is maintained.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.6.3.2 Sea lice monitoring (Marine licences only)

Sea lice abundance (i.e. counts) requires monitoring to make effective control and management decisions; requirements are detailed in conditions of licence.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.6.3.3 Vaccinating fish

Vaccines are administered occasionally at containment arrays and form part of an integrated fish health management program. Vaccines are biologic substances that are stored (refrigerated), handled, and applied as per manufacturer's instructions. [Corporate entity name] staff are appropriately trained prior to undertaking a vaccination procedure.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.6.3.4 Euthanasia

In the uncommon event where numerous fish are euthanized (eg. to facilitate specific fish measurements, sampling, mercy-killing, or culling), it is recorded and conducted in as humane a manner as possible, facilitating a rapid and irreversible loss of consciousness.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.7 Fish Health Records

Many records are computerized and form part of the integrated licence holder record-keeping system. Backups are maintained. [Corporate entity name] provides adequate system training and documentation to authorized facility personnel, including data entry and report creation. Record-keeping, storage, reporting and [corporate entity name]'s Fish Health Management Team review is followed as per conditions of licence.

2.8 Fish Disease Outbreaks / Emergency

A fish health emergency is any situation where the health of a fish population is suddenly at risk. This may be due to disease-causing agents (such as a pathogenic virus) or to abrupt water quality changes (such as plankton blooms, a toxin, or a sudden, severe decline in dissolved oxygen). Vigilant monitoring, recording and early detection is key to good management of health emergencies.

An outbreak is defined as an unexpected occurrence of mortality or disease. Not all outbreaks are infectious or fish health emergencies. Infectious diseases may differ in how contagious they are and therefore how easy or difficult they are to control. Rapid response is essential but will be determined on a case-by-case basis in conjunction with the Veterinarian, the Fish Health Management Team, and/or by regulatory authority. Once an outbreak / emergency has been recognized, specific steps are followed. The objective is to keep the pathogen concentration (or load) as low as possible and to prevent spread of the problem within or off the facility. Biosecurity is enhanced.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.9 Escaped Medicated Fish

The requirements and procedures related to fish escapes are conditions of licence. In the unlikely event of large, medicated, cultured fish escaping from the containment array (i.e. those with drug residues), [corporate entity name]'s facility staff will immediately inform their Veterinarian and Fish Health Management Team who, in turn, will contact the Department Veterinarian(s) of DFO-AMD as soon as possible to facilitate the potential need of a general fisheries advisory and/or closure.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.10 Handling Drugs and Chemicals

Fish health and survival is sometimes optimized with judicious use of veterinary prescribed therapeutants. The Veterinarian attending [corporate entity name] maintains a veterinarian-client-patient relationship to facilitate diagnoses and prescription treatments. These decisions are taken considering both the welfare of fish and the ecosystem.

2.10.1 Medicated feed storage, administration and inventory

Medicated feed, if used, is stored in clearly marked bags, easily distinguishable from non-medicated feed. The medicated feed is inventoried and recorded daily as the feed is offered to the fish according to prescription. A Material Safety Data Sheet (MSDS) for all medications used at the facility is on-site and readily accessible. [Corporate entity name] ensures that all chemicals are handled safely by appropriately trained staff, taking suitable precautions.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

2.10.2 Treatment records

As per conditions of licence specific and detailed records of medicated feed administration are kept on-site for the entire time the fish are present. In combination with inventory records, the fish groups that were treated are readily identifiable through treatment and withdrawal times. A copy of the treatment history will accompany the target fish to another containment array if the fish are subsequently moved. [Corporate entity name] does not harvest fish until they have cleared the withdrawal period prescribed by the Veterinarian. As per regulations and licence, when fish are delivered to a processing plant a Population Harvest Declaration accompanies harvest fish to ensure seafood safety and wholesomeness.

2.10.3 Chemicals and Biologicals

2.10.3.1 Disinfectants, chemicals, and biologicals

Disinfectants and chemicals are stored in clearly marked containers. An MSDS for each disinfectant at the facility is on-site and readily accessible. [Corporate entity name] ensures that all chemicals are handled safely by appropriately trained staff, taking suitable precautions.

Biologicals include vaccines. Where applicable, these products are stored refrigerated and handled as per manufacturer's instructions. A product insert for each vaccine at the facility is on-site and readily accessible.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3 BROODSTOCK – SPECIAL CONSIDERATIONS

Broodstock may be held at marine, brackish, or freshwater facilities. All fish health aspects of this HMP appendix apply (e.g., biosecurity, routine monitoring, treatments, emergencies, records) though they differ between saltwater and freshwater facilities. For example, water quality monitoring and contingency planning will differ between marine and freshwater broodstock sites.

3.1 Suitable Rearing Environment

[Corporate entity name] is responsible to provide a suitable, safe and secure rearing environment. Escape and predation prevention is essential.

3.2 Feed and Nutrition

Broodstock often require specially formulated diets to meet their nutritional requirements prior to full maturation. Broodstock feeding strategies differ from those of production fish, particularly as they begin to mature and stop feeding. Proper storage of these diets is essential to maintaining their nutritional value; feed is stored in structures designed to minimize spillage, spoilage, and wildlife's access to feed; feed is also be protected from extremes of heat, sunlight and moisture.

3.3 Biosecurity

[Corporate entity name] raises mature broodstock for a period of time longer than production fish. Where possible, designated staff and equipment are selected to interact with broodstock. Strict disinfection and hygiene procedures are in place. At freshwater facilities shared by other fish year-classes, biosecurity is particularly vital to prevent the transfer of pathogens from the mature fish to susceptible young fry.

To minimize two-way transmission of disease, mature broodstock are held at a designated facility or in a portion of a facility, removed from production or hatchery fish. Broodstock in freshwater may use a separate water supply.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3.4 Selection and Handling

Broodstock are handled individually at least once. Aquaculture facility personnel select broodstock for specific traits, and all broodstock are sorted by sex and for "ripeness", i.e. whether or not they are fully mature. Handling individual brood fish is be done with care and with minimal stress to prevent negative effects on gametes (eggs and milt). Anaesthesia and sedation is used to minimize time and exposure to anaesthetic compounds, and to provide gentle handling and recovery.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3.5 Medications

Broodstock are medicated for specific infections prior to maturation, particularly for those infectious pathogens that may be transmitted "vertically", i.e. from parent to egg. The type and timing of applied medications is determined by [corporate entity name]'s Veterinarian and Fish Health Management Team. The medications are used according to prescription and are inventoried and recorded daily. A Material Safety Data Sheet (MSDS) for all medications used at the facility is on-site and readily accessible. [Corporate entity name] ensures that all medications are handled safely by appropriately trained staff, taking suitable precautions.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3.6 Egg and Milt Collection

Egg and milt collection is conduction in as hygienic a manner as possible to prevent transmission of pathogens to other broodstock or progeny. Brood fish are anaesthetized and gametes are harvested. Females are euthanised in a humane manner. Males, if used for multiple egg takes, are monitored for recovery from anaesthesia and returned to holding unit(s). Proper hygiene and disinfection is practiced.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3.7 Disease Screening

Disease screening procedures are conducted at the time of spawning to mitigate risk of vertical transmission of pathogens to progeny. Tests performed are at the discretion of the Veterinarian but may include: screening for BKD (female broodstock) [and viral screening]. Additional testing may be performed at the discretion of the Veterinarian. Samples for disease screening are collected using aseptic technique. The location of progeny from sampled fish is tracked until such time the screening results are received and reviewed by the Veterinarian and/or Fish Health Management Team.

3.8 Egg Disinfection

Eggs are safely disinfected following fertilization and water hardening. This disinfection is conducted either at the Broodstock facility or once the gametes enter the hatchery.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3.9 Egg (and/or Milt) Transportation

Pre-arranged permits are required when eggs or milt are transported and permits must accompany the gametes during transport. Transport occurs in clean, labelled containers with secure lids. Strict disinfection and biosecurity procedures are followed to prevent transmission of pathogens from the broodstock facility to the hatchery.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

3.10 Identifying Progeny

Female brood are labelled and corresponding eggs are clearly labelled to match (by date and parents or batch of parents).

3.11 Records

Records are kept for egg-take and broodstock pathogen screening. Records accompany each shipment of eggs from the broodstock facility to the hatchery receiving the eggs, whether destined for on-site or off-site incubation.

APPENDIX IV-A CARCASS MANAGEMENT PLAN (for marine non-salmonids)

Monitoring Fish Health, Disease and Mortality

[Corporate entity name]'s live fish are monitored at least once daily for any unusual behaviour, visible lesions or other signs of illness. Changes in behaviour and physical condition are reported to management or fish health staff. Water quality is also routinely monitored as per Standard Operating Procedure (SOP).

Carcass collection

Mortality is natural in all populations. All efforts are made by [corporate entity name] to minimize infection and disease within a containment array. Optimal hygiene, disinfection, carcass collection and containment helps to maintain population health. Carcasses are collected, classified, and recorded on a routine and frequent basis to minimize the potential spread of pathogens and to minimize the attraction of predators. If mass mortality arises, it is managed according to licence conditions and its specific SOP.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

Carcass classification

Carcasses are examined for obvious cause(s) of mortality and/or signs of disease. Presumed classifications of mortality are assigned and recorded as follows, and the Fish Health Management Team of [corporate entity name] is notified of any unusual counts or types of lesions / mortality:

- Environmental (oxygen, water quality, storms, entrapment, nutritional)
- Fresh "silvers"
- Handling or transport damage (trauma)
- Maturation
- Old (decomposed)
- Poor performers
- Predator attack
- Dead wild finfish carcasses (number and type, eg. herring-like, rockfish-like, etc.)

Diagnostic sampling is conducted as per [corporate entity name]'s procedures, or upon instruction by the Veterinarian, the Fish Health Management Team, or the Department (DFO-AMD), and recorded and reported as per licence.

Refer to proprietary SOPs in Section(s) ____ of [corporate entity name's] SOP manual or Best Management Practices.

APPENDIX V-A: MORTALITY EVENTS

Licence Holder Name: _____ Facility Reference Number: _____

Facility Name: _____ Fish Health Zone: _____

Incident Date	Occurrence Category	Associated Fish Health Event	Cultured Species	Pens Affected	Daily Inventory	Average Weight (grams)	Resolved?	Primary Probable Cause or Diagnosis	Action Taken	Information Relevant to Event	Other Contributing Factors	Comments
YYYY-MM-DD	Pick List	Y/N	Pick List	"All Pens" or indicate pen numbers	input format: 9999999	input format: 9999	Y/N	Pick List	Pick List			

Pick Lists:

Occurrence Category
- New - 5 day
- New - 24 hour
- 10-day Follow-Up
- 20-day Follow-Up
- 30-day Follow-Up
- 40-day Follow-Up
- 50-day Follow-Up
- 60-day Follow-Up
- 70-day Follow-Up
- 80-day Follow-Up
- 90-day Follow-Up
- 100-day Follow-Up

Cultured Species
- Atlantic Salmon
- Chinook Salmon
- Coho Salmon
- Sablefish
- Other

Primary Probable Cause or Diagnosis:
- Low Dissolved Oxygen
- Maturation
- Algae bloom
- Water Quality
- Poor Smolt
- Handling
- Transport
- Treatment
- Predation
- Infectious Disease
- Non-infectious Disease
- Unknown
- Other - explain

Action taken:
- Continued monitoring
- All pens treated
- Affected pens treated
- Reduce Inventory
- Harvest
- Cull
- Investigation
- Quarantine
- Predator Mitigation
- Environmental Mitigation
- Carcass Removal
- None Required
- Other - explain

APPENDIX V-B: FISH HEALTH AND SEA LICE MITIGATION NOTIFICATION

Licence Holder Name: _____ **Facility Reference Number:** _____

Facility Name: _____ **Fish Health Zone:** _____

Incident Date	Associated Mortality Event? (Y/N)	Species Affected	Average Weight (grams)	Occurrence Category	Pens Affected	Veterinary Diagnosis	Fish Health Mitigation Category	Mitigation Description	Comments
Input format: YYYY-MM-DD	*Pick List*	*Pick List*	*input format: 999999*	*Pick List*	*"All pens" or indicate pen numbers*	*Pick List (Explain in Comments)*	*Pick List*		

Pick Lists:

Species Affected
- Atlantic Salmon
- Chinook Salmon
- Coho Salmon
- Sablefish
- Other

Occurrence Category
- New
- Ongoing
- Recurring

Veterinary Diagnosis
- Sea Lice Mitigation
- Atypical aeromonas salmonicida
- Aeromonas salmonicida
- Amoebic Gill Disease
- Bacterial Kidney Disease
- Caprellid Infestation
- Enteric Redmouth Disease
- Infectious Hematopoietic Necrosis
- Jaundice syndrome
- Loma
- Microsporidial encephalitis
- Mouthrot
- Net Pen Liver Disease
- Nucleospora salmonis
- Plasmocytoid leukemia
- Poor gill health
- Proliferative Gill Disease
- Pseudomonas sp.
- Salmonid Rickettsial Septicemia
- Sea Lice Infestation
- Septicaemia - explain
- Skin ulceration
- Systemic Fungal Infection
- Toxin Exposure
- Vibrio sp.
- Viral Erythrocytic Necrosis
- Viral Hemorrhagic Septicemia
- Winter Ulcer
- Other - explain
- Unknown - explain

Fish Health Mitigation Category
- Continued monitoring
- All pens treated
- Affected pen treated
- Reduce Inventory
- Harvest
- Cull
- Investigation
- Quarantine
- Other - explain

APPENDIX V-C: MORTALITY BY CATEGORY

Licence Holder Name: _____ Reporting Year: _____ Reporting Period: _____ Calendar Month: _____

Facility Name: _____ Facility Reference #: _____ Landfile #: _____ Fish Health Zone: _____ (see Appendix I-A(III))

Cultured Species	Other Species - Specify	Fish Production Category	Environmental	Fresh 'Silver'	Handling / Transport	Maturation	Old (Decomposed)	Poor Performer / Cull	Predator Attack	Treatment Start Date	Treatment End Date	Treatment #	Product Name	Active Ingredients	Treatment Reason	Species Treated	Total Aqueous Product (Litres)	Total Medicated Feed (Kg)	Total Active Ingredient (Kg)	Notes
Pick List	Specify the species if selected "Other" in Pick List	Pick List	format: 0 - 999999	format: 0 - 999999	format: 0 - 999999	format: 0 - 999999	format: 0 - 999999	format: 0 - 999999	format: 0 - 999999	input format: YYYY-MM-DD	input format: YYYY-MM-DD	input format : 1-10	Pick List	Pick List	Pick List	Pick List	format: 999999.999999	format: 999999.999999	format: 999999.999999	

Pick Lists:

Cultured Species
- Atlantic Salmon
- Chinook Salmon
- Coho Salmon
- Sablefish
- Other

Fish Production Category
- Production <500g
- Production >500g
- Brood
- Other

Product Name
- 35% Perox-Aid
- Aquacalm TM
- Aquaflor
- Aquaflx TMS
- Calicide
- Carbon Dioxide
- Chloramine-T
- Erythromycin
- Formalin (Off Label)
- Gallimycin 50
- Hydrogen Peroxide (Off Label)
- Interox Paramove 50
- Ivomec
- Ms-222
- Noromectin
- Ovadine
- Oxysol-220
- Oxysol-440
- Parasite-S
- Pyceze
- Romet 30
- Salmosan 50WP
- Slice
- Terramycin 200
- Terramycin 440
- Terramycin-Aqua
- Tribissen
- Virkon Aquatic
- Wescodyne
- Other

Active Ingredients
- Azamethiphos
- Bronopol
- Carbon Dioxide
- Emamectin benzoate
- Erythromycin
- Erythromycin thiocyanate
- Ethanol-Iodine
- Florfenicol
- Formalin
- Hydrogen peroxide
- Ivermectin
- Metomidate hydrochloride
- Oxytetracycline
- Oxytetracycline hydrochloride
- Polyvinylpyrrolidone-Iodine
- Potassium monopersulphate
- Sodium N-chloro-p-toluenesulfonamide
- Sulfadimethoxine, Ormetoprim
- Teflubenzuron
- Tricaine methanesulfonate
- Other

Treatment Reason
- Algal Bloom
- Bacterial Infection
- Biofouling Control
- Fish Sampling
- Fungal Infection
- Invasive Species Control
- Other Pathogen
- Sea Lice Control
- Viral Infection
- Other

Species Treated
- Atlantic Salmon
- Chinook Salmon
- Coho Salmon
- Sablefish
- Other

APPENDIX V-D: JAUNDICE AND INCREASED MORTALITY

Licence Holder Name: _____ Facility Reference Number: _____

Facility Name: _____ Fish Health Zone _____

Incident Date	Cultured Species	Associated Fish Health Event?	Associated Mortality Event?	Pens Affected	Daily Inventory	Daily No. of Fish Affected	Average Weight (grams)	Potential Contributing Factors	Comments
input format: YYYY-MM-DD	*Pick List*	*Y/N*	*Y/N*	*"All pens" or indicate pen numbers*	*input format: 9999999*	*input format: 999999*	*input format: 9999*	*Pick List*	

Pick Lists:

Cultured Species
- Atlantic Salmon
- Chinook Salmon

Potential Contributing Factors
- Low Dissolved Oxygen
- Maturation
- Algae Bloom
- Water Quality
- Poor Smolt Handling
- Transport
- Treatment
- Predation
- Infectious Disease
- Non-infectious Disease
- Unknown
- Other - explain

APPENDIX V-E: STOCKING AND FISH HEALTH ACTIVITY

Further to the definition of "Fish Health Staff" in Part A, the designated staff are considered qualified for this role if they have adequate post-secondary or on-the-job training and experience in the recognition of disease signs. Veterinarians are the only professionals qualified to make diagnoses and prescribe treatment of fish diseases.

Records of stocking and fish health activity shall include the following:

(a) inventory records (including source, number, pen/container number and lot of fish at the facility);

(b) daily feed consumption and growth rate;

(c) mortality records including: collection dates, carcass classification and documentation of morbidity;

(d) signs of increased morbidity;

(e) fish health and stress monitoring observations during handling or otherwise when noteworthy activities occur such as: predation, strong currents, influx of wild fish to the facility;

(f) biosecurity-related records including: visitor log, equipment cleaning, moving, and disinfection, footbath or equipment changes;

(g) records of fish health-related activity including: medications, lice counts, sorts, splits, fish health or veterinary inspection dates;

(h) records of mortality events, infectious outbreaks, urgent health-reporting;

(i) daily water quality records;

(j) records of non-therapeutic mitigative actions taken to prevent or mitigate disease such as: withholding feed due to blooms, deploying tarps and diffusers, the use of nutritional supplements, reducing densities, net changes or cleaning;

(k) records of samples collected for surveillance and diagnostic laboratory analyses related to fish health (record may reside at headquarter office);

(l) all veterinarian or fish health staff reports (at headquarter office); and

(m) records of reporting fish health information to Federal authorities (at headquarter office).

APPENDIX V-F: USE OF THERAPEUTANTS, PEST CONTROL PRODUCTS AND ANAESTHETICS

Records of the use of all therapeutants, pest control products and anaesthetics shall include the following:

(a) the facility reference number and the name of licence holder;

(b) the species of finfish cultivated at the facility;

(c) the name of the prescribing veterinarian;

(d) a log naming all therapeutants, pest control products and anaesthetics administered and when;

(e) how therapeutants and pest control products were administered and the dosage;

(f) the therapeutic schedule including the date treatment commenced;

(g) the final date of treatment or anaesthesia;

(h) the veterinarian's name and signature responsible for each therapeutant, pest control product and anaesthetic used;

(i) the detailed records of in-feed medication or pest control product administered;

(j) with the exception of source hatchery records (to be held at head office), traceability records and copies of previous medication from smolt entry facilities shall accompany all fish groups both within and off-site, and shall include:

(i)therapeutant records of the previous 90 days;

(ii)anaesthetic records for the previous 21 days;

(iii)pest control product records for the previous 21 days.

(k) any accidental mixing of treated fish and non-treated fish must be recorded; thereafter the mixed group will be considered tainted until the withdrawal period is reached.

APPENDIX VI: SEA LICE MONITORING PROTOCOLS

(Protocols applicable for Atlantic salmon and trout only)

Definitions

Lice life stages

Lepeophtheirus salmonis (Leps)	Adult female Includes adult female lice, with egg strings (i.e. gravid) or without egg strings Motile Lice Includes all 'not permanently attached' free-moving life stages: Adult females (as above) Adult males Pre-adult male and female lice
Caligus sp.	Total numbers of motile *Caligus* species
Both of the above	Chalimus Attached early stages of both *Caligus* and *Lepeophtheirus* species. Both species are categorized simply as chalimus since louse identification at these early life stages is not practical at the facility.

Year class 1 and 2 – see definitions in Part A of this licence.

Broodstock	Broodstock may initially enter saltwater directly into designated broodstock pens, or be entered to a production farm and later become designated broodstock populations, yet remain at the production farm or be relocated to broodstock facilities.

1. Sea Lice Sampling Protocols – Production Year classes 1 and 2

1.1. Other than the exemptions of COL s.6.9 sampling at each facility shall be conducted in a minimum of three containment structures, i.e. pens. Pens chosen for a counting event shall include:

(a) one "reference" or "index" pen (i.e. first pen entered in the system, or the pen with the highest probability of having lice burden based on historical facility information). The fish from this pen are assessed EVERY counting event; and

(b) additional pens selected at random for each counting event.

(c) not withstanding COL s. 6.9 (a), a counting event must occur within a 5-calendar-day period, that is the time between conducting lice counts from the 1st pen to the last pen.

1.2. In order to ensure a random sample of fish are collected from the pen:

(a) numerous fish shall be initially captured using a seine net (or alternate method provided it ensures a crowding and representative collection of the pen's entire population).
(b) a minimum sub-sample of 20 live fish (i.e. 5 groups of 4 fish) shall be randomly collected using a dip net.

1.3. Fish shall then be placed in an anaesthetic bath (i.e. 'tote') or humanely euthanized (e.g. in cases where biological sampling is lethal).

1.4. Physical handling shall be minimized to protect the fish and avoid dislodging lice.

1.5. All sampled fish shall be examined for the presence of lice regardless of the health status or size (i.e. robust, moribund or runt).

1.6. Sea lice on each selected fish shall be discriminated, counted and recorded for reporting in the following four categories:

- Adult Lep females (with or without egg strings)
- Other motile Leps (including adult males, and preadults)
- Chalimus (non-motiles, regardless of species), and
- *Caligus* (combined totals of adults and preadults)

} Motile

1.7. When sampling of each pen is completed, water in the anaesthetic tote shall be examined for detached sea lice. Lice dislodged and found within the handling totes must also be counted and categorized in the manner above, recorded as the 'tote count,' and included in the calculation of the total lice number (per pen) and average abundance (per fish).

2. Sea Lice Sampling Protocols for Broodstock

2.1. Broodstock shall be sampled in the same manner as production fish until their second winter at sea (i.e. the broodstock pens may be selected in the normal course of selecting three pens on the farm during the month for sampling including bi-weekly counts). If a broodstock pen is randomly selected, 20 fish shall be sampled.

2.2. In January/February of their second and subsequent winters at sea:
a) a broodstock population on broodstock facilities shall be selected for sampling. Twenty broodstock from one pen shall be assessed.
b) a broodstock population at production facilities, that are of a different year class than the production fish at that same location, shall be selected for sampling. Twenty broodstock from one pen shall be assessed.

2.3. After January/February of the year in which those brood are anticipated to spawn as two-winter brood, and to reduce handling-related injuries and stress on broodstock:

(a) all sea lice monitoring shall be conducted opportunistically (or via other husbandry sampling). In other words, all sea lice monitoring shall be coordinated with other routine broodstock handling procedures, such as sorting, moving or medicating.
(b) broodstock shall be subject to a visual inspection twice per month for the presence of sea lice and any associated grazing blemishes and observations recorded.

3. Licence Holder Recording and Reporting Requirements

3.1 Licence holder's records shall contain the following information for reporting as per Condition of Licence, Section 6 and Appendix VI-A and VI-B. The records shall contain the following:

a) date and details of the most recent use of anti-sea louse treatments;
b) sampling date of each pen count;
c) year class of the sampled fish;
d) unique pen identifier;
e) number of fish sampled for each pen for each counting event;
f) sampling method used;
g) total number of lice counted, per pen (including the detached lice in the anaesthetic bath);
h) lice counts separated into four categories as described above (at a minimum); and
i) action taken if calculated trigger abundances are reached.

3.2 Calculated Pen averages, Counting Event averages, and Farm Abundance records shall be stored at the facility and made available upon request by the Department.

3.3 Reporting "null" (0) in Appendix VI-A and an explanation is required if no lice monitoring was undertaken at an active production facility.

APPENDIX VI-A: SEA LICE REPORT

Licence Holder Name: _____ **Reporting Year:** _____ **Reporting Period:** _____

Facility Name: _____ **Facility Reference Number:** _____

Sampling Done This Month (Y/N)	If No Sampling, Explain	Sampling Event Start Date	Pen ID	Reference Pen (Y/N)	Final Sea Water Entry Date	Pen Sample Date	Number of Fish Sampled	Sampling Method	Adult Females L. salmonis	Motile L. salmonis	Chalimus	Motile Caligus	Action Taken	Start date (if Rx or PC approval)	Comments

Pick Lists:

No sample:

- Harvest ongoing
- Fish < 4 pens
- Fallow
- Recent transfer
- Emamectin <21 d
- H2O2
- Meds ongoing
- Environmental
- Pathogen threat
- Other - explain

Sampling method:

- Box seine
- Full seine
- Dipnet-feed
- Weights
- Harvest
- Brood sort
- Visual estimate
- Fresh carcass
- Cull/Mort event
- Other - explain

Action taken:

- None required
- Bi-weekly counts
- Harvesting
- Harvest Pending
- Treatment Ongoing
- Treatment Pending
- Culled
- Cull Pending
- Other -explain

APPENDIX VI-B: SEA LICE EVENT

Licence Holder Name: _____ Facility Reference Number: _____

Facility Name: _____ Fish Health Zone _____

Incident Date	Occurrence Category	Pen ID	Reference Pen	Pen Sample Date	Number of Fish Sampled	Sampling Method	Adult Females L. salmonis	Motile L. salmonis	Chalimus	Motile Caligus	Current Inventory	Over Threshold	Comments
Input format: YYYY-MM-DD	*Pick List*	*Specify*	*Y/N*	*Input format: YYYY-MM-DD*	*input format: 0-9999*	*Pick List*	*input format: 0-9999*	*input format: 0-9999*	*input format: 0-9999*	*input format: 0-9999*	*input format: 9999999*	*Y/N*	

Pick Lists:

Occurrence Category
- Over Threshold Notification
- Over Threshold Follow-up Sampling
- First Pre-migration Sampling
- Second Pre-migration Sampling
- Pre-treatment Sampling
- Post-treatment Sampling

Sampling Method
- Box Seine
- Full Seine
- Dipnet-feed
- Weights
- Harvest
- Brood sort
- Visual estimate
- Fresh carcass
- Cull/mort event
- Other - explain

APPENDIX VI-C: ENVIRONMENTAL DATA

All sections of this appendix must be completed unless otherwise directed in applicable licence conditions or by the Department

Sampling Date (YYYY/MMM/DD)	Fish Health Zone (see Appendix I-A(iii))	Facility Reference #	Company Name	Facility Name	Temperature 0-1m degC	Temperature 5m degC	D.O. 5m ppm	Salinity 0-1m ppt	Salinity 5m ppt

Notes (i.e. Occurrence of harmful algal blooms): _____

APPENDIX VII-A: INCIDENTAL CATCH

Licence Holder Name: _____ **Facility Reference Number:** _____ **Final Date of Harvest:** _____

Facility Name: _____

Event Type	Date of Catch	Month of Catch	Year of Catch	Species Common Name	Other Species - Specify	Released (Pieces)	Mortalities (Pieces)	Average Weight (grams)	Pacific Herring Spawn Extent (sq metres)	Pacific Herring Spawn Cover (% / sq metre)	Comments
Pick List	input format: YYYY-MM-DD	Pick List	Pick List	Pick List	Specifiy the species if selected "Other" in Pick List	input format: 0-999999	input format: 0-999999	input format: 0-999999	input format: 99999	Input format: 0-100	

Pick Lists:

Event Type
- Harvest
- Transfer
- Net Observation
- Processing Plant

Month of Catch
- JAN
- FEB
- MAR
- APR
- MAY
- JUN
- JUL
- AUG
- SEP
- OCT
- NOV
- DEC

Year of Catch
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022

Species Common Name
- Pacific Herring
- Pacific Cod
- Walleye Pollock
- Pacific Hake
- Kelp Greenling
- Lingcod
- Pacific Tomcod
- Sablefish
- Shiner Perch
- Kelp Perch
- Pile Perch
- Striped Seaperch
- Buffalo Sculpin
- Cabezon
- Sailfin Sculpin
- Pacific Staghorn Sculpin
- Black Rockfish
- China Rockfish
- Copper Rockfish
- Quillback Rockfish
- Yelloweye Rockfish
- Yellowtail Rockfish
- Northern Anchovy
- Chub Mackerel
- Pilchard
- Spotted Ratfish
- North Pacific Spiny Dogfish
- Wolf Eel
- Coho Salmon
- Chinook Salmon
- Chum Salmon
- Pink Salmon
- Sockeye Salmon
- Unidentified Surfperch
- Unidentified Rockfish
- Unidentified Codfish
- Unidentified Sculpin
- Unidentified Flatfish
- Unidentified Pacific Salmon
- Unknown Fish
- Other

APPENDIX VII-B: WILD MORTALITIES LOG

Licence Holder Name: _____ Facility Reference Number: _____ Reporting Year: _____

Facility Name: _____ Reporting Period: _____

Event Type	Date of Catch	Month of Catch	Year of Catch	Species Common Name	Other Species - Specify	Released (Pieces)	Mortalities (Pieces)	Average Weight (grams)	Comments
Pick List	input format: YYYY-MM-DD	input format: MMM	input format: YYYY	Pick List	Specifiy the species if selected "Other" in Pick List	input format: 0-999999	input format: 0-999999	input format: 0-999999	

Pick Lists:

Event Type
- Net Observation
- Carcass Recovery

Species Common Name
- Pacific Herring
- Pacific Cod
- Pacific Hake
- Kelp Greenling
- Lingcod
- Pacific Tomcod
- Sablefish
- Walleye Pollock
- Northern Anchovy
- Pacific Sand Lance
- Pilchard
- Shiner Perch
- Pile Perch
- Buffalo Sculpin
- Cabezon
- Black Rockfish
- Copper Rockfish
- Quillback Rockfish
- Yelloweye Rockfish
- Yellowtail Rockfish
- Bay Pipefish
- Chub Mackerel
- Eelpouts
- Gunnels
- Plainfin Midshipman
- North Pacific Spiny Dogfish
- Threespine Stickleback
- Tube Snout
- Wolf Eel
- Unidentified Surfperch
- Unidentified Rockfish
- Unidentified Codfish
- Unidentified Sculpin
- Unidentified Flatfish
- Herring-like Fish
- Perch-like Fish
- Unknown Fish
- Other

APPENDIX VIII: MEGAFAUNA INTERACTION MANAGEMENT PLAN

Company	
Location	
Facility Ref. #	
Date of Submission	

The Megafauna Interaction Management Plan is intended to describe policies, procedures, infrastructure, and other measures aimed at mitigating conflict with megafauna at marine finfish aquaculture facilities including those resulting from entanglements and entrapments. Please note that different procedures may need to be written for sea otters, pinnipeds, cetaceans <2m, cetaceans >2m, turtles, leatherback turtles, different shark species, and species at risk. The following document is to be completed for each site and must include completed entries for each of the sections listed. Licence holders may submit a plan for multiple facilities provided mitigation measures are identical for all those facilities. The list of these facilities should be provided on the first page of the plan.

Outline:

1. Mitigation
    a. Infrastructure
        i. Anti-Predator Nets, type, height, depth, location, etc (Diagram)
            1. Mesh size, material
            2. Maintenance schedule
                a. Inspection
                b. Repair
        ii. Perimeter Fencing (including electric fencing)
            1. Type and distribution
            2. Maintenance Schedule
                a. Inspection
                b. Repair
    b. Non-Lethal Deterrents
        i. Approved Devices
            1. Procedures
            2. Staff Training
    c. Interaction Recording Standard Operating Procedures
        i. Templates/Forms
            1. Procedures
            2. Staff training
        ii. Photos/Video
            1. Procedures
            2. Staff Training

2. Site Specific Recommendations
    a. Company Policy
    b. Site Policy

APPENDIX IX: MARINE MAMMAL INCIDENT REPORT FORM

Licence Holder Name: _____ **Contact Name:** _____ **Contact Phone Number:** _____

Facility Name: _____ **Facility Reference Number:** _____ **Contact Email:** _____

Incident Date	Incident Time	Fish on Site? (Y/N)	Average Weight (grams)	Predator Species (Common Name)	Incident Type	Animal Condition	System Component	Photos Taken? (Y/N)	Carcass Stored Pending DFO Advice? (Y/N)	Mammal Released? (Y/N)	Carcass Discarded? (Y/N)	Other Action Taken? (Y/N)	Prior Mitigation Measures	Incident Cause	Corrective Measures Taken	Comments

Pick Lists:

Predator Species
- California Sea Lion
- Harbour Seal
- Other

Incident Type
- Drowning
- Entanglement

Animal Condition
- Fresh
- Moderate-advanced decomposition

System Component
- Containment Net
- Predator Net
- Shark Guard
- Other

APPENDIX X: ESCAPE PREVENTION AND RESPONSE PLAN GUIDANCE

Escape Prevention through Maintenance of Cage and Net Integrity

A – General Equipment Design, Use and Maintenance

1. The licence holder must ensure all containment structures (including net pens), nets, cage support systems and other system components such as weights, anchoring equipment and predator nets shall be designed, constructed, installed, maintained and repaired in such a manner that preserves structural integrity and prevents escape of cultured fish resulting from damage caused by interactions with other equipment, the physical environment and marine mammals.

2. The licence holder must ensure that containment structures, cage support systems and other system components that are beyond repair are retired from service.

3. The licence holder must ensure all equipment is designed and constructed to be compatible with other containment structure components so there is no chafing that contributes to weak points in any part of the containment structure

4. The licence holder must ensure each net pen or similar structure used to contain fish has an inventory control number that is permanently affixed to the net in an accessible location.

5. The licence holder must ensure that all active net pens are attached to the cage support system as the primary point of attachment.

6. The licence holder must ensure that jump nets that extend at least one metre above the surface of the water are installed at the top of any net pen that does not have a permanently attached mesh top or similar barrier.

7. The licence holder must install containment nets and anti-predator nets in a manner that ensures nets are taut at all times.

8. At the request of the Department, the licence holder must demonstrate that net materials are strong enough to resist tearing and subsequent risk of fish escape.

B – Inspections and Record Keeping

9. The licence holder must ensure that nets are tested and inspected by a qualified individual for integrity and strength prior to being installed at facilities, and again when they are removed from the water and prior to re-installation. The requirements for this complete out-of-water servicing and inspection of net pens are as follows:
    a. Complete visual inspections of the entire net pens must be completed for signs of abrasions, tears or holes;

b. Any damage to the net pen must be repaired;
c. The net strength must be tested for new nets and assessed and tested as appropriate for operational nets; and
d. Records kept as per section 12 of this licence.

10. The licence holder must ensure that daily above-water visual inspections are conducted of active net pens, support systems, anchoring system and anchoring-line buoy orientation, and that any damage or irregularities which increase the risk of escape are corrected or repaired immediately and records kept as per section 12 of this licence.

11. The licence holder must ensure that complete underwater inspections and repair of active net pens and any similar structures that contain fish take place as follows:
    a. Inspections are conducted by divers; or
    b. If an alternative method is used, at the request of the Department, the licence holder must demonstrate that the inspection quality is comparable to diver method; and
    c. Inspections must occur prior to fish entry;
    d. Active nets must be inspected at least every 60 days;
    e. In addition to paragraph 11(d), active nets must be inspected immediately after any operational activity or event that increases the risk of net failure, including but not limited to: harvesting, grading, extreme environmental conditions, net pen changes, fish delivery, recurring predator interactions, vandalism or towing of active containment structure;
    f. Any damage or irregularities identified which increase the risk of escape are corrected or repaired immediately, and
    g. A record of these inspections and repairs shall be kept as per section 12 of this licence.

12. The licence holder must ensure that complete written records are maintained for the entire life of each net pen and available for inspection by the Department, including:
    a. Owner of net and inventory control number;
    b. Net fabricator and date of net fabrication;
    c. If different from paragraph 12 (b), containment pen manufacturer's name and date produced;
    d. Size and gauge of mesh and dimensions of net pen;
    e. If applicable, the date of net retirement;
    f. Type and date(s) of any anti-foulant treatment on nets;
    g. Accumulated in-water service time;
    h. Initial and operational out-of-water servicing and inspection information as per section 9 of this Appendix, including:
        i. Date and location of testing;
        ii. Company and name of person conducting the test;
        iii. Whether net was tested wet or dry;
        iv. Approximate ambient temperature at test;

v. Breaking strength test results for each location tested along with manufacturer's published mesh-breaking strength; or
vi. If an alternate net technology is used where net breaking cannot occur or there is no manufacturer mesh-breaking information, a description of the alternate testing methodology must be provided; and
vii. General comments and notes on overall condition of net;

i. The accumulated time-in-water since the most recent complete out-of-water servicing and inspection;
j. Details and the dates of each inspection under section 10 of this Appendix, including:
    i. Date and person conducting inspection;
    ii. Irregularities noted;
k. Underwater inspection information as per section 11 of this Appendix, including:
    i. Method of inspection;
    ii. Diver or other professional's name and company;
    iii. Date of inspection;
    iv. Purpose of inspection (eg. routine, following an event, etc.);
l. A description and the dates of all repairs, including reasons for repairs, made to the net cage following any kind of inspection must be recorded.

13. The complete net record as per section 12 must be kept at the facility where it is in use during the life of the net, and following net retirement, must be retained for at least one year and kept at the licence holder's head office.

C – Escape Prevention and Response Plans (EPRP)

14. The licence holder must have in place an Escape Prevention and Response Plan (EPRP) describing the response to a fish escape or suspected escape including, but not limited to:
    a. The means to prevent further escapes;
    b. The means to recapture any fish that have escaped containment nets but still within the perimeter netting;
    c. The means to contain any fish that have escaped and are in the vicinity of the facility (excluding the use of fishing gear such as seines or gillnets but could include equipment like dip nets which would reduce the risk of incidental catch);
    d. The means to rectify the deficiency that caused the escape;
    e. Required recording and reporting of escape information; and
    f. Equipment and location of equipment required for escape response.

APPENDIX XI: ESCAPE NOTIFICATION FORM

Licence Holder Name: _____ Contact Name: _____ Contact Phone No: _____

Contact Email: _____ Facility Name: _____ Facility Reference No: _____

Current Licence No: _____ Reporting Submission Date: _____

Escape Date (YYYY-MM-DD)	Incident Time (HH:MM) (24hrs)	Escaped Species (Common Name)	Estimated Number Escaped	Average Weight (grams)	Date Stocked (YYYY-MM-DD)	Stock Source Facility Name	Drug Administered (Name of Drug*)	Treatment Start Date (YYYY-MM-DD)	Treatment End Date (YYYY-MM-DD)	Prescribing Veterinarian Name	Prescribed Withdrawal Period	Inventory Lots Treated **

Incident Cause***:** _____

Planned Mitigation Measures***:** _____

Comments: _____

* List each therapeutants (still within the prescribed withdrawal period) administered to these finfish

** Identification of the groups/pens #s of finfish treated

*** Describe in detail

Pick Lists:

Escaped Species type:

Atlantic	Rockfish
Chinook	Sablefish
Coho	Sockeye
Halibut	Steelhead
Pilchard	Wolf Eel
Rainbow	Other

Drug Type:

No Drug	Erythromycin
Oxytetracycline	TMS
Florfenicol	Metomidate
Tribrissen	Clove Oil
Romet	Other - explain in comments
Emamectin	

APPENDIX XII: REMOVAL OF BIOFOULING REPORT

All sections of this appendix must be completed unless otherwise directed in applicable licence conditions or by the Department

Facility Name: _____

Facility Reference #: _____ Cultured Species: _____

Site Contact Person: _____ Telephone Number: _____

Date	Cleaning Equipment/Procedure	Nets/Infrastrusture					Average Size of Mussels >2cm	Comments
		Type	Number	Cumulative Area (m^2)	Anti-foulant Type	Date of Application		

Notes: _____

_____

_____

_____

APPENDIX XIII: ANNUAL AQUACULTURE STATISTICAL REPORT

Once completed, this document is confidential within the provisions of the *Access to Information and Privacy Act.*

For Internal Use Only

Reporting Year:	Licence Type:	Facility Number:	Landfile Number:
Licence Holder:			

Introduction

In British Columbia, Fisheries and Oceans Canada is the lead authority responsible for regulating the aquaculture industry. Production statistics collected through this form may be used for analytical and operational purposes and will be shared with other government partners for statistical use. These organizations agree to take appropriate steps to protect all sensitive personal and commercial information, and to release data only in aggregated form.

In compliance with licences issued under the *Pacific Aquaculture Regulations*, all aquaculture licence holders are required to complete the Annual Aquaculture Statistical Report (AASR) under Section 61 of the Federal *Fisheries Act.*

The completed forms for each calendar year are due no later than January 25 of the following year.

Instructions for Completing the AASR

►This form is for use by shellfish, marine finfish and freshwater/land- based aquaculture licence holders.
►Complete all sections of this form, unless otherwise indicated
►Print in **BLACK INK** and using **BLOCK LETTERS**.
►This form must be completed and submitted via email to fishstats@dfo-mpo.gc.ca and DFO.AASR-RSSA.MPO@canada.ca or mailed to the address provided. To request an electronic spreadsheet version of this form, email fishstats@dfo-mpo.gc.ca and DFO.AASR-RSSA.MPO@canada.ca.
►Provide weights and measures using metric (e.g. kg, cm) unless other units are indicated.

Section 1 - Harvest for Food Market Sales

Were any fish or shellfish sold for Food Market Sales? ○ **Yes** ○ **No**

Species (provide full common or latin name)	**Weight (kg)**	**Quantity** (For Shellfish Only)	**Quantity Unit of Measure** (For Shellfish use Lbs, Dozens or Gallons)	**Value ($)**	**Product Type** (Round, Live, Fresh Dressed Head On, Fresh Dressed Head Off, Frozen Dressed Head On, Frozen Dressed Head Off, Fresh Fillets, Frozen Fillets, or Other (specify))

Section 2 – "U-Catch-Em" Sales

Note: Section 2 only applies to Freshwater/Landbased facilities

Were there any U-Catch-Em Sales? ○ **Yes** ○ **No** ○ **Not Applicable**

Species (provide full common or latin name)	**Average Length (cm)**	**Total Number**	**Total Weight (kg)**	**Total Value ($)**

Section 3 – Processing Information

Were any fish or shellfish processed? ○ **Yes** ○ **No**

Who processed your fish or shellfish? _____

Annual Aquaculture Statistical Report (cont'd)

Reporting Year:

Facility Reference #:

Section 4 – Sales for Restocking or Ongrowing Purposes

Note: Include sales only – not purchases or acquisitions

Were any fish/shellfish sold for restocking or ongrowing? ○ **Yes** ○ **No**

Species (provide full common or latin name)	**Life Stage** (Eggs, Fry/Fingerlings, Juveniles/Smolts, Adults or Seed, Larvae)	**Cultch Type** (Shellfish Only)	**Number Sold in BC** (not exported)	**Number exported**	**Total Value ($)**

Section 5 – In-zone Introductions & Transfer Information

Note: Section 5 only applies to Freshwater/Land Based and Shellfish facilities.

Did you stock your site during the reporting year from an in-zone source? ○ **Yes- complete Page 3** ○ **No**

Section 6 – Subtidal On-bottom Shellfish Seeding

Note: Subtidal refers to culture activities occurring on the bottom, below low tide.

Did you conduct subtidal shellfish seeding for any species this year? ○ **Yes- complete Page 5** ○ **No**

Section 7 – Stock on Hand and Future Plans

Note: Section 7 only applies to Freshwater/Land Based and Shellfish facilities.

Will this site be actively culturing during the next reporting year? ○ **Yes** ○ **No**

If this site had any stock on hand as of December 31, **list all species**: _____

_____

_____

Section 8 – Declaration

DECLARATION: I have read all information contained on this report and it is true to the best of my knowledge and belief.

Name (print)	*Signature*	*Date*
Position in Company	*Email address*	*Phone #*

Annual Aquaculture Statistical Report (cont'd)

Reporting Year:

Facility Reference #:

Section 5 Continued – In-Zone Introductions & Transfers Information

○ **Not Applicable**

Complete this section if you answered "Yes" to Section 5.

Complete the table below if you answered **Yes** to question Section 5 **AND** the transfer(s) **did not require** a separate Introductions & Transfers Licence. Otherwise, check "Not Applicable" in the space above.

Examples for Shellfish include: Initial stocking of a site(s) with shellfish seed from a within-zone hatchery

Examples for Freshwater/Land-based include: Introduction of fish, for land-based, U-catch and other FW facilities, from a within-zone source.

Provide one line per species (i.e. all transfer data for each species should be aggregated and reported on a single line)

Species Brought on Site	Source (provide aquaculture facility reference number or commercial licence number)	Total Number of Fish Transferred	Total Number of Transfers

APPENDIX XIV: USE OF LIGHT

Licence Holder Name: _____ Reporting Year: _____

Facility Reference No	Type	Intensity (Watts)	Timeline Start Date	Timeline End Date	Sunset to Sunrise (Y/N)	Number of lights per pen	Number of pens at site using lights	Notes
	For other, specify in note	*format: 0-9999*	*format: YYYY-MM-DD*	*format: YYYY-MM-DD*	*if no, describe in note*	*format: 0-99*	*format: 0-99*	

Pick Lists:

Type
Metal Halide
LED
Halogen
Other