

AUDIT MANUAL - ASC Salmon Standard Version 1.2			
Scope: species belonging to the genus <i>Salmo</i> and <i>Oncorhynchus</i>			
INSTRUCTION TO FARMS/AUDITORS: This audit manual was developed to accompany version 1.2 of the ASC Salmon Standard. <u>References in this Audit Manual to Appendices can be found in the ASC Salmon Standard version 1.2 document.</u>			
PRINCIPLE 1: COMPLY WITH ALL APPLICABLE NATIONAL LAWS AND LOCAL REGULATIONS			
Criterion 1.1 Compliance with all applicable local and national legal requirements and regulations			
	Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):	
1.1.1	Indicator: Presence of documents demonstrating compliance with local and national regulations and requirements on land and water use Requirement: Yes Applicability: All	a. Maintain digital or hard copies of applicable land and water use laws.	A. Review compliance with applicable land and water use laws.
		b. Maintain original (or legalised copies of) lease agreements, land titles, or concession permit on file as applicable.	B. Confirm client holds original (or legalised copies of) lease agreements or land titles.
		c. Keep records of inspections for compliance with national and local laws and regulations (if such inspections are legally required in the country of operation).	C. Review inspection records for compliance with national and local laws and regulations (as applicable).
		d. Obtain permits and maps showing that the farm does not conflict with national preservation areas.	D. Verify facility does not conflict with national preservation areas and has required operational permits if sited in such an area (see 2.4.2).
1.1.2	Indicator: Presence of documents demonstrating compliance with all tax laws Requirement: Yes Applicability: All	a. Maintain records of tax payments to appropriate authorities (e.g. land use tax, water use tax, revenue tax). Note that CABs will not disclose confidential tax information unless client is required to or chooses to make it public.	A. Verify client has records of tax payments to appropriate authorities. Do not disclose client tax information which is confidential. An independently audited company annual report may be used to confirm tax status.
		b. Maintain copies of tax laws for jurisdiction(s) where company operates.	B. Confirm client has a basic knowledge of tax requirements for farm.
		c. Register with national or local authorities as an "aquaculture activity".	C. Verify client is registered with local or national authorities.
1.1.3	Indicator: Presence of documents demonstrating compliance with all relevant national and local labor laws and regulations Requirement: Yes Applicability: All	a. Maintain copies of national labor codes and laws applicable to farm (scope is restricted to the farm sites within the unit certification.)	A. Confirm client has specified documentation.
		b. Keep records of farm inspections for compliance with national labor laws and codes (only if such inspections are legally required in the country of operation).	B. Review inspection records for compliance with national labor laws and codes (as applicable).
1.1.4	Indicator: Presence of documents demonstrating compliance with regulations and permits concerning water quality impacts Requirement: Yes Applicability: All	a. Obtain permits for water quality impacts where applicable.	A. Verify that client obtains permits as applicable.
		b. Compile list of and comply with all discharge laws or regulations.	B. Review evidence of compliance with discharge laws or regulations.
		c. Maintain records of monitoring and compliance with discharge laws and regulations as required.	C. Verify that records show compliance with discharge laws and regulations.
PRINCIPLE 2: CONSERVE NATURAL HABITAT, LOCAL BIODIVERSITY AND ECOSYSTEM FUNCTION			
Criterion 2.1 Benthic biodiversity and benthic effects [1]			
	Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):	
Footnote	[1] Closed production systems that can demonstrate that they collect and responsibly dispose of > 75% of solid nutrients from the production system are exempt from standards under Criterion 2.1. See Appendix VI for requirements on transparency for 2.1.1, 2.1.2 and 2.1.3.		

Instruction to Clients and CABs on Criterion 2.1 - Modification of the Benthic Sampling Methodology For farms located in a jurisdiction where specific benthic sampling locations are required under law, clients may request to modify the benthic sampling methodology prescribed in Appendix I-1 to allow for sampling at different locations and/or changes in the total number of samples. Where modifications are sought, farms shall provide a full justification to the CAB for review. Requests for modification shall be supported by mapping of differences in sampling locations. In any event, the sampling locations must at a minimum include samples from the cage edge and samples taken from inside and outside of a defined AZE.			
CABs shall evaluate client requests to modify benthic methodology based on whether there is a risk that such changes would jeopardize the intent and rigor of the ASC Salmon Standard. If the CAB determines that proposed modifications are low risk, the CAB shall ensure that details of the modified benthic sampling methodology are fully described and justified in the audit report.			
2.1.1	Indicator: Redox potential or [2] sulphide levels in sediment outside of the Allowable Zone of Effect (AZE) [3], following the sampling methodology outlined in Appendix I-1 Requirement: Redox potential > 0 mV or Sulphide ≤ 1,500 µMol/L Applicability: All farms except as noted in [1]	Note: Under Indicator 2.1.1, farms can choose to measure redox potential (Option #1) or sulphide concentration (Option #2). Farms do not have to demonstrate that they meet both threshold values.	
		a. Prepare a map of the farm showing boundary of AZE (30 m) and GPS locations of all sediment collections stations. If the farm uses a site-specific AZE, provide justification [3] to the CAB.	A. Review map to verify appropriate siting of sampling stations (Appendix I-1) and evidence (if applicable) to justify use of a site specific AZE.
		b. If benthos throughout the full AZE is hard bottom, provide evidence to the CAB and request an exemption from 2.1.1c-f, 2.1.2 and 2.1.3.	B. Review evidence of benthic type and confirm whether to proceed to 2.1.1c.
		c. Inform the CAB whether the farm chose option #1 or option #2 to demonstrate compliance with the requirements of the Standard.	C. Record which option the client chose.
		d. Collect sediment samples in accordance with the methodology in Appendix I-1 (i.e. at the time of peak cage biomass and at all required stations).	D. Review documentary evidence (notes, GPS coordinates) showing sampling time, stations, and frequency. Cross-check against farm maps and harvest records.
		e. For option #1, measure and record redox potential (mV) in sediment samples using an appropriate, nationally or internationally recognized testing method.	E. Review results to verify that redox potential of sediments complies with the requirement at each sampling station outside the AZE. Confirm that the testing method used by the farm is appropriate.
		f. For option #2, measure and record sulphide concentration (µM) using an appropriate, nationally or internationally recognized testing method.	F. Review results to verify that sulphide concentration in sediments complies with the Standard at each sampling station outside the AZE. Confirm that the testing method used by the farm is appropriate.
		g. Submit test results to ASC as per Appendix VI at least once for each production cycle. If site has hard bottom and cannot complete tests, report this to ASC.	G. Confirm that client has submitted test results to ASC (Appendix VI).
Footnote	[2] Farm sites can choose whether to use redox or sulphide. Farms do not have to demonstrate that they meet both.		
Footnote	[3] Allowable Zone of Effect (AZE) is defined under this standard as 30 meters. For farm sites where a site-specific AZE has been defined using a robust and credible modeling system such as the SEPA AUTODEPOMOD and verified through monitoring, the site-specific AZE shall be used.		
	Indicator: Faunal index score indicating good [4] to high ecological quality in sediment outside the AZE, following the sampling methodology outlined in Appendix I-1	Notes: - Under Indicator 2.1.2, farms can choose one of four measurements to show compliance with the faunal index Requirement: AMBI (Option #1); Shannon-Wiener Index (Option #2); BQI (Option #3); or ITI (Option #4). Farms do not have to demonstrate that they meet all four threshold values. - If a farm is exempt due to hard bottom benthos (see 2.1.1b), then 2.1.2 does not apply and this shall be noted in the audit report.	
		a. Prepare a map showing the AZE (30 m or site specific) and sediment collections stations (see 2.1.1).	A. Review map to verify appropriate siting of sampling stations (see 2.1.1).
		b. Inform the CAB whether the farm chose option #1, #2, #3, or #4 to demonstrate compliance with the requirement.	B. Record which option the client chose for scoring faunal index.
		c. Collect sediment samples in accordance with Appendix I-1 (see 2.1.1).	C. Confirm sample collection followed Appendix I-1 (see 2.1.1).

2.1.2	<p>the sampling methodology outlined in Appendix I-1</p> <p>Requirement: AZTI Marine Biotic Index (AMBI [5]) score \leq 3.3, or Shannon-Wiener Index score $>$ 3, or Benthic Quality Index (BQI) score \geq 15, or Infaunal Trophic Index (ITI) score \geq 25</p> <p>Applicability: All farms except as noted in [1]</p>	d. For option #1, measure, calculate and record AZTI Marine Biotic Index [5] score of sediment samples using the required method.	D. Review results (as applicable) to verify that AMBI score of sediments is \leq 3.3 at each sampling station outside the AZE.
		e. For option #2, measure, calculate and record Shannon-Wiener Index score of sediment samples using the required method.	E. Review results (as applicable) to verify that Shannon Wiener score of sediments is $>$ 3 at each sampling station outside the AZE.
		f. For option #3, measure, calculate and record Benthic Quality Index (BQI) score of sediment samples using the required method.	F. Review results (as applicable) to verify that BQI score of sediments is \geq 15 at each sampling station outside the AZE.
		g. For option #4, measure, calculate and record Infaunal Trophic Index (ITI) score of sediment samples using the required method.	G. Review results (as applicable) to verify that ITI score of sediments is \geq 25 at each sampling station outside the AZE.
		h. Retain documentary evidence to show how scores were obtained. If samples were analyzed and index calculated by an independent laboratory, obtain copies of results.	H. Confirm that an approved method was used or that a qualified independent laboratory performed the sampling and calculation of faunal index.
		i. Submit faunal index scores to ASC (Appendix VI) at least once for each production cycle.	I. Confirm that client submitted faunal index scores to ASC (Appendix VI).
Footnote	[4] "Good" Ecological Quality Classification: The level of diversity and abundance of invertebrate taxa is slightly outside the range associated with the type-specific conditions. Most of the sensitive taxa of the type-specific communities are present.		
Footnote	[5] http://www.azti.es/en/ambi-azti-marine-biotic-index.html .		
2.1.3	<p>Indicator: Number of macrofaunal taxa in the sediment within the AZE, following the sampling methodology outlined in Appendix I-1</p> <p>Requirement: \geq 2 highly abundant [6] taxa that are not pollution indicator species</p> <p>Applicability: All farms except as noted in [1]</p>	a. Document appropriate sediment sample collection as for 2.1.1a and 2.1.1c, or exemption as per 2.1.1b.	A. Confirm appropriate sediment sample collection as for 2.1.1a and 2.1.1c or exemption as per 2.1.1b.
		b. For sediment samples taken within the AZE, determine abundance and taxonomic composition of macrofauna using an appropriate testing method.	B. Confirm that an appropriate method was used or that a suitably qualified independent laboratory performed the analysis.
		c. Identify all highly abundant taxa [6] and specify which ones (if any) are pollution indicator species.	C. Confirm that all samples from within the AZE have \geq 2 highly abundant [6] taxa (exclusive of pollution indicator species).
		d. Retain documentary evidence to show how taxa were identified and how counts were obtained. If samples were analyzed by an independent lab, obtain copies of results.	D. Confirm that a suitable method was used or that a suitability qualified independent laboratory performed the scoring of faunal index.
		e. Submit counts of macrofaunal taxa to ASC (Appendix VI) at least once for each production cycle.	E. Confirm that client has submitted scores to ASC (Appendix VI).
Footnote	[6] Highly abundant: Greater than 100 organisms per square meter (or equally high to reference site(s) if natural abundance is lower than this level).		
2.1.4	<p>Indicator: Definition of a site-specific AZE based on a robust and credible [7] modeling system</p> <p>Requirement: Yes</p> <p>Applicability: All farms except as noted in [1]</p>	a. Undertake an analysis to determine the site-specific AZE and depositional pattern.	A. Review documentation to confirm that the farm has undertaken an analysis before the required date.
		b. Maintain records to show how the analysis (in 2.1.4a) is robust and credible based on modeling using a multi-parameter approach [7].	B. Confirm that the farm used a robust and credible modeling system to define the site-specific AZE.
		c. Maintain records to show that modeling results for the site-specific AZE have been verified with $>$ 6 months of monitoring data.	C. Confirm that farms have validated the general applicability of the site-specific AZE using monitoring data (i.e. 'ground truthing').
Footnote	[7] Robust and credible: The SEPA AUTODEPOMOD modeling system is considered to be an example of a credible and robust system. The model must include a multi-parameter approach. Monitoring must be used to ground-truth the AZE proposed through the model.		
Criterion 2.2 Water quality in and near the site of operation [8]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):

Footnote	[8] See Appendix VI for transparency requirements for 2.2.1, 2.2.2, 2.2.3 and 2.2.5.		
2.2.1	<p>Indicator: Weekly average percent saturation [9] of dissolved oxygen (DO) [10] on farm, calculated following methodology in Appendix I-4</p> <p>Requirement: $\geq 70\%$ [11]</p> <p>Applicability: All farms except as noted in [11]</p>	<p>Instruction to Clients for Indicator 2.2.1 - Monitoring Average Weekly Percent Saturation of Dissolved Oxygen Appendix I-4 presents the required methodology that farms must follow for sampling the average weekly percent saturation of dissolved oxygen (DO). Key points of the method are as follows:</p> <ul style="list-style-type: none"> - measurements may be taken with a handheld oxygen meter or equivalent chemical method; - equipment is calibrated according to manufacturer's recommendations; - measurements are taken at least twice daily: once in the morning (6 -9 am) and once in the afternoon (3-6 pm) as appropriate for the location and season; - salinity and temperature must also be measured when DO is sampled; - sampling should be done at 5 meters depth in water conditions that would be experienced by fish (e.g. at the downstream edge of a net pen array); - each week, all DO measurements are used in the calculation of a weekly average percent saturation. <p>If monitoring deviates from prescribed sampling methodology, the farm shall provide the auditor with a written justification (e.g. when samples are missed due to bad weather). In limited and well-justified situations, farms may request that the CAB approve reduction of DO monitoring frequency to one sample per day.</p> <p>Exception [see footnote 12] If a farm does not meet the minimum 70 percent weekly average saturation requirement, the farm must demonstrate the consistency of percent saturation with a reference site. The reference site shall be at least 500 meters from the edge of the net pen array, in a location that is understood to follow similar patterns in upwelling to the farm site and is not influenced by nutrient inputs from anthropogenic causes including aquaculture, agricultural runoff or nutrient releases from coastal communities. For any such exceptions, the auditor shall fully document in the audit report how the farm has demonstrated consistency with the reference site.</p> <p>Note 1: <i>Percent saturation</i> is the amount of oxygen dissolved in the water sample compared to the maximum amount that could be present at the same temperature and salinity.</p>	
		a. Monitor and record on-farm percent saturation of DO at a minimum of twice daily using a calibrated oxygen meter or equivalent method. For first audits, farm records must cover ≥ 6 months.	A. Do not schedule audit until client provides a minimum of 6 months of DO data.
		b. Provide a written justification for any missed samples or deviations in sampling time.	B. Review records for completeness and conformity with methodology in Appendix 1-4.
		c. Calculate weekly average percent saturation based on data.	C. Review calculation and confirm all weekly averages $\geq 70\%$.
		d. If any weekly average DO values are $< 70\%$, or approaching that level, monitor and record DO at a reference site and compare to on-farm levels (see Instructions).	D. As needed, review DO data from reference site and document in the audit report (see instruction).
		e. Arrange for auditor to witness DO monitoring and calibration while on site.	E. Witness DO monitoring and verify calibration while on site. On-site values should fall within range of farm data for DO. If an out of range measurement is observed, raise a nonconformity.
		f. Submit results from monitoring of average weekly DO as per Appendix VI to ASC at least once per year.	F. Confirm that client has submitted DO results to ASC (Appendix VI).
Footnote	[9] Percent saturation: Percent saturation is the amount of oxygen dissolved in the water sample compared to the maximum amount that could be present at the same temperature and salinity.		
Footnote	[10] Averaged weekly from two daily measurements (proposed at 6 am and 3 pm).		
Footnote	[11] An exception to this standard shall be made for farms that can demonstrate consistency with a reference site in the same water body.		
2.2.2	<p>Indicator: Maximum percentage of weekly samples from 2.2.1 that fall under 2 mg/L DO</p> <p>Requirement: 5%</p> <p>Applicability: All</p>	a. Calculate the percentage of on-farm samples taken for 2.2.1a that fall under 2 mg/L DO.	A. Review the farm's calculation and confirm that $\leq 5\%$ of weekly samples fall under 2 mg/L DO.
		b. Submit results from 2.2.2a as per Appendix VI to ASC at least once per year.	B. Confirm that client has submitted results to ASC (Appendix VI).

2.2.3	<p>Indicator: For jurisdictions that have national or regional coastal water quality targets [12], demonstration through third-party analysis that the farm is in an area recently [13] classified as having “good” or “very good” water quality [14]</p> <p>Requirement: Yes [15]</p> <p>Applicability: All farms except as noted in [15]</p>	a. Inform the CAB whether relevant targets and classification systems are applicable in the jurisdiction. If applicable, proceed to “2.2.3.b”. If not applicable, take action as required under 2.2.4	A. Record whether indicator is applicable.
		b. Compile a summary of relevant national or regional water quality targets and classifications, identifying the third-party responsible for the analysis and classification.	B. Confirm that there has been a recent third-party analysis (within two years prior to the audit) to classify areas according to national or regional water quality targets.
		c. Identify the most recent classification of water quality for the area in which the farm operates.	C. Confirm that the analysis and classification shows the farm is located in an area where the water quality complies with the requirement.
Footnote	[12] Related to nutrients (e.g., N, P, chlorophyll A).		
Footnote	[13] Within the two years prior to the audit.		
Footnote	[14] Classifications of “good” and “very good” are used in the EU Water Framework Directive. Equivalent classification from other water quality monitoring systems in other jurisdictions are acceptable.		
Footnote	[15] Closed production systems that can demonstrate the collection and responsible disposal of > 75% of solid nutrients as well as > 50% of dissolved nutrients (through biofiltration, settling and/or other technologies) are exempt from standards 2.2.3 and 2.2.4.		
2.2.4	<p>Indicator: For jurisdictions without national or regional coastal water quality targets, evidence of monitoring of nitrogen and phosphorous [16] levels on farm and at a reference site, following methodology in Appendix I-5</p> <p>Requirement: Consistency with reference site</p> <p>Applicability: All farms except as noted in [16]</p>	a. Develop, implement, and document a weekly monitoring plan for N, NH4, NO3, total P, and ortho-P in compliance with Appendix I-5. For first audits, farm records must cover ≥ 6 months.	A. Review the farm's monitoring plan and verify that the farm has collected monitoring data for N and P following the methodology in Appendix I-5.
		b. Calibrate all equipment according to the manufacturer's recommendations.	B. Verify that client calibrates equipment as needed.
		c. Submit data on N and P to ASC as per Appendix VI at least once per year.	C. Confirm that client has submitted N and P data to ASC (Appendix VI).
Footnote	[16] Farms shall monitor total N, NH4, NO3, total P and Ortho-P in the water column. Results shall be submitted to the ASC database. Methods such as a Hach kit are acceptable.		
2.2.5	<p>Indicator: Demonstration of calculation of biochemical oxygen demand (BOD [17]) of the farm on a production cycle basis</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 2.2.5 - Calculating Biochemical Oxygen Demand</p> <p>Biochemical Oxygen Demand (BOD) can be calculated based on cumulative inputs of N and C to the environment over the course of the production cycle.</p> $BOD = ((total\ N\ in\ feed - total\ N\ in\ fish) * 4.57) + ((total\ C\ in\ feed - total\ C\ in\ fish) * 2.67)$ <ul style="list-style-type: none"> • A farm may deduct N or C that is captured, filtered or absorbed through approaches such as IMTA or through direct collection of nutrient wasted. In this equation, “fish” refers to harvested fish. In this case, farm must submit breakdown of N & C captured/filtered/absorbed to ASC along with method used to estimate nutrient reduction. • Reference for calculation methodology: Boyd C. 2009. Estimating mechanical aeration requirement in shrimp ponds from the oxygen demand of feed. In: Proceedings of the World Aquaculture Society Meeting; Sept 25-29, 2009; VeraCruz, Mexico. And: Global Aquaculture Performance Index BOD calculation methodology available at http://web.uvic.ca/~gapi/explore-gapi/bod.html. <p>Note 1: Calculation requires a full production cycle of data and is required beginning with the production cycle first undergoing certification. If it is the first audit for the farm, the client is required to demonstrate to the CAB that data is being collected and an understanding of the calculations.</p> <p>Note 2: Farms may seek an exemption to Indicator 2.2.5 if: the farm collects BOD samples at least once every two weeks, samples are independently analyzed by an accredited laboratory, and the farm can show that BOD monitoring results do not deviate significantly from calculated annual BOD load.</p>	
		a. Collect data throughout the course of the production cycle and calculate BOD according to formula in the instruction box.	A. Review calculation, cross-check data used with feed and harvest records.
		b. Submit calculated BOD as per Appendix VI to ASC for each production cycle.	B. Confirm that client has submitted calculated BOD a to ASC (Appendix VI).
Footnote	[17] BOD calculated as: $((total\ N\ in\ feed - total\ N\ in\ fish) * 4.57) + ((total\ C\ in\ feed - total\ C\ in\ fish) * 2.67)$. A farm may deduct N or C that is captured, filtered or absorbed through approaches such as IMTA or through direct collection of nutrient wasted. In this equation, “fish” refers to harvested fish. Reference for calculation methodology: Boyd C. 2009. Estimating mechanical aeration requirement in shrimp ponds from the oxygen demand of feed. In: Proceedings of the World Aquaculture Society Meeting; Sept 25-29, 2009; VeraCruz, Mexico. And: Global Aquaculture Performance Index BOD calculation methodology available at http://web.uvic.ca/~gapi/explore-gapi/bod.html .		

2.2.6	<p>Indicator: Appropriate controls are in place that maintain good culture and hygienic conditions on the farm which extends to all chemicals, including veterinary drugs, thereby ensuring that adverse impacts on environmental quality are minimised.</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Document control systems in good culture and hygiene that includes all appropriate elements.	A. Verify control system in place. Review the appropriateness of the control system to address
		b. Apply the systems ensuring that staff are aware, qualified and trained to properly implement them.	B. Interview staff to verify awareness, qualifications and training.
		-	C. Observe on-site and check for historical evidence of environmental impact due to culture systems and farm conditions.
Criterion 2.3 Nutrient release from production			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
2.3.1	<p>Indicator: Percentage of fines [18] in the feed at point of entry to the farm [20] (calculated following methodology in Appendix I-2)</p> <p>Requirement: < 1% by weight of the feed</p> <p>Applicability: All farms except as noted in [19]</p>	Note: The methodology given in Appendix I-2 is used to determine the fines (dust and small fragments) in finished product of fish feed which has a diameter of 3 mm or more.	
		a. Determine and document a schedule and location for quarterly testing of feed. If testing prior to delivery to farm site, document rationale behind not testing on site.	A. Review timing and location of testing. If testing off-site, verify rationale and ensure consistent with [19].
		b. If using a sieving machine, calibrate equipment according to manufacturer's recommendations.	B. Verify that client has appropriate testing technology on site and that, if applicable, it is calibrated as required.
		c. Conduct test according to detailed methodology in Appendix I-2 and record results for the pooled sample for each quarter. For first audits, farms must have test results from the last 3 months.	C. Review testing results and confirm that the pooled sample for each quarter has a percent fines of <1%.
Footnote	[18] Fines: Dust and fragments in the feed. Particles that separate from feed with a diameter of 5 mm or less when sieved through a 1 mm sieve, or particles that separate from feed with a diameter greater than 5 mm when sieved through a 2.36 mm sieve. To be measured at farm gate (e.g., from feed bags after they are delivered to farm).		
Footnote	[19] To be measured every quarter or every three months. Samples that are measured shall be chosen randomly. Feed may be sampled immediately prior to delivery to farm for sites with no feed storage where it is not possible to sample on farm. Closed production systems that can demonstrate the collection and responsible disposal of > 75% of solid nutrients and > 50% of dissolved nutrients (through biofiltration, settling and/or other technologies) are exempt.		
Criterion 2.4 Interaction with critical or sensitive habitats and species			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
2.4.1	<p>Indicator: Evidence of an assessment of the farm's potential impacts on biodiversity and nearby ecosystems that contains at a minimum the components outlined in Appendix I-3</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	Note: If a farm has previously undertaken an independent assessment of biodiversity impact (e.g. as part of the regulatory permitting process), the farm may use such documents as evidence to demonstrate compliance with Indicator 2.4.1 as long as all components in Appendix I-3 are explicitly covered.	
		a. Perform (or contract to have performed) a documented assessment of the farm's potential impact on biodiversity and nearby ecosystems. The assessment must address all components outlined in Appendix I-3.	A. Review the assessment to confirm that it complies with all components outlined in Appendix I-3.
		b. If the assessment (2.4.1a) identifies potential impact(s) of the farm on biodiversity or nearby critical, sensitive or protected habitats or species, prepare plan to address those potential impacts.	B. Verify the farm has a plan to address all potential impacts identified in the assessment.
		c. Keep records to show how the farm implements plan(s) from 2.4.1b to minimize potential impacts to critical or sensitive habitats and species.	C. Verify that the farm implements the plan(s).

2.4.2	<p>Indicator: Allowance for the farm to be sited in a protected area [20] or High Conservation Value Areas [21] (HCVAs)</p> <p>Requirement: None [22]</p> <p>Applicability: All farms except as noted in [22]</p>	<p>Instruction to Clients for Indicator 2.4.2 - Exceptions to Requirements that Farms are not sited within Protected Areas or HCVAs The following exceptions shall be made for Indicator 2.4.2:</p> <p>Exception #1: For protected areas classified by the International Union for the Conservation of Nature (IUCN) as Category V or VI (these are areas preserved primarily for their landscapes or for sustainable resource management).</p> <p>Exception #2: For HCVAs if the farm can demonstrate that its environmental impacts are compatible with the conservation objectives of the HCVA designation. The burden of proof would be placed on the farm to demonstrate that it is not negatively impacting the core reason an area has been identified as a HCVA.</p> <p>Exception #3: For farms located in a protected area if it was designated as such after the farm was already in operation and provided the farm can demonstrate that its environmental impacts are compatible with the conservation objectives of the protected area and it is in compliance with any relevant conditions or regulations placed on the farm as a result of the formation/designation of the protected area. The burden of proof would be placed on the farm to demonstrate that it is not negatively impacting the core reason an area has been protected.</p> <p>Definitions Protected area: "A clearly defined geographical space, recognized, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values." High Conservation Value Areas (HCVA): Natural habitats where conservation values are considered to be of outstanding significance or critical importance. HCVA are designated through a multi-stakeholder approach that provides a systematic basis for identifying critical conservation values—both social and environmental—and for planning ecosystem management in order to ensure that these high conservation values are maintained or enhanced</p>	
		a. Provide a map showing the location of the farm relative to nearby protected areas or High Conservation Value Areas (HCVAs) as defined above (see also 1.1.1a).	A. Review map and cross-check against independent information sources (e.g. 1.1.1d) to determine if the farm is sited in a protected area or HCVA.
		b. If the farm is <u>not</u> sited in a protected area or High Conservation Value Area as defined above, prepare a declaration attesting to this fact. In this case, the requirements of 2.4.2c-d do not apply.	B. Obtain a copy of the farm's declaration stating that the farm is not sited in a protected area or HCVA (as applicable).
		c. If the farm <u>is</u> sited in a protected area or HCVA, review the scope of applicability of Indicator 2.4.2 (see Instructions above) to determine if your farm is allowed an exception to the requirements. If yes, inform the CAB which exception (#1, #2, or #3) is allowed and provide supporting evidence.	C. Review the applicability of the exception requested by the farm together with the supporting evidence to determine if the farm is eligible. If yes, Indicator 2.4.2 is not applicable.
		d. If the farm is sited in a protected area or HCVA and the exceptions provided for Indicator 2.4.2 <u>do not apply</u> , then the farm does not comply with the requirement and is ineligible for ASC certification.	D. Review evidence to determine whether the farm is allowed to be sited in a protected area or HCVA and hence eligible for ASC certification.
Footnote	[20] Protected area: "A clearly defined geographical space, recognized, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values." Source: Dudley, N. (Editor) (2008), Guidelines for Applying Protected Area Management Categories, Gland, Switzerland: IUCN. x + 86pp.		
Footnote	[21] High Conservation Value Areas (HCVA): Natural habitats where conservation values are considered to be of outstanding significance or critical importance. HCVA are designated through a multi-stakeholder approach that provides a systematic basis for identifying critical conservation values—both social and environmental—and for planning ecosystem management in order to ensure that these high conservation values are maintained or enhanced (http://www.hcnetwork.org/).		
Footnote	<p>[22] The following exceptions shall be made for Standard 2.4.2:</p> <ul style="list-style-type: none"> For protected areas classified by the International Union for the Conservation of Nature (IUCN) as Category V or VI (these are areas preserved primarily for their landscapes or for sustainable resource management). For HCVAs if the farm can demonstrate that its environmental impacts are compatible with the conservation objectives of the HCVA designation. The burden of proof would be placed on the farm to demonstrate that it is not negatively impacting the core reason an area has been identified as a HCVA. For farms located in a protected area if it was designated as such after the farm was already in operation and provided the farm can demonstrate that its environmental impacts are compatible with the conservation objectives of the protected area and it is in compliance with any relevant conditions or regulations placed on the farm as a result of the formation/designation of the protected area. The burden of proof would be placed on the farm to demonstrate that it is not negatively impacting the core reason an area has been protected. 		
Criterion 2.5 Interaction with wildlife, including predators [23]			

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[23] See Appendix VI for transparency requirements for 2.5.2, 2.5.5 and 2.5.6.		
2.5.1	Indicator: Number of days in the production cycle when acoustic deterrent devices (ADDs) or acoustic harassment devices (AHDs) were used Requirement: 0 Applicability: All	a. Compile documentary evidence to show that no ADDs or AHDs have been used by the farm.	A. Review documentary evidence (e.g. predator management policies, records of predator incidents) and cross-check against interviews with farm staff and local community members.
		-	B. During the on-site audit, inspect the farm to confirm that no ADDs or AHDs are present at the facilities.
2.5.2	Indicator: Number of mortalities [25] of endangered or red-listed [26] marine mammals or birds on the farm Requirement: 0 (zero) Applicability: All	a. Prepare a list of all predator control devices and their locations.	A. Review list.
		b. Maintain a record of all predator incidents.	B. Review farm records of predator incidents and cross-check against relevant records (e.g. escapes).
		c. Maintain a record of all mortalities of marine mammals and birds on the farm identifying the species, date, and apparent cause of death.	C. Review records for completeness. Cross-check mortality records against interviews with farm staff and community representatives.
		d. Maintain an up-to-date list of endangered or red-listed marine mammals and birds in the area (see 2.4.1)	D. Review list for consistency with 2.4.1
		-	E. Compare results from (a) through (d) above to confirm that there were no mortalities of endangered or red-listed marine mammals or birds on farm.
Footnote	[25] Mortalities: Includes animals intentionally killed through lethal action as well as accidental deaths through entanglement or other means.		
Footnote	[26] Species listed as endangered or critically endangered by the IUCN or on a national endangered species list.		
2.5.3	Indicator: Evidence that the following steps were taken prior to lethal action [27] against a predator: 1. All other avenues were pursued prior to using lethal action 2. Approval was given from a senior manager above the farm manager 3. Explicit permission was granted to take lethal action against the specific animal from the relevant regulatory authority Requirement: Yes [28] Applicability: All except cases where human safety is endangered as noted in [28]	a. Provide a list of all lethal actions that the farm took against predators during the previous 12-month period. Note: "lethal action" is an action taken to deliberately kill an animal, including marine mammals and birds.	A. Review list of lethal actions taken by the farm and cross-check against 2.5.2b.
		b. For each lethal action identified in 2.5.4a, keep record of the following: 1) a rationale showing how the farm pursued all other reasonable avenues prior to using lethal action; 2) approval from a senior manager above the farm manager of the lethal action; 3) where applicable, explicit permission was granted by the relevant regulatory authority to take lethal action against the animal.	B. Review documentation to confirm that the farm shows evidence of compliance with requirements in steps 1-3.
		c. Provide documentary evidence that steps 1-3 above (in 2.5.4b) were taken prior to killing the animal. If human safety was endangered and urgent action necessary, provide documentary evidence as outlined in [28].	C. Review documentary evidence to verify actions, permissions, and approvals were taken prior to taking lethal action. If client requests exemption due to human safety, review evidence to verify [28].
Footnote	[27] Lethal action: Action taken to deliberately kill an animal, including marine mammals and birds.		
Footnote	[28] Exception to these conditions may be made for a rare situation where human safety is endangered. Should this be required, post-incident approval from a senior manager should be made and relevant authorities must be informed.		

<p>Instruction to Clients and CABs on Indicators 2.5.4, 2.5.5, and 2.5.6 - Clarification about the ASC Definition of "Lethal Incident"</p> <p>The ASC Salmon Standard has defined "Lethal incident" to include all lethal actions as well as entanglements or other accidental mortalities of non-salmonids [footnote 29]. For the purpose of assisting farms and auditors with understanding how to evaluate compliance with Indicators 2.5.4, 2.5.5, and 2.5.6, ASC has clarified this definition further:</p> <p>Total number of lethal incidents = sum of all non-salmonid deaths arising from all lethal actions taken by the farm during a given time period</p> <p>There should be a 1:1 relationship between the number of animal deaths and the number of lethal incidents reported by the farm. For example, if a farm has taken one (1) lethal action in past last two years and that single lethal action resulted in killing three (3) birds, it is considered three (3) lethal incidents within a two year period.</p> <p>The term "non-salmonid" was intended to cover any predatory animals which are likely to try to feed upon farmed salmon. In practice these animals will usually be seals or birds.</p>			
2.5.4	<p>Indicator: Evidence that information about any lethal incidents [30] on the farm has been made easily publicly available [29]</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. For all lethal actions (see 2.5.3), keep records showing that the farm made the information available within 30 days of occurrence.	A. Check farm records for publicizing lethal actions against the actions listed in 2.5.3a to confirm that the farm made information available within 30 days.
		a. For all lethal actions (see 2.5.3), keep records showing that the farm made the information available within 30 days of occurrence.	A. Check farm records for publicizing lethal actions against the actions listed in 2.5.3a to confirm that the farm made information available within 30 days.
		b. Ensure that information about all lethal actions listed in 2.5.4a are made easily publicly available (e.g. on a website).	B. Verify that required information is easily publicly available.
Footnote	[29] Posting results on a public website is an example of "easily publicly available." Shall be made available within 30 days of the incident and see Appendix VI for transparency requirements.		
2.5.5	<p>Indicator: Maximum number of lethal incidents [30] on the farm over the prior two years</p> <p>Requirement: < 9 lethal incidents [31], with no more than two of the incidents being marine mammals</p> <p>Applicability: All</p>	a. Maintain log of lethal incidents (see 2.5.3a) for a minimum of two years. For first audit, > 6 months of data are required.	A. Review log.
		b. Calculate the total number of lethal incidents and the number of incidents involving marine mammals during the previous two year period.	B. Verify that over the previous two years there were < 9 lethal incidents in total and that ≤ 2 of those incidents were marine mammal deaths.
		c. Send ASC the farm's data for all lethal incidents [30] of any species other than the salmon being farmed (e.g. lethal incidents involving predators such as birds or marine mammals). Data must be sent to ASC on an ongoing basis (i.e. at least once per year and for each production cycle).	C. Confirm that data on all lethal incidents has been submitted to ASC (Appendix VI).
Footnote	[30] Lethal incident: Includes all lethal actions as well as entanglements or other accidental mortalities of non-salmonids.		
Footnote	[31] Standard 2.5.6 applicable to incidents related to non-endangered and non-red-listed species. This standard complements, and does not contradict, 2.5.3.		
2.5.6	<p>Indicator: In the event of a lethal incident, evidence that an assessment of the risk of lethal incident(s) has been undertaken and demonstration of concrete steps taken by the farm to reduce the risk of future incidences</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Keep records showing that the farm undertakes an assessment of risk following each lethal incident and how those risk assessments are used to identify concrete steps the farm takes to reduce the risk of future incidents.	A. Review farm records to confirm that all the farm performs an appropriate risk assessment following all lethal incidents (see list 2.5.3a).
		b. Provide documentary evidence that the farm implements those steps identified in 2.5.6a to reduce the risk of future lethal incidents.	B. Verify that the farm implements steps to reduce risk of lethal incidents.
<p>PRINCIPLE 3: PROTECT THE HEALTH AND GENETIC INTEGRITY OF WILD POPULATIONS</p> <p><i>Criterion 3.1 Introduced or amplified parasites and pathogens [34, 35]</i></p>			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[32] Farm sites for which there is no release of water that may contain pathogens into the natural (freshwater or marine) environment are exempt from the standards under Criterion 3.1.		
Footnote	[33] See Appendix VI for transparency requirements for 3.1.1, 3.1.3, 3.1.4, 3.1.6 and 3.1.7.		

Instruction to Clients and CABs on Exemptions to Criterion 3.1 According to footnote [32], farm sites for which there is no release of water that may contain pathogens into the natural (freshwater or marine) environment are exempt from the requirements under Criterion 3.1. More specifically, farms are only eligible for exemption from Criterion 3.1 if it can be shown that either of the following holds: 1) the farm does not release any water to the natural environment; or 2) any effluent released by the farm to the natural environment has been effectively treated to kill pathogens (e.g. UV and/or chemical treatment of water with testing demonstrating efficacy). Auditors shall fully document the rationale for any such exemptions in the audit report.			
3.1.1	Indicator: Participation in an Area-Based Management (ABM) scheme for managing disease and resistance to treatments that includes coordination of stocking, fallowing, therapeutic treatments and information-sharing. Detailed requirements are in Appendix II-1. Requirement: Yes Applicability: All except farms that release no water as noted in [32]	a. Keep record of farm's participation in an ABM scheme.	A. Review records of farm participation in ABM scheme. Contact other ABM participants as necessary to confirm the accuracy of client records.
		b. Submit to the CAB a description of how the ABM (3.1.1a) coordinates management of disease and resistance to treatments, including: - coordination of stocking; - fallowing; - therapeutic treatments; and - information sharing.	B. Review description of ABM to verify that the management activities address each of the four element from Indicator 3.1.1.
		c. Provide the CAB access to documentation which is sufficient for the auditor to evaluate the ABM's compliance with all requirements in Appendix II-1, including definition of area, minimum % participation in the scheme, components, and coordination requirements.	C. Evaluate documents to confirm the ABM complies with Appendix II-1.
		d. Submit dates of fallowing period(s) as per Appendix VI to ASC at least once per year.	D. Confirm that client has submitted dates of fallowing periods to ASC (Appendix VI).
3.1.2	Indicator: A demonstrated commitment [34] to collaborate with NGOs, academics and governments on areas of mutually agreed research to measure possible impacts on wild stocks Requirement: Yes Applicability: All except farms that release no water as noted in [32]	Note: Indicator 3.1.2 requires that farms demonstrate a commitment to collaborate with NGOs, academics and governments on areas of mutually agreed research to measure possible impacts on wild stocks. If the farm does not receive any requests to collaborate on such research projects, the farm may demonstrate compliance by showing evidence of commitment through other proactive means such as published policy statements or directed outreach to relevant organizations.	
		a. Retain records to show how the farm and/or its operating company has communicated with external groups (NGOs, academics, governments) to agree on and collaborate towards areas of research to measure impacts on wild stocks, including records of requests for research support and collaboration and responses to those requests.	A. Review evidence that the farm and/or its operating company has communicated with external groups to agree on areas of research about possible impacts on wild stocks and is tracking and responding to research requests.
		b. Provide non-financial support to research activities in 3.1.2a by either: - providing researchers with access to farm-level data; - granting researchers direct access to farm sites; or - facilitating research activities in some equivalent way.	B. Review how the farm and/or its operating company has provided non-financial support for research activities.
		c. When the farm and/or its operating company denies a request to collaborate on a research project, ensure that there is a written justification for rejecting the proposal.	C. As applicable, review the provided record of rejecting proposals to confirm that denials were justified and there is no consistent pattern to indicate that the farm and/or its operating company lacks a demonstrated commitment to collaborate on research activities.
		d. Maintain records from research collaborations (e.g. communications with researchers) to show that the farm has supported the research activities identified in 3.1.2a.	D. Verify that the farm's communications with researchers demonstrate a commitment to collaborate on relevant areas of research.
Footnote	[34] Commitment: At a minimum, a farm and/or its operating company must demonstrate this commitment through providing farm-level data to researchers, granting researchers access to sites, or other similar non-financial support for research activities.		

3.1.3	<p>Indicator: Establishment and annual review of a maximum sea lice load for the entire ABM and for the individual farm as outlined in Appendix II-2</p> <p>Requirement: Yes</p> <p>Applicability: All except farms that release no water as noted in [32]</p>	a. Keep records to show that a maximum sea lice load has been set for: - the entire ABM; and - the individual farm.	A. Review records to confirm compliance.
		b. Maintain evidence that the established maximum sea lice load (3.1.3a) is reviewed annually as outlined in Appendix II-2, incorporating feedback from the monitoring of wild salmon where applicable (See 3.1.6).	B. Confirm that sea lice load is reviewed annually and, if applicable, the review incorporates information from monitoring of wild salmon.
		c. Provide the CAB access to documentation which is sufficient for the auditor to evaluate whether the ABM has set (3.1.3a) and annually reviewed (3.1.3.b) maximum sea lice load in compliance with requirements in Appendix II-2.	C. Evaluate documents to confirm the ABM complies with requirements of Appendix II-2 for establishing and reviewing maximum sea lice loads.
		d. Submit the maximum sea lice load for the ABM to ASC as per Appendix VI at least once per year.	D. Confirm that client has submitted the ABM maximum lice load to ASC (Appendix VI).
3.1.4	<p>Indicator: Frequent [35] on-farm testing for sea lice, with test results made easily publicly available [36] within seven days of testing</p> <p>Requirement: Yes</p> <p>Applicability: All except farms that release no water as noted in [32]</p>	a. Prepare an annual schedule for testing sea lice that identifies timeframes of routine testing frequency (at a minimum, monthly) and for high-frequency testing (weekly) due to sensitive periods for wild salmonids (e.g. during and immediately prior to outmigration of juveniles).	A. Review sea lice testing schedule to confirm that weekly testing coincides with known sensitive periods for wild salmon (e.g. during and immediately prior to outmigration of juveniles).
		b. Maintain records of results of on-farm testing for sea lice. If farm deviates from schedule due to weather [35] maintain documentation of event and rationale.	B. Review records to confirm that testing follows the farm's annual schedule. Review the rationale for any deviations from the schedule.
		c. Document the methodology used for testing sea lice ('testing' includes both counting and identifying sea lice). The method must follow national or international norms, follows accepted minimum sample size, use random sampling, and record the species and life-stage of the sea lice. If farm uses a closed production system and would like to use an alternate method (i.e. video), farm shall provide the CAB with details on the method and efficacy of the method.	C. Review the farm's methodology for testing sea lice. If practicable, observe testing while on-site. If farm is a closed system using an alternate testing method, document the distinction and review evidence of efficacy of the method.
		d. Make the testing results from 3.1.4b easily publicly available (e.g. posted to the company's website) within seven days of testing. If requested, provide stakeholders access to hardcopies of test results.	D. Test access from an offsite computer to confirm that results are easily publicly available. If applicable, confirm that the farm made hardcopies of test results easily available to stakeholders.
		e. Keep records of when and where test results were made public.	E. Review records for the past year to confirm the farm posted test results within 7 days of each test. Cross-check against testing schedule (see 3.1.4a).
		f. Submit test results to ASC (Appendix VI) at least once per year.	F. Confirm that client has submitted test results to ASC (Appendix VI).
Footnote	[35] Testing must be weekly during and immediately prior to sensitive periods for wild salmonids, such as outmigration of wild juvenile salmon. Testing must be at least monthly during the rest of the year, unless water temperature is so cold that it would jeopardize farmed fish health to test for lice (below 4 degrees C). Within closed production systems, alternative methods for monitoring sea lice, such as video monitoring, may be used.		
Footnote	[36] Posting results on a public website is an example of "easily publicly available."		

3.1.5	<p>Indicator: In areas with wild salmonids [37], evidence of data [38] and the farm's understanding of that data, around salmonid migration routes, migration timing and stock productivity in major waterways within 50 kilometers of the farm</p> <p>Requirement: Yes</p> <p>Applicability: All farms operating in areas with wild salmonids except farms that release no water as noted in [32]</p>	<p>Instruction to Clients for Indicator 3.1.5 - Evidence for Wild Salmonid Health and Migration</p> <p>In writing this indicator, the SAD Steering Committee concluded that relevant data sets on wild salmonid health and migration are publicly available in the vast majority of, if not all, jurisdictions with wild salmonids. The information is likely to come from government sources or from research institutions. Therefore farms are not responsible for conducting this research themselves. However farms must demonstrate that they are aware of this basic information in their region, as such information is needed to make management decisions related to minimizing potential impact on those wild stocks.</p> <p>This Indicator requires collection and understanding of general data for the major watersheds within approximately 50 km of the farm. A farm does not need to demonstrate that there is data for every small river or tributary or subpopulation. Information should relate to the wild fish stock level, which implies that the population is more or less isolated from other stocks of the same species and hence self-sustaining. A "conservation unit" under the Canadian Wild Salmon Policy is an example of an appropriate fish stock-level definition. However, it must be recognized that each jurisdiction may have slight differences in how a wild salmonid stock is defined in the region.</p> <p>For purposes of these standards, "areas with wild salmonids" are defined as areas within 75 kilometers of a wild salmonid migration route or habitat. This definition is expected to encompass all, or nearly all, of salmon-growing areas in the northern hemisphere [39]. Potentially affected species in these areas are salmonids (i.e. including all trout species). Where a species is not natural to a region (e.g. Atlantic or Pacific Salmon in Chile) the areas are not considered as "areas with wild salmonids" even if salmon have escaped from farms and established themselves as a reproducing species in "the wild".</p> <p>Farms do not need to conduct research on migration routes, timing and the health of wild stocks under this standard if general information is already available. Farms must demonstrate an understanding of this information at the general level for salmonid populations in their region, as such information is needed to make management decisions related to minimizing potential impact on those stocks. Such "evidence" would consist of, for example, peer review studies; publicly available government monitoring and reporting.</p>	
		a. Identify all salmonid species that naturally occur within 75 km of the farm through literature search or by consulting with a reputable authority. If the farm is not in an area with wild salmonids, then 3.1.5b and c do not apply.	A. Review salmonid species list for accuracy and cross-check source references. Confirm whether 3.1.5 b and c are applicable.
		b. For species listed in 3.1.5a, compile best available information on migration routes, migration timing (range of months for juvenile outmigration and returning salmon), life history timing for coastal resident salmonids, and stock productivity over time in major waterways within 50 km of the farm.	B. Review the accuracy of the farm's information on local salmonid migratory patterns and stock productivity. Cross-check source references as necessary.
		c. From data in 3.1.5b, identify any sensitive periods for wild salmonids (e.g. periods of outmigration of juveniles) within 50 km of the farm.	C. Confirm accuracy of farm's understanding. Cross-check against 'sensitive periods' listed in the farm's annual schedule for testing for sea lice.
		-	D. Confirm the farm's understanding of this information through interviews.
Footnote	[37] For purposes of these standards, "areas with wild salmonids" are defined as areas within 75 kilometers of a wild salmonid migration route or habitat. This definition is expected to encompass all, or nearly all, of salmon-growing areas in the northern hemisphere.		
Footnote	[38] Farms do not need to conduct research on migration routes, timing and the health of wild stocks under this standard if general information is already available. Farms must demonstrate an understanding of this information at the general level for salmonid populations in their region, as such information is needed to make management decisions related to minimizing potential impact on those stocks.		
3.1.6	<p>Indicator: In areas of wild salmonids, monitoring of sea lice levels on wild out-migrating salmon juveniles or on coastal sea trout or Arctic char, with results made publicly available. See requirements in Appendix III-1.</p> <p>Requirement: Yes</p> <p>Applicability: All farms operating in areas with wild salmonids except farms that release no water as noted in [32]</p>	a. Inform the CAB if the farm operates in an area of wild salmonids. If not, then Indicator 3.1.6 does not apply.	A. Confirm whether the farm operates in an area of wild salmonids based on results from 3.1.5a (above). If not, then Indicator 3.1.6 does not apply.
		b. Keep records to show the farm participates in monitoring of sea lice on wild salmonids.	B. Review evidence to confirm farm's participation in monitoring.
		c. Provide the CAB access to documentation which is sufficient for the auditor to evaluate whether the methodology used for monitoring of sea lice on wild salmonids is in compliance with the requirements in Appendix III-1.	C. Evaluate documents to confirm methodology used for monitoring of sea lice on wild salmonids complies with requirements of Appendix III-1.
		d. Make the results from 3.1.6b easily publicly available (e.g. posted to the company's website) within eight weeks of completion of monitoring.	D. Confirm that results are easily publicly available and that they were posted within the required timeframe.
		e. Submit to ASC the results from monitoring of sea lice levels on wild salmonids as per Appendix VI.	E. Confirm that client has submitted monitoring results to ASC (Appendix VI).

3.1.7	<p>Indicator: In areas of wild salmonids, maximum on-farm lice levels during sensitive periods for wild fish [39]. See detailed requirements in Appendix II, subsection 2.</p> <p>Requirement: 0.1 mature female lice per farmed fish</p> <p>Applicability: All farms operating in areas with wild salmonids except farms that release no water as noted in [32]</p>	a. Inform the CAB if the farm operates in an area of wild salmonids. If not, then Indicator 3.1.7 does not apply.	A. Confirm whether the farm operates in an area of wild salmonids based on results from 3.1.5a (above). If not, then Indicator 3.1.7 does not apply.
		b. Establish the sensitive periods [39] of wild salmonids in the area where the farm operates. Sensitive periods for migrating salmonids is during juvenile outmigration and approximately one month before.	B. Review farm's designation of sensitive periods and cross-check against datasets presented in 3.1.4 and 3.1.5.
		c. Maintain detailed records of monitoring on-farm lice levels (see 3.1.4) during sensitive periods as per Appendix II-2.	C. Review records from the farm's sea lice monitoring program to confirm that lice levels are in compliance with the requirement based on farm-wide average lice levels per farmed fish (not values from individual net-pens).
		d. Provide the CAB with evidence there is a 'feedback loop' between the targets for on-farm lice levels and the results of monitoring of lice levels on wild salmonids (Appendix II-2).	D. Confirm that monitoring data for lice levels are used in a feedback loop as required by Appendix II-2.
Footnote	[39] Sensitive periods for migrating salmonids is during juvenile outmigration and approximately one month before.		
Criterion 3.2 Introduction of non-native species			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
3.2.1	<p>Indicator: If a non-native species is being produced, demonstration that the species was widely commercially produced in the area by the date of publication of the ASC Salmon standard</p> <p>Requirement: Yes [40]</p> <p>Applicability: All farms except as noted in [40]</p>	Note: For the purposes of Indicator 3.2.1, "area" is defined as a contiguous body of water with the bio-chemical and temperature profile required to support the farmed species' life and reproduction (e.g. the Northern Atlantic Coast of the U.S. and Canada). Appendix II-1A elaborates further on this definition: "The boundaries of an area should be defined, taking into account the zone in which key cumulative impacts on wild populations may occur, water movement and other relevant aspects of ecosystem structure and function." The intent is that the area relates to the spatial extent that is likely to be put at risk from the non-native salmon. Areas will only rarely coincide with the boundaries of countries.	
		a. Inform the CAB if the farm produces a non-native species. If not, then Indicator 3.2.1 does not apply.	A. Confirm the farm does not produce a non-native species by comparing local species (results from 3.1.5a) to the species produced. Cross-check against record from smolt suppliers (e.g. 3.3.1b). If the farm only produces a native species, then Indicator 3.2.1 does not apply.
		b. Provide documentary evidence that the non-native species was widely commercially produced in the area before June 13, 2012.	B. Review evidence to confirm when the non-native species was first brought into wide commercial production in the area of the farm.
		c. If the farm cannot provide evidence for 3.2.1b, provide documentary evidence that the farm uses only 100% sterile fish that includes details on accuracy of sterility effectiveness.	C. Review evidence to confirm that the farm uses only <u>100%</u> sterile fish (N.B. at the time of this writing, the SAD Steering Committee was uncertain that any existing technology could reliably deliver 100% sterile fish). Cross-check against smolt purchase records (e.g. invoices).
		d. If the farm cannot provide evidence for 3.2.1b or 3.2.1c, provide documented evidence that the production system is closed to the natural environment and for each of the following: 1) non-native species are separated from wild fish by effective physical barriers that are in place and well maintained; 2) barriers ensure there are no escapes of reared fish specimens that might survive and subsequently reproduce [40]; and 3) barriers ensure there are no escapes of biological material [40] that might survive and subsequently reproduce (e.g. UV or other effective treatment of any effluent water exiting the system to the natural environment).	D. Review evidence that the farm complies with each point raised in 3.2.1d and confirm by inspection during on-site audit. Cross check against related farm records for escapes (3.4.1), unexplained loss (3.4.2), and escape prevention (3.4.4).
-	E. Verify compliance.		
Footnote	[40] Exceptions shall be made for production systems that use 100 percent sterile fish or systems that demonstrate separation from the wild by effective physical barriers that are in place and well-maintained to ensure no escapes of reared specimens or biological material that might survive and subsequently reproduce.		

3.2.2	<p>Indicator: If a non-native species is being produced, evidence of scientific research [41] completed within the past five years that investigates the risk of establishment of the species within the farm's jurisdiction and these results submitted to ASC for review [42]</p> <p>Requirement: Yes</p> <p>Applicability: All [43]</p>	<p>Instruction to Clients for Indicator 3.2.2 - Exceptions to Allow Production of Non-Native Species</p> <p>Farms have had five years to demonstrate compliance with this standard from the time of publication of the ASC Salmon Standard (i.e. full compliance by June 13, 2017). Farms are exempt from this standard if they are in a jurisdiction where the non-native species became established prior to farming activities in the area and the following three conditions are met: eradication would be impossible or have detrimental environmental effects; the introduction took place prior to 1993 (when the Convention on Biological Diversity (CBD) was ratified); the species is fully self-sustaining.</p> <p>Note: For the purposes of Indicator 3.2.2, "jurisdiction" is defined the same as "area" in 3.2.1.</p>	
		a. Inform the ASC of the species in production (Appendix VI).	A. Confirm the farm has informed ASC which species is in production (Appendix VI).
		b. Inform the CAB if the farm produces a non-native species. If not, then Indicator 3.2.2 does not apply.	B. Confirm the farm does not produce a non-native species as for 3.2.1. If the farm only produces a native species, then Indicator 3.2.2 does not apply.
		c. If yes to 3.2.2b, provide evidence of scientific research completed within the past five years that investigates the risk of establishment of the species within the farm's jurisdiction. Alternatively, the farm may request an exemption to 3.2.2c (see below).	C. Confirm that the scientific research included: multi-year monitoring for non-native farmed species; used credible methodologies & analyses; and underwent peer review. If the farm requests an exemption then enter "NA" and proceed to 3.2.2d.
		d. If applicable, submit to the CAB a request for exemption that shows how the farm meets all three conditions specified in instruction box above.	D. As applicable, review the farm's request for exemption. Verify that the evidence shows how the farm meets all three conditions specified above.
		e. Submit evidence from 3.2.2c to ASC for review.	E. Confirm the farm submits required evidence to ASC.
Footnote	[41] The research must at a minimum include multi-year monitoring for non-native farmed species, use credible methodologies and analysis, and undergo peer review.		
Footnote	[42] If the review demonstrates there is increased risk, the ASC will consider prohibiting the certification of farming of non-native salmon in that jurisdiction under this standard. In the event that the risk tools demonstrate "high" risks, the SAD expects that the ASC will prohibit the certification of farming of non-native salmon in that jurisdiction. The ASC intends to bring this evidence into future revision of the standard and those results taken forward into the revision process.		
Footnote	[43] Farms are exempt from this standard if they are in a jurisdiction where the non-native species became established prior to farming activities in the area and the following three conditions are met: eradication would be impossible or have detrimental environmental effects; the introduction took place prior to 1993 (when the Convention on Biological Diversity (CBD) was ratified); the species is fully self-sustaining.		
3.2.3	<p>Indicator: Use of non-native species for sea lice control for on-farm management purposes</p> <p>Requirement: None</p> <p>Applicability: All</p>	a. Inform the CAB if the farm uses fish (e.g. cleaner fish or wrasse) for the control of sea lice.	A. Confirm whether the farms uses fish for sea lice control. If no, auditor response to 3.2.3A-C is "not applicable" (NA).
		b. Maintain records (e.g. invoices) to show the species name and origin of all fish used by the farm for purposes of sea lice control.	B. Review purchase records to confirm the origin and identity of all species that are used for sea lice control on farm.
		c. Collect documentary evidence or first hand accounts as evidence that the species used is not non-native to the region.	C. Review evidence for compliance with the requirement. Acceptable documentary evidence: peer-reviewed literature, government documentation confirming species is not non-native to the region. Acceptable first hand accounts: community testimonials and direct evidence for historical presence of the species in the water body captured with cast nets, trapping devices, or fishing.
Criterion 3.3 Introduction of transgenic species			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
3.3.1	<p>Indicator: Use of transgenic [44] salmon by the farm</p> <p>Requirement: None</p>	a. Prepare a declaration stating that the farm does not use transgenic salmon.	A. Verify declaration of no use of transgenic salmon.
		b. Maintain records for the origin of all cultured stocks including the supplier name, address and contact person(s) for stock purchases.	B. Review records to confirm compliance with the requirement.

	Applicability: All	c. Ensure purchase documents confirm that the culture stock is not transgenic.	C. If the auditor suspects that transgenic fish are being cultured, test stock identity by collecting 3 fish and sending to an ISO 17025 certified laboratory for genetic analysis.
Footnote	[44] Transgenic: Containing genes altered by insertion of DNA from an unrelated organism. Taking genes from one species and inserting them into another species to get that trait expressed in the offspring (reference USDA).		
Criterion 3.4 Escapes [47]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[45] See Appendix VI for transparency requirements for 3.4.1, 3.4.2 and 3.4.3.		
3.4.1	Indicator: Maximum number of escapees [46] in the most recent production cycle Requirement: 300 [47] Applicability: All farms except as noted in [47]	a. Maintain monitoring records of all incidences of confirmed or suspected escapes, specifying date, cause, and estimated number of escapees. b. Aggregate cumulative escapes in the most recent production cycle. c. Maintain the monitoring records described in 3.4.1a for at least 10 years beginning with the production cycle for which farm is first applying for certification (necessary for farms to be eligible to apply for the exception noted in [47]). d. If an escape episode occurs (i.e. an incident where > 300 fish escaped), the farm may request a rare exception to the Standard [47]. Requests must provide a full account of the episode and must document how the farm could not have predicted the events that caused the escape episode. e. Submit escape monitoring dataset to ASC as per Appendix VI on an ongoing basis (i.e. at least once per year and for each production cycle).	A. Review client submission for completeness and accuracy of information. Cross-check with the estimate of unexplained loss, maintenance records for small tears in net, predator attacks, etc. B. Review the calculation and confirm compliance with the requirement. C. Confirm that farm documents show continuous monitoring of escapes. D. Review the farm's request for a rare exception to the Standard for an escape event. Confirm no prior exceptional events were documented during the previous 10 years, or since the date of the start of the production cycle during which the farm first applied for certification. An example of an exceptional event is vandalization of the farm. Events that are not considered exceptional include failures in moorings due to bad weather, boat traffic incidents due to poor marking of the farm, human error, and predation. E. Confirm that client has submitted escape monitoring data to ASC (Appendix VI).
Footnote	[46] Farms shall report all escapes; the total aggregate number of escapees per production cycle must be less than 300 fish. Data on date of escape episode(s), number of fish escaped and cause of escape episode shall be reported as outlined in Appendix VI.		
Footnote	[47] A rare exception to this standard may be made for an escape event that is clearly documented as being outside the farm's control. Only one such exceptional episode is allowed in a 10-year period for the purposes of this standard. The 10-year period starts at the beginning of the production cycle for which the farm is applying for certification. The farmer must demonstrate that there was no reasonable way to predict the events that caused the episode. See auditing guidance for additional details.		
3.4.2	Indicator: Accuracy [48] of the counting technology or counting method used for calculating stocking and harvest numbers Requirement: ≥ 98% Applicability: All	a. Maintain records of accuracy of the counting technology used by the farm at times of stocking and harvest. Records include copies of spec sheets for counting machines and common estimates of error for hand-counts. b. If counting takes place off site (e.g. pre-smolt vaccination count), obtain and maintain documents from the supplier showing the accuracy of the counting method used (as above). c. During audits, arrange for the auditor to witness calibration of counting machines (if used by the farm). -	A. Confirm that the farm keeps records of counting accuracy for the counting technology or method used on site at stocking and harvest. B. Verify the client obtains information from smolt suppliers (if applicable). C. Verify that the farm calibrates counting equipment as recommended by the manufacturer. D. Confirm the stated accuracy of the farm's counting technology or counting method is ≥ 98% at both stocking and harvest. Stated accuracy shall be determined by the spec sheet for counting machines and through common estimates of error for any hand-counts.

		e. Submit counting technology accuracy to ASC as per Appendix VI on an ongoing basis (i.e. at least once per year and for each production cycle).	E. Confirm that client has submitted counting technology accuracy to ASC (Appendix VI).
Footnote	[48] Accuracy shall be determined by the spec sheet for counting machines and through common estimates of error for any hand-counts.		
3.4.3	<p>Indicator: Estimated unexplained loss [49] of farmed salmon is made publicly available</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 3.4.3 - Calculation of Estimated Unexplained Loss The Estimated Unexplained Loss (EUL) of fish is calculated at the end of each production cycle as follows:</p> <p>EUL = (stocking count) - (harvest count) - (mortalities) - (recorded escapes)</p> <p>Units for input variables are number of fish (i.e. counts) per production cycle. Where possible, farms should use the pre-smolt vaccination count as the stocking count. This formula is adapted from footnote 59 of the ASC Salmon Standard.</p>	
		a. Maintain detailed records for mortalities, stocking count, harvest count, and escapes (as per 3.4.1).	A. Review records for completeness.
		b. Calculate the estimated unexplained loss as described in the instructions (above) for the most recent full production cycle. For first audit, farm must demonstrate understanding of calculation and the requirement to disclose EUL after harvest of the current cycle.	B. Verify accuracy of farm calculations for estimated unexplained loss.
		c. Make the results from 3.4.3b available publicly. Keep records of when and where results were made public (e.g. date posted to a company website) for all production cycles.	C. Verify that the farm makes the information available to the public.
		d. Submit estimated unexplained loss to ASC as per Appendix VI for each production cycle.	D. Confirm that client has submitted estimated unexplained loss to ASC (Appendix VI).
		-	E. Compare EUL values (3.4.3a) and counting accuracy (3.4.2a) to recorded escapes to check whether farm reporting is plausible. If EUL is greater than the combined margin of error related to fish counts, investigate potential sources of error as it could indicate the farm under reported mortalities or escapes.
Footnote	[49] Calculated at the end of the production cycle as: Unexplained loss = Stocking count – harvest count – mortalities – other known escapes. Where possible, use of the pre-smolt vaccination count as the stocking count is preferred.		
3.4.4	<p>Indicator: Evidence of escape prevention planning and related employee training, including: net strength testing; appropriate net mesh size; net traceability; system robustness; predator management; record keeping and reporting of risk events (e.g., holes, infrastructure issues, handling errors, reporting and follow up of escape events);</p>	<p>a. Prepare an Escape Prevention Plan and submit it to the CAB before the first audit. This plan may be part of a more comprehensive farm planning document as long as it addresses all required elements of Indicator 3.4.4.</p> <p>b. If the farm operates an open (net pen) system, ensure the plan (3.4.4a) covers the following areas: - net strength testing; - appropriate net mesh size; - net traceability; - system robustness; - predator management; - record keeping; - reporting risk events (e.g. holes, infrastructure issues, handling errors); - planning of staff training to cover all of the above areas; and - planning of staff training on escape prevention and counting technologies.</p>	<p>A. Obtain and review the farm's escape prevention plan prior to scheduling the first audit.</p> <p>B. Confirm the farm's Escape Prevention Plan contains all required elements for open (net pen) systems as applicable.</p>

<p>and worker training on escape prevention and counting technologies</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>c. If the farm operates a closed system, ensure the plan (3.4.4a) covers the following areas:</p> <ul style="list-style-type: none"> - system robustness; - predator management; - record keeping; - reporting risk events (e.g. holes, infrastructure issues, handling errors); - planning of staff training to cover all of the above areas; and - planning of staff training on escape prevention and counting technologies. 	<p>C. Confirm the farm's Escape Prevention Plan contains all required elements for closed systems as applicable.</p>
	<p>d. Maintain records as specified in the plan.</p>	<p>D. Review documentary evidence showing implementation of the plan.</p>
	<p>e. Train staff on escape prevention planning as per the farm's plan.</p>	<p>E. Review records (i.e. attendance records, meeting notes) to confirm that farm staff attend training on escape prevention planning.</p>
	<p>-</p>	<p>F. Interview farm workers to confirm that the plan is implemented.</p>

PRINCIPLE 4: USE RESOURCES IN AN ENVIRONMENTALLY EFFICIENT AND RESPONSIBLE MANNER

Criterion 4.1 Traceability of raw materials in feed

	Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
--	---	---

Instruction to Clients for Indicators 4.1.1 through 4.4.2 - Sourcing of Responsibly Produced Salmon Feeds

Farms must show that all feeds used by the farm are produced in compliance with the requirements of Indicators 4.1.1 through 4.4.4. To do so, farms must obtain documentary evidence that the feed producers (see note 1) are audited at regular intervals by an independent auditing firm or a conformity assessment body against a recognized standard which substantially incorporate requirements for traceability. Acceptable certification schemes include GlobalGAP or other schemes that have been acknowledged by the ASC (see 4.1.1c below). Results from these audits shall demonstrate that feed producers have robust information systems and information handling processes to allow the feed producers to be able to bring forward accurate information about their production and supply chains. Declarations from the feed producer that are provided to the farm to demonstrate compliance with these indicators must be supported by the audits. Farms must also show that all of their feed producers are duly informed of the requirements of the ASC Salmon Standard relating to sourcing of responsibly produced salmon feed (see 4.1.1b below).

In addition to the above, farms must also show that their feed suppliers comply with the more detailed requirements for traceability and ingredient sourcing that are specified under indicators 4.1.1 through 4.4.2. The ASC Salmon Standard allows farms to use one of two different methods to demonstrate compliance of feed producers:

Method #1: Farms may choose to source feed from feed producers who used only those ingredients allowed under the ASC Salmon Standards during the production of a given batch of feed. For example, the farm may request its feed supplier to produce a batch of feed according to farm specifications. Audits of the feed producer will independently verify that manufacturing processes are in compliance with ASC requirements.

Method #2: Farms may choose to source feed from feed producers who demonstrate compliance using a "mass-balance" method. In this method, feed producers show that the balance of all ingredients (both amount and type) used during a given feed production period meets ASC requirements. However, mixing of ingredients into the general silos and production lines is allowed during manufacturing. Audits of the feed producer will independently verify that manufacturing processes are in compliance with ASC requirements. The mass balance method can be applied, for example, to integrated feed production companies that handle all steps of feed manufacturing (purchasing of raw materials, processing to finished feed, and sales) under the management of a single legal entity.

Note 1: The term "feed producer" is used here to identify the organization that produces the fish feed (i.e. it is the "feed manufacturer"). In most cases, the organization supplying feed to a farm (i.e. the feed supplier) will be the same organization that produced the feed, but there may be instances where feed suppliers are not directly responsible for feed production. Regardless of whether the farm sources feeds directly from a feed producer or indirectly through an intermediary organization, it remains the farm's obligation to show evidence that all feeds used are in compliance with requirements.

<p>4.1.1</p> <p>Indicator: Evidence of traceability, demonstrated by the feed producer, of feed ingredients that make up more than 1% of the feed [50].</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>a. Maintain detailed records of all feed suppliers and purchases including contact information and purchase and delivery records.</p>	<p>A. Review feed records for completeness and confirm the number of feed suppliers to the client.</p>
	<p>b. Inform each feed supplier in writing of ASC requirements pertaining to production of salmon feeds and send them a copy of the ASC Salmon Standard.</p>	<p>B. Review farm records to verify that the farm has informed all of its feed suppliers of relevant ASC requirements for feed production.</p>
	<p>c. For each feed producer used by the farm, confirm that an audit of the producer was recently done by an audit firm or CAB against an ASC-acknowledged certification scheme. Obtain a copy of the most recent audit report for each feed producer.</p>	<p>C. Verify that the farm obtains current audit reports from all relevant feed producers, that these audits were performed by an audit firm or CAB against an ASC-acknowledged certification scheme, and that audit results demonstrate compliance with requirements.</p>
	<p>d. For each feed producer, determine whether the farm will use method #1 or method #2 (see Instructions above) to show compliance of feed producers. Inform the CAB in writing.</p>	<p>D. Review which method the farm will use and confirm that independent audit results (4.1.1c) show compliance of feed producers.</p>

		e. Obtain declaration from feed supplier(s) stating that the company can assure traceability of all feed ingredients that make up more than 1% of the feed to a level of detail required by the ASC Salmon Standard [50].	E. Review declaration from each feed supplier to confirm the company assures traceability to the level of detail required by Standard.
		-	F. Cross-check the declarations against results from audits of feed suppliers (4.1.1c) to verify evidence of required levels of traceability .
Footnote	[50] Traceability shall be at a level of detail that permits the feed producer to demonstrate compliance with the standards in this document (i.e., marine raw ingredients must be traced back to the fishery, soy to the region grown, etc.). Feed manufacturers will need to supply the farm with third-party documentation of the ingredients covered under this standard.		
Criterion 4.2 Use of wild fish for feed [51]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[51] See Appendix VI for transparency requirements for 4.2.1 and 4.2.2.		
4.2.1	Indicator: Fishmeal Forage Fish Dependency Ratio (FFDRm) for grow-out (calculated using formulas in Appendix IV- 1) Requirement: < 1.2 Applicability: All	Instruction to Clients for Indicator 4.2.1 - Calculation of FFDRm Farms must calculate the Fishmeal Forage Fish Dependency Ratio (FFDRm) according to formula presented in Appendix IV-1 using data from the most recent complete production cycle. Farms must also show that they have maintained sufficient information in order to make an accurate calculation of FFDRm as outlined below. For first audits, farms may be exempted from compliance with Indicator 4.2.1 for the most recent complete production cycle (i.e. if the FFDRm of the most recent crop was > 1.2) if the farm can satisfactorily demonstrate to the auditor that: - the client understands how to accurately calculate FFDRm; - the client maintains all information needed to accurately calculate FFDRm (i.e. all feed specs for > 6 months) for the current production cycle; and - the client can show how feed used for the current production cycle will ensure that the farm will meet requirements at harvest (i.e. FFDRm < 1.2).	
		a. Maintain a detailed inventory of the feed used including: - Quantities used of each formulation (kg); - Percentage of fishmeal in each formulation used; - Source (fishery) of fishmeal in each formulation used; - Percentage of fishmeal in each formulation derived from trimmings; and - Supporting documentation and signed declaration from feed supplier.	A. Verify completeness of records and that values are stated in a declaration from the feed manufacturer.
		b. For FFDRm calculation, exclude fishmeal derived from rendering of seafood by-products (e.g. the "trimmings" from a human consumption fishery.	B. Verify that the client excludes from the FFDRm calculation any fishmeal rendered from seafood by-products.
		c. Calculate eFCR using formula in Appendix IV-1 (use this calculation also in 4.2.2 option #1).	C. Verify that eFCR calculation was done correctly.
		d. Calculate FFDRm using formulas in Appendix IV-1.	D. Verify that FFDRm calculations were done correctly and confirm the value complies with the requirement.
		e. Submit FFDRm to ASC as per Appendix VI for each production cycle.	E. Confirm that client has submitted FFDRm to ASC (Appendix VI).
4.2.2	Indicator: Fish Oil Forage Fish Dependency Ratio (FFDRo) for grow-out (calculated using formulas in Appendix IV- 1), or, Maximum amount of EPA and DHA from direct marine sources [52] (calculated according to Appendix IV-2) Requirement: FFDRo < 2.52 or (EPA + DHA) < 30 g/kg feed Applicability: All	Note: Under Indicator 4.2.2, farms can choose to calculate FFDRo (Option #1) or EPA & DHA (Option #2). Farms do not have to demonstrate that they meet both threshold values. Client shall inform the CAB which option they will use.	
		a. Maintain a detailed inventory of the feed used as specified in 4.2.1a.	A. Verify completeness of feed records as in 4.2.1A.
		b. For FFDRo and EPA+DHA calculations (either option #1 or option #2), exclude fish oil derived from rendering of seafood by-products (e.g. the "trimmings" from a human consumption fishery.	B. Verify client excludes fish oil rendered from byproducts from the FFDRo or (EPA + DHA) calculation.
		c. Inform the CAB whether the farm chose option #1 or option #2 to demonstrate compliance with the requirements of the Standard.	C. Record which option the client chose.
		d. For option #1, calculate FFDRo using formulas in Appendix IV-1 and using the eFCR calculated under 4.2.1c.	D. Verify that FFDRo calculations were done correctly and confirm the value complies with the standard.

		e. For option #2, calculate amount of EPA + DHA using formulas in Appendix IV-2.	E. Verify that (EPA+DHA) calculations were done correctly and confirm the value complies with the standard.
		f. Submit FFDRo or EPA & DHA to ASC as per Appendix VI for each production cycle.	F. Confirm that client has submitted FFDRo or EPA & DHA to ASC (Appendix VI)
Footnote	[52] Calculation excludes DHA and EPA derived from fisheries by-products and trimmings. Trimmings are defined as by-products when fish are processed for human consumption or if whole fish is rejected for use of human consumption because the quality at the time of landing does not meet official regulations with regard to fish suitable for human consumption. Fishmeal and fish oil that are produced from trimmings can be excluded from the calculation as long as the origin of the trimmings is not any species that are classified as critically endangered, endangered or vulnerable in the IUCN Red List of Threatened Species (http://www.iucnredlist.org).		
Criterion 4.3 Source of marine raw materials			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
4.3.1	<p>Indicator: Timeframe for all fishmeal and fish oil used in feed to come from fisheries [53] certified under a scheme that is an ISEAL member [54] and has guidelines that specifically promote responsible environmental management of small pelagic fisheries</p> <p>Requirement: Not required</p> <p>Applicability: N/A</p>	-	
Footnote	[53] This standard and standard 4.3.2 applies to fishmeal and oil from forage fisheries, pelagic fisheries, or fisheries where the catch is directly reduced (including krill) and not to by-products or trimmings used in feed.		
Footnote	[54] Meets ISEAL guidelines as demonstrated through full membership in the ISEAL Alliance, or equivalent as determined by the Technical Advisory Group of the ASC.		
4.3.2	<p>Indicator: Prior to achieving 4.3.1, the FishSource score [55] for the fishery(ies) from which all marine raw material in feed is derived</p> <p>Requirement: All individual scores ≥ 6, and biomass score ≥ 6</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 4.3.2 - FishSource Score of Fish Used in Feed To determine FishSource scores of the fish species used as feed ingredients, do the following: -go to http://www.fishsource.org/ - type the species into the search function box and choose the accurate fishery -confirm that the search identifies the correct fishery then scroll down or click on the link from the menu on the left reads "Scores"</p> <p>For first audits, farms must have scoring records that cover all feeds purchased during the previous 6-month period.</p> <p>Note: Indicator 4.3.2 applies to fishmeal and oil from forage fisheries, pelagic fisheries, or fisheries where the catch is directly reduced (including krill) and not to by-products or trimmings used in feed.</p>	
		a. Record FishSource score for each species from which fishmeal or fish oil was derived and used as a feed ingredient (all species listed in 4.2.1a).	A. Cross-check against 4.2.1a to confirm that client recorded a score for each species used in feed.
		b. Confirm that each individual score ≥ 6 and the biomass score is ≥ 6 .	B. Cross-check a sample of the farm's scores against the FishSource website to verify that no individual score is < 6 and no biomass score is < 6 .
		c. If the species is not on the website it means that a FishSource assessment is not available. Client can then take one or both of the following actions: 1. Contact FishSource via Sustainable Fisheries Partnerships to identify the species as a priority for assessment. 2. Contract a qualified independent third party to conduct the assessment using the FishSource methodology and provide the assessment and details on the third party qualifications to the CAB for review.	C. If the client provides an independent assessment, review the assessment and the qualifications # of the independent third party to verify that the assessment was done in accordance with the FishSource methodology.
		-	D. If the species does not have a FishSource score then the fish feed does not comply with the requirement.

Footnote	[55] Or equivalent score using the same methodology. See Appendix IV-3 for explanation of FishSource scoring.		
4.3.3	<p>Indicator: Prior to achieving 4.3.1, demonstration of third-party verified chain of custody and traceability for the batches of fishmeal and fish oil which are in compliance with 4.3.2.</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 4.3.3 - Third-Party Verification of Traceability Indicator 4.3.3 requires that farms show that their feed producers can demonstrate chain of custody and traceability as verified through third-party audits. Farms may submit reports from audits of feed producers (see 4.1.1c) as evidence that traceability systems are in compliance. Alternatively, farms may show that their feed producers comply with traceability requirements of Indicator 4.3.3 by submitting evidence that suppliers, and the batches of fishmeal and oil, are certified to the International Fishmeal and Fish Oil Organization's Global Standard for Responsible Supply or to the Marine Stewardship Council Chain of Custody Standard.</p> <p>For the first audit, a minimum of 6 months of data on feed is required and evidence shall relate to species used in said dataset.</p>	
		a. Obtain from the feed supplier documentary evidence that the origin of all fishmeal and fish oil used in the feed is traceable via a third-party verified chain of custody or traceability program.	A. Review evidence and confirm that a third party verified chain of custody or traceability program was used for the fishmeal and fish oil.
		b. Ensure evidence covers all the species used (as consistent with 4.3.2a, 4.2.1a, and 4.2.2a).	B. Verify that demonstration of third-party verified chain-of-custody is in place for all species used.
4.3.4	<p>Indicator: Feed containing fishmeal and/or fish oil originating from by-products [56] or trimmings from IUU [57] catch or from fish species that are categorized as vulnerable, endangered or critically endangered, according to the IUCN Red List of Threatened Species [58], whole fish and fish meal from the same species and family as the species being farmed</p> <p>Requirement: None [59]</p> <p>Applicability: All except as noted in [59]</p>	a. Compile and maintain, consistent with 4.2.1a and 4.2.2a, a list of the fishery of origin for all fishmeal and fish oil originating from by-products and trimmings.	A. Review list and confirm consistent with 4.2.1a, 4.2.2a, 4.3.3b.
		b. Obtain a declaration from the feed supplier stating that no fishmeal or fish oil originating from IUU catch was used to produce the feed.	B. Verify that the farm obtains declarations from feed suppliers.
		c. Obtain from the feed supplier declaration that the meal or oil did not originate from a species categorized as vulnerable, endangered or critically endangered, according to the IUCN Red List of Threatened Species [58] and explaining how they are able to demonstrate this (i.e. through other certification scheme or through their independent audit).	C. Review declaration to confirm compliance. The International Fishmeal and Fish Oil Organization's Global Standard for Responsible Supply and the Marine Stewardship Council standards are two options for demonstrating compliance with Indicator 4.3.4c
		d. If meal or oil originated from a species listed as "vulnerable" by IUCN, obtain documentary evidence to support the exception as outlined in [59].	D. Review evidence to support exception (if applicable).
4.3.5	<p>Indicator: Presence and evidence of a responsible sourcing policy for the feed manufacturer for marine ingredients that includes a commitment to continuous improvement of source fisheries</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Request a link to a public policy from the feed manufacturer stating the company's support of efforts to shift feed manufacturers purchases of fishmeal and fish oil to fisheries certified under a scheme that is an ISEAL member and has guidelines that specifically promote responsible environmental management of small pelagic fisheries and committing to continuous improvement of source fisheries.	A. Verify that the policy supports responsible feed sourcing and a commitment to continuous improvement of source fisheries (e.g. programs at https://www.isealliance.org/our-members/full-members).
		b. Prepare a letter stating the farm's intent to source feed containing fishmeal and fish oil originating from fisheries certified under the type of certification scheme noted in indicator 4.3.1.	B. Obtain a copy of the client's letter of intent.
		c. Compile a list of the origin of all fish products used as feed ingredients in all feed.	C. Confirm that the farm has sufficient evidence for the origin of all fish products in feed to demonstrate the source fishery..
Footnote	[56] Trimmings are defined as by-products when fish are processed for human consumption or if whole fish is rejected for use of human consumption because the quality at the time of landing does not meet official regulations with regard to fish suitable for human consumption.		
Footnote	[57] IUU: Illegal, Unregulated and Unreported.		
Footnote	[58] The International Union for the Conservation of Nature reference can be found at http://www.iucnredlist.org/ .		

Footnote	[59] For species listed as “vulnerable” by IUCN, an exception is made if a regional population of the species has been assessed to be not vulnerable in a National Red List process that is managed explicitly in the same science-based way as IUCN. In cases where a National Red List doesn’t exist or isn’t managed in accordance with IUCN guidelines, an exception is allowed when an assessment is conducted using IUCN’s methodology and demonstrates that the population is not vulnerable.		
Criterion 4.4 Source of non-marine raw materials in feed			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
4.4.1	Indicator: Presence and evidence of a responsible sourcing policy for the feed manufacturer for feed ingredients that comply with recognized crop moratoriums [60] and local laws [61] Requirement: Yes Applicability: All	a. Compile and maintain a list of all feed suppliers with contact information. (See also 4.1.1a)	A. Review feed supplier list and cross-check against feed purchases. (See also 4.1.1a)
		b. Obtain from each feed manufacturer a copy of the manufacturer’s responsible sourcing policy for feed ingredients showing how the company complies with recognized crop moratoriums and local laws.	B. Review policies from each feed supplier to confirm required sourcing policy is in place.
		c. Confirm that third party audits of feed suppliers (4.1.1c) show evidence that supplier’s responsible sourcing policies are implemented.	C. Verify that the scope of third-party audits of feed suppliers includes review of policies and evidence of implementation.
Footnote	[60] Moratorium: A period of time in which there is a suspension of a specific activity until future events warrant a removal of the suspension or issues regarding the activity have been resolved. In this context, moratoriums may refer to suspension of the growth of defined agricultural crops in defined geographical regions.		
Footnote	[61] Specifically, the policy shall include that vegetable ingredients, or products derived from vegetable ingredients, must not come from areas of the Amazon Biome that were deforested after July 24, 2006, as geographically defined by the Brazilian Soy Moratorium. Should the Brazilian Soy Moratorium be lifted, this specific requirement shall be reconsidered.		
4.4.2	Indicator: Percentage of soya or soya-derived ingredients in the feed that are certified by the Roundtable for Responsible Soy (RTRS) or equivalent [62] Requirement: 100% Applicability: All	a. Prepare a policy stating the company’s support of efforts to shift feed manufacturers’ purchases of soya to soya certified under the Roundtable for Responsible Soy (RTRS) or equivalent.	A. Verify that the client’s policy supports responsible sourcing of soya or soya-derived feed ingredients.
		b. Prepare a letter stating the farm’s intent to source feed containing soya certified under the RTRS (or equivalent)	B. Obtain a copy of the client’s letter of intent.
		c. Notify feed suppliers of the farm’s intent (4.4.2b).	C. Verify that farm notifies feed suppliers.
		d. Obtain and maintain declaration from feed supplier(s) detailing the origin of soya in the feed.	D. Confirm that the farm has sufficient and supportive evidence for the origin of soya products in feed to demonstrate compliance with indicator 4.4.2
		e. Provide evidence that soya used in feed is certified by the Roundtable for Responsible Soy (RTRS) or equivalent [62]	E. Review evidence and confirm compliance.
Footnote	[62] Any alternate certification scheme would have to be approved as equivalent by the Technical Advisory Group of the ASC.		
4.4.3	Indicator: Evidence of disclosure to the buyer [63] of the salmon of inclusion of transgenic [64] plant raw material, or raw materials derived from transgenic plants, in the feed Requirement: Yes, for each individual raw material containing > 1% transgenic content [65] Applicability: All	a. Obtain from feed supplier(s) a declaration detailing the content of soya and other plant raw materials in feed and whether it is transgenic.	A. Review feed supplier declaration and ensure declarations from all suppliers are present (see also 4.4.1A).
		b. Disclose to the buyer(s) a list of any transgenic plant raw material in the feed and maintain documentary evidence of this disclosure. For first audits, farm records of disclosures must cover > 6 months.	B. Verify evidence of disclosure to all buyers, cross-checking with plant material list (4.4.3a) to see that all transgenic plant ingredients were disclosed
		c. Inform ASC whether feed contains transgenic ingredients (yes or no) as per Appendix VI for each production cycle.	C. Confirm that the farm has informed ASC whether feeds containing transgenic ingredients are used on farm (Appendix VI).
Footnote	[63] The company or entity to which the farm or the producing company is directly selling its product. This standard requires disclosure by the feed company to the farm and by the farm to the buyer of their salmon.		
Footnote	[64] Transgenic: Containing genes altered by insertion of DNA from an unrelated organism. Taking genes from one species and inserting them into another species to get that trait expressed in the offspring.		
Footnote	[65] See Appendix VI for transparency requirement for 4.4.3.		
Criterion 4.5 Non-biological waste from production			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):

4.5.1	<p>Indicator: Presence and evidence of a functioning policy for proper and responsible [66] treatment of non-biological waste from production (e.g., disposal and recycling)</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Prepare a policy stating the farm's commitment to proper and responsible treatment of non-biological waste from production. It must explain how the farm's policy is consistent with best practice in the area of operation.	A. Review policy to verify the farm's commitment to proper and responsible treatment of non-biological waste from production in a manner consistent with best practice in the area.
		b. Prepare a declaration that the farm does not dump non-biological waste into the ocean.	B. Verify the client makes a declaration.
		c. Provide a description of the most common production waste materials and how the farm ensures these waste materials are properly disposed of.	C. During the on-site inspection look for evidence of proper waste disposal.
		d. Provide a description of the types of waste materials that are recycled by the farm.	D. During the on-site inspection look for evidence of recycling of waste materials as described by client.
Footnote	[66] Proper and responsible disposal will vary based on facilities available in the region and remoteness of farm sites. Disposal of non-biological waste shall be done in a manner consistent with best practice in the area. Dumping of non-biological waste into the ocean does not represent "proper and responsible" disposal.		
4.5.2	<p>Indicator: Evidence that non-biological waste (including net pens) from grow-out site is either disposed of properly or recycled</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Provide a description of the most common production waste materials and how the farm ensures these waste materials are properly disposed of. (see also 4.5.1c)	A. During the on-site inspection look for evidence of proper waste disposal. (See also 4.5.1C)
		b. Provide a description of the types of waste materials that are recycled by the farm. (See also 4.5.1d)	B. During the on-site inspection look for evidence of recycling of waste materials as described by client. (See also 4.5.1D)
		c. Inform the CAB of any infractions or fines for improper waste disposal received during the previous 12 months and corrective actions taken..	C. Review infractions and corrective actions.
		d. Maintain records of disposal of waste materials including old nets and cage equipment.	D. Review records to verify waste disposal and/or recycling is consistent with client description and policy.
Criterion 4.6 Energy consumption and greenhouse gas emissions on farms [67]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[67] See Appendix VI for transparency requirements for 4.6.1, 4.6.2 and 4.6.3.		
4.6.1	<p>Indicator: Presence of an energy use assessment verifying the energy consumption on the farm and representing the whole life cycle at sea, as outlined in Appendix V- 1</p> <p>Requirement: Yes, measured in kilojoule/t fish produced/production cycle</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 4.6.1 - Energy Use Assessment</p> <p>Indicator 4.6.1 requires that farms must have an assessment to verify energy consumption. The scope of this requirement is restricted to operational energy use for the farm site(s) that is applying for certification. Boundaries for operational energy use should correspond to the sources of Scope 1 and Scope 2 emissions (see Appendix V-1). Energy use corresponding to Scope 3 emissions (i.e. the energy used to fabricate materials that are purchased by the farm) is not required. However the SAD Steering Committee encourages companies to integrate energy use assessments across the board in the company.</p> <p>For the purposes of calculating energy consumption, the duration of the production cycle is the entire life cycle "at sea" - it does not include freshwater smolt production stages. Farms that have integrated smolt rearing should break out the grow-out stage portion of energy consumption if possible. Quantities of energy (fuel and electricity) are converted to kilojoules. Verification is done by internal or external assessment following either the GHG Protocol Corporate Standard or ISO 14064-1 (see Appendix V-1 for more details).</p>	
		a. Maintain records for energy consumption by source (fuel, electricity) on the farm throughout each production cycle.	A. Verify that the farm maintains records for energy consumption.
		b. Calculate the farm's total energy consumption in kilojoules (kj) during the last production cycle.	B. Review the farm's calculations for completeness and accuracy.
		c. Calculate the total weight of fish in metric tons (t) produced during the last production cycle.	C. Confirm that the farm accurately reports total weight of fish harvested per production cycle. Cross-check against other farm datasets (e.g. harvest counts, escapes, and mortalities).
		d. Using results from 4.6.1b and 4.6.1c, calculate energy consumption on the farm as required, reported as kilojoule/mt fish/production cycle.	D. Review the farm's calculations for completeness and accuracy.

		e. Submit results of energy use calculations (4.6.1d) to ASC as per Appendix VI for each production cycle.	E. Confirm that client has submitted energy use calculations to ASC (Appendix VI).
		f. Ensure that the farm has undergone an energy use assessment that was done in compliance with requirements of Appendix V-1.	F. Confirm that the farm has undergone an energy use assessment verifying the farm's energy consumption.
4.6.2	<p>Indicator: Records of greenhouse gas (GHG [68]) emissions [69] on farm and evidence of an annual GHG assessment, as outlined in Appendix V-1</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 4.6.2 - Annual GHG Assessment Indicator 4.6.2 requires that farms must have an annual Greenhouse Gas (GHG) assessment. Detailed instructions are presented in Appendix V-1 and references therein. The scope of this requirement is restricted to operational boundaries for the farm site(s) that is applying for certification. However the SAD Steering Committee encourages companies to integrate GHG accounting practices across the board in the company. Verification may be done by internal or external assessment following either the GHG Protocol Corporate Standard or ISO 14064-1 (see Appendix V-1 for more details).</p> <p>Note: For the purposes of this standard, GHGs are defined as the six gases listed in the Kyoto Protocol: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆).</p>	
		a. Maintain records of greenhouse gas emissions on the farm.	A. Verify that the farm maintains records of GHG emissions.
		b. At least annually, calculate all scope 1 and scope 2 GHG emissions in compliance with Appendix V-1.	B. Confirm that calculations are done annually and in compliance with Appendix V-1.
		c. For GHG calculations, select the emission factors which are best suited to the farm's operation. Document the source of those emissions factors.	C. Verify that the farm records all emissions factors used and their sources.
		d. For GHG calculations involving conversion of non-CO ₂ gases to CO ₂ equivalents, specify the Global Warming Potential (GWP) used and its source.	D. Verify that the farm records all GWPs used and their sources.
		e. Submit results of GHG calculations (4.6.2d) to ASC as per Appendix VI at least once per year.	E. Confirm that the farm has submitted GHG calculations to ASC (Appendix VI).
		f. Ensure that the farm undergoes a GHG assessment as outlined in Appendix V-1 at least annually.	F. Confirm that the farm undergoes a GHG assessments annually and that the methods used comply with requirements of Appendix V-1.
Footnote	[68] For the purposes of this standard, GHGs are defined as the six gases listed in the Kyoto Protocol: carbon dioxide (CO ₂); methane (CH ₄); nitrous oxide (N ₂ O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF ₆).		
Footnote	[69] GHG emissions must be recorded using recognized methods, standards and records as outlined in Appendix V.		
4.6.3	<p>Indicator: Documentation of GHG emissions of the feed [70] used during the previous production cycle, as outlined in Appendix V, subsection 2</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 4.6.3 - GHG Emissions of Feed Indicator 4.6.3 requires that farms document the greenhouse gas emissions (GHG) associated with any feeds used during salmon production. Farms will need to obtain this information from their feed supplier(s) and thereafter maintain a continuous record of Feed GHG emissions throughout all production cycles. This requirement applies across the entire previous production cycle. Therefore farms should inform their feed supplier(s) and:</p> <ul style="list-style-type: none"> - the farm provides its feed suppliers with detailed information about the requirements including a copy of the methodology outlined in Appendix V, subsection 2; - the farm explain what analyses must be done by feed suppliers; and - the farm explains to feed suppliers what documentary evidence will be required by the farm to demonstrate compliance. <p>Note1: Farms may calculate GHG emissions of feed using the average raw material composition used to produce the salmon (by weight) rather than using feed composition on a lot-by-lot basis.</p> <p>Note2: Feed supplier's calculations must include Scope 1, Scope 2, and Scope 3 GHG emissions as specified in Appendix V, subsection 2.</p>	
		a. Obtain from feed supplier(s) a declaration detailing the GHG emissions of the feed (per kg feed).	A. Verify declaration from feed supplier(s) and confirm client has declarations from all feed suppliers.
		b. Multiply the GHG emissions per unit feed by the total amount of feed from each supplier used in the most recent completed production cycle.	B. Verify calculations cross-checking with feed purchase and use records.

		c. If client has more than one feed supplier, calculate the total sum of emissions from feed by summing the GHG emissions of feed from each supplier.	C. Verify calculations.
		d. Submit GHG emissions of feed to ASC as per Appendix VI for each production cycle.	D. Confirm that the farm has submitted GHG calculations for feed to ASC (Appendix VI).
Footnote	[70] GHG emissions from feed can be given based on the average raw material composition used to produce the salmon (by weight) and not as documentation linked to each single product used during the production cycle. Feed manufacturer is responsible for calculating GHG emissions per unit feed. Farm site then shall use that information to calculate GHG emissions for the volume of feed they used in the prior production cycle.		
Criterion 4.7 Non-therapeutic chemical inputs [71,72]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[71] Closed production systems that do not use nets and do not use antifoulants shall be considered exempt from standards under Criterion 4.7.		
Footnote	[72] See Appendix VI for transparency requirements for 4.7.1, 4.7.3 and 4.7.4.		
4.7.1	<p>Indicator: For farms that use copper-treated nets [73], evidence that nets are not cleaned [74] or treated in situ in the marine environment</p> <p>Requirement: Yes</p> <p>Applicability: All farms except as noted in [71]</p>	a. Prepare a farm procedure for net cleaning and treatment that describes techniques, technologies, use of off-site facilities, and record keeping.	A. Review procedure for completeness.
		b. Maintain records of antifoulants and other chemical treatments used on nets.	B. Review documentary evidence and records for completeness, including traceability records of the nets where available.
		c. Declare to the CAB whether copper-based treatments are used on nets.	C. Verify whether copper-based treatments are used. If no, Indicator 4.7.1d does not apply to the client. If yes, proceed to 4.7.1D.
		d. If copper-based treatments are used, maintain documentary evidence (see 4.7.1b) that farm policy and practice does not allow for heavy cleaning of copper-treated nets in situ.	D. Review evidence and interview farm manager to confirm that farm does not do any heavy cleaning of copper-treated nets in situ.
		e. Inform ASC whether copper antifoulants are used on farm (yes or no) as per Appendix VI for each production cycle.	E. Confirm that the farm has informed ASC whether copper antifoulants are used on farm (Appendix VI).
Footnote	[73] Under the SAD, "copper-treated net" is defined as a net that has been treated with any copper-containing substance (such as a copper-based antifoulant) during the previous 18 months, or has not undergone thorough cleaning at a land-based facility since the last treatment. Farms that use nets that have, at some point prior in their lifespan, been treated with copper may still consider nets as untreated so long as sufficient time and cleaning has elapsed as in this definition. This will allow farms to move away from use of copper without immediately having to purchase all new nets.		
Footnote	[74] Light cleaning of nets is allowed. Intent of the standard is that, for example, the high-pressure underwater washers could not be used on copper treated nets under this standard because of the risk of copper flaking off during this type of heavy or more thorough cleaning.		
4.7.2	<p>Indicator: For any farm that cleans nets at on-land sites, evidence that net-cleaning sites have effluent treatment [75]</p> <p>Requirement: Yes</p> <p>Applicability: All farms except as noted in [71]</p>	a. Declare to the CAB whether nets are cleaned on-land.	A. Review declaration and cross-check with records from 4.7.1b. If nets are not cleaned on land, Indicator 4.7.2 does not apply. If nets are cleaned on land, proceed to 4.7.2B.
		b. If nets are cleaned on-land, obtain documentary evidence from each net-cleaning facility that effluent treatment is in place.	B. Review documentary evidence to confirm that each net-cleaning facility has effluent treatment in place.
		c. If yes to 4.7.2b, obtain evidence that effluent treatment used at the cleaning site is an appropriate technology to capture of copper in effluents.	C. If applicable, review documentary evidence to confirm that land-based cleaning sites have appropriate technologies in place to capture copper in effluents and that they function as intended.
Footnote	[75] Treatment must have appropriate technologies in place to capture copper if the farm uses copper-treated nets.		
4.7.3	<p>Indicator: For farms that use copper nets or copper-treated nets, evidence of testing for copper level in the sediment outside of the AZE, following methodology in Appendix I-1</p>	Note: If the benthos throughout and immediately outside the full AZE is hard bottom, provide evidence to the CAB and request an exemption from Indicator 4.7.3 (see 2.1.1c).	
		a. Declare to the CAB whether the farm uses copper nets or copper-treated nets. (See also 4.7.1c). If "no", Indicator 4.7.3 does not apply.	A. Review declaration and cross-check against declaration from 4.7.1c. Record whether Indicator 4.7.3 is applicable to the client.

	<p>Requirement: Yes</p> <p>Applicability: All farms except as noted in [71]</p>	<p>b. If "yes" in 4.7.3a, measure and record copper in sediment samples from the reference stations specified in 2.1.1d and 2.1.2c which lie outside the AZE.</p> <p>c. If "yes" in 4.7.3a, maintain records of testing methods, equipment, and laboratories used to test copper level in sediments from 4.7.3b.</p>	<p>B. As applicable, verify the farm tested sediment samples for copper from the reference stations specified in 2.1.1d and 2.1.2c which lie outside the AZE.</p> <p>C. Verify the measurements were taken using appropriate equipment and testing methods.</p>
4.7.4	<p>Indicator: Evidence that copper levels [76] are < 34 mg Cu/kg dry sediment weight, or, in instances where the Cu in the sediment exceeds 34 mg Cu/kg dry sediment weight, demonstration that the Cu concentration falls within the range of background concentrations as measured at three reference sites in the water body</p> <p>Requirement: Yes</p> <p>Applicability: All farms except as noted in [71] and excluding those farms shown to be exempt from Indicator 4.7.3</p>	<p>a. Inform the CAB whether: 1) farm is exempt from Indicator 4.7.4 (as per 4.7.3a), or 2) Farm has conducted testing of copper levels in sediment.</p> <p>b. Provide evidence from measurements taken in 4.7.3b that copper levels are < 34 mg Cu/kg dry sediment weight.</p> <p>c. If copper levels in 4.7.4b are ≥ 34 mg Cu/kg dry sediment weight, provide evidence the farm tested copper levels in sediments from reference sites as described in Appendix I-1 (also see Indicators 2.1.1 and 2.1.2).</p> <p>d. Analyze results from 4.7.4c to show the background copper concentrations as measured at three reference sites in the water body.</p> <p>e. Submit data on copper levels in sediments to ASC as per Appendix VI for each production cycle.</p>	<p>A. Document and verify applicability of 4.7.4 to client (see also 4.7.3A)</p> <p>B. Verify that copper levels are < 34 mg Cu/kg sediment. If no, proceed to 4.7.4C.</p> <p>C. If applicable, review evidence to confirm that farm followed Appendix I-1 for testing copper levels at reference sites.</p> <p>D. As applicable, review data to confirm that copper levels fall within the range of background concentrations as measured at reference sites.</p> <p>E. Confirm that farm has submitted to ASC data on copper levels in sediment (Appendix VI).</p>
Footnote	[76] According to testing required under 4.7.3. The standards related to testing of copper are only applicable to farms that use copper-based nets or copper-treated nets.		
4.7.5	<p>Indicator: Evidence that the type of biocides used in net antifouling are approved according to legislation in the European Union, or the United States, or Australia</p> <p>Requirement: Yes</p> <p>Applicability: All farms except as noted in [71]</p>	<p>a. Identify all biocides used by the farm in net antifouling.</p> <p>b. Compile documentary evidence to show that each chemical used in 4.7.5a is approved according to legislation in one or more of the following jurisdictions: the European Union, the United States, or Australia.</p>	<p>A. Review list of biocides and cross-check against treatment records (see 4.7.2b) and purchase records.</p> <p>B. Review documentary evidence to confirm compliance.</p>
PRINCIPLE 5: MANAGE DISEASE AND PARASITES IN AN ENVIRONMENTALLY RESPONSIBLE MANNER			
<i>Criterion 5.1 Survival and health of farmed fish [77]</i>			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[77] See Appendix VI for transparency requirements for 5.1.4, 5.1.5 and 5.1.6.		
5.1.1	<p>Indicator: Evidence of a fish health management plan for the identification and monitoring of fish diseases, parasites and environmental conditions relevant for good fish health, including implementing corrective action when required</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>a. Prepare a fish health management plan that incorporates components related to identification and monitoring of fish disease and parasites. This plan may be part of a more comprehensive farm planning document.</p> <p>b. Ensure that the farm's current fish health management plan was reviewed and approved by the farm's designated veterinarian [78].</p>	<p>A. Obtain and review the farm's fish health management plan.</p> <p>B. Verify there is evidence to show that the farm's designated veterinarian [78] reviewed and approved the current version of the plan.</p>
5.1.2	<p>Indicator: Site visits by a designated veterinarian [78] at least four times a year, and by a fish health manager [79] at least once a month</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>a. Maintain records of visits by the designated veterinarian [78] and fish health managers [82]. If schedule cannot be met, a risk assessment must be provided.</p> <p>b. Maintain a current list of personnel who are employed as the farm's designated veterinarian(s) [78] and fish health manager(s) [79].</p> <p>c. Maintain records of the qualifications of persons identified in 5.1.2b.</p>	<p>A. Review documentary evidence of site visits to confirm a minimum number of visits as outlined in 5.1.2. Or review risk assessment.</p> <p>B. Confirm visits in 5.1.2a were performed by the farm's designated health professionals.</p> <p>C. Review evidence for qualifications of the farm's health professionals.</p>

Footnote	[78] A designated veterinarian is the professional responsible for health management on the farm who has the legal authority to diagnose disease and prescribe medication. In some countries such as Norway, a fish health biologist or other professional has equivalent professional qualifications and is equivalent to a veterinarian for purposes of these standards. This definition applies to all references to a veterinarian throughout the standards document.		
Footnote	[79] A fish health manager is someone with professional expertise in managing fish health, who may work for a farming company or for a veterinarian, but who does not necessarily have the authority to prescribe medicine.		
5.1.3	<p>Indicator: Percentage of dead fish removed and disposed of in a responsible manner</p> <p>Requirement: 100% [80]</p> <p>Applicability: All</p>	<p>a. Maintain records of mortality removals to show that dead fish are removed regularly and disposed of in a responsible manner.</p> <p>b. Collect documentation to show that disposal methods are in line with practices recommended by fish health managers and/or relevant legal authorities.</p> <p>c. For any exceptional mortality event where dead fish were not collected for post-mortem analysis, keep a written justification.</p>	<p>A. Review records of mortality removals to confirm completeness and accuracy. Cross-check against 5.1.4 and calculations of escapes and unexplained loss.</p> <p>B. Review client submission. Inspect the farm's system for mortality removals and disposals during the on site audit.</p> <p>C. Review the farm's justification for any exceptional mortality event where dead fish were not collected for post-mortem analysis (this situation should be a rare occurrence).</p>
Footnote	[80] The SAD recognizes that not all mortality events will result in dead fish present for collection and removal. However, such situations are considered the exception rather than the norm.		
5.1.4	<p>Indicator: Percentage of mortalities that are recorded, classified and receive a post-mortem analysis</p> <p>Requirement: 100% [81]</p> <p>Applicability: All</p>	<p>Note: Farms are required to maintain mortality records from the current and two previous production cycles. For first audit, records for the current and prior production cycle are required. It is recommended that farms maintain a compiled set of records to demonstrate compliance with 5.1.3 - 5.1.6.</p> <p>a. Maintain detailed records for all mortalities and post-mortem analyses including: - date of mortality and date of post-mortem analysis; - total number of mortalities and number receiving post-mortem analysis; - name of the person or lab conducting the post-mortem analyses; - qualifications of the individual (e.g. veterinarian [78], fish health manager [79]); - cause of mortality (specify disease or pathogen) where known; and - classification as 'unexplained' when cause of mortality is unknown (see 5.1.6).</p> <p>b. For each mortality event, ensure that post-mortem analyses are done on a statistically relevant number of fish and keep a record of the results.</p> <p>c. If on-site diagnosis is inconclusive and disease is suspected or results are inconclusive over a 1-2 week period, ensure that fish are sent to an off-site laboratory for diagnosis and keep a record of the results (5.1.4a).</p> <p>d. Using results from 5.1.3a-c, classify each mortality event and keep a record of those classifications.</p> <p>e. Provide additional evidence to show how farm records in 5.1.4a-d cover all mortalities from the current and previous two production cycles (as needed).</p> <p>f. Submit data on numbers and causes of mortalities to ASC as per Appendix VI on an ongoing basis (i.e. at least once per year and for each production cycle).</p>	<p>A. Review records of mortalities to verify completeness and to confirm that post-mortem analyses were done by qualified individuals or labs.</p> <p>B. Review records to confirm the farm had post-mortem analysis done for each mortality event and that a statistically relevant number of fish were analyzed from each mortality event.</p> <p>C. Review records to confirm that any inconclusive on-site diagnoses were sent to an off-site laboratory for further testing.</p> <p>D. Review mortality events to confirm the farm's classification was consistent with results from post-mortem analyses. Where cause was not determined verify that classification was plausible given available info.</p> <p>E. Review evidence to confirm compliance with requirements.</p> <p>F. Confirm that client has submitted data from post-mortem analyses and cause and number of mortalities to ASC (Appendix VI).</p>
Footnote	[81] If on-site diagnosis is inconclusive, this standard requires off-site laboratory diagnosis. A qualified professional must conduct all diagnosis. One hundred percent of mortality events shall receive a post-mortem analysis, not necessarily every fish. A statistically relevant number of fish from the mortality event shall be analyzed.		
		a. Calculate the total number of mortalities that were diagnosed (see 5.1.4) as being related to viral disease.	A. Review and confirm the calculated number of viral disease-related mortalities.

5.1.5	Indicator: Maximum viral disease-related mortality [82] on farm during the most recent production cycle Requirement: ≤ 10% Applicability: All	b. Combine the results from 5.1.5a with the total number of unspecified and unexplained mortalities from the most recent complete production cycle. Divide this by the total number of fish produced in the production cycle (x100) to calculate percent maximum viral disease-related mortality.	B. Verify that the sum of confirmed viral disease-related mortalities plus unspecified & unexplained mortalities is ≤ 10% of the total number of fish produced during the most recent production cycle.
		c. Submit data on total mortality and viral disease-related mortality to ASC as per Appendix VI on an ongoing basis (i.e. at least once per year and for each production cycle).	C. Confirm that client has submitted data on mortality to ASC (Appendix VI).
Footnote [82] Viral disease-related mortality count shall include unspecified and unexplained mortality as it could be related to viral disease.			
5.1.6	Indicator: Maximum unexplained mortality rate from each of the previous two production cycles, for farms with total mortality > 6% Requirement: ≤ 40% of total mortalities Applicability: All farms with > 6% total mortality in the most recent complete production cycle.	a. Use records in 5.1.4a to calculate the unexplained mortality rate (%) for the most recent full production cycle. If rate was ≤ 6%, then the requirement of 5.1.6 does not apply. If total mortality rate was > 6%, proceed to 5.1.6b.	A. Review, confirm, and document whether 5.1.6 is applicable to the client. If applicable, proceed to 5.1.6B.
		b. Calculate the unexplained mortality rate (%) for each of the two production cycles immediately prior to the current cycle. For first audit, calculation must cover one full production cycle immediately prior to the current cycle.	B. Review and confirm that ≤ 40% of total mortalities were from unexplained causes for each of the two previous production cycles
		c. Submit data on maximum unexplained mortality to ASC as per Appendix VI for each production cycle.	C. Confirm that client has submitted data on unexplained mortality to ASC (Appendix VI).
5.1.7	Indicator: A farm-specific mortalities reduction program that includes defined annual targets for reductions in mortalities and reductions in unexplained mortalities Requirement: Yes Applicability: All	Note: Farms have the option to integrate their farm-specific mortality reduction program into the farm's fish health management plan (5.1.1).	
		a. Use records in 5.1.4a to assemble a time-series dataset on farm-specific mortalities rates and unexplained mortality rates.	A. Confirm that the farm used mortalities records to assemble a detailed dataset on mortality rates which covers the required timeframe (see 5.1.4).
		b. Use the data in 5.1.7a and advice from the veterinarian and/or fish health manager to develop a mortalities-reduction program that defines annual targets for reductions in total mortality and unexplained mortality.	B. Review program to confirm that targets for mortality reduction are reasonable and based on historical data.
		c. Ensure that farm management communicates with the veterinarian, fish health manager, and staff about annual targets and planned actions to meet targets.	C. Interview workers to confirm their understanding of mortalities recording, classification, and annual targets for reduction (see also 5.1.1, 5.1.3).
Criterion 5.2 Therapeutic treatments [83]			
Footnote [83] See Appendix VI for transparency requirements for 5.2.1, 5.2.5, 5.2.6 and 5.2.10.		Compliance Criteria (Required Client Actions):	
		Auditor Evaluation (Required CAB Actions):	
Instruction to Clients and CABs for Criterion 5.2 - Records Related to Therapeutic Treatments			
Indicator 5.2.1 requires that farms maintain detailed record of all chemical and therapeutant use. Those records maintained for compliance with 5.2.1, if all consolidated into a single place, can be used to demonstrate performance against subsequent Indicators (5.2.1 through 5.2.10) under Criterion 5.2.			
5.2.1	Indicator: On-farm documentation that includes, at a minimum, detailed information on all chemicals [84] and therapeutants used during the most recent production cycle, the amounts used (including grams per ton of fish produced), the dates used, which group of fish were treated and against which diseases, proof of proper dosing, and all disease and pathogens detected on the site	a. Maintain a detailed record of all chemical and therapeutant use that includes: - name of the veterinarian prescribing treatment; - product name and chemical name; - reason for use (specific disease) - date(s) of treatment; - amount (g) of product used; - dosage; - t of fish treated; - the WHO classification of antibiotics (also see note under 5.2.8); and - the supplier of the chemical or therapeutant.	A. Review records of chemical and therapeutant use. Verify accuracy through cross-check with purchase orders and sales records, inventories, documentation from feed manufacturer for any in-feed treatment, and veterinary records.

	<p>Requirement: Yes</p> <p>Applicability: All</p>	<p>b. If not already available, assemble records of chemical and therapeutant use to address all points in 5.2.1a for the previous two production cycles. For first audits, available records must cover one full production cycle immediately prior to the current cycle.</p>	<p>B. Confirm that farm has detailed records for chemical and therapeutant use that covers the previous two production cycles.</p>
		<p>c. Submit information on therapeutant use (data from 5.2.1a) to ASC as per Appendix VI on an ongoing basis (i.e. at least once per year and for each production cycle).</p>	<p>C. Confirm that client has submitted therapeutant information to ASC (Appendix VI).</p>
Footnote	[84] Chemicals used for the treatment of fish.		
5.2.2	<p>Indicator: Allowance for use of therapeutic treatments that include antibiotics or chemicals that are banned [85] in any of the primary salmon producing or importing countries [86]</p> <p>Requirement: None</p> <p>Applicability: All</p>	<p>a. Prepare a list of therapeutants, including antibiotics and chemicals, that are proactively banned for use in food fish for the primary salmon producing and importing countries listed in [86].</p>	<p>A. Review list and supporting evidence. If ASC has agreed to maintain a list of relevant therapeutants, farm can demonstrate that they have this list.</p>
		<p>b. Maintain records of voluntary and/or mandatory chemical residue testing conducted or commissioned by the farm from the prior and current production cycles.</p>	<p>B. Verify records.</p>
		-	<p>C. Cross-check records of therapeutant use (5.2.1a) against the list of banned therapeutants to verify compliance with requirements.</p>
Footnote	[85] "Banned" means proactively prohibited by a government entity because of concerns around the substance. A substance banned in any of the primary salmon-producing or importing countries, as defined here, cannot be used in any salmon farm certified under the SAD, regardless of country of production or destination of the product. The SAD recommends that ASC maintain a list of a banned therapeutants.		
Footnote	[86] For purposes of this standard, those countries are Norway, the UK, Canada, Chile, the United States, Japan and France.		
5.2.3	<p>Indicator: Percentage of medication events that are prescribed by a veterinarian</p> <p>Requirement: 100%</p> <p>Applicability: All</p>	<p>a. Obtain prescription for all therapeutant use in advance of application from the farm veterinarian (or equivalent, see [78] for definition of veterinarian).</p>	<p>A. Review documentary evidence (on-farm records, veterinary records, and prescriptions) to confirm all therapeutants were prescribed by a qualified individual. See [78] for definition of veterinarian.</p>
		<p>b. Maintain copies of all prescriptions and records of veterinarian responsible for all medication events. Records can be kept in conjunction with those for 5.2.1 and should be kept for the current and two prior production cycles.</p>	<p>B. Cross-check with results from chemical residue testing provided under 5.2.2b.</p>
5.2.4	<p>Indicator: Compliance with all withholding periods after treatments</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>a. Incorporate withholding periods into the farm's fish health management plan (see 5.1.1a).</p>	<p>A. Review the farm's fish health management plan to confirm inclusion of withholding periods and interview farm staff to verify implementation.</p>
		<p>b. Compile and maintain documentation on legally-required withholding periods for all treatments used on-farm. Withholding period is the time interval after the withdrawal of a drug from the treatment of the salmon before the salmon can be harvested for use as food.</p>	<p>B. Review documentation for completeness and accuracy. Compare to records of therapeutant use (5.2.1a).</p>
		<p>c. Show compliance with all withholding periods by providing treatment records (see 5.2.1a) and harvest dates for the most recent production cycle.</p>	<p>C. Review documentary evidence and, if applicable, results from chemical residue testing (5.2.2b), to confirm legal withholding periods were met for the most recent production cycle and harvest.</p>
5.2.5	<p>Indicator: Maximum farm level cumulative parasiticide treatment index (PTI) score as calculated according to the formula in Appendix VII</p> <p>Requirement: PTI score \leq 13</p> <p>Applicability: All</p>	<p>a. Using farm data for therapeutants usage (5.2.1a) and the formula presented in Appendix VII, calculate the cumulative parasiticide treatment index (PTI) score for the most recent production cycle. Calculation should be made and updated on an ongoing basis throughout the cycle by farm manager, fish health manager, and/or veterinarian.</p>	<p>A. Review the farm's calculations to verify that the PTI score was calculated correctly and that the scores are accurate. Cross-check with records of parasiticide use.</p>
		<p>b. Provide the auditor with access to records showing how the farm calculated the PTI score.</p>	<p>B. Verify that the farm level cumulative PTI score \leq 13.</p>

		c. Submit data on farm level cumulative PTI score to ASC as per Appendix VI for each production cycle.	C. Confirm that client has submitted data on cumulative PTI score to ASC (Appendix VI).
5.2.6	<p>Indicator: For farms with a cumulative PTI ≥ 6 in the most recent production cycle, demonstration that parasiticide load [87] is at least 15% less than that of the average of the two previous production cycles</p> <p>Requirement: Yes</p> <p>Applicability: All farms with a cumulative PTI ≥ 6 in the most recent production cycle</p>	a. Review PTI scores from 5.2.5a to determine if cumulative PTI ≥ 6 in the most recent production cycle. If yes, proceed to 5.2.6b; if no, Indicator 5.2.6 does not apply.	A. Review farm's cumulative PTI score to determine if Indicator 5.2.6 is applicable.
		b. Using results from 5.2.5 and the weight of fish treated (kg), calculate parasiticide load in the most recent production cycle [90].	B. Review the farm's calculation of parasiticide load to verify accuracy.
		c. Calculate parasiticide load in the two previous production cycles as above (5.2.6b) and compute the average. Calculate the percent difference in parasiticide load between current cycle and average of two previous cycles. For first audit, calculation must cover one full production cycle immediately prior to the current cycle.	C. Review farm's calculations to verify that parasiticide load for the most recent production cycle is at least 15% less than that of the two previous cycles.
		d. As applicable, submit data to ASC on parasiticide load for the most recent production cycle and the two previous production cycles (Appendix VI).	D. Confirm that client has submitted data on parasiticide load to ASC (Appendix VI) as applicable.
Footnote	[87] Parasiticide load = Sum (kg of fish treated x PTI). Reduction in load required regardless of whether production increases on the site. Farms that consolidate production across multiple sites within an ABM can calculate reduction based on the combined parasiticide load of the consolidated sites.		
5.2.7	<p>Indicator: Allowance for prophylactic use of antimicrobial treatments [88]</p> <p>Requirement: None</p> <p>Applicability: All</p>	a. Maintain records for all purchases of antibiotics (invoices, prescriptions) for the current and prior production cycles.	A. Review purchase records and calculate total amount procured by client. Inspect storage areas to verify quantities on-site.
		b. Maintain a detailed log of all medication-related events (see also 5.2.1a and 5.2.3)	B. Review log of medication events to verify that the quantity of antibiotic applied by the client does not suggest prophylactic use.
		c. Calculate the total amount (g) and treatments (#) of antibiotics used during the current and prior production cycles (see also 5.2.9).	C. Verify that the total amount of antibiotics used in the current production cycle is equal to the total amount prescribed.
Footnote	[88] The designated veterinarian must certify that a pathogen or disease is present before prescribing medication.		
5.2.8	<p>Indicator: Allowance for use of antibiotics listed as critically important for human medicine by the World Health Organization (WHO [89])</p> <p>Requirement: None [90]</p> <p>Applicability: All</p>	<p>Note 1: Farms have the option to certify only a portion of the fish or farm site when WHO-listed [89] antibiotics have been used at the production facility (see 5.2.8d). To pursue this option, farms must request an exemption from the CAB in advance of the audit and provide sufficient records giving details on which pens were treated and traceability of those treated fish.</p> <p>Note 2: It is recommended that the farm veterinarian review the WHO list [see 89] in detail and be aware that the list is meant to show examples of members of each class of drugs, and is not inclusive of all drugs.</p>	
		a. Maintain a current version of the WHO list of antimicrobials critically and highly important for human health [89].	A. Confirm that the farm has the current copy of the WHO list of antibiotics.
		b. If the farm has <u>not</u> used any antibiotics listed as critically important (5.2.8a) in the current production cycle, inform the CAB and proceed to schedule the audit.	B. During the on-site audit, verify that no antibiotics listed as "critically important" have been used on the farm through cross-check of records for 5.2.1 and 5.2.7.
		c. If the farm <u>has</u> used antibiotics listed as critically important (5.2.8a) to treat any fish during the current production cycle, inform the CAB prior to scheduling audit.	C. Make note of the farm's antibiotic usage and do not schedule an on-site audit until the client provides additional information as specified in 5.2.8d.
		d. If yes to 5.2.8c, request an exemption from the CAB to certify only a portion of the farm. Prior to the audit, provide the CAB with records sufficient to establish details of treatment, which pens were treated, and how the farm will ensure full traceability and separation of treated fish through and post-harvest.	D. Review the farm's exemption request and supporting documents to verify that the farm can satisfactorily demonstrate traceability [90] to merit an exemption.
Footnote	[89] The fifth edition of the WHO list of critically and highly important antimicrobials was released in 2009 and is available at: http://www.who.int/foodsafety/publications/antimicrobials-fifth/en/ .		
Footnote	[90] If the antibiotic treatment is applied to only a portion of the pens on a farm site, fish from pens that did not receive treatment are still eligible for certification.		

5.2.9	Indicator: Number of treatments [91] of antibiotics over the most recent production cycle Requirement: ≤ 3 Applicability: All	Note: for the purposes of Indicator 5.2.9, "treatment" means a single course of medication given to address a specific disease issue and that may last a number of days and be applied in one or more pens (or cages).	
		a. Maintain records of all treatments of antibiotics (see 5.2.1a). For first audits, farm records must cover the current and immediately prior production cycles in a verifiable statement.	A. Review documents to confirm that the client maintains a record of all treatments of antibiotics. Cross-check against records of on-farm chemical & therapeutant use (5.2.1a), medication events (5.2.3a), and prescription records (5.2.3b).
		b. Calculate the total number of treatments of antibiotics over the most recent production cycle and supply a verifiable statement of this calculation.	B. Confirm that the client used ≤ 3 treatments of antibiotics over the most recent production cycle.
Footnote	[91] A treatment is a single course medication given to address a specific disease issue and that may last a number of days.		
5.2.10	Indicator: If more than one antibiotic treatment is used in the most recent production cycle, demonstration that the antibiotic load [92] is at least 15% less than that of the average of the two previous production cycles Requirement: Yes [93] Applicability: All	Note: Indicator 5.2.10 requires that farms must demonstrate a reduction in load required, regardless of whether production increases on the site. Farms that consolidate production across multiple sites within an ABM can calculate reduction based on the combined antibiotic load of the consolidated sites.	
		a. Use results from 5.2.9b to show whether more than one antibiotic treatment was used in the most recent production cycle. If not, then the requirement of 5.2.10 does not apply. If yes, then proceed to 5.2.10b.	A. Review results to confirm whether 5.2.10 is applicable to the client. Record the results and, if applicable, proceed to 5.2.10B.
		b. Calculate antibiotic load (antibiotic load = the sum of the total amount of active ingredient of antibiotic used in kg) for most recent production cycle and for the two previous production cycles. For first audit, calculation must cover one full production cycle immediately prior to the current cycle.	B. Review farm's calculations for accuracy and completeness of coverage. Cross-check against treatment records (5.2.1a).
		c. Provide the auditor with calculations showing that the antibiotic load of the most recent production cycle is at least 15% less than that of the average of the two previous production cycles.	C. Review evidence to verify that farm complies with requirement.
		d. Submit data on antibiotic load to ASC as per Appendix VI (if applicable) for each production cycle.	D. Confirm that client has submitted data on antibiotic load to ASC (Appendix VI) as applicable.
Footnote	[92] Antibiotic load = the sum of the total amount of active ingredient of antibiotics used (kg).		
Footnote	[93] Reduction in load required, regardless of whether production increases on the site. Farms that consolidate production across multiple sites within an ABM can calculate reduction based on the combined antibiotic load of the consolidated sites.		
5.2.11	Indicator: Presence of documents demonstrating that the farm has provided buyers [94] of its salmon a list of all therapeutants used in production Requirement: Yes Applicability: All	a. Prepare a procedure which outlines how the farm provides buyers [94] of its salmon with a list of all therapeutants used in production (see 4.4.3b).	A. Review the farm's procedure and confirm implementation based on relevant documentary evidence (e.g. sales records, invoices).
		b. Maintain records showing the farm has informed all buyers of its salmon about all therapeutants used in production.	B. Review sales records for completeness and cross-check against treatment records (5.2.1a) to verify that buyers were adequately informed about therapeutants used in production.
Footnote	[94] Buyer: The company or entity to which the farm or the producing company is directly selling its product.		
<i>Criterion 5.3 Resistance of parasites, viruses and bacteria to medicinal treatments</i>			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):

5.3.1	<p>Indicator: Bio-assay analysis to determine resistance when two applications of a treatment have not produced the expected effect</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 5.3.1 - Identifying the 'Expected Effect' of Medicinal Treatment</p> <p>Indicator 5.3.1 requires that farms identify treatments that have not produced the expected effect. The SAD Steering Committee recognizes that the “expected effect” will vary with health condition and type of medicinal treatment. Therefore farms and auditors will need to review the pre- and post-treatment condition of fish in order to understand and evaluate the impact of treatment.</p> <p><u>Example: sea lice treatment with emamectin benzoate</u></p> <p>The SAD SC recommends that a typical baseline for effectiveness of emamectin benzoate is a minimum of 90 percent reduction in abundance of lice on the farmed fish. To determine whether treatment has produced the expected effect, farm and auditor must review pre- and post-treatment lice counts. If the calculated percent reduction in lice is < 90% then the treatment did not produce the expected effect and a bio-assay should be performed to determine whether sea lice have developed resistance.</p> <p>Note: If field-based bio-assays for determining resistance are ineffective or unavailable, the farm shall have samples analyzed by an independent laboratory to determine resistance formation. The auditor shall record in the audit report why field-based bio-assays were deemed ineffective and shall include results from the laboratory analyses of resistance formation.</p>	
		a. In addition to recording all therapeutic treatments (5.2.1a), keep a record of all cases where the farm uses two successive medicinal treatments.	A. Review farm records to confirm recording of all successive medicinal treatments.
		b. Whenever the farm uses two successive treatments, keep records showing how the farm evaluates the observed effect of treatment against the expected effect of treatment.	B. If applicable, review how the farm evaluates the observed effect of treatment against the expected effect of treatment.
		c. For any result of 5.3.1b that did not produce the expected effect, ensure that a bio-assay analysis of resistance is conducted.	C. Review farm records to confirm that bio-assays were done in every case where successive treatments did not produce the expected effect. Confirm that bio-assays were performed by a qualified independent laboratory.
		d. Keep a record of all results arising from 5.3.1c.	D. Verify that farm maintains records from bio-assays (as applicable).
5.3.2	<p>Indicator: When bio-assay tests determine resistance is forming, use of an alternative, permitted treatment, or an immediate harvest of all fish on the site</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Review results of bio-assay tests (5.3.1d) for evidence that resistance has formed. If yes, proceed to 5.3.2b. If no, then Indicator 5.3.2 is not applicable.	A. Review evidence from bio-assay tests to determine whether Indicator 5.3.2 is applicable.
		b. When bio-assay tests show evidence that resistance has formed, keep records showing that the farm took one of two actions: - used an alternative treatment (if permitted in the area of operation); or - immediately harvested all fish on site.	B. If applicable, review records to verify that the farm either used an alternative treatment that is permitted in the area of operation or else harvested all fish on site.
Criterion 5.4 Biosecurity management [95]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
Footnote	[95] See Appendix VI for transparency requirements for 5.4.2 and 5.4.4.		
5.4.1	<p>Indicator: Evidence that all salmon on the site are a single-year class [96]</p> <p>Requirement: 100% [97]</p> <p>Applicability: All farms except as noted in [97]</p>	a. Keep records of the start and end dates of periods when the site is fully fallow after harvest.	A. Review records and verify fallow periods by cross-checking during interviews with farm staff and community representatives.
		b. Provide evidence of stocking dates (purchase receipts, delivery records) to show that there were no gaps > 6 months for smolt inputs for the current production cycle.	B. Review evidence to confirm there were no gaps in smolt inputs > 6 months. Inspect pens during the on-site audit to see if fish size (which may be variable) is consistent with the production of a single-year class.
		-	C. Verify that the available evidence shows that salmon on the site are from a single-year class.
Footnote	[96] Gaps of up to six months between inputs of smolts derived from the same stripping are acceptable as long as there remains a period of time when the site is fully fallow after harvest.		
Footnote	[97] Exception is allowed for: 1) farm sites that have closed, contained production units where there is complete separation of water between units and no sharing of filtration systems or other systems that could spread disease, or, 2) farm sites that have ≥95% water recirculation, a pre-entry disease screening protocol, dedicated quarantine capability and biosecurity measures for waste to ensure there is no discharge of live biological material to the natural environment (e.g. UV or other effective treatment of effluent) .		

5.4.2	<p>Indicator: Evidence that if the farm suspects an unidentifiable transmissible agent, or if the farm experiences unexplained increased mortality, [98] the farm has:</p> <ol style="list-style-type: none"> 1. Reported the issue to the ABM and to the appropriate regulatory authority 2. Increased monitoring and surveillance [99] on the farm and within the ABM 3. Promptly [100] made findings publicly available <p>Requirement: Yes</p> <p>Applicability: All</p>	a. For mortality events logged in 5.1.4a, show evidence that the farm promptly evaluated each to determine whether it was a statistically significant increase over background mortality rate on a monthly basis [98]. The accepted level of significance (for example, $p < 0.05$) should be agreed between farm and CAB.	A. Review evidence to confirm that the farm evaluated mortality events for statistically significant increases relative to background mortality rates (compare to farm's time-series dataset in 5.1.7a).	
		b. For mortality events logged in 5.1.4a, record whether the farm did or did not suspect (yes or no) an unidentified transmissible agent.	B. Determine if the farm suspected any unidentified transmissible agents associated with mortality events during the most recent production cycle. An abrupt increase in unexplained mortality should be cause for suspicion.	
		c. Proceed to 5.4.2d if, during the most recent production cycle, either: - results from 5.4.2a showed a statistically significant increase in unexplained mortalities; or - the answer to 5.4.2b was 'yes'. Otherwise, Indicator 5.4.2 is not applicable.	C. Confirm that the farm took the correct action based on results from 5.4.2a and 5.4.2b and whether 5.4.2d is applicable to the farm.	
		d. If required, ensure that the farm takes and records the following steps: 1) Report the issue to the ABM and to the appropriate regulatory authority; 2) Increase monitoring and surveillance [99] on the farm and within the ABM; and 3) Promptly (within one month) make findings publicly available.	D. If applicable, verify that the farm keeps records to show how each of the required steps was completed.	
		e. As applicable, submit data to ASC as per Appendix VI about unidentified transmissible agents or unexplained increases in mortality. If applicable, then data are to be sent to ASC on an ongoing basis (i.e. at least once per year and for each production cycle).	E. Confirm that client submits data to ASC (Appendix VI) about unidentified transmissible agents or unexplained increases in mortality as applicable.	
Footnote	[98] Increased mortality: A statistically significant increase over background rate on a monthly basis.			
Footnote	[99] Primary aim of monitoring and surveillance is to investigate whether a new or adapted disease is present in the area.			
Footnote	[100] Within one month.			
5.4.3	<p>Indicator: Evidence of compliance [101] with the OIE Aquatic Animal Health Code [102]</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 5.4.3 - Compliance with the OIE Aquatic Animal Health Code</p> <p>Indicator 5.4.3 requires that farms show evidence of compliance with the OIE Aquatic Animal Health Code (see http://www.oie.int/index.php?id=171). Compliance is defined as farm practices consistent with the intentions of the Code. For purposes of the ASC Salmon Standard, this means that the farm must have written procedures stating how the farm will initiate an aggressive response to detection of an exotic OIE-notifiable disease on the farm ['exotic' = not previously found in the area or had been fully eradicated (area declared free of the pathogen)]. An aggressive response will involve, at a minimum, the following actions:</p> <ul style="list-style-type: none"> - depopulation of the infected site; - implementation of quarantine zones (see note below) in accordance with guidelines from OIE for the specific pathogen; and - additional actions as required under Indicator 5.4.4. <p>To demonstrate compliance with Indicator 5.4.3, clients have the to option to describe how farm practices are consistent with the intentions of the OIE Aquatic Animal Health Code by developing relevant policies and procedures and integrating them into the farm's fish health management plan.</p> <p>Note: The Steering Committee recognizes that establishment of quarantine zones will likely incorporate mandatory depopulation of sites close to the infected site and affect some, though not necessarily all, of the ABM.</p>		
		a. Maintain a current version of the OIE Aquatic Animal Health Code on site or ensure staff have access to the most current version.	A. Verify that farm management is aware of practices described in the most current version of the code during interviews.	
		b. Develop policies and procedures as needed to ensure that farm practices remain consistent with the OIE Aquatic Animal Health Code (5.4.3a) and with actions required under indicator 5.4.4.	B. Review farm policies and procedures to verify that the farm has documented how its practices are consistent with the OIE Aquatic Animal Health Code and Indicator 5.4.4.	
		-	C. During the on-site inspection look for evidence that policies and procedures in 5.4.3a are implemented. Cross-check in interviews with staff.	

Footnote	[101] Compliance is defined as farm practices consistent with the intentions of the Code, to be further outlined in auditing guidance. For purposes of this standard, this includes an aggressive response to detection of an exotic OIE-notifiable disease on the farm, which includes depopulating the infected site and implementation of quarantine zones in accordance with guidelines from OIE for the specific pathogen. Quarantine zones will likely incorporate mandatory depopulation of sites close to the infected site and affect some, though not necessarily all, of the ABM. Exotic signifies not previously found in the area or had been fully eradicated (area declared free of the pathogen).		
Footnote	[102] OIE 2011. Aquatic Animal Health Code. http://www.oie.int/index.php?id=171 .		
5.4.4	<p>Indicator: If an OIE-notifiable disease [103] is confirmed on the farm, evidence that:</p> <ol style="list-style-type: none"> 1. the farm has, at a minimum, immediately culled the pen(s) in which the disease was detected 2. the farm immediately notified the other farms in the ABM [104] 3. the farm and the ABM enhanced monitoring and conducted rigorous testing for the disease 4. the farm promptly [105] made findings publicly available <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Ensure that farm policies and procedures in 5.4.3a describe the four actions required under Indicator 5.4.4 in response to an OIE-notifiable disease on the farm.	A. Review farm policies and procedures (see 5.4.3A) to verify that the farm has documented actions in response to an OIE-notifiable disease.
		b. Inform the CAB if an OIE-notifiable disease has been confirmed on the farm during the current production cycle or the two previous production cycles. If yes, proceed to 5.4.4c. If no, then 5.4.4c and 5.4.4d do not apply.	B. Record whether there were any OIE-notifiable diseases confirmed on the farm during the current or two previous production cycles.
		c. If an OIE-notifiable disease was confirmed on the farm (see 5.4.4b), then retain documentary evidence to show that the farm: <ol style="list-style-type: none"> 1) immediately culled the pen(s) in which the disease was detected; 2) immediately notified the other farms in the ABM [104] 3) enhanced monitoring and conducted rigorous testing for the disease; and 4) promptly (within one month) made findings publicly available. 	C. If applicable, review documentary evidence to verify the farm's response complied with the four actions required under Indicator 5.4.4.
		d. As applicable, submit data to ASC as per Appendix VI about any OIE-notifiable disease that was confirmed on the farm. If applicable, then data are to be sent to ASC on an ongoing basis (i.e. at least once per year and for each production cycle).	D. Confirm that client submits data to ASC (Appendix VI) about any OIE-notifiable disease that was confirmed on the farm (as applicable).
		-	E. If an OIE-notifiable disease was confirmed on the farm, verify that notifications were made to regulatory bodies required under law and the OIE Aquatic Animal Health Code [104].
Footnote	[103] At the time of publication of the final draft standards, OIE-notifiable diseases relevant to salmon aquaculture were: Epizootic haematopoietic necrosis, Infectious haematopoietic necrosis (IHN), Infectious salmon anemia (ISA), Viral hemorrhagic septicemia (VHS) and Gyrodactylosis (<i>Gyrodactylus salaris</i>).		
Footnote	[104] This is in addition to any notifications to regulatory bodies required under law and the OIE Aquatic Animal Health Code.		
Footnote	[105] Within one month.		
Social requirements in the standards shall be audited by an individual who is a lead auditor in conformity with SAAS Procedure 200 section 3.1.			
PRINCIPLE 6: DEVELOP AND OPERATE FARMS IN A SOCIALLY RESPONSIBLE MANNER			
6.1 Freedom of association and collective bargaining [106]			
		Compliance Criteria	
Footnote	[106] Bargain collectively: A voluntary negotiation between employers and organizations of workers in order to establish the terms and conditions of employment by means of collective (written) agreements.		
6.1.1	<p>Indicator: Evidence that workers have access to trade unions (if they exist) and union representative(s) chosen by themselves without managerial interference</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	a. Workers have the freedom to join any trade union, free of any form of interference from employers or competing organizations set up or backed by the employer. Farms shall prepare documentation to demonstrate to the auditor that domestic regulation fully meets these criteria.	
		b. Union representatives (or worker representatives) are chosen by workers without managerial interference. ILO specifically prohibits "acts which are designated to promote the establishment of worker organizations or to support worker organizations under the control or employers or employers' organizations."	
		c. Trade union representatives (or worker representatives) have access to their members in the workplace at reasonable times on the premises.	
		d. Be advised that workers and union representatives (if they exist) will be interviewed to confirm the above.	
	<p>Indicator: Evidence that workers are free to form organizations, including unions, to advocate for and</p>	a. Employment contract explicitly states the worker's right of freedom of association.	

6.1.2	protect their rights Requirement: Yes Applicability: All	b. Employer communicates that workers are free to form organizations to advocate for and protect work rights (e.g. farm policies on Freedom of Association; see 6.12.1). c. Be advised that workers will be interviewed to confirm the above.
6.1.3	Indicator: Evidence that workers are free and able to bargain collectively for their rights Requirement: Yes Applicability: All	a. Local trade union, or where none exists a reputable civil-society organization, confirms no outstanding cases against the farm site management for violations of employees' freedom of association and collective bargaining rights. b. Employer has explicitly communicated a commitment to ensure the collective bargaining rights of all workers. c. There is documentary evidence that workers are free and able to bargain collectively (e.g. collective bargaining agreements, meeting minutes, or complaint resolutions).
Criterion 6.2 Child labor		
		Compliance Criteria
6.2.1	Indicator: Number of incidences of child [107] labor [108] Requirement: None Applicability: All except as noted in [107]	a. In most countries, the law states that minimum age for employment is 15 years. There are two possible exceptions: - in developing countries where the legal minimum age may be set to 14 years (see footnote 108); or - in countries where the legal minimum age is set higher than 15 years, in which case the legal minimum age of the country is followed. If the farm operates in a country where the legal minimum ages is not 15, then the employer shall maintain documentation attesting to this fact. b. Minimum age of permanent workers is 15 or older (except in countries as noted above). c. Employer maintains age records for employees that are sufficient to demonstrate compliance.
Footnote	[107] Child: Any person under 15 years of age. A higher age would apply if the minimum age law of an area stipulates a higher age for work or mandatory schooling. Minimum age may be 14 if the country allows it under the developing country exceptions in ILO convention 138.	
Footnote	[108] Child Labor: Any work by a child younger than the age specified in the definition of a child.	
6.2.2	Indicator: Percentage of young workers [109] that are protected [110] Requirement: 100% Applicability: All	a. Young workers are appropriately identified in company policies & training programs, and job descriptions are available for all young workers at the site. b. All young workers (from age 15 to less than 18) are identified and their ages are confirmed with copies of IDs. c. Daily records of working hours (i.e. timesheets) are available for all young workers. d. For young workers, the combined daily transportation time and school time and work time does not exceed 10 hours. e. Young workers are not exposed to hazards [111] and do not perform hazardous work [112]. Work on floating cages in poor weather conditions shall be considered hazardous. f. Be advised that the site will be inspected and young workers will be interviewed to confirm compliance.
Footnote	[109] Young Worker: Any worker between the age of a child, as defined above, and under the age of 18.	
Footnote	[110] Protected: Workers between 15 and 18 years of age will not be exposed to hazardous health and safety conditions; working hours shall not interfere with their education and the combined daily transportation time and school time, and work time shall not exceed 10 hours.	
Footnote	[111] Hazard: The inherent potential to cause injury or damage to a person's health (e.g., unequipped to handle heavy machinery safely, and unprotected exposure to harmful chemicals).	
Footnote	[112] Hazardous work: Work that, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of workers (e.g., heavy lifting disproportionate to a person's body size, operating heavy machinery, exposure to toxic chemicals).	
Criterion 6.3 Forced, bonded or compulsory labor		
		Compliance Criteria

6.3.1	Indicator: Number of incidences of forced, [113] bonded [114] or compulsory labor Requirement: None Applicability: All	a. Contracts are clearly stated and understood by employees. Contracts do not lead to workers being indebted (i.e. no 'pay to work' schemes through labor contractors or training credit programs).
		b. Employees are free to leave workplace and manage their own time.
		c. Employer does not withhold employee's original identity documents.
		d. Employer does not withhold any part of workers' salaries, benefits, property or documents in order to oblige them to continue working for employer.
		e. Employees are not to be obligated to stay in job to repay debt.
		f. Maintain payroll records and be advised that workers will be interviewed to confirm the above.
Footnote	[113] Forced (Compulsory) labor: All work or service that is extracted from any person under the menace of any penalty for which a person has not offered himself/herself voluntarily or for which such work or service is demanded as a repayment of debt. "Penalty" can imply monetary sanctions, physical punishment, or the loss of rights and privileges or restriction of movement (e.g., withholding of identity documents).	
Footnote	[114] Bonded labor: When a person is forced by the employer or creditor to work to repay a financial debt to the crediting agency.	
Criterion 6.4 Discrimination [118]		
Compliance Criteria		
Footnote	[115] Discrimination: Any distinction, exclusion or preference that has the effect of nullifying or impairing equality of opportunity or treatment. Not every distinction, exclusion or preference constitutes discrimination. For instance, a merit- or performance-based pay increase or bonus is not by itself discriminatory. Positive discrimination in favor of people from certain underrepresented groups may be legal in some countries.	
6.4.1	Indicator: Evidence of comprehensive [116] and proactive anti-discrimination policies, procedures and practices Requirement: Yes Applicability: All	a. Employer has written anti-discrimination policy in place, stating that the company does not engage in or support discrimination in hiring, remuneration, access to training, promotion, termination or retirement based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, age or any other condition that may give rise to discrimination.
		b. Employer has clear and transparent company procedures that outline how to raise, file, and respond to discrimination complaints.
		c. Employer respects the principle of equal pay for equal work and equal access to job opportunities, promotions and raises.
		d. All managers and supervisors receive training on diversity and non-discrimination. All personnel receive non-discrimination training. Internal or external training acceptable if proven effective.
Footnote	[116] Employers shall have written anti-discrimination policies stating that the company does not engage in or support discrimination in hiring, remuneration, access to training, promotion, termination or retirement based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, age or any other condition that may give rise to discrimination.	
6.4.2	Indicator: Number of incidences of discrimination Requirement: None Applicability: All	a. Employer maintains a record of all discrimination complaints. These records do not show evidence for discrimination.
		b. Be advised that worker testimonies will be used to confirm that the company does not interfere with the rights of personnel to observe tenets or practices, or to meet needs related to race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation or any other condition that may give rise to discrimination.
Criterion 6.5 Work environment health and safety		
Compliance Criteria		
6.5.1	Indicator: Percentage of workers trained in health and safety practices, procedures [117] and policies on a yearly basis Requirement: 100% Applicability: All	a. Employer has documented practices, procedures (including emergency response procedures) and policies to protect employees from workplace hazards and to minimize risk of accident or injury. The information shall be available to employees.
		b. Employees know and understand emergency response procedures.
		c. Employer conducts health and safety training for all employees on a regular basis (once a year and immediately for all new employees), including training on potential hazards and risk minimization, Occupational Safety and Health (OSH) and effective use of PPE.
Footnote	[117] Health and safety training shall include emergency response procedures and practices.	

6.5.2	Indicator: Evidence that workers use Personal Protective Equipment (PPE) effectively Requirement: Yes Applicability: All	a. Employer maintains a list of all health and safety hazards (e.g. chemicals).
		b. Employer provides workers with PPE that is appropriate to known health and safety hazards.
		c. Employees receive annual training in the proper use of PPE (see 6.5.1c). For workers who participated in the initial training(s) previously an annual refreshment training may suffice, unless new PPE has been put to use.
		d. Be advised that workers will be interviewed to confirm the above.
6.5.3	Indicator: Presence of a health and safety risk assessment and evidence of preventive actions taken Requirement: Yes Applicability: All	a. Employer makes regular assessments of hazards and risks in the workplace. Risk assessments are reviewed and updated at least annually (see also 6.5.1a).
		b. Employees are trained in how to identify and prevent known hazards and risks (see also 6.5.1c).
		c. Health and safety procedures are adapted based on results from risk assessments (above) and changes are implemented to help prevent accidents.
6.5.4	Indicator: Evidence that all health- and safety-related accidents and violations are recorded and corrective actions are taken when necessary Requirement: Yes Applicability: All	a. Employer records all health- and safety-related accidents.
		b. Employer maintains complete documentation for all occupational health and safety violations and investigations.
		c. Employer implements corrective action plans in response to any accidents that occur. Plans are documented and they include an analysis of root cause, actions to address root cause, actions to remediate, and actions to prevent future accidents of similar nature.
		d. Employees working in departments where accidents have occurred can explain what analysis has been done and what steps were taken or improvements made.
6.5.5	Indicator: Evidence of employer responsibility and/or proof of insurance (accident or injury) for 100% of worker costs in a job-related accident or injury when not covered under national law Requirement: Yes Applicability: All	a. Employer maintains documentation to confirm that all personnel are provided sufficient insurance to cover costs related to occupational accidents or injuries (if not covered under national law). Equal insurance coverage must include temporary, migrant or foreign workers. Written contract of employer responsibility to cover accident costs is acceptable evidence in place of insurance.
6.5.6	Indicator: Evidence that all diving operations are conducted by divers who are certified Requirement: Yes Applicability: All	Note: If the farm outsources its diving operations to an independent company, the farm shall ensure that auditors have access to specified information sufficient to demonstrate compliance with Indicator 6.5.6. It is the farm's responsibility to obtain copies of relevant documentation (e.g. certificates) from the dive company.
		a. Employer keeps records of farm diving operations and a list of all personnel involved. In case an external service provider was hired, a statement that provider conformed to all relevant criteria must be made available to the auditor by this provider.
		b. Employer maintains evidence of diver certification (e.g. copies of certificates) for each person involved in diving operations. Divers shall be certified through an accredited national or international organization for diver certification.
Criterion 6.6 Wages		Compliance Criteria
6.6.1	Indicator: The percentage of workers whose basic wage [118] (before overtime and bonuses) is below the minimum wage [119] Requirement: 0 (None)	a. Employer keeps documents to show the legal minimum wage in the country of operation. If there is no legal minimum wage in the country, the employer keeps documents to show the industry-standard minimum wage. b. Employer's records (e.g. payroll) confirm that worker's wages for a standard work week (≤ 48 hours) always meet or exceed the legal minimum wage. If there is no legal minimum wage, the employer's records must show how the current wage meets or exceeds industry standard. If wages are based on piece-rate or pay-per-production, the employer's records must show how workers can reasonably attain (within regular working hours) wages that meet or exceed the legal minimum wage.

	Applicability: All	c. Maintain documentary evidence (e.g. payroll, timesheets, punch cards, production records, and/or utility records) and be advised that workers will be interviewed to confirm the above.
Footnote	[118] Basic wage: The wages paid for a standard working week (no more than 48 hours).	
Footnote	[119] If there is no legal minimum wage in a country, basic wages must meet the industry-standard minimum wage.	
6.6.2	Indicator: Evidence that the employer is working toward the payment of basic needs wage [120] Requirement: Yes Applicability: All	a. Proof of employer engagement with workers and their representative organizations, and the use of cost of living assessments from credible sources to assess basic needs wages. Includes review of any national basic needs wage recommendations from credible sources such as national universities or government. b. Employer has calculated the basic needs wage for farm workers and has compared it to the basic (i.e. current) wage for their farm workers. c. Employer demonstrates how they have taken steps toward paying a basic needs wage to their workers.
Footnote	[120] Basic needs wage: A wage that covers the basic needs of an individual or family, including housing, food and transport. This concept differs from a minimum wage, which is set by law and may or may not cover the basic needs of workers.	
6.6.3	Indicator: Evidence of transparency in wage-setting and rendering [121] Requirement: Yes Applicability: All	a. Wages and benefits are clearly articulated to workers and documented in contracts. b. The method for setting wages is clearly stated and understood by workers. c. Employer renders wages and benefits in a way that is convenient for the worker (e.g. cash, check, or electronic payment methods). Workers do not have to travel to collect benefits nor do they receive promissory notes, coupons or merchandise in lieu of payment. d. Be advised that workers will be interviewed to confirm the above.
Footnote	[121] Payments shall be rendered to workers in a convenient manner.	
Criterion 6.7 Contracts (labor) including subcontracting		
Compliance Criteria		
6.7.1	Indicator: Percentage of workers who have contracts [122] Requirement: 100% Applicability: All	a. Employer maintains a record of all employment contracts. b. There is no evidence for labor-only contracting relationships or false apprenticeship schemes. c. Be advised that workers will be interviewed to confirm the above.
Footnote	[122] Labor-only contracting relationships or false apprenticeship schemes are not acceptable. This includes revolving/consecutive labor contracts to deny benefit accrual or equitable remuneration. False Apprenticeship Scheme: The practice of hiring workers under apprenticeship terms without stipulating terms of the apprenticeship or wages under contract. It is a "false" apprenticeship if its purpose is to underpay people, avoid legal obligations or employ underage workers. Labor-only contracting arrangement: The practice of hiring workers without establishing a formal employment relationship for the purpose of avoiding payment of regular wages or the provision of legally required benefits, such as health and safety protections.	
6.7.2	Indicator: Evidence of a policy to ensure social compliance of its suppliers and contractors Requirement: Yes Applicability: All	a. Farm has a policy to ensure that all companies contracted to provide supplies or services (e.g. divers, cleaning, maintenance) have socially responsible practices and policies. b. Producing company has criteria for evaluating its suppliers and contractors. The company keeps a list of approved suppliers and contractors. c. Producing company keeps records of communications with suppliers and subcontractors that relate to compliance with 6.7.2.
Criterion 6.8 Conflict resolution		
Compliance Criteria		
6.8.1	Indicator: Evidence of worker access to effective, fair and confidential grievance procedures Requirement: Yes	a. Employer has a clear labor conflict resolution policy for the presentation, treatment, and resolution of worker grievances in a confidential manner. b. Workers are familiar with the company's labor conflict policies and procedures. There is evidence that workers have fair access.

	Applicability: All	c. Maintain documentary evidence (e.g. complaint or grievance filings, minutes from review meetings) and be advised that workers will be interviewed to confirm the above.
6.8.2	Indicator: Percentage of grievances handled that are addressed [123] within a 90-day timeframe Requirement: 100% Applicability: All	a. Employer maintains a record of all grievances, complaints and labor conflicts that are raised. b. Employer keeps a record of follow-up (i.e. corrective actions) and timeframe in which grievances are addressed. c. Maintain documentary evidence and be advised that workers will be interviewed to confirm that grievances are addressed within a 90-day timeframe.
Footnote	[123] Addressed: Acknowledged and received, moving through the company's process for grievances, corrective action taken when necessary.	
Criterion 6.9 Disciplinary practices		
Compliance criteria		
6.9.1	Indicator: Incidences of excessive or abusive disciplinary actions Requirement: None Applicability: All	a. Employer does not use threatening, humiliating or punishing disciplinary practices that negatively impact a worker's physical and mental health or dignity. b. Allegations of corporeal punishment, mental abuse [124], physical coercion, or verbal abuse will be investigated by auditors. c. Be advised that workers will be interviewed to confirm there is no evidence for excessive or abusive disciplinary actions.
Footnote	[124] Mental Abuse: Characterized by the intentional use of power, including verbal abuse, isolation, sexual or racial harassment, intimidation or threat of physical force.	
6.9.2	Indicator: Evidence of a functioning disciplinary action policy whose aim is to improve the worker [125] Requirement: Yes Applicability: All	a. Employer has written policy for disciplinary action which explicitly states that its aim is to improve the worker [125]. b. Maintain documentary evidence (e.g. worker evaluation reports) and be advised that workers will be interviewed to confirm that the disciplinary action policy is fair and effective.
Footnote	[125] If disciplinary action is required, progressive verbal and written warnings shall be engaged. The aim shall always be to improve the worker; dismissal shall be the last resort. Policies for bonuses, incentives, access to training and promotions are clearly stated and understood, and not used arbitrarily. Fines or basic wage deductions shall not be acceptable disciplinary practices.	
Criterion 6.10 Working hours and overtime		
Compliance criteria		
6.10.1	Indicator: Incidences, violations or abuse of working hours and overtime laws [126] Requirement: None Applicability: All	Note: Working hours, night work and rest periods for workers in agriculture should be in accordance with national laws and regulations or collective agreements (e.g. The Safety and Health in Agriculture Convention, 2001). Additional information can be found on the website of the International Labour Organization (www.ilo.org). a. Employer has documentation showing the legal requirements for working hours and overtime in the region where the farm operates. If local legislation allows workers to exceed internationally accepted recommendations (48 regular hours, 12 hours overtime) then requirements of the international standards apply. b. Records (e.g. time sheets and payroll) show that farm workers do not exceed the number of working hours allowed under the law. c. If an employer requires employees to work shifts at the farm (e.g. 10 days on and six days off), the employer compensates workers with an equivalent time off in the calendar month and there is evidence that employees have agreed to this schedule (e.g. in the hiring contract). d. Be advised that workers will be interviewed to confirm there is no abuse of working hours and overtime laws.
Footnote	[126] In cases where local legislation on working hours and overtime exceed internationally accepted recommendations (48 regular hours, 12 hours overtime), the international standards will apply.	
6.10.2	Indicator: Overtime is limited, voluntary [127], paid at a premium rate [128] and restricted to exceptional circumstances Requirement: Yes Applicability: All except as noted in [130]	a. Payment records (e.g. payslips) show that workers are paid a premium rate for overtime hours. b. Overtime is limited and occurs in exceptional circumstances as evidenced by farm records (e.g. production records, time sheets, and other records of working hours). c. Be advised that workers will be interviewed to confirm that all overtime is voluntary except where there is a collective bargaining agreement which specifically allows for compulsory overtime.

Footnote	[127] Compulsory overtime is permitted if previously agreed to under a collective bargaining agreement.	
Footnote	[128] Premium rate: A rate of pay higher than the regular work week rate. Must comply with national laws/regulations and/or industry standards.	
Criterion 6.11 Education and training		
		Compliance criteria
6.11.1	Indicator: Evidence that the company regularly performs training of staff in fish husbandry, general farm and fish escape management and health and safety procedures Requirement: Yes Applicability: All	a. Company has written policies related to continuing education of workers. Company provides incentives (e.g. subsidies for tuition or textbooks, time off prior to exams, flexibility in work schedule) that encourage workers to participate in educational initiatives. Note that such offers may be contingent on workers committing to stay with the company for a pre-arranged time.
		b. Employer maintains records of worker participation in educational opportunities as evidenced by course documentation (e.g. list of courses, curricula, certificates, degrees).
		c. Be advised that workers will be interviewed to confirm that educational initiatives are encouraged and supported by the company.
Criterion 6.12 Corporate policies for social responsibility		
		Compliance criteria
6.12.1	Indicator: Demonstration of company-level [129] policies in line with the standards under 6.1 to 6.11 above Requirement: Yes Applicability: All	a. Company-level policies are in line with all social and labor requirements presented in 6.1 through 6.11.
		b. Company-level policies (see 6.12.1a) are approved by the company headquarters in the region where the site applying for certification is located.
		c. The scope of corporate policies (see 6.12.1a) covers all company operations relating to salmonid production in the region (i.e. all smolt production facilities, grow-out facilities and processing plants).
		d. The site that is applying for certification provides auditors with access to all company-level policies and procedures as are needed to verify compliance with 6.12.1a (above).
Footnote	[129] Applies to the headquarters of the company in a region or country where the site applying for certification is located. The policy shall relate to all of the company's operations in the region or country, including grow-out, smolt production and processing facilities.	
Social requirements in the standards shall be audited by an individual who is a lead auditor in conformity with SAAS Procedure 200 section 3.1.		
PRINCIPLE 7: BE A GOOD NEIGHBOR AND CONSCIENTIOUS CITIZEN		
Criterion 7.1 Community engagement		
		Compliance Criteria
7.1.1	Indicator: Evidence of regular and meaningful [130] consultation and engagement with community representatives and organizations Requirement: Yes Applicability: All	a. The farm pro-actively arranges for consultations with the local community at least twice every year (bi-annually).
		b. Consultations are meaningful. OPTIONAL: the farm may choose to use participatory Social Impact Assessment (pSIA) or an equivalent method for consultations.
		c. Consultations include participation by representatives from the local community who were asked to contribute to the agenda.
		d. Consultations include communication about, or discussion of, the potential health risks of therapeutic treatments (see Indicator 7.1.3).
		e. Maintain records and documentary evidence (e.g. meeting agenda, minutes, report) to demonstrate that consultations comply with the above.
		f. Be advised that representatives from the local community and organizations may be interviewed to confirm the above.
Footnote	[130] Regular and meaningful: Meetings shall be held at least bi-annually with elected representatives of affected communities. The agenda for the meetings should in part be set by the community representatives. Participatory Social Impact Assessment methods may be one option to consider here.	
7.1.2	Indicator: Presence and evidence of an effective [131] policy and mechanism for the presentation, treatment and resolution of complaints by community stakeholders and organizations	a. Farm policy provides a mechanism for presentation, treatment and resolution of complaints lodged by stakeholders, community members, and organizations.
		b. The farm follows its policy for handling stakeholder complaints as evidenced by farm documentation (e.g. follow-up communications with stakeholders, reports to stakeholder describing corrective actions).

	Requirement: Yes	c. The farm's mechanism for handling complaints is effective based on resolution of stakeholder complaints (e.g. follow-up correspondence from stakeholders).
	Applicability: All	d. Be advised that representatives from the local community, including complainants where applicable, may be interviewed to confirm the above.
Footnote	[131] Effective: In order to demonstrate that the mechanism is effective, evidence of resolutions of complaints can be given.	
7.1.3	Indicator: Evidence that the farm has posted visible notice [132] at the farm during times of therapeutic treatments and has, as part of consultation with communities under 7.1.1, communicated about potential health risks from treatments	a. Farm has a system for posting notifications at the farm during periods of therapeutic treatment. (use of anaesthetic baths is not regarded a therapeutic)
		b. Notices (above) are posted where they will be visible to affected stakeholders (e.g. posted on waterways for fishermen who pass by the farm).
	Requirement: Yes	c. Farm communicates about the potential health risks from treatments during community consultations (see 7.1.1)
	Applicability: All	d. Be advised that members of the local community may be interviewed to confirm the above.
Footnote	[132] Signage shall be visible to mariners and, for example, to fishermen passing by the farm.	
<i>Criterion 7.2 Respect for indigenous and aboriginal cultures and traditional territories</i>		
Compliance Criteria		
Instruction to Clients and CABs on Criterion 7.2 - Traditional Territories of Indigenous Groups		
The ASC Salmon Standard requires that farms must be respectful of the traditional territories of indigenous groups. The Indicators listed under Criterion 7.2 were designed to fulfill this purpose in a manner consistent with the United Nations Declaration on the Rights of Indigenous Peoples. In many locales, the territorial boundaries of indigenous groups have a defined legal status according to local or national law. In such cases, it is straightforward to know whether a farm is operating in close proximity to indigenous people. However, when boundaries of indigenous territories are undefined or unknown, there is no simple way to establish whether the farm is operating in close proximity to indigenous groups. Here ASC provides the following guidance.		
The intent behind the ASC Salmon Standard is that the farm will identify all neighboring groups who are potentially negatively impacted by the farm's activities. The actual physical distance between the farm and an indigenous group is less important than understanding whether the farm is having a detrimental impact upon its neighbors. Effective community consultations are one of the best ways to identify such impacts to neighbor groups. Through a transparent process of consultation, indigenous groups who are put under "stress" by the farm will identify themselves and voice their concerns about the nature of the farm's impacts. Continued consultations between farm and neighbors should create a forum where any key issue can be discussed and resolved.		
7.2.1	Indicator: Evidence that indigenous groups were consulted as required by relevant local and/or national laws and regulations	a. Documentary evidence establishes that the farm does or does not operate in an indigenous territory (to include farms that operate in proximity to indigenous or aboriginal people [133]). If not then the requirements of 7.2.1 do not apply.
	Requirement: Yes	b. Farm management demonstrates an understanding of relevant local and/or national laws and regulations that pertain to consultations with indigenous groups.
	Applicability: All farms that operate in indigenous territories or in proximity to indigenous or aboriginal people [133]	c. As required by law in the jurisdiction: - farm consults with indigenous groups and retains documentary evidence (e.g. meeting minutes, summaries) to show how the process complies with 7.2.1b; OR - farm confirms that government-to-government consultation occurred and obtains documentary evidence.
		d. Be advised that representatives from indigenous groups may be interviewed to confirm the above.
7.2.2	Indicator: Evidence that the farm has undertaken proactive consultation with indigenous communities	a. See results of 7.2.1a (above) to determine whether the requirements of 7.2.2 apply to the farm.
	Requirement: Yes [133]	b. Be advised that representatives from indigenous communities may be interviewed to confirm that the farm has undertaken proactive consultations.
	Applicability: All farms that operate in indigenous territories or in proximity to indigenous or aboriginal people [133]	
Footnote	[133] All standards related to indigenous rights only apply where relevant, based on proximity of indigenous territories.	
	Indicator: Evidence of a protocol agreement, or an active process [134] to establish a protocol agreement, with	a. See results of 7.2.1a (above) to determine whether the requirements of 7.2.3 apply to the farm.

7.2.3	indigenous communities Requirement: Yes Applicability: All farms that operate in indigenous territories or in proximity to indigenous or aboriginal people [133]	b. Maintain evidence to show that the farm has either: 1) reached a protocol agreement with the indigenous community and this fact is documented; or 2) continued engagement in an active process [134] to reach a protocol agreement with the indigenous community. c. Be advised that representatives from indigenous communities may be interviewed to confirm either 7.2.3b1 or b2 (above) as applicable.
Footnote	[134] To demonstrate an active process, a farm must show ongoing efforts to communicate with indigenous communities, an understanding of key community concerns and responsiveness to key community concerns through adaptive farm management and other actions.	
Criterion 7.3 Access to resources		
Compliance Criteria		
7.3.1	Indicator: Changes undertaken restricting access to vital community resources [135] without community approval Requirement: None Applicability: All	a. Resources that are vital [135] to the community have been documented and are known by the farm (i.e. through the assessment process required under Indicator 7.3.2). b. The farm seeks and obtains community approval before undertaking changes that restrict access to vital community resources. Approvals are documented. c. Be advised that representatives from the community may be interviewed to confirm that the farm has not restricted access to vital resources without prior community approval.
Footnote	[135] Vital community resources can include freshwater, land or other natural resources that communities rely on for their livelihood. If a farm site were to block, for example, a community's sole access point to a needed freshwater resource, this would be unacceptable under the Dialogue standard.	
7.3.2	Indicator: Evidence of assessments of company's impact on access to resources Requirement: Yes Applicability: All	a. There is a documented assessment of the farm's impact upon access to resources. Can be completed as part of community consultations under 7.1.1. b. Be advised that representatives from the community may be interviewed to generally corroborate the accuracy of conclusions presented in 7.3.2a.
INDICATORS AND STANDARDS FOR SMOLT PRODUCTION A farm seeking certification must have documentation from all of its smolt suppliers to demonstrate compliance with the following standards. The requirements are, in general, a subset of the standards in Principles 1 through 7, focusing on the impacts that are most relevant for smolt facilities. In addition, specific standards are applied to open systems (net pens), and to closed and semi-closed systems (recirculation and flow-through). [136]		
Footnote	[136] The SAD SC proposes this approach to addressing environmental and social performance during the smolt phase of production. In the medium term, the SC anticipates a system to audit smolt production facilities on site. In the meantime, farms will need to work with their smolt suppliers to generate the necessary documentation to demonstrate compliance with the standards. The documentation will be reviewed as part of the audit at the grow-out facility.	
SECTION 8: STANDARDS FOR SUPPLIERS OF SMOLT		
<i>Standards related to Principle 1</i>		
Compliance Criteria (Required Client Actions):		
Auditor Evaluation (Required CAB Actions):		
8.1	Indicator: Compliance with local and national regulations on water use and discharge, specifically providing permits related to water quality Requirement: Yes Applicability: All Smolt Producers	a. Identify all of the farm's smolt suppliers. For each supplier, identify the type of smolt production system used (e.g. open, semi or closed systems) and submit this information to ASC (Appendix VI). b. Where legal authorisation related to water quality are required, obtain copies of smolt suppliers' permits. c. Obtain records from smolt suppliers showing monitoring and compliance with discharge laws, regulations, and permit requirements as required. -
		A. Review the farm's list of smolt suppliers. Confirm that the client submitted to ASC information on the type of production system used by smolt suppliers (Appendix VI). B. Verify that client obtains copies of legal authorisation from smolt suppliers (if applicable). C. Verify that farm obtains records from smolt suppliers to show compliance with discharge laws, regulations, and permit requirements. D. Verify that farm keeps records to show how smolt suppliers comply with regulations on discharge and applicable permitting requirements related to water quality.

8.2	Indicator: Compliance with labor laws and regulations Requirement: Yes Applicability: All Smolt Producers	a. Obtain declarations from smolt suppliers affirming compliance with labor laws and regulations.	A. Verify farm obtains declaration from smolt suppliers.
		b. Keep records of supplier inspections for compliance with national labor laws and codes (only if such inspections are legally required in the country of operation; see 1.1.3a)	B. Verify that farm obtains inspection records from suppliers (as applicable).
Standards related to Principle 2			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
8.3	Indicator: Evidence of an assessment of the farm's potential impacts on biodiversity and nearby ecosystems that contains the same components as the assessment for grow-out facilities under 2.4.1 Requirement: Yes Applicability: All Smolt Producers	Note: If the smolt facility has previously undertaken an independent assessment of biodiversity impact (e.g. as part of the regulatory permitting process), the farm may obtain and use such documents as evidence to demonstrate compliance with Indicator 8.3 as long as all components are covered.	
		a. Obtain from the smolt supplier(s) a documented assessment of the smolt site's potential impact on biodiversity and nearby ecosystems. The assessment must address all components outlined in Appendix I-3.	A. Review the assessment to confirm that it complies with all components outlined in Appendix I-3.
		b. Obtain from the smolt supplier(s) a declaration confirming they have developed and are implementing a plan to address potential impacts identified in the assessment.	B. Review declaration.
8.4	Indicator: Maximum total amount of phosphorus released into the environment per metric ton (mt) of fish produced over a 12-month period (see Appendix VIII-1) Requirement: 4 kg/mt of fish produced over a 12-month period Applicability: All Smolt Producers	Instruction to Clients for Indicator 8.4 - Calculating Total Phosphorus Released per Ton of Fish Produced Farms must confirm that each of their smolt suppliers complies with the requirement of indicator 8.4. This specifies the maximum amount of phosphorus that a smolt production facility can release into the environment per metric ton (mt) of fish produced over a 12-month period. The requirement is set at 4 kg/mt. The calculation of total phosphorus released is made using a "mass balance" approach. Detailed instructions and formulas are given in Appendix VIII-1. If applicable, farms may take account of any physical removals of phosphorus in the form of sludge provided there is evidence to show: - the smolt supplier has records showing the total quantity of sludge removed from site over the relevant time period; - the supplier determined phosphorus concentration (% P) in removed sludge by sampling and analyzing representative batches; and - the sludge was properly disposed off site and in accordance with the farm's biosolid management plan.	
		a. Obtain records from smolt suppliers showing amount and type of feeds used for smolt production during the past 12 months.	A. Verify that farm has records for feeds used by smolt suppliers over the relevant time period.
		b. For all feeds used by the smolt suppliers (result from 8.4a), keep records showing phosphorus content as determined by chemical analysis or based on feed supplier declaration (Appendix VIII-1).	B. Verify that farm has records showing that smolt supplier determined phosphorus content in feeds.
		c. Using the equation from Appendix VIII-1 and results from 8.4a and b, calculate the total amount of phosphorus added as feed during the last 12 months of smolt production.	C. Confirm that calculations are done according to Appendix VIII-1.
		d. Obtain from smolt suppliers records for stocking, harvest and mortality which are sufficient to calculate the amount of biomass produced (formula in Appendix VIII-1) during the past 12 months.	D. Verify that farm obtained from the smolt supplier all records needed to calculate the amount of biomass produced during the past 12 months.
		e. Calculate the amount of phosphorus in fish biomass produced (result from 8.4d) using the formula in Appendix VIII-1.	E. Confirm that calculations are done according to Appendix VIII-1.
		f. If applicable, obtain records from smolt suppliers showing the total amount of P removed as sludge (formula in Appendix VIII-1) during the past 12 months.	F. As applicable, verify farm has records showing that smolt supplier determined the amount of phosphorus removed from the system as sludge.

		g. Using the formula in Appendix VIII-1 and results from 8.4a-f (above), calculate total phosphorus released per ton of smolt produced and verify that the smolt supplier is in compliance with requirements.	G. Review calculations to confirm that the farm's smolt supplier(s) do not exceed requirements for release of phosphorus.
Standards related to Principle 3			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
8.5	<p>Indicator: If a non-native species is being produced, the species shall have been widely commercially produced in the area prior to the publication of the ASC Salmon Standard</p> <p>Requirement: Yes [137]</p> <p>Applicability: All Smolt Producers except as noted in [137]</p>	a. Obtain written evidence showing whether the smolt supplier produces a non-native species or not. If not, then Indicator 8.5 does not apply.	A. Verify that the farm has evidence that their smolt suppliers do not produce non-native species. If the farm can show that smolt suppliers produce only native species, then Indicator 8.5 does not apply.
		b. Provide the farm with documentary evidence that the non-native species was widely commercially produced in the area before publication of the ASC Salmon Standard. (See definition of area under 3.2.1).	B. If applicable, verify the farm has evidence from smolt suppliers confirming when the non-native species was first brought into wide commercial production in the area where production is occurring now.
		c. If the smolt supplier cannot provide the farm with evidence for 8.5b, provide documentary evidence that the farm uses only 100% sterile fish.	C. Review evidence to confirm that smolt suppliers use only 100% sterile fish.
		d. If the smolt supplier cannot provide the farm with evidence for 8.5b or 8.5c, provide documented evidence for each of the following: 1) non-native species are separated from wild fish by effective physical barriers that are in place and well maintained; 2) barriers ensure there are no escapes of reared fish specimens that might survive and subsequently reproduce; and 3) barriers ensure there are no escapes of biological material that might survive and subsequently reproduce.	D. Review evidence that the farm's smolt suppliers comply with each point raised in 8.5d.
		e. Retain evidence as described in 8.5a-d necessary to show compliance of each facility supplying smolt to the farm.	E. Verify that farm retains evidence of compliance by all smolt suppliers.
Footnote	[137] Exceptions shall be made for production systems that use 100 percent sterile fish or systems that demonstrate separation from the wild by effective physical barriers that are in place and well-maintained to ensure no escapes of reared specimens or biological material that might survive and subsequently reproduce.		
8.6	<p>Indicator: Maximum number of escapees [138] in the most recent production cycle</p> <p>Requirement: 300 fish [139]</p> <p>Applicability: All Smolt Producers except as noted in [139]</p>	a. Obtain documentary evidence to show that smolt suppliers maintained monitoring records of all incidences of confirmed or suspected escapes, specifying date, cause, and estimated number of escapees.	A. Review the farm's records for escape monitoring by the smolt supplier to confirm completeness and accuracy of information.
		b. Using smolt supplier records from 8.6a, determine the total number of fish that escaped. Verify that there were fewer than 300 escapees from the smolt production facility in the most recent production cycle.	B. Review the farm's calculation and confirm that the smolt supplier complied with the requirement.
		c. Inform smolt suppliers in writing that monitoring records described in 8.6a must be maintained for at least 10 years beginning with the production cycle for which the farm is first applying for certification (necessary for farms to be eligible to apply for the exception noted in [139]).	C. Confirm that the farm informs their smolt suppliers that they must maintain records for escape monitoring for > 10 years.
		d. If an escape episode occurs at the smolt production facility (i.e. an incident where > 300 fish escaped), the farm may request a rare exception to the Standard [139]. Requests must provide a full account of the episode and must document how the smolt producer could not have predicted the events that caused the escape episode.	D. Review the farm's request for a rare exception to the Standard for an escape event at the smolt production site. Confirm no prior exceptional events were documented during the previous 10 years, or since the date of the start of the production cycle during which the farm first applied for certification. An example of an exceptional event is vandalism of the farm. Events that are not considered exceptional include failures in moorings due to bad weather and boat traffic incidents due to poor marking of the smolt production facility.
Footnote	[138] Farms shall report all escapes; the total aggregated number of escapees per production cycle must be less than 300 fish.		

Footnote	[139] A rare exception to this standard may be made for an escape event that is clearly documented as being outside of the farm's control. Only one such exceptional episode is allowed in a 10-year period for the purposes of this standard. The 10-year period starts at the beginning of the production cycle for which the farm is applying for certification. The farmer must demonstrate that there was no reasonable way to predict the events that caused the episode. Extreme weather (e.g., 100-year storms) or accidents caused by farms located near high-traffic waterways are not intended to be covered under this exception.		
8.7	Indicator: Accuracy [140] of the counting technology or counting method used for calculating the number of fish Requirement: ≥98% Applicability: All Smolt Producers	a. Obtain records showing the accuracy of the counting technology used by smolt suppliers. Records must include copies of spec sheets for counting machines and common estimates of error for hand-counts.	A. Confirm that the farm keeps records of counting accuracy for the counting technology or method used on site at stocking and harvest.
		B. Review records to verify that accuracy of the smolt supplier's counting technology or counting method is ≥ 98%.	B. Verify that farm has records showing that the accuracy of the smolt supplier's counting technology or counting method is ≥ 98%.
Footnote	[140] Accuracy shall be determined by the spec sheet for counting machines and through common estimates of error for any hand counts.		
Standards related to Principle 4			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
8.8	Indicator: Evidence of a functioning policy for proper and responsible treatment of non-biological waste from production (e.g., disposal and recycling) Requirement: Yes Applicability: All Smolt Producers	a. From each smolt supplier obtain a policy which states the supplier's commitment to proper and responsible treatment of non-biological waste from production. It must explain how the supplier's policy is consistent with best practice in the area of operation.	A. Confirm that the farm has relevant policies on file from each smolt supplier and review those policies to verify the farm's suppliers are in compliance with the requirement.
8.9	Indicator: Presence of an energy-use assessment verifying the energy consumption at the smolt production facility (see Appendix V subsection 1 for guidance and required components of the records and assessment) Requirement: Yes, measured in kilojoule/mt fish/production cycle Applicability: All Smolt Producers	Note: see instructions for Indicator 4.6.1.	
		a. Obtain records from the smolt supplier for energy consumption by source (fuel, electricity) at the supplier's facility throughout each year.	A. Verify that the farm obtains records for energy consumption from smolt suppliers.
		b. Confirm that the smolt supplier calculates total energy consumption in kilojoules (kj) during the last year.	B. Verify that the farm has reviewed the supplier's calculations for completeness and accuracy.
		c. Obtain records to show the smolt supplier calculated the total weight of fish in metric tons (mt) produced during the last year.	C. Verify that the farm has supplier records for total weight of fish produced during the last year.
		d. Confirm that the smolt supplier used results from 8.9b and 8.9c to calculate energy consumption on the supplier's facility as required and that the units are reported as kilojoule/mt fish/production cycle.	D. Verify that the farm has records to show that the smolt supplier's calculations are complete and accurate.
e. Obtain evidence to show that smolt supplier has undergone an energy use assessment in compliance with requirements of Appendix V-1. Can take the form of a declaration detailing a-e.	E. Verify that the farm has evidence that its smolt supplier(s) has undergone an energy use assessment verifying the supplier's energy consumption.		
8.10	Indicator: Records of greenhouse gas (GHG [141]) emissions [142] at the smolt production facility and evidence of an annual GHG assessment (See Appendix V, subsection 1) Requirement: Yes	Note: see instructions for Indicator 4.6.2.	
		a. Obtain records of greenhouse gas emissions from the smolt supplier's facility.	A. Verify that the farm obtains records of GHG emissions from smolt suppliers.
		b. Confirm that, on at least an annual basis, the smolt supplier calculates all scope 1 and scope 2 GHG emissions in compliance with Appendix V-1.	B. Verify that the farm confirms that calculations by smolt suppliers are done annually and in compliance with Appendix V-1.
c. For GHG calculations, confirm that the smolt supplier selects the emission factors which are best suited to the supplier's operation. Confirm that the supplier documents the source of the emissions factors.	C. Verify that the farm has records from smolt suppliers for all emissions factors used and their sources.		

	Applicability: All Smolt Producers	d. For GHG calculations involving conversion of non-CO2 gases to CO2 equivalents, confirm that the smolt suppliers specify the Global Warming Potential (GWP) used and its source.	D. Verify that the farm has records from smolt suppliers for all GWPs used and their sources.
		e. Obtain evidence to show that the smolt supplier has undergone a GHG assessment in compliance with requirements Appendix V-1 at least annually.	E. Verify that the farm has evidence that smolt suppliers undergo a GHG assessment annually and that the methods used are in compliance with requirements of Appendix V-1.
Footnote	[141] For the purposes of this standard, GHGs are defined as the six gases listed in the Kyoto Protocol: carbon dioxide (CO ₂); methane (CH ₄); nitrous oxide (N ₂ O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF ₆).		
Footnote	[142] GHG emissions must be recorded using recognized methods, standards and records as outlined in Appendix V.		
Standards related to Principle 5			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
8.11	Indicator: Evidence of a fish health management plan, approved by the designated veterinarian, for the identification and monitoring of fish diseases and parasites Requirement: Yes Applicability: All Smolt Producers	a. Obtain a copy of the supplier's fish health management plan for the identification and monitoring of fish disease and parasites. b. Keep documentary evidence to show that the smolt supplier's health plans were approved by the supplier's designated veterinarian.	A. Verify that the farm obtains copies of fish health management plans from smolt suppliers. B. Verify that farm has evidence that supplier's fish health management plan was approved by designated veterinarian.
8.12	Indicator: Percentage of fish that are vaccinated for selected diseases that are known to present a significant risk in the region and for which an effective vaccine exists [143] Requirement: 100% Applicability: All Smolt Producers	a. Maintain a list of diseases that are known to present a significant risk in the region, developed by farm veterinarian and supported by scientific evidence. b. Maintain a list of diseases for which effective vaccines exist for the region, developed by the farm veterinarian and supported by scientific evidence. c. Obtain from the smolt supplier(s) a declaration detailing the vaccines the fish received. d. Demonstrate, using the lists from 8.12a-c above, that all salmon on the farm received vaccination against all selected diseases known to present a significant risk in the regions for which an effective vaccine exists.	A. Review list and the supporting analysis. B. Review list and the supporting analysis. C. Verify client has the list from the smolt supplier(s). D. Cross-check lists to verify that all required vaccines were received by all batches of smolt received by the farm during the current production cycle.
Footnote	[143] The farm's designated veterinarian is responsible for undertaking and providing written documentation of the analysis of the diseases that pose a risk in the region and the vaccines that are effective. The veterinarian shall determine which vaccinations to use and demonstrate to the auditor that this decision is consistent with the analysis.		
8.13	Indicator: Percentage of smolt groups [144] tested for select diseases of regional concern prior to entering the grow-out phase on farm Requirement: 100% Applicability: All Smolt Producers	Instruction to Clients for Indicator 8.13-- Testing of Smolt for Select Diseases The farm is responsible for developing and maintaining a list of diseases of regional concern for which each smolt group should be tested. The list of diseases shall include diseases that originate in freshwater and are proven or suspected to occur in seawater (and for which seawater fish-to-fish transmission is a concern). The designated veterinarian to the smolt supplier is required to evaluate, based on scientific criteria and publicly available information, which diseases should be tested for. This analysis shall include an evaluation of whether clinical disease or a pathogen carrier state in fresh water is deemed to have a negative impact on the grow-out phase, thereby disqualifying a smolt group from being transferred. The analysis must be available to the CAB upon request. Note: A "smolt group" is defined as a population that shares disease risk, including environment, husbandry, and host factors that might contribute to sharing disease agents for each group.	A. Review list. If auditor has questions about the list, request and review supporting analysis.
		a. Obtain from the smolt supplier a list of diseases of regional concern for which smolt should be tested. List shall be supported by scientific analysis as described in the Instruction above.	

		b. Obtain from the smolt supplier(s) a declaration and records confirming that each smolt group received by the farm has been tested for the diseases in the list (8.13a).	B. Verify records show that each smolt group was tested prior to entering the water at the farm (the grow-out site).
Footnote	[144] A smolt group is any population that shares disease risk, including environment, husbandry and host factors that might contribute to sharing disease agents for each group. Only diseases that are proven, or suspected, as occurring in seawater (and for which seawater fish-to-fish transmission is a concern) but originating in freshwater should be on the list of diseases tested. The designated veterinarian to the smolt farm is required to evaluate, based on scientific criteria and publicly available information, which diseases should be tested for. This analysis shall include an evaluation of whether clinical disease or a pathogen carrier state in fresh water is deemed to have a negative impact on the grow-out phase, thereby disqualifying a smolt group from being transferred. A written analysis must be available to the certifier on demand.		
8.14	<p>Indicator: Detailed information, provided by the designated veterinarian, of all chemicals and therapeutants used during the smolt production cycle, the amounts used (including grams per ton of fish produced), the dates used, which group of fish were treated and against which diseases, proof of proper dosing and all disease and pathogens detected on the site</p> <p>Requirement: Yes</p> <p>Applicability: All Smolt Producers</p>	<p>a. Obtain from the smolt supplier(s) a detailed record of all chemical and therapeutant use for the fish sold to the farm that is signed by their veterinarian and includes:</p> <ul style="list-style-type: none"> - name of the veterinarian prescribing treatment; - product name and chemical name; - reason for use (specific disease) - date(s) of treatment; - amount (g) of product used; - dosage; - mt of fish treated; - the WHO classification of antibiotics (also see note under 5.2.8); and - the supplier of the chemical or therapeutant. 	A. Review records of chemical and therapeutant use for completeness and confirm the records were signed by a qualified veterinarian.
8.15	<p>Indicator: Allowance for use of therapeutic treatments that include antibiotics or chemicals that are banned [145] in any of the primary salmon producing or importing countries [146]</p> <p>Requirement: Yes</p> <p>Applicability: All Smolt Producers</p>	a. Provide to the smolt supplier the list (see 5.2.2a) of therapeutants, including antibiotics and chemicals, that are proactively banned for use in food fish for the primary salmon producing and importing countries listed in [146].	A. Verify list has been provided and is consistent with the list in 5.2.2a.
		b. Inform smolt supplier that the treatments on the list cannot be used on fish sold to a farm with ASC certification.	B. Verify that the farm informed the smolt supplier.
		c. Compare therapeutant records from smolt supplier (8.14) to the list (8.15a) and confirm that no therapeutants appearing on the list (8.15a) were used on the smolt purchased by the farm.	C. Review farm's comparison to verify accuracy.
Footnote	[145] "Banned" means proactively prohibited by a government entity because of concerns around the substance.		
Footnote	[146] For purposes of this standard, those countries are Norway, the UK, Canada, Chile, the United States, Japan and France.		
8.16	<p>Indicator: Number of treatments of antibiotics over the most recent production cycle</p> <p>Requirement: ≤ 3</p> <p>Applicability: All Smolt Producers</p>	a. Obtain from the smolt supplier records of all treatments of antibiotics (see 8.14a).	A. Verify farm obtains treatment records from smolt supplier (See also 8.14A).
		b. Calculate the total number of treatments of antibiotics from their most recent production cycle.	B. Confirm that the smolt supplier used ≤ 3 treatments of antibiotics over the most recent production cycle.
8.17	<p>Indicator: Allowance for use of antibiotics listed as critically important for human medicine by the WHO [147]</p> <p>Requirement: None [148]</p> <p>Applicability: All Smolt Producers</p>	a. Provide to smolt supplier(s) a current version of the WHO list of antimicrobials critically and highly important for human health [147].	A. Confirm that the farm provided smolt supplier with the current copy of the WHO list of antibiotics.
		b. Inform smolt supplier that the antibiotics on the WHO list (8.17a) cannot be used on fish sold to a farm with ASC certification.	B. Verify that the farm informed the smolt supplier.
		c. Compare smolt supplier's records for antibiotic usage (8.14, 8.15a) with the WHO list (8.17a) to confirm that no antibiotics listed as critically important for human medicine by the WHO were used on fish purchased by the farm.	C. Review farm's comparison to verify accuracy.
Footnote	[147] The 3rd edition of the WHO list of critically and highly important antimicrobials was released in 2009 and is available at: http://www.who.int/foodborne_disease/resistance/CIA_3.pdf .		
Footnote	[148] If the antibiotic treatment is applied to only a portion of the pens on a farm site, fish from pens that did not receive treatment are still eligible for certification.		

8.18	Indicator: Evidence of compliance [149] with the OIE Aquatic Animal Health Code [150] Requirement: Yes Applicability: All Smolt Producers	Note: see instructions for Indicator 5.4.3 regarding evidence of compliance with the OIE Aquatic Animal Health Code.	
		a. Provide the smolt supplier with a current version of the OIE Aquatic Animal Health Code (or inform the supplier how to access it from the internet).	A. Verify that farm has provided the smolt supplier with copies of (or access to) the OIE Aquatic Animal Health Code.
		b. Inform the supplier that an ASC certified farm can only source smolt from a facility with policies and procedures that ensure that its smolt production practices are compliant with the OIE Aquatic Animal Health Code.	B. Confirm that the farm informed its smolt supplier(s) that any supplier to an ASC certified farm must show compliance with the OIE Aquatic Animal Health Code.
		c. Obtain a declaration from the supplier stating their intent to comply with the OIE code and copies of the smolt suppliers policies and procedures that are relevant to demonstrate compliance with the OIE Aquatic Animal Health Code.	C. Review the smolt supplier's declaration and supporting policies and procedures to verify compliance with the OIE Aquatic Animal Health Code.
Footnote	[149] Compliance is defined as farm practices consistent with the intentions of the Code, to be further outlined in auditing guidance. For purposes of this standard, this includes an aggressive response to detection of an exotic OIE-notifiable disease on the farm, which includes depopulating the infected site and implementation of quarantine zones in accordance with guidelines from OIE for the specific pathogen. Exotic signifies not previously found in the area or had been fully eradicated (area declared free of the pathogen).		
Footnote	[150] OIE 2011. Aquatic Animal Health Code. http://www.oie.int/index.php?id=171 .		
Standards related to Principle 6			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
8.19	Indicator: Evidence of company-level policies and procedures in line with the labor standards under 6.1 to 6.11 Requirement: Yes Applicability: All Smolt Producers	a. Obtain copies of smolt supplier's company-level policies and procedures and a declaration of compliance with the labor standards under 6.1 to 6.11.	A. Verify that farm obtains copies of company-level policies and procedures from all of its smolt suppliers and a declaration of compliance.
		b. Review the documentation and declaration from 8.19a to verify that smolt supplier's policies and procedures are in compliance with the requirements of labor standards under 6.1 to 6.11.	B. Review supplier documents provided by the farm to verify compliance of the smolt supplier's policies and procedures with labor requirements.
Standards related to Principle 7			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CAB Actions):
8.20	Indicator: Evidence of regular consultation and engagement with community representatives and organizations Requirement: Yes Applicability: All Smolt Producers	Instruction to Clients for Indicator 8.20 - Consultation and Engagement with Community Representatives Farms must comply with Indicator 7.1.1 which requires that farms engage in regular consultation and engagement with community representatives and organizations. Under Indicator 8.20, farms must show how each of their smolt suppliers complies with an equivalent requirement. Farms are obligated to maintain evidence that is sufficient to show their suppliers remain in full compliance. Evidence shall be documentary (e.g. meeting agenda, minutes, report) and will substantiate the following: - the smolt supplier engaged in "regular" consultations with the local community at least twice every year (bi-annually); - the supplier's consultations were effective (e.g. using participatory Social Impact Assessment (pSIA) or similar methods); and - the supplier's consultations included participation by elected representatives from the local community who were asked to contribute to the agenda.	
		a. From each smolt supplier obtain documentary evidence of consultations and engagement with the community.	A. Verify that farm obtains required information from each smolt supplier.
		b. Review documentation from 8.20a to verify that the smolt supplier's consultations and community engagement complied with requirements.	B. Review evidence for compliance.
8.21	Indicator: Evidence of a policy for the presentation, treatment and resolution of complaints by community stakeholders and organizations Requirement: Yes Applicability: All Smolt Producers	a. Obtain a copy of the smolt supplier's policy for presentation, treatment and resolution of complaints by community stakeholders and organizations.	A. Verify that farm obtains copies of supplier's complaints procedures from each of its smolt suppliers.

8.22	Indicator: Where relevant, evidence that indigenous groups were consulted as required by relevant local and/or national laws and regulations	a. Obtain documentary evidence showing that the smolt supplier does or does not operate in an indigenous territory (to include farms that operate in proximity to indigenous or aboriginal people (see Indicator 7.2.1). If not then the requirements of 8.22 do not apply.	A. Review evidence to determine whether Indicator 8.22 is applicable to the farm's smolt supplier(s).
	Requirement: Yes Applicability: All Smolt Producers	b. Obtain documentation to demonstrate that, as required by law in the jurisdiction: smolt supplier consulted with indigenous groups and retains documentary evidence (e.g. meeting minutes, summaries) to show how the process complies with 7.2.1b; OR smolt supplier confirms that government-to-government consultation occurred and obtains documentary evidence.	B. Verify that the smolt supplier complies with relevant requirements.
8.23	Indicator: Where relevant, evidence that the farm has undertaken proactive consultation with indigenous communities	a. See results of 8.22a (above) to determine whether the requirements of 8.23 apply to the smolt supplier.	A. Review evidence to determine whether Indicator 8.23 is applicable to the farm's smolt supplier(s).
	Requirement: Yes Applicability: All Smolt Producers	b. Where relevant, obtain documentary evidence that smolt suppliers undertake proactive consultations with indigenous communities.	B. Review documentary evidence to confirm that the smolt supplier has undertaken proactive consultations.
ADDITIONAL REQUIREMENTS FOR OPEN (NET-PEN) PRODUCTION OF SMOLT In addition to the requirements above, if the smolt is produced in an open system, evidence shall be provided that the following are met:			
Instruction to Clients for Indicators 8.24 through 8.31 - Requirements for Smolt Produced in Open Systems Client shall provide documentary evidence to the CAB about the production system(s) from which they source smolt. If smolt used by the farm are produced, for part or all of the growth phase from alevin to smolt, in open (net-pen) systems, indicators 8.24 - 8.31 are applicable.			
	Indicator: Allowance for producing or holding smolt in net pens in water bodies with native salmonids Requirement: None Applicability: All Smolt Producers Using Open Systems	a. Obtain a declaration from the farm's smolt supplier stating whether the supplier operates in water bodies with native salmonids.	A. Verify that the farm obtains relevant declarations from its smolt supplier(s).
		b. Request smolt suppliers to identify all water bodies in which they operate net pens for producing smolt and from which facilities they sell to the client.	B. Confirm that the farm obtains information on the water bodies in which its suppliers are operating net pens for smolt production.
		c. For any water body identified in 8.24b as a source of smolt for the farm, determine if native salmonids are present by doing a literature search or by consulting with a reputable authority. Retain evidence of search results.	C. Review search results and cross-check against the other lines of evidence for salmonid distribution in the region (e.g. results from 3.1.5a).
8.25	Indicator: Allowance for producing or holding smolt in net pens in any water body Requirement: Yes Applicability: All Smolt Producers Using Open Systems	a. Take steps to ensure that the farm does not source smolt that was produced or held in net pens.	A. Confirm that the farm is in full compliance with the requirement.
8.26	Indicator: Evidence that carrying capacity (assimilative capacity) of the freshwater body has been established by a reliable entity [151] within the past five years [152] and total biomass in the water body is within the limits established by that study (see Appendix VIII-5 for minimum requirements)	a. For the water body(s) where the supplier produces smolt for the client (see 8.24b), obtain a copy of the most recent assessment of assimilative capacity.	A. Verify that the farm obtains copies of assimilative capacity assessments as are relevant to the water bodies in which its smolt supplier(s) operate.
		b. Identify which entity was responsible for conducting the assessment (8.26a) and obtain evidence for their reliability.	B. Verify that the assessment was done by a reliable entity (e.g. government body or academic institution).
		c. Review the assessment (8.26a) to confirm that it establishes a carrying capacity for the water body, it is less than five years old, and it meets the minimum requirements presented in Appendix VIII-5.	C. Verify that the assessment report is in compliance with requirements.

	<p>Requirement: Yes</p> <p>Applicability: All Smolt Producers Using Open Systems</p>	<p>d. Review information to confirm that the total biomass in the water body is within the limits established in the assessment (8.26a).</p>	<p>D. Verify that the farm confirms that total biomass in the water body does not exceed carrying capacity.</p>
		<p>e. If the study in 8.26a is more than two years old and there has been a significant increase in nutrient input to the water body since completion, request evidence that an updated assessment study has been done.</p>	<p>E. Verify that the farm requests an updated assessment (< 2 years old) if there was a significant increase in nutrient inputs to the water body.</p>
Footnote	[151] E.g., Government body or academic institution.		
Footnote	[152] If the study is older than two years, and there has been a significant increase in nutrient input to the water body since the completion of the study, a more recent assessment is required.		
8.27	<p>Indicator: Maximum baseline total phosphorus concentration of the water body (see Appendix VIII-6)</p> <p>Requirement: ≤ 20 µg/l [153]</p> <p>Applicability: All Smolt Producers Using Open Systems</p>	<p>Instruction to Clients for Indicator 8.27 and 8.28 - Monitoring TP and DO in Receiving Water for Open Smolt Systems</p> <p>Farms must confirm that any smolt supplier using an open (net-pen) system is also engaged in monitoring of water quality of receiving waters. Requirements for the supplier's water quality monitoring program are presented in detail in Appendix VIII-6 and only re-stated briefly here. Monitoring shall sample total phosphorus (TP) and dissolved oxygen (DO). TP is measured in water samples taken from a representative composite sample through the water column to a depth of the bottom of the cages. Samples are submitted to an accredited laboratory for analysis of TP to a method detection limit of < 0.002 mg/L. DO measurements will be taken at 50 centimeters from the bottom sediment.</p> <p>The required sampling regime is as follows:</p> <ul style="list-style-type: none"> - all stations are identified with GPS coordinates on a map of the farm and/or available satellite imagery; - stations are at the limit of the farm management zone on each side of the farm, roughly 50 meters from the edge of enclosures; - the spatial arrangement of stations is shown in the table in Appendix VIII-6; - sampling is done at least quarterly (1X per 3 months) during periods without ice, including peak biomass; and - samples are also collected at two reference stations located ~ 1-2 km upcurrent and downcurrent from the farm. <p>Note: Some flexibility on the exact location and method of sampling is allowed to avoid smolt suppliers needing to duplicate similar sampling for their local regulatory regime.</p>	
		a. Obtain documentary evidence to show that smolt suppliers conducted water quality monitoring in compliance with the requirements of Appendix VIII-6.	A. Verify that the farm obtains copies of the smolt supplier's monitoring records (datasets, protocols, reports).
		b. Obtain from smolt suppliers a map with GPS coordinates showing the sampling locations.	B. Review and confirm that the spatial arrangement of sampling stations complies with requirements of Appendix VIII-6.
		c. Obtain from smolt suppliers the TP monitoring results for the past 12 months and calculate the average value at each sampling station.	C. Review TP monitoring results.
		d. Compare results to the baseline TP concentration established below (see 8.29) or determined by a regulatory body.	D. Repeat comparison.
		e. Confirm that the average value for TP over the last 12 months did not exceed 20 ug/l at any of the sampling stations nor at the reference station.	E. Verify that TP ≤ 20 ug/l in the receiving water body.
Footnote	[153] This concentration is equivalent to the upper limit of the Mesotrophic Trophic Status classification as described in Appendix VIII-7.		
8.28	<p>Indicator: Minimum percent oxygen saturation of water 50 centimeters above bottom sediment (at all oxygen monitoring locations described in Appendix VIII-6)</p> <p>Requirement: ≥ 50%</p> <p>Applicability: All Smolt Producers Using Open Systems</p>	<p>Note: see instructions for Indicator 8.27.</p>	
		a. Obtain evidence that smolt supplier conducted water quality monitoring in compliance with the requirements (see 8.27a).	A. Verify as above (see 8.27A).
		b. Obtain from smolt suppliers the DO monitoring results from all monitoring stations for the past 12 months.	B. Verify that farm has copies of supplier's DO monitoring results.
		c. Review results (8.28b) to confirm that no values were below the minimum percent oxygen saturation.	C. Review the supplier's monitoring results to verify compliance with requirements.

8.29	Indicator: Trophic status classification of water body remains unchanged from baseline (see Appendix VIII-7) Requirement: Yes Applicability: All Smolt Producers Using Open Systems	a. Obtain documentary evidence from the supplier stating the trophic status of water body if previously set by a regulator body (if applicable).	A. Verify that farm obtains evidence from suppliers (as applicable).
		b. If the trophic status of the waterbody has not been classified (see 8.29a), obtain evidence from the supplier to show how the supplier determined trophic status based on the concentration of TP.	B. Review how supplier determined trophic status (as applicable).
		c. As applicable, review results from 8.29b to verify that the supplier accurately assigned a trophic status to the water body in accordance with the table in Appendix VIII-7 and the observed concentration of TP over the past 12 months.	C. Verify that the farm conducts a review of the supplier's results and conclusions regarding trophic status of the water body.
		d. Compare the above results (8.29c) to trophic status of the water body as reported for all previous time periods. Verify that there has been no change.	D. Review the farm's conclusion to verify compliance with the requirement.
8.30	Indicator: Maximum allowed increase in total phosphorus concentration in lake from baseline (see Appendix VIII-7) Requirement: 25% Applicability: All Smolt Producers Using Open Systems	a. Determine the baseline value for TP concentration in the water body using results from either 8.29a or 8.29b as applicable.	A. Verify that farm has supplier's records for baseline TP concentrations in the water body.
		b. Compare the baseline TP concentration (result from 8.30a) to the average observed TP concentration over the past 12 months (result from 8.27e).	B. Repeat comparison.
		c. Verify that the average observed TP concentration did not increase by more than 25% from baseline TP concentration.	C. Repeat calculation to verify compliance with the requirement.
8.31	Indicator: Allowance for use of aeration systems or other technological means to increase oxygen levels in the water body Requirement: None Applicability: All Smolt Producers Using Open Systems	a. Obtain a declaration from the farm's smolt supplier stating that the supplier does not use aeration systems or other technological means to increase oxygen levels in the water bodies where the supplier operates.	A. Verify that the farm obtains relevant declarations from its smolt supplier(s).
ADDITIONAL REQUIREMENTS FOR SEMI-CLOSED AND CLOSED PRODUCTION OF SMOLTS Additionally, if the smolt is produced in a closed or semi-closed system (flow through or recirculation) that discharges into freshwater, evidence shall be provided that the following are met [157]:			
Instructions to Client for Indicators 8.32-8.35 - Requirement for smolts produced in open systems Client shall provide documentary evidence to the CAB about the production system(s) from which they source smolt. -If smolt used by the farm are not produced, for part or all of the growth phase from alevin to smolt, in open (net-pen) systems, indicators 8.32 - 8.35 are applicable. -If the production system is closed or semi-closed and does not discharge into freshwater, indicators 8.32 - 8.35 are not applicable to smolt producers as per [154]. For such an exemption, farms must provide documentary evidence to the CAB. Auditors shall fully document their rationale for awarding exemptions in the audit report.			
Footnote	[154] Production systems that don't discharge into fresh water are exempt from these standards.		
8.32	Indicator: Water quality monitoring matrix completed and submitted to ASC (see Appendix VIII-2) Requirement: Yes [155] Applicability: All Smolt Producers Using Semi-Closed or Closed Production Systems	a. Obtain records from smolt suppliers showing that water quality monitoring was conducted at least quarterly (i.e. once every 3 months) over the last 12 months.	A. Verify that farm has records to show smolt suppliers conducted water quality monitoring at the required frequency and duration.
		b. Obtain water quality monitoring matrix from smolt suppliers and review for completeness.	B. Confirm that smolt supplier's water quality monitoring program covers sampling of all parameters given in Appendix VIII-2 (i.e. TP, TN, BOD, TSS).
		c. Submit the smolt supplier's water quality monitoring matrix to ASC as per Appendix VIII-2 and Appendix VI at least once per year.	C. Confirm that client has submitted to ASC the smolt supplier's water quality monitoring matrix for the last 12 month period.
Footnote	[155] See Appendix VI for transparency requirements for 8.32.		

8.33	Indicator: Minimum oxygen saturation in the outflow (methodology in Appendix VIII-2) Requirement: 60% [156,157] Applicability: All Smolt Producers Using Semi-Closed or Closed Production Systems	a. Obtain the water quality monitoring matrix from each smolt supplier (see 8.32b).	A. Verify that the farm obtains water quality monitoring records from its smolt supplier(s).
		b. Review the results (8.33a) for percentage dissolved oxygen saturation in the effluent to confirm that no measurements fell below 60% saturation.	B. Review the supplier's monitoring results to verify compliance with requirements.
		c. If a single DO reading (as reported in 8.33a) fell below 60%, obtain evidence that the smolt supplier performed daily continuous monitoring with an electronic probe and recorder for a least a week demonstrating a minimum 60% saturation at all times (Appendix VIII-2).	C. Verify that the farm obtained evidence for enhanced DO monitoring by the smolt supplier (as applicable).
Footnote	[156] A single oxygen reading below 60 percent would require daily continuous monitoring with an electronic probe and recorder for at least a week demonstrating a minimum 60 percent saturation at all times.		
Footnote	[157] See Appendix VI for transparency requirements for 8.33.		
8.34	Indicator: Macro-invertebrate surveys downstream from the farm's effluent discharge demonstrate benthic health that is similar or better than surveys upstream from the discharge (methodology in Appendix VIII-3) Requirement: Yes Applicability: All Smolt Producers Using Semi-Closed or Closed Production Systems	a. Obtain documentation from smolt supplier(s) showing the results of macro-invertebrate surveys.	A. Verify that the farm has documentation of macro-invertebrate benthic surveys from its smolt supplier(s).
		b. Review supplier documents (8.34a) to confirm that the surveys followed the prescribed methodology (Appendix VIII-3).	B. Review documents from the farm's smolt supplier to verify the surveys were conducted as required in Appendix III-3.
		c. Review supplier documents (8.34a) to confirm the survey results show that benthic health is similar to or better than upstream of the supplier's discharge.	C. Review documents to verify that survey results demonstrate compliance with requirements.
8.35	Indicator: Evidence of implementation of biosolids (sludge) Best Management Practices (BMPs) (Appendix VIII-4) Requirement: Yes Applicability: All Smolt Producers Using Semi-Closed or Closed Production Systems	a. Maintain a copy of smolt supplier's biosolids (sludge) management plan and confirm that the plan addresses all requirements in Appendix VIII-2.	A. Review the supplier's biosolids management plan for compliance with Appendix VIII-2.
		b. Obtain from smolt suppliers a process flow diagram (detailed in Appendix VIII-2) showing how the farm is dealing with biosolids responsibly.	B. Review the supplier's biosolids process flow diagram for compliance with Appendix VII-2.
		c. Obtain a declaration from smolt supplier stating that no biosolids were discharged into natural water bodies in the past 12 months.	C. Confirm that farm obtains declarations from smolt suppliers.
		d. Obtain records from smolt suppliers showing monitoring of biosolid (sludge) cleaning maintenance, and disposal as described in Appendix VIII-2.	D. Review the farm's records from smolt suppliers to verify there is evidence of implementation of biosolids management as required in Appendix VIII-2.