



### Salmonid Enhancement Program Aquaculture Licence under the *Fisheries Act*

**LICENSED FOR:** Aquaculture **Date Issued:** July 1, 2024

**LICENCE No.** AQSEP «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 provision 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.

The above licence holder is authorized by this licence to carry on salmonid enhancement activities under the Pacific Aquaculture Regulations (SOR/DORS/2010-270) at the following location:

<b>Project Reference Number</b>	«Project Number»
<b>Project Name:</b> <b>Organization Name:</b>	Facility: «SITE_NAME» Legal Description: «Legal»
<b>Coordinates:</b>	«Coordinates»

**Species and Total Maximum Production at the Enhancement Facility:** As listed in the annual Fisheries and Oceans Canada *Facility Production Plan* for the licensed project.

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

**Compliance Advisory:** Contravening a condition of this licence is an offence under the *Fisheries Act*.

It is the responsibility of individual licence holder to be informed of, and comply with, the *Fisheries Act* and the regulations made there under as well comply with all laws, bylaws and orders of any competent government authorities which affect the enhancement facility described herein, in addition to these conditions.



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## **Part A. Definitions**

“Containment Structures” are structures used to contain finfish for the purposes of aquaculture.

“Community Advisor (CA)” means a DFO representative who is authorized to provide direction and technical support to community enhancement facilities.

“Department” means Fisheries and Oceans Canada (DFO).

“Enhancement Facility” means an aquaculture facility under the direction of DFO, culturing Pacific salmon for the purpose of increasing their freshwater survival before their intentional release into fish habitat.

“Fish Health Veterinarian” (FHV) means a veterinarian licensed in the Province of BC, on staff with the Department for the care of fish in aquaculture facilities.

“Major Mortality Event” means a significant number of fish mortalities caused by disease, life support failure, or through intentional destruction.

“Regional Production Plan” means production targets of the Enhancement facility that have been developed through the Salmonid Enhancement Program integrated production planning process and approved by the Regional Director of the Ecosystem Management Branch.

“Stock” means a group of fish from one production cycle that are defined by the system of origin, species and run timing.



## **Part B. General Licence Conditions**

### **1. Application and Licensed Species**

- 1.1 This licence authorizes the cultivation of fish in the above mentioned enhancement facility including collection of adults, cultivation of fish in the facility, fish transfers into and from the facility, and the release from the facility of species of fish in the quantities and ages set out in the Regional Production Plan.

### **2. Transfer of Fish**

- 2.1 Only fish of the species, stocks and production targets listed on the Regional Production Plan may be introduced to and transferred from the enhancement facility.
- 2.2 Fish may only be transferred from the enhancement facility, if:
  - (a) no disease outbreak is apparent in the stock, and losses in the stock have been low during the entire rearing period; and
  - (b) the stock is not currently being treated for a disease, nor has it had an antibiotic treatment during rearing;
- 2.3 Where conditions 2.2 (a) or (b) cannot be met, advice from the FHV must be sought prior to transfer.
- 2.4 Records of transfers and releases into and from the enhancement facility (Appendix I – Brood Summary Form) shall be kept and made available upon request by DFO staff.
- 2.5 A copy of this licence must accompany all shipments of fish between federally licenced enhancement facilities.

### **3. Fish Health**

- 3.1 The fish cultivated in the enhancement facility must be given the care and attention consistent with their biological requirements.
- 3.2 If there is a fish health problem, it must be investigated by the licence holder or designate. The project may seek advice/assistance from the FHV directly if the licence holder or designate is not available.
- 3.3 All reasonable efforts shall be made at the enhancement facility to keep complete and accurate records of fish health and inventory in the enhancement facility, using Appendix II (attached) to capture the relevant information.



- (a) Enhancement facilities shall follow a salmonid health management plan, which contains all the required elements and concepts to maintain fish health (Appendix III).

3.4 Major mortality events shall be reported within 24 hours to the FHV. Where the licence holder or designate is unavailable, the project shall contact the FHV directly.

3.5 Where fish must be destroyed, the licence holder shall seek the directions of the FHV.

#### **4. Release of Fish**

4.1 Fish shall only be released in accordance with the Regional Production Plan.

4.2 Fish shall only be released if:

- (a) no disease outbreak is apparent in the stock and losses in the stock have been low during the entire rearing period; and
- (b) the stock is not currently being treated for a disease, nor has it had an antibiotic treatment during rearing;

4.3 Where conditions 4.2 (a) or (b) cannot be met, advice from the FHV must be sought prior to release.

4.4 A copy of this licence shall accompany the fish to the site of release.

4.5 The licence holder shall keep records of all releases and report them as specified in condition 7 of this licence.

#### **5. Adult Carcass Disposal**

5.1 Where fish carcasses are placed in streams for stream nutrification, the placement must follow the Departmental Guidelines (Appendix IV – In-Stream Placement of Salmon Carcasses for Nutrient Enrichment).

5.2 Fish that have been spawned or are in excess to spawning requirements, not used in condition 5.1, shall be disposed of in a manner that does not impact the health of fish or fish habitat.

#### **6. Net Pen Rearing**

6.1 If net pens are used for marine or freshwater temporary rearing, the conditions set out in Appendix V- Licence Conditions for Net Pens operated by Enhancement Facilities shall be followed.



## 7. Records

- 7.1 An up-to-date copy of all records listed below relating to the enhancement facility shall be kept by the licence holder for a period of 6 years and shall be produced upon request to a Fishery Officer or other representative of the Department.
- 7.2 Records shall be kept in accessible and legible format, protected from damage. They may be kept either electronically or in a paper version.
- 7.3 Using Appendix I – Brood Summary Form as a guideline, the licence holder shall maintain records of:
  - (a) the fish entering or introduced to the enhancement facility as well as all releases and transfers from the enhancement facility by
  - (b) species;
  - (c) age/developmental stage;
  - (d) quantity; and
  - (e) date of transfer to or from the source facility or water body.
- 7.4 Records of fish disease problems, reasons for losses, diagnosis where obtained from FHV must be kept using Appendix II, and must be made available to the FHV or representative of the Department upon request.

## 8. Reporting

- 8.1 The licence holder shall report all transfers to and from the facility, as well as all releases from the facility to the:

Salmonid Enhancement Program Planning and Assessment Unit 200-401  
Burrard Street  
Vancouver, BC, V6C 3S4 Fax: 604  
666-0417
- 8.2 All information listed in Appendix I – Brood Summary Form shall be collected and reported. Records may be submitted in hard copy or electronically.
- 8.3 Reports shall be submitted by June 30 of each year for the information on spring releases and transfers up until June 30.
- 8.4 Reports shall be submitted by October 31 of each year for information on summer and fall releases up until October 31.



### APPENDIX I – Brood Summary Form

(see also Excel document - FINAL BROOD SUMMARY FORM Template.xls)

**Reporting Deadlines**  
Spring releases: June 30  
Fall or summer releases: Oct 31

**Return to:**  
Fisheries & Oceans Canada  
200 - 401 Burrard Street  
Vancouver, BC V6C 3S4  
Tel: 604-665-0417  
Fax: 604-665-0417  
Email:

#### Project Brood Summary

Fisheries and Oceans  
Canada

Project:	BROODSTOCK TAKEN		EGGS		JUVENILES				RELEASES						COMMENTS <i>(egg &amp; fry transfer locations and reasons for unusually high mortality)</i>								
	Females	Males	# Pre-Spawm Mort	# Spawm Used	# Taken	# Trans In/Out	# Ponded	# In/Out	# On Hand	Release Site	Release Date(s)	Rel Stage	Mark Type	# Marked		Tag Ret: # of fish sampled	Tag Ret: # of fish missing tags	# Unmkfd	Release Target	Total # Released	Enum Meth	Wgt (g) & Lgh (mm)	
Stock Name																							
Stock Type																							
Species																							
Run																							
Brood Year																							
ADDITIONAL COMMENTS:																							







BROOD SUMMARY FORM INSTRUCTIONS

CATEGORY HEADNG	EXPLANATION	
Stock name	Broodstock origin: stream, river or lake where broodstock was obtained.	
Stock type	<i>Wild (W), Hatchery (H), Mixed (M) or Captive Brood (C)</i> : use <i>wild</i> only if ALL pertinent hatchery releases were marked and all broodstock are unmarked; use <i>hatchery</i> only if ALL broodstock are marked; use <i>captive brood</i> if ALL broodstock were reared to adult; otherwise use <i>mixed</i> .	
Run	Time adults enter freshwater: 1=spring,2=summer,3=fall,4=winter	
Broodstock Taken	# Used	# of males (adults or jacks) used for mill & # of females from which eggs were taken. Do not count a given male more than once if used for more than one female.
	# Pre-spawn Morts	# of males (adults and jacks) & females taken for broodstock, but died before spawning could occur.
Eggs	Egg Target	Targeted (ie. maximum) # of eggs to be taken for production + for transfers out, as per the annual Production Plan.
	# Taken	# of adjusted (remeasured) eggs.
	# Transfer In	# of eggs transferred to your facility from another facility ( <i>NOT between containers at your facility</i> ) - include transfer location ( <i>project from which eggs were transferred, NOT incubation locations at your facility</i> ) in comments section.
	# Transfer Out	Indicate transfer out by using a negative sign (-). # of eggs transferred from your facility to another facility ( <i>NOT between containers at your facility</i> ) - include transfer location ( <i>project to which eggs were transferred, NOT incubation locations at your facility</i> ) in comments section.
Juveniles	# Poned	# of fry ponded/emerged
	# Transfer In	# of fry transferred to your facility from another facility ( <i>NOT between containers at your facility</i> ) - include transfer location ( <i>project from which eggs were transferred, NOT rearing locations at your facility</i> ) in comments section.
	# Transfer Out	Indicate transfer out by using a negative sign (-). # of fry transferred from your facility to another facility ( <i>NOT between containers at your facility</i> ) - include transfer location ( <i>project to which eggs were transferred, NOT rearing locations at your facility</i> ) in comments section.
	# On Hand	# of fry on hand (at time of reporting) for yearling release, or for release 2 years after brood year (eg. coho, interior chinook, steelhead or cutthroat)
Releases	Release Site	Name of river, creek, lake, etc. where juveniles were released. If adding a new release site, please include either a watershed code or the latitudinal & longitudinal coordinates of the site in the comments.
	Release Date(s)	From first day of release to last day; please keep release groups separate if they are released more than a month apart with no releases between.
	Release Stage	EP = egg plant, UF = unfed, CF = channel fry, FF = fed fry ( <i>fed fry have been fed for a minimum of 1 week but may have been starved for a few days prior to release</i> ), SFF = seapen-reared fed fry, SM = subyearling smolt ( <i>released 1 year after brood, eg. coastal chinook</i> ) YE = yearling smolt ( <i>salmon released 2 years after brood (eg. coho, interior chinook), and for steelhead and cutthroat released 1 year after brood</i> ), SM2+ = a steelhead or cutthroat smolt that is released 2 years after brood, SSM = seapen-reared smolt, SY = seapen-reared yearling smolt
	Mark Type	Coded-wire tag (CWT) code (eg. 18-46-54) and whether Adipose-clipped (AdCWT) or unclipped (CWTonly), or Fin Clip Type (eg. adipose (AD), left ventral (LV), right maxillary (RM), etc.) or Otolith marked (eg. OTO 2132233). Enter "No Mark" if not tagged, clipped or otolith marked.
	# Marked	# of AdCWT, CWT, finclipped or Otolith-marked fish released (# released after all mortalities have been subtracted)
	# Unmarked	# of fish released without marks: please use a separate sheet to record unmarked releases unless they were released to the same site and at about the same time and size as tagged or finclipped fish (ie. associated release).
	Release Target	Targeted (ie. maximum) # of releases by stock, species, stage & release site, as per the annual Production Plan.
	Total # Released	Total # of fish released: must equal # of marked releases + # unmarked releases.
Enum Meth	Enumeration Method (method of determining # of unmarked fish released):	
	<i>Book (B)</i> : calculated by subtracting # of mortalities from an earlier calculated # such as # of eyed eggs or # ponded.	
	<i>Weight (W)</i> : volumetric or weight estimation of # immediately prior to release.	
Tag Retention Check Information (only need to fill in if releases are tagged or clipped!)	# of fish sampled for tag retention quality check:	The total number of tagged fish run through a tag detector to check for missing tags ( <i>do not fill in if done by DFO contractor</i> ).
	# of fish missing tags (of those sampled above)	Number of tagged fish that were missing their tags when run through the tag detector ( <i>do not fill in if done by DFO contractor</i> ).
	# of days between end of tagging and tag retention quality check:	This is particularly important if you have done a long-term tag retention check ( <i>do not fill in if done by DFO contractor</i> ).
Comments	Include the locations of egg & fry transfers (which facility were the eggs or fry transferred to or from).	
	Include either a watershed code or the latitudinal & longitudinal coordinates of a new release site.	
	Include the total # of mortalities that occurred at each stage (incubation and rearing), and reasons for any unusually high mortalities (disease outbreaks, mechanical failure, vandalism etc).	
	Include numbers of fry salvaged (wild fry rescued from drying up pools) and dates over which they were salvaged.	
	Include reasons for tagging or finclipping or any abnormal condition of fish at release. Any other relevant comments.	



## APPENDIX II- Monitoring Fish Health, Disease, and Mortality

### 1. Use of Therapeutants

Records of the use of therapeutants shall include the following:

- Cause or diagnosis for losses
- Affected containers/lots of fish
- Species of fish affected
- Number of affected containers/lots of fish
- Estimated number of mortalities
- Name of drug used and prescription number if available
- Date treatment started
- Date treatment complete
- Withdrawal time
- Method of administration (bath, feed...)
- Amount (kg of treated feed used, weight/volume & concentration administered by bath..)
- Response description

Records of vaccines shall include the following:

- Vaccine administered (trade name)
- Vaccine lot numbers
- Date
- Fish stock/species

### 2. Major Mortality Event – Accidental Losses &/or Intentional Destruction Reporting

#### A. *Accidental Mortality*

In the event of an accidental large scale loss at any life-stage, it is mandatory that the facility operator report the event to the Fish Health Veterinarian within 24 hours to discuss event management, mitigation, and appropriate disposal of mortalities. Under these circumstances, use the “Major Mortality Event – Accidental Mortality Summary” report and submit it **electronically** to the Veterinarian and your Support Biologist.

*This requirement is a condition of the Pacific Aquaculture Regulations.*

#### B. *Intentional Destruction*

Under certain circumstances (e.g. disease outbreak, excessive to production target inventory), facilities may be required to intentionally destroy a significant number of eggs/fish. Facility operators are required to complete and submit, **electronically**, the “Major Mortality Event – Intentional Destruction Summary” report to the Veterinarian and your Support Biologist.

**The Major Mortality Event reporting forms are available in the following location:**

<http://www.pac.dfo-mpo.gc.ca/aquaculture/licence-permis/hatcheries-ecloseries-eng.html>



## **APPENDIX III - Salmonid Health Management Plan (HMP) for the Community Involvement Program, Fisheries and Oceans Canada**

### **1. Objectives, Personnel, & Executive Summary**

The Health Management Plan (HMP), submitted to Fisheries and Oceans Canada as part of the Enhancement Facilities (hatcheries) Aquaculture Licences, serves three purposes: i) to outline good health conditions for cultured salmonids raised at Salmonid Enhancement Program facilities and may apply to both freshwater and short-term marine rearing; ii) to reflect a commitment to comply with the principles, concepts, and required elements of fish health management when culturing salmonids or gametes thereof, and; iii) to be used by Community Advisors and hatchery operators (i.e. facility staff and volunteers) 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.

This document forms one of two components of the Community Involvement Program's overall Health Management Plan (HMP): i) Concepts; and ii) Best Management Practices (BMPs) which define the fish health and operating standards used at Community Involvement Program facilities. This HMP concept document forms Appendix III of the current Enhancement Facilities Aquaculture Licence under the Pacific Aquaculture Regulations (PAR, 2010). As an appendix of the Enhancement Facilities Aquaculture Licence, this document is the publicly available component and commits all facilities within the Community Involvement Program (CIP) to ensure and maintain the health of its cultured fish. It also commits CIP facilities 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

The BMPs cited in this salmonid HMP concept document are initially submitted in their entirety to Fisheries and Oceans Canada's Aquaculture Management Division (DFO-AMD) for review and response. Thereafter, only amendments to the BMPs will be submitted annually for Departmental review and response.

#### **1.1 Fish Health Management Team: Personnel duties and responsibilities**

The Fish Health Management Team is comprised of the entities as defined below. The authority to alter the best management practices contained within this document lies with the Fish Health Management Team and should occur in a consultative process. The responsibility for carrying out the procedures defined within this document, correctly and according to protocol, lies with the Community Advisor and hatchery operators that have been trained in the individual procedures.

##### **1.1.1 Veterinarian**

A licensed Veterinarian, in conjunction with Community Advisors, hatchery operators, and biological support staff, oversees fish health management for the SEP facilities. The Veterinarian, supported by the Pacific Biological Station Fish Pathology Laboratory, is expected to exercise good professional judgment in fish health matters. The Veterinarian is licensed in BC and fosters a lawful Veterinarian-client-patient relationship with the Licence Holder and hatchery operator. The Veterinarian is responsible for disease diagnoses, interpretations, and writing prescriptions and is expected to exercise good medical judgment in matters of fish health. Specific duties include site visits, diagnostic workups for fish, treatment advice, and disease prevention and control recommendations. Where applicable, the Veterinarian will report disease findings to relevant authorities. Veterinary contact information is available to the Community Advisor and hatchery operators.



### 1.1.2 Hatchery management

The Community Advisors and/or hatchery operators are responsible for identifying and managing disease-related risk factors to minimize their impacts on fish health. The Community Advisors and/or hatchery operators consult with the Veterinarian and DFO biologists on management of fish health issues, and are responsible for reporting outbreaks of significant diseases to other sites in the geographic vicinity and to the proper authorities.

### 1.1.3 Hatchery staff

On-site hatchery operators are responsible for day-to-day fish health management, according to this Plan and the Community Advisor's directions. As per conditions of licence, all Community Advisors and hatchery operators have read and apply this HMP concept and relevant operational BMPs, and practice appropriate hygienic procedures supportive of fish health. General facility staff and volunteers may be assigned specific fish health duties from time to time.

### 1.1.4 Support Biologists/Community Advisors

Fisheries and Oceans Community Advisors and biological support staff are available for consultation and to serve as a liaison between hatchery operators and the Enhancement Support and Assessment Unit.

### 1.1.5 Contact names and numbers

Contact names and numbers for all key fish health personnel, including emergency numbers, are posted in an easily identifiable location at each site.

## 2. Health Concepts and Required Elements

This section outlines the general principles of fish health management:

- Keeping the fish healthy and maintaining an optimal environment
- Keeping pathogens out
- Keeping disease from spreading
- Maintaining good records of appropriate information
- Minimizing impacts on natural populations
- Minimizing impacts on the receiving environment

The supporting operating guidelines referenced in this Health Management Plan can be found in the Community Involvement Program Best Management Practices document.

Note: The focus of SEP's work is the production of juvenile Pacific salmon for stock enhancement and conservation purposes. Net pen holding is limited to a handful of facilities, which have the infrastructure and historical evidence of improved survival following a brief period of acclimation to a semi-natural environment. Additionally, this production strategy allows imprinting to a watershed for the eventual return in support of recreational fisheries in the areas whose natural spawning and rearing habitats are compromised. ***Net pen operation guidelines can be found in the Community Involvement Program BMP document.***

### 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 implementing biosecurity measures at each facility. Biosecurity measures apply to all staff, volunteers, visitors, suppliers, regulators, vessels, and all equipment.

Biosecurity has three main goals: keeping fish healthy, keeping pathogens out, and keeping disease from spreading.



## 2.2 Keeping Fish Healthy

Keeping fish as healthy as possible is critical to keeping pathogens from coming on site, reducing incidence of disease attributable to those pathogens already present, and/or minimizing spread of pathogens within or between sites.

Fish must be routinely monitored for signs of health and disease and for this reason Community Advisors and hatchery operators should be familiar with normal fish appearance and behaviour. Observations that may indicate a problem with the population include (but are not limited to):

- Physical changes – skin darkening, scale loss, fungal or ulcerative external lesions, increased opercular movements (respiration), protruding eyes
- Behavioural changes - loss of normal swimming and schooling behaviour, flashing, failure to elude capture, diminished response to feeding, gasping at the surface, clustering near water inflows or near air stones

Fish should be kept at reasonable densities as determined by species, size, number, type of rearing unit and water quality/availability. Changes in behaviour and physical condition should be reported to site management as early detection is the key to good disease management.

### 2.2.1 *Suitable rearing environment*

Community Advisors and hatchery operators are responsible for ensuring a suitable rearing environment for the fish so they remain healthy at each life stage. Requirements related to materials used in the construction and maintenance of rearing units provides security and minimizes the risk of potential escape or harm to fish.

Refer to section titled ***Ponding*** in the Community Involvement Program Best Management Practices.

### 2.2.2 *Normal fish behaviour is observed*

Fish are routinely monitored for signs of normal health and disease. All Community Advisors and hatchery operators are familiar with normal fish appearance and behaviour. Early detection of altered activity is key to maintaining health and disease management. Changes in behaviour and physical condition are recorded and reported to the Community Advisor and/or facility managers upon discovery. To minimize stress and mortality, fish are held at species and life stage-specific densities.

Refer to section titled ***Fish Health Monitoring*** in the Community Involvement Program Best Management Practices.

### 2.2.3 *Predator exclusion*

Predators include birds, rodents and occasionally mammals such as mink, river otters and bears. Reasonable, due diligent attempts are made to exclude predators from the facility and from interacting with the fish. CIP facilities follow mitigation procedures striving toward minimal predator interaction with the hatchery fish. Every attempt should be made to exclude predators from the site.

Refer to section titled ***Rearing***, sub-section ***Predator Exclusion*** in the Community Involvement Program Best Management Practices.

### 2.2.4 *Feed and nutrition*

Feeding is both an art and a science. A site-specific, customized feeding program coupled with appropriately sized, high quality feed will fulfill the nutritional requirements needed for the growth and health maintenance of the fish. The amount fed will be influenced by many factors including: water temperature, species, body size, age, type of feed and different feed delivery methods.



Proper storage of feed is essential to maintain its nutritional value. Feed stored under improper conditions will result in rancidity and degradation of essential nutrients. Feed should be stored in secure buildings such that wildlife is excluded and spillage is prevented.

Refer to section titled ***Rearing***, sub-sections ***Initial Feeding*** and ***Feeding*** in the Community Involvement Program Best Management Practices.

### **2.2.5 *Water quality monitoring***

Maintaining good water quality is vital to good fish health. The operator should maintain a regular program for monitoring and recording water quality at hatchery sites. Monitoring will vary between sites depending on location and the specifics of the aquatic environment. The frequency of monitoring will depend on available equipment and type of facility water use (i.e. flow through or recirculation). In-line monitoring may be applicable.

Refer to section titled ***Hatchery Water Quality*** in the Community Involvement Program Best Management Practices.

### **2.2.6 *Water quality contingency planning***

The facility should maintain a contingency plan in the event of acute deterioration of water quality (for example due to loss of flow or contamination of supply). Failure of pumps requires an immediate response. Systems should be suitably alarmed to indicate a water supply failure. The site should have backup systems to ensure water supply is not interrupted and quality is maintained.

Refer to the section titled ***Hatchery Water Quality*** in the Community Involvement Program Best Management Practices.

## **2.3 *Fish Handling Techniques***

### **2.3.1 *Routine handling techniques (Marking, tagging, length/weight sampling)***

Community Involvement Program 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. Community Advisors and hatchery operators should minimize the time fish are exposed to stressful events such as crowding and out-of-water events (i.e. moving, sampling, tagging, injecting, etc.).

Marking fish is a valuable tool for accurate stock assessment. The species, number of fish to be marked and method of marking should be reviewed annually during the facility's production planning meetings. This is the responsibility of the Community Advisor and DFO Biologists. Marking should be done in a manner designed to result in minimal injury and stress to the fish. Appropriate anaesthesia and monitoring for adverse effects, both during the procedure and for several days following are standard, as the stress of the procedure and resulting wound can compromise the immune response of the fish.

Refer to sections titled ***Juvenile Sampling*** and ***Juvenile Marking*** in the Community Involvement Program Best Management Practices.

### **2.3.2 *Fish transports***

Fry, smolts and other life stages should be handled in as stress-free a manner as possible in preparation for transport. Equipment should be checked to prevent significant injury that could predispose fish to damage and/or disease. Proper hygiene and disinfection are adhered to. Appropriate transfer permits are obtained from DFO.





Refer to section titled *Juvenile Release and Transport* in the Community Involvement Program Best Management Practices.

## 2.4 Keeping Pathogens Out

Biosecurity refers to an integrated strategy to assess and manage the risks that threaten animal health, human health, food safety, and the environment. The key components of a biosecurity program involve the exclusion of pathogens from a site and the containment of pathogens within a site if a disease situation does occur. The nature of enhancing wild populations using gametes collected from mature salmon returning from the oceans means that it is impossible to prevent the introduction of pathogens in all cases. Nevertheless, measures are in place to minimize the introduction of pathogens at key fish culture junctions and to minimize the impacts related to the presence of pathogens.

### 2.4.1 Site physical barriers

The facility operator is responsible for providing a suitable, secure rearing environment. Additionally, physical barriers to prevent uncontrolled or undesirable human and animal entry, the risks involved with movement of all personnel (staff, volunteers, Fish Health Management Team), visitors and equipment are assessed and managed.

### 2.4.2 Personnel/visitor/supplier movement

Community Advisors and hatchery operators will adhere to biosecurity procedures for the site. Where possible, personnel and visitors do not travel between different facilities. If such travel is unavoidable, personnel should not return to a clean facility after visiting a disease-suspect one, or will adhere to all biosecurity procedures at each facility to minimize the risk of inadvertently spreading disease between sites. Each site shall have procedures for all visitors, and visitors are expected to follow these procedures. Visitor access will exclude any areas containing sensitive life stages, i.e. incubation rooms. Suppliers should be advised of operator and site procedures in advance. Suppliers who visit multiple sites shall be subject to strict biosecurity measures and may be requested not to come on site.

Refer to section titled *Biosecurity* in the Community Involvement Program Best Management Practices.

### 2.4.3 Equipment/vehicle movement

Where possible, equipment will not be shared between sites. This includes pumps, vehicles and fish handling equipment. Where this is not possible, equipment that must be used at multiple sites should be subject to appropriate biosecurity and disinfection measures between uses.

### 2.4.4 Equipment maintenance and disinfection

To reduce the possible spread of pathogens by fish, personnel or via a waterborne route, equipment should be kept clean and in good operating condition at all times. Equipment should be properly disinfected after each use and stored in its designated location.

Refer to section titled *Disinfection Protocols* in the Community Involvement Program Best Management Practices.

### 2.4.5 Moving fish within and between sites

Fish and eyed egg movement between sites is kept to a minimum. Clinically ill fish will not be moved between sites. The move should be planned in advance to be as stress-free and short as possible. Particular care should be paid to the fish during transportation to avoid undue stress or possibility of escape. Water quality should be maintained and frequently monitored during transport.



The receiving sites will make arrangements for isolating the newly arriving fish. Once on site, measures should be used to limit the potential transmission of any previously undetected pathogens to the facility's original population.

Refer to the following sections and sub-sections of the Community Involvement Program Best Management Practices: *Egg Takes* sub-section *Off-Site Field Egg Take, Egg Shocking, Picking and Enumeration* sub-section *Transfer of Eyed Eggs, Rearing* subsection *Transfer of Fish*.

#### 2.4.6 *Monitoring Fish Health*

Fish should be monitored at least once daily for any unusual behaviour, visible lesions or other signs of disease. Changes in behaviour and physical condition should be reported to site management and/or the Community Advisor. Additionally, routine scheduled bulk and/or individual sampling during rearing allows a more detailed examination of the fish, as well as comparisons of actual versus expected gains and tracking of biomass per tank for appropriate density management.

Where unexplained mortalities in any stock have exceeded 1% per day for four consecutive days, the veterinarian must be immediately notified.

Refer to section titled *Fish Health Monitoring* in the Community Involvement Program Best Management Practices.

##### 2.4.6.1 *Mortality classification*

Mortalities should be examined for external signs of disease, as per the operator procedure, suspect mortalities may be examined internally. Suspected causes of mortality must be recorded and the Community Advisor and/or Veterinarian should be notified of any unusual numbers or types of mortalities.

Refer to section titled *Rearing Container Cleaning and Mortality Removal* in the Community Involvement Program Best Management Practices.

##### 2.4.6.2 *Mortality collection and disposal*

Mortalities should be collected on a routine and frequent basis to minimize the potential spread of disease, to minimize attractiveness to predators and to allow rapid identification of a health issue. The mortality storage area should be an appropriate distance away from any rearing units and outside usual travel corridors to minimize inadvertent spread of disease. Proper disinfection procedures should be used after each mortality collection.

Refer to section titled *Rearing Container Cleaning and Mortality Removal* in the Community Involvement Program Best Management Practices.

## 2.5 *Specific Fish Health Procedures*

### 2.5.1 *Anaesthetizing and sedating Fish*

A number of fish health procedures require that fish be anaesthetized. Acquiring chemical anaesthetics requires a veterinary prescription. Netting of fish prior to anaesthesia should be done in as stress-free a manner as possible. Exposure to anaesthetic should be minimized while ensuring the anaesthetic level is adequate for the procedure. Anaesthetized fish should be carefully monitored at all times and the water quality of the anaesthetic bath – in particular, oxygen level – should be monitored.

Refer to section titled *Juvenile Sampling* sub-section *Bulk Sampling and Individual Length and Weight Sampling to Monitor Growth Rate, Fish Condition and for Feed Calculations* in the Community Involvement Program Best Management Practices.





## 2.6 Keeping Disease From Spreading

### 2.6.1 Separation of fish groups

Owing to the nature of enhancement, which follows the natural life cycles present in the aquatic ecosystem, SEP facilities often contain multi-year-classes. Different species or stocks are kept separated while on site. Rearing units are kept separate to prevent transmission of disease between groups. It is an important biosecurity measure to ensure that personnel movements are considered from a risk management perspective and the flow of fish husbandry activities starts from the most sensitive life stages to the least sensitive (i.e. youngest fish to the oldest fish) to ensure that the most susceptible fish are not exposed to pathogens that may be carried by older, more resistant, fish.

### 2.6.2 Minimizing disease within the site

All efforts should be made to minimize disease on a site. All Community Advisors and hatchery operators will adhere to the facility hygiene and disinfection procedures. Tank cleaning and moribund/mortality collection is carried out on a routine and frequent basis. This serves to reduce the potential exposure to pathogens and minimize predator attraction.

### 2.6.3 Juvenile treatments

There is a great deal of physiological stress associated with juvenile growth and smoltification. At the same time, the juvenile salmonid immune system is still developing. Because of this, juveniles represent a particularly susceptible life stage and judicious use of antimicrobial agents may help minimize losses due to infectious agents.

Refer to section titled *Juvenile Treatments* in the Community Involvement Program Best Management Practices.

## 2.7 Broodstock Management

### 2.7.1 Suitable holding environment

Community Involvement Program facilities are responsible to provide a suitable, safe and secure holding environment. Escape and predation prevention is essential.

### 2.7.2 Biosecurity

Where possible, staff/volunteers are designated as the individuals that will interact with broodstock. Equipment required to work with broodstock is also designated (i.e. that equipment is not shared with other life stages). Disinfection and hygiene procedures are in place. Where other age classes are present, 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 in a designated area of the facility, separate from production or hatchery fish. Broodstock areas may use a separate water supply.

Refer to sections titled *Adult Capture, Adult Transport* and *Adult Holding and Handling for Egg Takes* in the Community Involvement Program Best Management Practices.

### 2.7.3 Broodstock selection and handling

Broodstock are handled individually at least once. Facility personnel sort broodstock by sex and for “ripeness”, i.e. whether or not they are fully mature. Handling individual brood fish is to be done with care and with minimal stress to prevent negative effects on gametes (eggs and milt). Anaesthesia and sedation may be used to provide gentle handling and recovery.



Refer to section titled *Adult Holding and Handling for Egg Takes* in the Community Involvement Program Best Management Practices.

#### **2.7.4 Broodstock treatments**

Broodstock may be medicated preventatively 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 the 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 accessible.

Community Involvement Program facilities using medications ensure that all medications are handled safely by appropriately trained staff and/or volunteers.

#### **2.7.5 Gamete collection (Egg take and milt collection)**

At the Veterinarian’s discretion, broodstock may be treated preventatively for specific infectious diseases prior to maturation to reduce the risk of vertical transmission of disease. Egg take and milt collection should be performed in as hygienic a manner as possible to prevent transmission of diseases to other broodstock and/or progeny. Adult fish may be anaesthetized and may be surface disinfected prior to gamete harvest and spawned adults should be euthanized as humanely as practicable. Carcasses are disposed of in a manner to prevent spread of disease.

Refer to sections titled *Egg Takes* and *Carcass Disposal* in the Community Involvement Program Best Management Practices.

#### **2.7.6 Disease screening**

Disease screening procedures may be 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 in some cases. 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 the screening results are received and reviewed by the Veterinarian and/or Fish Health Management Team.

Refer to section titled *Adult Sampling* in the Community Involvement Program Best Management Practices.

#### **2.7.7 Identifying Progeny**

Where screening programs are in effect, egg lots from individual females are clearly labeled.

#### **2.7.8 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 containers with secure lids. Disinfection and biosecurity procedures are followed to prevent transmission of pathogens to the hatchery.

Refer to section titled *Egg Takes* sub-section *Off-Site Field Egg Take* in the Community Involvement Program Best Management Practices.

#### **2.7.9 Egg disinfection**

Eggs are safely disinfected following fertilization and during water hardening. This disinfection is conducted when the gametes enter incubation.

Refer to section titled *Ovadine Disinfection of Eggs* in the Community Involvement Program Best Management Practices.



### **2.7.10 Egg treatments**

Developing eggs are sensitive to light and shock as well as fungal infections. Eggs are periodically checked for mortality, and presence of infectious diseases or fungus. Affected eggs are treated as necessary.

Refer to section titled *Incubation* sub-section *Egg Fungal Treatments* in the Community Involvement Program Best Management Practices.

### **2.7.11 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.

## **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.

### **2.8.1 System failure/Water quality event**

If there is a system failure, all efforts should be directed to restoring sufficient water quality for the fish. Sufficient oxygen levels must be restored to support the fish. The site will immediately activate emergency response plans. In the event of life-threatening poor water quality events, the fish should be taken off feed in order to decrease the oxygen demand and stress.

### **2.8.2 Infectious disease emergencies**

If an infectious disease outbreak is suspected, the Community Advisor and/or hatchery operator must immediately inform the Veterinarian. An outbreak is defined as an unexpected occurrence of mortality or disease. Not all outbreaks are fish health emergencies. Pathogens differ in many respects including ease of transmission, time until clinical signs of disease are apparent, severity of disease, and range of treatment options.

Accurate husbandry records and diligent monitoring of fish population health are central to the early identification of a disease situation. Rapid response is essential but should be determined on a case-by- case basis in conjunction with the Community Advisor, Veterinarian and/or Fish Health Management Team.

Once an emergency has been recognized, certain steps are followed. The objective is to keep the pathogen “load” as low as possible and to prevent spread of the pathogen both within and off the site.



## 2.9 Emergency response steps

### 2.9.1 Quarantine

Quarantine is the enforced physical separation of the healthy population from a (potentially) infected population, their products or items they may have contaminated. At the Veterinarian's recommendation the site may be officially quarantined. Quarantine remains in effect until such time as the problem has been diagnosed and/or managed.

Refer to section titled *Disease Outbreak Protocols* in the Community Involvement Program Best Management Practices.

### 2.9.2 Stop fish movement and/or handling

The movement of all fish on/off and within the site may cease and fish will not be handled further. No visitors or non-essential staff are allowed on site unless previously authorized by the Community Advisor and hatchery operations staff.

Refer to section titled *Disease Outbreak Protocols* in the Community Involvement Program Best Management Practices.

### 2.9.3 Disinfection and hygiene

On site hygiene and disinfection procedures are in place.

### 2.9.4 Suppliers

In the case of an outbreak, suppliers (e.g., feed or oxygen delivery) should be instructed to visit the site last or to make special arrangements so that pathogen spread does not present risk other facilities.

### 2.9.5 Mortality collection

The frequency of mortality collection is to be increased during an outbreak. Affected tanks are mort picked last and staff and volunteers adhere to disinfection procedures between tanks and rearing units. If possible, separate gear is designated for the affected unit. All equipment, surfaces and clothing that come in contact with infected fish or potentially infectious material are thoroughly disinfected after use.

Mortality collection and disposal procedures are strictly adhered to and provisions made for increased mortality pick-ups and disposal.

### 2.9.6 Determining the cause of the outbreak (Outbreak investigation)

The Veterinarian may require records and appropriate sampling to determine the cause of the outbreak and best course of action. The Veterinarian and/or Community Advisor will provide instructions for proper sampling. Water and feed samples may be requested. Samples must be properly handled, properly stored and promptly shipped as per the Veterinarian's or Community Advisor's instructions to ensure prompt and effective analysis.

Continued monitoring is required after the initial analysis to determine the course of the outbreak and to assess whether treatment and/or management measures are effective. Frequent observations of fish are essential. Feeding response and water quality is monitored. All treatments and management changes are noted as they occur. The Veterinarian, Community Advisor and hatchery operator will work together to review fish health records and make further management decisions. Any repeat sampling including results, are noted.

Refer to section titled *Disease Outbreak Protocols* in the Community Involvement Program Best Management Practices.



### 2.9.7 *Site depopulation*

Site depopulation is the total destruction of all animals on site in the event of a catastrophic outbreak. If site depopulation has been agreed upon, the procedure should be conducted as humanely as possible and in a manner consistent with principles of hygiene and biosecurity.

### 2.9.8 *Reporting to Authorities*

Where appropriate and/or in accordance with existing regulations, the Veterinarian will report the outbreak to Provincial or Federal authorities.

### 2.9.9 *Communicating with other operators*

The Community Advisor and/or hatchery operator will notify other operators in the geographic area of the outbreak.

## 2.10 **Handling Drugs and Chemicals Properly**

The goal of good fish health management is to have healthy and productive fish. However if fish do become sick, they may require treatment with a therapeutant.

### 2.10.1 *Medicated feed: Handling, storage, and inventory*

Medicated feed, if used, is stored in clearly marked bags separately from non-medicated feed. The storage area should be clean, dry and free of predators. The label on the medicated feedbag provides details about the feed, medication included, feed rate, name of the Veterinarian, prescription number and date it was milled.

Medicated feed is inventoried separately from regular feed. Daily inventory records are kept as the feed is fed to the fish according to prescription.

Refer to section titled *Juvenile Treatments* in the Community Involvement Program Best Management Practices.

### 2.10.2 *Administering medicated feed*

Medication mixed into feed has a Material Data Safety Sheet (MSDS) that identifies handling and safety precautions. An MSDS for all medications used on site must be on site and accessible. Medicated feed, where used, is administered in accordance with the Veterinarian's instructions. The appropriate rearing unit(s) receive the prescribed amount of medicated feed for the duration of treatment.

**The Veterinarian must be informed if there is a lack of expected response within 5 days of the initiation of treatment.**

Refer to section titled *Juvenile Treatments* in the Community Involvement Program Best Management Practices.

## 2.11 **Fish Health Records**

Fish health records include, but are not limited to:

- Inventory records - includes source, number, location and lot of fish at the site
- Fish/egg transfer/movement records
- Mortality records including clinical signs and mortality cause if known
- Diagnostic sampling records
- Diagnostic results, name of lab conducting diagnostic testing, name of Veterinarian assessing lab results and recommending treatment



- Water quality records
- Therapeutics and medicated feed records including name of therapeutant, manufacturer name, lot number and expiry date, method and dates of application, records showing withdrawal period prior to fish being released
- Records of actions (other than therapeutics) taken to prevent or mitigate disease, e.g. refused shipment of potentially infected eggs
- Records of reporting to Provincial or Federal authorities, in accordance with existing regulations

Many of these records are computerized and form part of the Community Advisor’s and/or hatchery operator’s record keeping system. Paper records not entered into a computerized system should be well organized, easily accessible and protected from damage, e.g. kept in binders.

Records should be kept for the duration of time the fish are on site. The Community Advisor and/or hatchery operator will keep archived records at a suitable location where they are easily accessible. Records should be available for inspection upon request by the Aquaculture Management Division.

Records should be reviewed on a routine basis by the Community Advisor, Veterinarian and/or Fish Health Management Team to look for patterns in fish health and disease.

### 2.11.1 Egg take records

Records should be kept for egg takes and broodstock disease screening. Records must accompany each shipment of eggs from the broodstock location to the hatchery receiving the eggs, whether destined for onsite or off site incubation.

#### 2.11.1.1 Disinfectants, chemicals, and biologicals

Disinfectants and chemicals are stored in clearly marked containers. An MSDS for each disinfectant at the facility is on-site. Community Involvement Program facilities ensure that all chemicals are handled safely by appropriately trained staff/volunteers, taking suitable precautions.

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

Refer to section titled **Biosecurity** sub-section **Disinfection Protocols** in the Community Involvement Program Best Management Practices.

## 2.12 Impacts on Non-Enhanced Stocks

### 2.12.1 Fish escape

The Salmonid Enhancement Program intentionally releases cultured fish. Escapes in this context are less of a concern than for commercial producers using non-native or selectively bred stocks. However, infrastructure is in place to ensure fish escapes are discouraged. In the unlikely event that fish escape into nearby streams or watersheds, fish health records, including relevant diagnoses and treatments, must be made available to the appropriate regulatory authorities as required.

### 2.12.2 Juvenile release

The health and treatment status of fish is considered when planning intentional fish releases. The planned release of enhancement/conservation fish from our facilities will undergo a risk assessment to attempt to prevent undue harm to wild fish populations or public health. Fish are to be released in good health to minimize the transfer of pathogens to wild fish. The timing of release is also important to reduce stress and maximize survival of released fish.

Refer to section titled **Juvenile Release and Transport** in the Community Involvement Program Best Management Practices.



## **APPENDIX IV - In-Stream Placement of Salmon Carcasses for Nutrient Enrichment**

The Salmonid Enhancement Program undertakes in-stream placement of spawned salmon carcasses to provide watersheds with nutrients and organic matter derived from the ocean. Salmon carcasses play a key role in maintaining productivity of salmonid systems, benefiting aquatic and terrestrial ecosystems. Rearing juveniles consume salmon eggs, feed directly on spawned-out carcasses, and benefit from increased abundance of invertebrates and algal growth. The presence of carcasses in streams has been related to increased juvenile density, growth rate, body size, improved fish condition, improved overwintering survival and increased marine survival. Riparian vegetation also benefits from nutrients derived from decaying carcasses transported into terrestrial ecosystems by bears and other animals.

Carcass placement programs adhere to the procedures detailed in the SEP Guidelines for in-Stream Placement of Salmon Carcasses for Nutrient Enrichment. Projects that meet the terms of the carcass placement guidelines will be issued an authorization letter from the Department allowing transport for deposition of carcasses. This letter accompanies all carcass movements.

### **Carcass Placement Plan**

The Carcass Placement Plan requires the following information:

- purpose of the carcass placement
- project proponent's name and contact information
- location of carcass
- proposed dates of carcass placement
- spawning timing of all species in the treatment stream
- length, width and area (square metres) of stream to be treated
- biomass of carcasses to place in the treatment stream
- estimated escapement and natural biomass load in the stream
- cumulative impacts
- carcass mutilation to identify placed carcasses
- approximate stream flow at time of placement
- tethering of carcasses
- record of contact with downstream users (within 500 m) that may be impacted
- dates for post-project monitoring and follow-up report

Carcass placement records and Post-carcass Placement records are maintained for each carcass placement project and contain the following information:

### **Carcass Placement Records**

A Carcass Placement Record is kept for each carcass placement project and contains the following information:

- permit/Authorization number
- proponent name
- donor stock/species
- placement date
- treatment stream name
- location(s) on treatment stream
- number of carcasses placed and biomass/square m of stream area
- fish health records





- type of habitat
- stream flow (low, moderate, high)
- stream temperature
- stream dissolved oxygen level at CP site(s)
- carcass mutilation
- evidence of predators

### **Post Carcass Placement Records**

Monitoring of carcass placement locations is conducted two to four weeks after carcass placement and the following information is recorded for each project:

- permit/authorization number
- proponent name
- location
- placement date
- date of monitoring
- number of carcasses remaining (as a % of total placement)
- condition of carcasses (fully degraded, 50% degraded etc...)
- water flow (low, moderate, high)
- water temperature
- dissolved oxygen level
- signs of predators/carcass removal
- distance carcasses have moved downstream

Planning and record forms and associated instructions for entering information are found in the *SEP Guidelines for In-Stream Placement of Salmon Carcasses for Nutrient Enrichment*.

<http://www.pac.dfo-mpo.gc.ca/aquaculture/licence-permis/docs/carcass-placement-guidelines-lignes-directrices-eng.pdf>

<http://www.pac.dfo-mpo.gc.ca/aquaculture/licence-permis/docs/carcass-placement-eng.pdf>





## **APPENDIX V - Licence Conditions for Net Pens operated by Enhancement Facilities**

### **1. Containment Structures and Net Pen Support Systems**

- 1.1 Equipment used at the net pens shall meet generally accepted standards prevalent in the aquaculture industry.
- 1.2 Navigation marker buoys shall be deployed as required by Transport Canada.
- 1.3 Signage to prevent damage by boats to the net pens shall be in place.
- 1.4 After fish are released, nets must be removed from the water, washed, repaired and stored.
- 1.5 Net washing must be done on land where the activity does not damage fish habitat or shed fish pathogens and deleterious substances into fish habitat.

### **2. Predator Control**

- 2.1 Net pens shall be installed and maintained such that the upper edges are secured high enough out of the water to prevent mammalian predators such as seals or otters from coming in over the top edge.
- 2.2 Avian predator nets (bird netting) should be stretched over the net pens to prevent fish from being taken by birds.

### **3. Fish Health**

- 3.1 Fish must be given the care and attention consistent with their biological requirements.
- 3.2 Mortalities must be collected on a regular basis and disposed off in a manner that does not impact the health of other fish.

During net pen rearing, water quality in the area of the net pens must be monitored regularly to ensure that conditions meet the biological requirements of the fish bei