

Scope: the ASC Shrimp Standard currently covers species under the genus *Litopenaeus* and *Penaeus*. The ASC Shrimp Standard and related Audit Manual is oriented toward the production for *L. vannamei* and *P. monodon*. Other species of shrimp are eligible for certification if they can meet the performance thresholds specified in this document.

INSTRUCTION TO FARMS/AUDITORS:

This audit manual was developed to accompany the version of the ASC Shrimp Standard version 1.1.

Appendix A (Mangrove restoration) can be found at the bottom of this Audit Manual

All other references (I, II, III, IV, V, VI, VII) in this Audit Manual to Appendices can be found in the ASC Shrimp Standard document.

The manual is complemented by a separate pre-audit checklist that outlines the minimum information that a client must have prior to the first audit. Prior to audit, the client and their conformity assessment body (CAB) shall reach agreement on whether the audit requires visits to both the client headquarters and the farm site, which information is held at each location, and the acceptable format of records (e.g. electronic or hard copy files).

In order to determine the level of compliance against the ASC Shrimp Standard it is essential to use information of completed crop cycle(s), or on a specific point in time in the crop (e.g. stocking) for several requirements. For this reason, for first audits, it is necessary for farms to present full data on at least one or more completed crop cycle(s) per site at the time of the assessment.

Therefore, at the time of the first audit:

- farmer must be able to show full records (e.g. feed-use, mortality rate, etc.) of at least 1 completed crop cycle per site (i.e. from stocking to harvest) and the relevant information for all the crops stocked after having stocked that crop
- certifier must use these records of each site to calculate the level of compliance of the relevant indicators

Applicable to all relevant requirements in this Audit Manual:

Client: At first audit: data of at least 1 full crop cycle per site must be made available to certifier.

Auditor: At first audit: data of at least 1 full crop cycle per site must be used to determine compliance.

Note to farms: in addition to compliance to the ASC Shrimp standard the auditor may determine that farm needs to hold a valid ASC Chain of Custody certification to safeguard credible traceability of ASC certified product at the farm.

PRINCIPLE 1. COMPLY WITH ALL APPLICABLE NATIONAL AND LOCAL LAWS AND REGULATIONS

Criterion 1.1: Documented compliance with local and national legal requirements

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
1.1.1	<p>Indicator: Compliance with local and national laws or regulation.</p> <p>Requirement: Proofs of permits or other relevant documentation available for applicable regulations.</p> <p>Applicability: All</p>	a. Maintain records to show the farm has all registrations as required by local and national authorities. Auditors will need to contact farms pre-audit and request list of legal compliant permits necessary to ensure they are cognizant of national legal requirement. P1 also looks at government inspection reports (if/when governments do this regularly) as verification that permits are not 'merely' documents with stamps but also reflect an ongoing relationship re compliance to the permit conditions.	A. Verify farm has all registrations as required by local and national authorities.
		b. Be in possession of an aquaculture farming license (as applicable).	B. Verify farm has aquaculture farming license (as applicable).
		c. Be in possession of a commercial license (as applicable).	C. Verify farm has a commercial license (as applicable).
		d. Be in possession of any other contracts, licences, or permits as required by local and national authorities, including (if applicable) but not limited to right to land/and/or water use, importation and movement of broodstock or postlarvae, medicine or chemical use, waste disposal, wastewater discharge, labor and predator control (also see 1.1.3. and 1.1.4).	D. Verify compliance.

		e. Show a written or digital list of all operational activities for which the farm has procedures. Procedures are required for actions that require training of common types of farm workers, or for activities that represent risk management needed for the farm.	E. Verify that the list is available and complete.
1.1.2	<p>Indicator: Transparency on legal compliance.</p> <p>Requirement: Government-issued operational permits and licenses are publicly available one month after request.</p> <p>Applicability: All</p>	<p>a. Make government permits and licenses (as applicable) publicly available. "Publicly available" is defined as "in a manner easily accessible to or observable by the public," which includes, but is not limited to, the following: consistently and reliably posted in a public place (e.g., farm signage, storefront window or on the wall of an office that is accessible to the public), or available by email, post upon request or posted on internet websites.</p> <p>b. Maintain records of requests of information from the public. Records shall include date of request, name of person requesting, information requested, response taken, date when response was taken and, if response was taken after 14 working days of receiving the request, justification for the delay.</p>	<p>A. Verify farm has made legal compliance publicly available.</p> <p>B. Government-issued operational permits are publicly available one month after issued by government authorities through the means they chose to provide public information</p>

PRINCIPLE 2. SITE FARMS IN ENVIRONMENTALLY SUITABLE LOCATIONS WHILE CONSERVING BIODIVERSITY AND IMPORTANT NATURAL ECOSYSTEMS

Criterion 2.1: Biodiversity Environmental Impact Assessment (B-EIA)

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
2.1.1	<p>Indicator: Farm owners shall commission a participatory B-EIA and disseminate results and outcomes openly in locally appropriate language. The B-EIA process and document must follow the outline in Appendix A.</p> <p>Requirement: Report available and complies to B-EIA Appendix I process</p> <p>Applicability: All</p>	<p>a. Present a B-EIA report. In countries where there is no formalized accreditation process, there is the option to use an academic (university-employed) ecologist, or an ecologist with peer reviewed publications within the last 5 years. The name of the ecologist will appear in the publically available report to ensure accountability. Farm has to demonstrate that they are implementing recommendations made in the B-EIA and that a B-EIA monitoring protocol is established. Reviewed every 6 years by relevant assessors or ecologist. During each surveillance audit the B-EIA action/monitoring plan will be monitored.</p> <p>The TORs refer to the obligation of using past EIAs as inputs, which would naturally result in the consideration of impacts already listed using guidance framework and methodology. In Appendix I.</p>	<p>A. Verify farm has a B-EIA report and that the methodology adopted complied with Appendix I. Go through Appendix A checklist point by point. Ensure farm is following B-EIA recommendations and monitoring protocol. Verify the farm is familiar with Appendix A, the B-EIA and that they have been implementing the findings. Verify that workers are aware of the B-EIA content and the measures needed to palliate/compensate the operation effects on the environment.</p> <p>Additional comment: During local community interviews, verify that stakeholders were consulted in the B-EIA research by the ecologist. Records from meeting with stakeholders (community) to collect information for the B-EIA development.</p> <p>During surveillance audits verify the implementation of the B-EIA action/monitoring plan.</p>

Criterion 2.2: Conservation of protected areas [13] or critical habitats

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
		NOTE: The guidelines on collecting spatial data for ASC can be found on https://www.asc-aqua.org/resources/for-farms/gis-portal/	
		a. Provide Geographical Information System (GIS) files according to ASC guidelines (see note above) showing the boundaries of the farm relative to nearby protected areas.	A. Review GIS files and cross-check against independent information sources (e.g. ASC GIS app) to determine if the farm is sited in a protected area.

2.2.1	<p>Indicator: Allowance for siting in Protected Areas (PAs).</p> <p>Requirement: None, except within PAs with IUCN category V if the farming system is regarded as traditional land use [14], or category VI if the farm was built legally prior to the designation of the PA and in both cases is in compliance with the management objectives and plan of the PA, and shrimp farming is no more than 25% of the total PA area [15].</p> <p>Applicability: All</p>	b. If the farm is established within a PA provide evidence of the designation of the PA.	B. Verify that the designation is accurate and that the area is not designated as a Category I-IV.
		c. for farms established on PA with IUCN category V, provide evidence that the farming system can be considered traditional land use and that the farm does not occupy more than 25% of the total PA area. Evidence may include formal PA maps, peer-reviewed articles or reports from reputable organizations.	C. Verify that evidence is available and credible, and that the farm does not occupy more than 25% of the PA area. Auditors should register and consult IBAT on Conservation International website https://www.ibatforbusiness.org/login . Auditors should verify that farm location and activities are compatible with PA zoning and management plan.
		d. for farms established on PA with IUCN category VI, provide evidence that the farm was built legally prior to the designation of the PA. Evidence may include government declarations, peer-reviewed articles or reports from reputable organizations.	D. Verify that evidence is available and credible. Auditors should register and consult IBAT on Conservation International website https://www.ibatforbusiness.org/login . Auditors should verify that farm location and activities are compatible with PA zoning and management plan.
		e. for farms established on PA with IUCN category IV, provide evidence to the ASC that farm location and activities are compatible with PA zoning and management plan and that the ASC TAG approved for the farm to be considered for ASC certification.	E. Verify that evidence is available and credible. Auditors should register and consult IBAT on Conservation International website https://www.ibatforbusiness.org/login . Auditors should verify that farm location and activities are compatible with PA zoning and management plan.
2.2.2	<p>Indicator: Allowance for siting in mangrove ecosystems [16] and other natural wetlands [17], or areas of ecological importance as determined by the B-EIA or national/state/local authority plans/list.</p> <p>Requirement: None for farms built (with or without permits) after May 1999, except for pumping stations and inlet/outlet canals provided they have been permitted by authorities and an equivalent area is rehabilitated [18] as compensation. For farms built or permitted before May 1999, farmers are required to compensate/offset impacts via rehabilitation as determined by the B-EIA, or the national/state/local authority plans/list, or 50% of the affected ecosystem (whichever is greater) [19].</p> <p>Applicability: All</p>	<p>Instruction to Clients on Indicator 2.2.2</p> <p>Any mangrove removal must be compensated by allowing the natural regrowth or reforestation in an equivalent area, using indigenous species adapted to the specific hydrological conditions of the farm site. When reforesting, plantings shall be done to create forests with similar relative composition and must include 80% of tree species that were in the original communities. Removal of natural wetlands must also be compensated by creating areas that possess similar ecological characteristics [25].</p>	
		a. Provide a declaration that identifies the year of farm construction, specify dates of any subsequent farm expansions and specify date and reason of any mangrove or wetland conversion conducted after May 1999. Additionally, auditor should use land use maps of the area before and after 1999. These documents are usually available at the local government offices (Planning department). Satellite images before and after 1999 are also admissible when available.	A. Verify that the declaration is accurate during local community interviews. If mangrove or wetland conversion occurred after May 1999 for reasons other than establishment of pumping stations or canals, raise a NC. Auditor should use land use maps of the area before and after 1999, and should refer to the B-EIA which should include the baseline ecological conditions prior to farm establishment. These documents are usually available at the local government offices (Planning department). Satellite images before and after 1999 are also admissible when available.
		b. For farms having converted mangrove/natural wetland ecosystems prior to May 1999, provide location and description (including surface area) of the area being rehabilitated. If natural regeneration has started in cleared areas and if propagules are establishing well, then this should be counted as "rehabilitation". Under these circumstances, regrowth is even more valuable than attempted rehabilitation that may or may not take successfully.	B. Verify that the rehabilitated area conforms to the requirements and that has a surface area as indicated in the B-EIA, as stated in legislation or of at least 50% of the area converted, whichever is greater.
		Recommend that auditors should be provided with evidences of the conditions of the affected area that demonstrate rehabilitation	

		c. For farms having converted mangrove/natural wetland ecosystems to construct pumping stations or inlet/outlet canals, provide location and description (including surface area) of the area being rehabilitated.	C. Verify that the rehabilitated area conforms to the requirements and that has a surface area as indicated in the B-EIA, as stated in legislation or is at least as big as the area converted, whichever is greater. Auditors should be provided with evidence of the conditions of the affected area that demonstrate rehabilitation, whether it is man-made, or natural, or a combination of both. The surface and the condition of the area rehabilitated should be confirmed. Refer to Appendix A at the end of the auditor manual.
Footnote	[13] Protected Areas : A protected area is "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. PAs can be determined as National, state, provincial and local PAs.		
Footnote	[14] Definition: "Traditional [land use] aquaculture is an indigenous form of farming and a result of the coevolution of local social and environmental systems that exhibit a high level of ecological rationale expressed through the intensive use of local knowledge and natural resources, including the management of agro/aqua-biodiversity in the form of diversified agri and aquacultural systems." (Adapted from Miguel A. Altieri, Department of Environmental Science, Policy and Management, University of California, Berkeley).		
Footnote	[15] Other instances of certification within PAs, for example Category IV PAs which are zoned into different use area, will have to be considered on a case by case basis by the ASC Technical Advisory Group in consultation with the specific PA Management authority.		
Footnote	[16] Mangrove Ecosystems : Mangrove forests are among the world's most productive ecosystems. These are often called as „tidal forests", „coastal woodlands" or „oceanic rainforests". Mangroves are woody plants that grow in tropical and subtropical latitudes along the land-sea interface, bays, estuaries, lagoons, backwaters, and in the rivers, reaching upstream up to the point where the water still remains saline (Qasim, 1998). These plants and their associated organisms (microbes, fungi, other plants and animals), constitute the „mangrove forest community" or „mangal" (See Tomlinson PB (1986) The Botany of Mangroves. Cambridge, UK: Cambridge University Press. 413 p. for full list of true and associate mangrove plant species) The mangal and its associated abiotic factors constitute the mangrove ecosystem (Kathiresan and Bingham, 2001).		
Footnote	[17] Natural Wetland : For the purpose of this standard, natural wetlands are non-artificial (i.e. not human made) areas of marsh, fen, peatland or water, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. They may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands". (Appendix 7. Ramsar Wetland Definition (Ramsar, Iran, 1971), Classification and Criteria for Internationally Important Wetlands. Under the Convention on Wetlands „wetlands" are defined by Articles 1.1 and 2.1).		
Footnote	[18] Rehabilitation Appendix was developed as part of the testing phase in 2011.		
Footnote	[19] Consideration of local government programs for restoration and their effectiveness is advised. Mangrove areas preserved within the farm can be considered as part of the compensation (e.g. if a farm has 2ha, but they kept 1ha with mangroves inside the farm, they can be considered in compliance).		
Footnote	[24] http://www.ramsar.org/		
Footnote	[25] Similar ecological characteristics: environments with the same (not statistically significantly different at the p=0.05 level, based on at least three randomly sampled transects) density of the top five community-dominant species, species richness within 10% of the original and composition showing the same ordering of dominants. This will be determined through initial baseline monitoring during audits for established farms, or via EIAs, for new or expanding farms		
<i>Criterion 2.3: Consideration of habitats critical for endangered species</i>			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
2.3.1	<p>Indicator: Allowance for siting farms [26] in critical habitats of endangered species [27] as defined by the IUCN Red List, national listing processes [28] or other official lists [29].</p> <p>Requirement: None</p> <p>Applicability: All</p>	<p>a. Present B-EIA report indicating whether the farm is located in an area considered a critical habitat for endangered species. Auditors should reference the interactive map on the AZE website: http://www.zeroextinction.org/</p>	<p>A. Review B-EIA report and confirm that the farm is not located in an area considered a critical habitat for endangered species. Auditors should reference the interactive map on the AZE website: http://www.zeroextinction.org/</p>
		<p>a. Do a search of published and grey (e.g. local newspapers, magazines) literature to identify endangered species that occur in the area.</p>	<p>A. Review search results for adequacy and completeness and that workers are aware of the endangered species and protection measures</p>

2.3.2	<p>Indicator: Maintain habitats critical for endangered species within farm boundaries and implement protection measures of such areas.</p> <p>Requirement: Implement protection measures of habitats identified by the B-EIA process [30].</p> <p>Applicability: All</p>	b. Determine whether any species occurring in the area are listed as endangered by relevant national authorities.	B. Review the source and accuracy of the list.
		c. Prepare a list of all endangered species occurring in the area by combining results from 2.3.1(a) and 2.3.1(b) with results from the IUCN database search.	C. Review list for completeness. Compare with results from search of IUCN database for red list species. Auditor should verify that farm continues to implement the recommendations made by the BEIA consultant to maintain the habitat.
		d. Prepare written procedures describing how the farm avoids negative impacts to endangered species that may occur on the farm. Procedures shall include a description of habitat being restored, if applicable.	D. Review procedures for adequacy. The farm's assessment of impacts on IUCN listed species should consider: (1) the regional Red List Category, (2) the global Red List Category, and (3) an estimate of the proportion (%) of the global population occurring within the region. Decisions on how these three variables, as well as other factors, are used for establish procedures on the farm to avoid negative impacts. It is important that if a regional population is more or less stable but constitutes only a small percentage of the global population, which is experiencing a net decline. that such species be given particular attention by the farm because protective actions that farms undertake will ultimately contribute to actions with global conservation significance.
		-	E. During local community interviews, verify there is no evidence that the farm is presently having a negative impact on endangered species by ensuring that town meetings are "minuted" and the local community has been made aware of the critical species & what actions the farm is implementing to protect those species. The meeting summary should also contain a list of participants.
Footnote	[26] Farms starting construction or expanding.		
Footnote	[27] Also known as an species at risk; a population of organisms which is at risk of becoming extinct because it is either few in numbers, or threatened by changing environmental or predation parameters. Guidance interpreting application of the Red List Categories and criteria can be found here: http://www.iucnredlist.org/apps/redlist/static/categories_criteria_3_1 .		
Footnote	[28] Any process that occurs at the national, provincial, state, or other level within-country that evaluates species conservation status against a set of defined criteria recognized by relevant governance. Such listing processes may legally binding (e.g. Endangered Species Act in the U.S.A. or the Species at Risk Act in Canada), or may not be legally binding. (e.g. species listings created by COSEWIC in Canada (Committee on the Status of Endangered Wildlife), or the Red Data Book in Vietnam).		
Footnote	[29] Issued by any governmental or inter-governmental institution.		
Footnote	[30] A B-EIA must identify critical habitats for all species at risk on the proposed site and design constructions such as protecting these areas. The first requirement is that farmers are aware of the different species on their farm. Big farms shall seek an expert opinion while small farms may consider including local stakeholders. The B-EIA will allow the farmer to demonstrate compliance.		
Footnote	[31] www.iucnredlist.org		
Footnote	[32] Mangrove Forest: A mangrove forest is an association of halophytic trees, shrubs, palms, ferns and other plants growing in brackish to saline tidal waters on mudflats, riverbanks and coastlines in tropical and subtropical regions. This vegetation has the common characteristic of living in the zone inundated by the highest tides and exposed by the lowest tides. All mangrove species also share a common characteristic of salt tolerance (Mitsch & Gosselink, 1993).		
Footnote	[33] Mangel, M. Levin, P. &Patil, A. 2006. Using life history and persistence criteria to prioritize habitats for management and conservation. Ecological Applications. 16(2): 797-806		
Criterion 2.4: Ecological buffers, barriers and corridors			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):

2.4.1	<p>Indicator: Coastal barriers: Minimum permanent barrier (or natural) between farm and marine environments [34].</p> <p>Requirement: As defined in legislation at the time of construction, or as determined by the B-EIA, or following the indications in the Guidance below, whichever is greater.</p> <p>Applicability: All</p>	<p>Instruction to Clients on Indicators 2.4.1 and 2.4.2</p> <p>For riparian buffers, vegetation must be natural and permanent, and must be dominated by natural vegetation cover consistent with natural endemic riparian zones within less than five km of the farm in question. The width of the buffer or barrier zones, if adjacent to a natural water body, must comply with legal requirements at the time of construction, or in absence of such legislation, follow the conclusions of the B-EIA, or by default follow the following criteria, whichever is greater. For coastlines, lagoons or lakes, the zone of natural or restored vegetation must be 100 meters wide. For confined natural watercourses, such as rivers or streams, the zone of natural or restored vegetation must be at least 25 meters wide on both sides. Canals constructed after the release of the ASC Shrimp Standard cannot replace natural waterways. (Provide a map indicating the coastal strip and its width relative to the farm)</p>	
		a. Provide a map or sketch of the farm indicating coastal buffers and measurements of buffer width.	A. Consulting legislation applicable at the time of construction and the BEIA report, verify that the width and status (by direct observation) of the buffer is adequate.
2.4.2	<p>Indicator: Riparian buffers: Minimum width of permanent native and natural vegetation between farms and natural [35] aquatic/brackish environments [36].</p> <p>Requirement: As defined in national legislation at the time of construction, or as determined is necessary by the B-EIA, or following the indications given in the Guidance below, whichever is greater.</p> <p>Applicability: All</p>	<p>a. Provide a map or sketch of the farm indicating buffers and measurements of buffer width.</p> <p>A. Consulting legislation applicable at the time of construction and the BEIA report, verify that the width and status (by direct observation) of the buffer is adequate.</p>	
2.4.3	<p>Indicator: Corridors: Minimum width of permanent native and natural vegetation through farms to provide human or native wildlife movement across agricultural landscapes.</p> <p>Requirement: As defined in national legislation at the time of construction, or as determined necessary for wildlife by the B-EIA, or access issues identified during B-EIA/p-SIA. Needs for wildlife movement identified during B-EIA.</p> <p>Applicability: All</p>	<p>a. Provide a map or sketch of the farm indicating corridors and measurements of corridor width. It is appropriate that issues of "corridors" within farm boundaries be discussed in periodic town meetings.</p> <p>A. Consulting legislation applicable at the time of construction, B-EIA report and P-SIA report, verify that the width and status (by direct observation) of the corridors (if any) is adequate. It is appropriate that issues of "corridors" within farm boundaries be discussed in periodic town meetings.</p>	
Footnote	[34] For open coastlines and adjacent natural water bodies, the zone of natural vegetation must be 100 meters wide.		
Footnote	[35] Artificial canals or natural waterways that have undergone considerable man-made modification are not considered in this requirement.		
Footnote	[36] For Riparian buffers, vegetation must be dominated by tree/forest/vegetation cover consistent with natural endemic riparian zones within < 5km of the farm in question.		
<i>Criterion 2.5: Prevention of salinization of freshwater and soil resources</i>			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):

2.5.1	<p>Indicator: Allowance for discharging saline water to natural freshwater bodies [44].</p> <p>Requirement: None</p> <p>Applicability: Farms located in or connected to natural freshwater bodies</p>	<p>a. Provide description of water management in the farm, specifying intake and discharge water bodies. Discription shall include a written explanation of how the farm avoids intrusion of brackish or saltwater into freshwater aquifer areas.</p>	<p>A. Review description, assess accuracy and verify (also by direct observation) that there is no discharge of saline water into freshwater bodies. Auditors need to review BEIA report to review how surrounding water salinity monitoring occurs in reference to BEIA recommendations and that farm water is not affecting a salinity impact.</p>
2.5.2	<p>Indicator: Allowance for the use of fresh groundwater in ponds</p> <p>Requirement: None</p> <p>Applicability: All</p>	<p>a. Provide description of water management in the farm, specifying intake and discharge water bodies, and the location of freshwater wells (even if seasonal) .</p>	<p>A. Review description, assess accuracy and verify (also by direct observation) that there is no use of fresh ground water in ponds.</p>
2.5.3	<p>Indicator: Water-specific conductance or chloride concentration in freshwater wells used by the farm or located on adjacent properties [45].</p> <p>Requirement: For all freshwater wells (identified prior to full assessment), specific conductance may not exceed 1,500 $\mu\text{s}/\text{cm}$ and/or chloride concentration may not exceed 300 mg/L [46].</p> <p>Applicability: All well water. This criteria applies only to well water and does not apply to surface water. Farms located near freshwater wells or abstracting freshwater from the ground.</p>	<p>Instruction to Client on Indicator 2.5.3 The intent of this performance indicator is to assure that fresh groundwater and natural aquifers are not being impacted by shrimp farming. In order for farms to be eligible for certification, all freshwater wells, either located on the farm or adjacent properties, or any well exploited by the farm whatever its distance from the farm is, must be identified on the farm map (PI ***), and records giving either conductance or salinity chloride concentration values for all. Wells shall be available for the first audit. Wells that are identified as "freshwater" prior to full assessment, are those that have specific conductance values below 1500 $\mu\text{s}/\text{cm}$ and/or salinity chloride concentration less than 300 mg/L. Farms will be required to provide records demonstrate ongoing conductance/salinity testing taken every 6 months, with one set of tests during the dry season and one during the wet season. Ongoing monitoring must demonstrate that the freshwater status of wells is maintained. Conductance shall be measured using a conductivity meter or chloride (not chlorine) tests if salinity levels are <2 parts per thousand. If a well is not available on the property, the closest well within 1km can be monitored (exempt if no well is within 1 km of farm). Conductance shall be measured using a conductivity meter or chloride (not chlorine) tests. Note that considerations related to surface water (vs groundwater in wells) can be found in 2.5.1.</p> <p>a. Maintain monthly records of specific conductance measured in a freshwater well on, or in proximity to the farm (within 1km radius or the closest well), or any well used by the farm whatever its distance from the farm is. Continue at least every six months after the first audit at periods of highest and lowest values, as determined during the initial monthly monitoring.</p> <p>b. Arrange for a specific conductance measurement to be taken in presence of the auditor.</p> <p>c. . If water in freshwater wells exceeds conductance/salinity limits given by the requirement and such increase was due to a phenomenon outside the control of the farmer, provide evidence from the B-EIA report.</p>	<p>A. Confirm the farm has complete and accurate records for water-specific conductance or chloride concentration that begin prior to the date of the first audit and continue every six months thereafter, at periods of highest and lowest values, as determined during the initial monthly monitoring. For all freshwater wells.</p> <p>B. Auditor supervises measurement and confirms compliance to the requirements.</p> <p>C.-Provide evidence from the B-EIA report that such increase was due to a phenomenon outside the control of the farmer.</p>

2.5.4	<p>Indicator: Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields [47] [48].</p> <p>Requirement: No net increase when compared to the first year of monitoring</p> <p>Applicability: All farms</p>	<p>Instruction to Client on Indicator 2.5.4, 2.5.5</p> <p>The procedure for measuring chloride or specific conductance in soils is derived from the method used by Boyd et al. (2006) for aquaculture pond soil. Soil samples must be taken by forcing a core sampler (a 1-inch PVC tube would suffice but a professional soil sampler can also be used) into the ground with a hammer to a depth of 20cm. Samples must be dried (either by placing them in thin layers on plastic sheets and exposing them to the air in a warm, well-ventilated place, or in an oven at 60°C) and then pulverized and mixed (using a mortar or a mechanical soil crusher). Then the measurement involves taking a 20g sample of dry soil and placing it in a glass container, adding 40 mL of distilled water and shaking the mixture by hand for five minutes. The specific conductance can be measured directly in the solution or the solution can be filtered and the chloride concentration measured. Multiply measurement-specific conductance values by two to adjust for the dilution (40 mL of water for 20g of soil). Specific conductance values over 1,500 $\mu\text{S}/\text{cm}$ or chloride concentrations above 300 mg/L indicate that the soil is saline. Farmers should begin generating monitoring data prior to the audit. Net increase is defined as an increase of 25% or more from initial values submitted during the initial certification audit.</p>	
		<p>a. Maintain- records for every six months of specific conductance measured in in adjacent land ecosystems and agricultural fields. The B-EIA should identify the sampling stations and the frequency of monitoring. Auditors should refer to footnote [48] for specific guidance on monitoring criteria.</p>	<p>A. Confirm the farm has complete and accurate records of specific conductance and that specific conductance did not show any net increase (fluctuations that do not indicate an increasing trend are not considered a net increase). A cross check should be conducted to verify that the B-EIA reports sampling stations and frequency of monitoring are adhered to. Auditors should validate monitored data at least four points within the farm perimeter (one station per perimeter side). Monitored station should remain the same across years and identified on farm map.</p>
		<p>b. Arrange for a specific conductance measurement to be taken in presence of the auditor</p>	<p>B. Auditor supervises measurement and confirms compliance to the requirements</p>
		<p>c. If specific conductance has shown a net increase since the year of first monitoring. Provide evidence from an independent official organization (government agency, university) that such increase was due to a phenomenon outside the control of the farmer.</p>	<p>C. Provide evidence from an independent official organization (government agency, university) that such increase was due to a phenomenon outside the control of the farmer.</p>
2.5.5	<p>Indicator: Specific conductance or chloride concentration of sediment prior to disposal outside the farm.</p> <p>Requirement: The specific conductance or chloride concentration values must not exceed those of the soil in the disposal area [49].</p> <p>Applicability: All farms</p>	<p>a. Maintain records of specific conductance of sediment prior to disposal outside the farm and of specific conductance in the disposal area.</p>	<p>A. Confirm the farm has complete and accurate records and compliance to the requirement.</p>
		<p>b. Arrange for a specific conductance measurement on the disposal area to be taken in presence of the auditor.</p>	<p>B. Auditor supervises measurement and confirms compliance to the requirement.</p>
Footnote	<p>[44] Surface freshwater bodies adjacent to farm property or receiving waters discharged from the farm. Freshwater is characterized by a specific conductance of less than 1,500 $\mu\text{S}/\text{cm}$ and a chloride concentration of less than 300 mg/L. These values correspond to a salinity inferior to 1 parts per thousand. Farms that can demonstrate that surrounding waters and soils have a salinity of 2 parts per thousand and above using a hand-held refractometer will not be required to provide measurements of conductance or chloride concentration. Water bodies displaying freshwater conditions only during the peak rainy season are considered as brackishwater bodies under these requirements.</p>		
Footnote	<p>[45] Exceptions are made if it can be demonstrated that seawater intrusion or other phenomenon outside the control of the farmer is responsible for the increase.</p>		
Footnote	<p>[46] Specific conductance or chloride concentration must be monitored at a frequency adapted to possible fluctuations because of natural factors such as rain regime, and comparisons with first-year values.</p>		
Footnote	<p>[47] Exceptions are made if it can be demonstrated that seawater intrusion or other phenomenon outside the control of the farmer is responsible for the increase.</p>		

Footnote	[48] Soil salinity must be measured 25 meters within adjacent land ecosystems and agricultural fields every six months. If salt contamination is detected at the 25-meter station, the monitoring could be extended further out as necessary. No progressive increase of specific conductance or chloride concentration should be observed over the years when compared to the first year of monitoring.	
Footnote	[49] If a farmer has a contract outside the farm to discharge soil in a specified location, they are permitted to do as long as no disposal occurs in a natural habitat or public property without written permission of the community.	
PRINCIPLE 3: DEVELOP AND OPERATE FARMS WITH CONSIDERATION FOR SURROUNDING COMMUNITIES [50][51]		
<i>Criterion 3.1: All impacts on surrounding communities, ecosystem users and land owners are accounted for and are, or will be, negotiated in an open and accountable manner</i>		
		Compliance Criteria (Required Client Actions):
3.1.1	<p>Indicator: Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) [52] and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by the community shall have a copy of this document. The p-SIA process and document includes a participatory (shared) impact and risk analysis with surrounding communities and stakeholders [53]. The participatory element (community input and response) is visibly included in the report. Outcomes as agreed between farm and surrounding community on how to manage risks and impacts are included in the report.</p> <p>Requirement: The p-SIA report adheres to the steps outlined in Appendix II; is available in the local government, the community and through the chosen community civil organization; and the report lists dates of meetings and names of participants.</p> <p>Applicability: All</p>	<p>a. Provide a p-SIA inclusive of all items reported in Appendix II. For large scale farms (e.g. vertically integrated operations) the p-SIA must be commissioned to professional experts. A new p-SIA should be conducted at least every 3-years. > pre-audit preparations to include liaising with stakeholders provided by farms and also the NGO or union and local government. > triangulation is applied as audit technique: the verification of p-SIA reports and process includes at least one randomly chosen interviewee from the community stakeholders list the farm provides, and one from the local organisation the farm included in p-SIA processes, and one by audit firm identified local organisation that can be expected to know the area.</p> <p>b. For large scale farms, provide evidence of the experience of the professional experts commissioned. Verify the CV or resume and previous participatory consultation of the professional experts commissioned for the P-SIA conduction.</p>
Footnote	[50] Community: A group of people with possibly diverse characteristics who are linked by social ties, share common perspectives, and are joined by collective engagements within a geographically confined area. Four indicators: - a state of organized society in small form (town, village, hamlet) that recognizes a single representative (leader, formal or informal) - The people inside a confined geographical area; small enough to allow face-to-face interaction as the main form of contact between the individuals within the group - having a common good or a common interest and recognizing that, and been recognized as having that. - A sense of common identity and characteristics („we“ versus „them“ feeling) on either/or social, cultural, economic, ethnic grounds.	
Footnote	[51] This principle seeks to minimize injustice or unrest in affected communities that may result for Shrimp farming activities. The requirements recognize that it is only possible to be socially equitable to the point that legal frameworks and negotiated outcomes allow. Nonetheless, the GSC believes this standard represents a significant improvement from past and current social realities, and will seek to continuously strengthen them. The GSC has benchmarked ASC Shrimp Standard's social sustainability standards against widely accepted international public covenants and agreements, such as UN declarations on Human Rights, the Right to Development, the UN Declaration on the Rights of Indigenous Peoples (IPRA), the Millennium Development Goals, and the ILO core conventions. Examples of covenants with the private sector include: OECD Guidelines for multinational corporations, the UN Global Compact on Corporate Social Responsibility and ISO 26000. A more detailed benchmark is set by existing and developing protocols in Multi-Stakeholder Initiatives such as the Roundtable on Sustainable Palm oil, Ethical Tea Partnership, Forest Stewardship Council and in standards such as SA8000 and ETI. See also appendix II for further reading.	
Footnote	[52] Participatory Social Impact Assessment (p-SIA): An assessment of positive and negative consequences and risks of a planned or ongoing project (here: a farm or farm development) undertaken in such a manner that all stakeholder groups have input in process, results, and outcome of such an assessment, and that steps taken and information gathered is openly accessible to all. See Appendix II.	
Footnote	[53] Stakeholder definition: A person, group, or organization that has direct or indirect stake in an organization because it can affect or be affected by the organization's actions, objectives, and policies.	
<i>Criterion 3.2: Complaints by affected stakeholders are being resolved</i>		Compliance Criteria (Required Client Actions):

3.2.1	<p>Indicator: Farm owners shall develop and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts identified in the p-SIA and new complaints will be tracked transparently, how third party mediation can be part of the process and explain how to respond to all received complaints. Complaint boxes, complaint registers and complaint acknowledgement receipts (in local language(s)) are used.</p> <p>Requirement: Completed</p> <p>Applicability: All</p>	<p>a. Prepare and ensure the application of a conflict resolution policy for local communities. Verify that the Conflict resolution policy tracks and addresses all the complaints identified by the P-SIA.</p> <p>b. Maintain records of all the people having received copy of the policy and also local NGO or Union and local government. Methods to document interactions with stakeholders should demonstrate that communication channels are effective, rather than stipulating distribution of a conflict resolution procedure.</p> <p>c. Maintain records of meetings (at least twice per year) held with local communities to identify and resolve conflicts. Records must include list of participants, agendas and agreed action plan and summaries. For first audits records must cover at least one meeting (this could be part of the p-SIA process if the p-SIA was conducted less than 6 months before the audit).</p>
3.2.2	<p>Indicator: Areas of conflict [54] or dispute are recorded and shared among farm, local government and surrounding community representatives. At least 50% of the conflicts shall be resolved [55] within one year from the date of being filed, and a total of 75% in the period between two successive audits.</p> <p>Requirement: Completed</p> <p>Applicability: All</p>	<p>a. Maintain a register of complaints, clearly identifying what complaints have been resolved and the resolution date. Verify application of policy (written or verbal) with at least one complainant. Check documentation on all actions taken in response to complaints. And verify with at least one attendant the accuracy of meeting minutes, agenda, agreements, actions.</p> <p>b. Maintain minutes of community meetings showing issues discussed and issues resolved.</p> <p>c. Maintain minutes of local government and community representatives (if applicable) meetings showing issues discussed.</p>
Footnote	<p>[54] Conflicts, for the purpose of this requirement, are situations wherein one party perceives hindrance in legitimate interest as caused by the other party's actions or absence of actions. One party is the farm owner or manager. The other party is either a surrounding community or group of stakeholders in the community. Conflicts, for the purpose of this requirement, do exclude complaints made by single individuals unless verified/supported by a community leader or community organization. The farm may not necessarily be at fault if conflicts arise, but the farm shall exercise due diligence to avoid any harm done to the legitimate interests of people in the surrounding community. "Due diligence" is the effort made by an ordinarily prudent or reasonable party to avoid harm to another party.</p> <p>The farm may not necessarily be at fault if conflicts arise, but the farm shall exercise due diligence to avoid any harm done to the legitimate interests of people in the surrounding community. "Due diligence" is the effort made by an ordinarily prudent or reasonable party to avoid harm to another party.</p> <p>The process of resolution is documented and meeting minutes are kept. Minutes include an agenda, the list of concerns raised, resolutions or agreements reached, a list of who shall take what action by when, and a list of participants. Local government and, if available, at least one civil society or customary organization chosen by the community shall have access to the conflict resolution process and the documentation.</p>	
Footnote	<p>[55] A conflict is deemed resolved if both parties in the negotiation process have agreed to take it off the agenda (in terms of this requirement: if both parties accept external mediation and/or a legal verdict then the conflict is deemed resolved regardless of whether the mediator or legal decision has been made).</p>	
<p><i>Criterion 3.3: Transparency in providing employment opportunities within local communities [56]</i></p> <p style="text-align: right;">Compliance Criteria (Required Client Actions):</p>		

3.3.1	<p>Indicator: Farms shall document evidence of advertising positions to people living within daily traveling distance from the farm before hiring people who cannot travel to and from home on a daily basis [57].</p> <p>Requirement: Proof of dated job opening advertisements in surrounding villages, by means of either/or signposts, billboards or ads in local magazines or newspapers.</p> <p>Applicability: Medium and large scale farms: those who hire more than one permanent worker, non local worker.</p>	<p>a. Provide evidence of local advertising of positions hired where employees are coming from a location other than the location area of the farm. Can be verified during interviews with workers</p> <p>b. Present a list containing name, address and contact number of all the people consulted to advertise the position in the local community. Can be verified during interviews with workers</p>
3.3.2	<p>Indicator: Justifications for employment of each worker are available, and based on profile and merits (skills, experience or CV in the case of hired migrant worker).</p> <p>Requirement: Written and dated records of applications and interviews with applicants, including stating whether they are from an outside community or from the local area. Records must also state reasons for successful or unsuccessful applications. Name and contact details of applicants will make verification possible.</p> <p>Applicability: Medium and large scale farms: those who hire more than one permanent worker, non local worker.</p>	<p>a. Maintain employee register also indicating place of origin.</p> <p>b. Provide dated records of applications and interviews. Can be verified during interviews with workers</p> <p>c. Provide a written explanation for employing workers outside the local community.</p>
Footnote	[56] Only required for medium and large scale farms: those who hire more than one permanent worker, non local worker.	
Footnote	[57] Not applicable if farm is found to hire >50% of their staff locally.	
<i>Criterion 3.4: Contract farming [58] arrangements (if practiced) are fair and transparent to the contract farmer</i>		
Compliance Criteria (Required Client Actions):		
3.4.1	<p>Indicator: Written contract agreements</p> <p>Requirement: The contracts are written in an appropriate language [59], and co-signed copies are kept by both parties.</p> <p>Applicability: Producers practicing contract farming</p>	<p>a. Ensure that all contracted farms have copies of contracts in an appropriate language and co-signed copies are available to both parties (i.e. contractor and contracted party).</p>

3.4.2	<p>Indicator: Contract provisions</p> <p>Requirement: The contracts comply with the Appendix III (part A) on content of basic provisions to ensure that conditions of the agreement are mutually understood.</p> <p>Applicability: Producers practicing contract farming</p>	a. Ensure that all farm contracts comply with the requirements in Appendix III. Additionally, verification with workers working for the smaller party in the contract relationship to verify the application of the contracted conditions
3.4.3	<p>Indicator: Transparency and openness of negotiations</p> <p>Requirement: Meetings between the purchaser and the contract farmers to discuss and negotiate agreements are held at least twice a year and documented. Meetings are attended by at least three representatives of the farm group or cooperative. All members contributing to the supply contract must sign their agreement to the negotiated terms.</p> <p>Applicability: Producers practicing contract farming</p>	a. Maintain minutes of meetings with at least three representatives of the contracted farmers showing issues discussed.
Footnote	[58] Contract farming: Contract farming can be defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices. The arrangement also invariably involves the purchaser in providing a degree of production support through, for example, the supply of inputs and the provision of technical advice. The basis of such arrangements is a commitment on the part of the farmer to provide a specific commodity in quantities and at quality standards determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity" (FAO).	
Footnote	[59] Language that is common to all signing parties. If necessary, contracts must be translated.	
PRINCIPLE 4: OPERATE FARMS WITH RESPONSIBLE LABOR PRACTICES [60]		
<i>Criterion 4.1: Child labor and young workers [62]</i>		
Compliance Criteria (Required Client Actions):		
4.1.1.	<p>Indicator: Minimum age of hired workers [61]</p> <p>Requirement: 18 years of age</p> <p>Applicability: All</p>	<p>Instructions to Client on Indicator 4.1.1 This requirement does not apply to farmers' children who are allowed to work part time, provided they are older than the minimum legal age for work, that the work does not jeopardize school attendance and that they are not involved in hazardous work [65] (work in proximity of ponds unless constantly supervised by an adult worker capable of swimming, work in proximity of potentially irritable or hazardous substances, heavy lifting disproportionate to a person's body size, operating heavy machinery and working night shifts).</p> <p>a. Maintain a list of all employees employed in the farm indicating date of birth. > verify employee list for age and criterion (or ID) on which this was determined. > verify starting dates of employment. > verify child labour policy statement. > use observation on site and random interviews with workers</p> <p>b. Maintain copies of the official ID of all the employees listed showing date of birth.</p> <p>c. Ensure that no employee is younger than 18 years old (use birthdate to calculate exact age), see footnote.</p> <p>d. Provide a declaration stating that the farm is against child labor and will not employ anybody younger than 18 years old. Employment procedures for the farm cite that employment will not be offered to individuals under 18 years of age.</p>

Footnote	[60] Please note that many countries have national laws that address labor issues rigorously and intensively, however this is not consistent in a global context. Addressing these key issues in aquaculture is critical, given the important human rights implications and proven societal benefits of labor standards related to poverty, sustainable economic growth, good governance and political stability. The labor requirements in this document help ensure that all aquaculture operations certified against the ASC Shrimp Standard have reduced or eliminated the potential impacts of key labor issues associated with production. Moreover, the ASC Shrimp Standard's labor requirements are based on the core principles of the International Labor Organization (ILO): freedom of association, the right to collective bargaining, prohibition on forced labor, prohibition on child labor, and freedom from discrimination, as well as the other elements that are considered to be the fundamental rights at work: fair wages and working hours, decent health and safety conditions and non-abusive disciplinary practices. Social Accountability International (SAI), an international and renowned social standards/labor NGO recommended ways to best align the standards with best practice labor standards, including ILO conventions.
Footnote	[61] A (permanent) hired worker is defined as someone contracted for the duration of a production cycle or longer, and receiving monetary compensation in exchange for the time he/she works on the farm. Hired labor, for specific short activities with the maximum duration of two weeks, such as harvesting, is not considered permanent hired labor. A family-worker is defined as being 1st or 2nd degree blood-related to the primary owner (male/female) or his/her spouse AND receiving his/her compensation or benefits for work done on the farm NOT calculated on the basis of the time he/she works on the farm but proportional to the productivity or profit of the farm (e.g. a son joining his father in the family enterprise, or a 2nd-degree cousin doing work in exchange for accommodation and food, or 2 brothers sharing harvest revenues). First or 2nd degree family members agreeing to do work in exchange of payments on the basis of work-time are considered „hired workers“. Whether agreements are verbal or on paper does not make a difference. Workers partially paid according to time/days and partially paid through share in product sales are considered „hired workers“.
Footnote	[62] Child Labor: refers to any work by a child younger than the age specified in definition of a child, except for light work as provided for by ILO Convention 138, article 7. The conventions permit children between 15 and 17 to work on farms, provided that time for school and play is guaranteed and children are excluded from hazardous, abusive and physically hard work.
Footnote	[65] Hazardous work: work which, by its nature or circumstances in which it is carried out, is likely to harm the health, safety or morals of workers.

Criterion 4.2: Forced, bonded compulsory labor [66]

		Compliance Criteria (Required Client Actions):
4.2.1	<p>Indicator: Right to full final payment and benefits</p> <p>Requirement: Employers will not withhold any part of employee salary, property or benefits upon the termination of employment.</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.2.1</p> <p>Contracts shall be clearly stated and understood by hired workers and never lead to a hired worker being indebted. Salary or part of salary shall not be withheld for payment of goods and services made obligatory by the employer. Accommodation, clothing, lunches, transport, etc., if and when the employer makes use of these goods and services as an obligation, are then provided for above the salary stated in the contract. Job-training programs required by the employer are fully paid for or reimbursed by the employer. All payments shall be settled at the moment of job termination.</p> <p>The employer shall never be permitted to withhold and retain a hired worker's original identity documents. (Note: Extra care shall be given to migrants and contractor/subcontractor situations, as they can be particularly vulnerable without their identity documents). This indicator refers to the right of the worker to choose where he/she will spend his/her free time. The indicator does not dictate that workers should leave the farm. In many situations (e.g., remote farms) workers may wish to stay on or near the farm out of convenience.</p>
		<p>a. Ensure that all contracts clearly state workers' freedom to terminate their employment and receive full payment until the last day of their employment. > interview randomly workers as to their rights and obligations in ending a contract. > interview random workers if deposits have been lodged. > verify their understanding of farm policies. > verify with left workers whether payments have been made appropriately and no debts left behind.</p>
		<p>b. Ensure that workers' rights as indicated in this Requirement are duly respected.</p>
		<p>c. Ensure that the farm does not withhold any part of workers' salaries, benefits, property or documents in order to oblige them to continue working for the employer.</p>
		<p>d. Ensure that no employee is obligated to work at the farm to repay debt.</p>

4.2.2	<p>Indicator: Employees have the right to keep identity documents and work permits</p> <p>Requirement: Hired workers are not required to surrender original identity documents with their employer upon commencing employment</p> <p>Applicability: All</p>	a. Ensure that nobody in the farm or on behalf of the employer withholds employee's original identity papers. > Verify with random verification with workers
4.2.3	<p>Indicator: Hired workers have the freedom of movement outside working hours</p> <p>Requirement: Hired workers shall be free to leave the workplace and manage their resting time</p> <p>Applicability: All</p>	a. Ensure that employee are free to leave the workplace and manage their resting time. > Verify by reviewing any employee introduction packages or worker manuals. > check logbooks and clocking records. > verification interviews with workers and guards.
Footnote	[66] Bonded Labor: when a person is forced by the employer or creditor to work to repay a financial debt to the crediting agency.	
<i>Criterion 4.3: Discrimination [70] in the work environment</i>		
Compliance Criteria (Required Client Actions):		
4.3.1	<p>Indicator: Anti-discrimination policy in place, including, but not limited to, how to deal with discrimination in the workplace and equal access to all jobs in relation to gender, age, origin (locals vs. migrants), race or religion, and outlining clear and transparent company procedures are to raise/file and respond to discrimination complaints. Clear and transparent company procedures are outlined to raise/file and respond to discrimination complaints.</p> <p>Requirement: Policy document is available on farm and its content is known by workers. Evidence that the procedures are in place and being used. No complaints from workers as to adherence to it.</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.3.1</p> <p>Discrimination in the work environment :Evidence of anti-discrimination policies/practices</p> <p>Employers shall have written anti-discrimination policies stating the company does not engage 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. Clear and transparent company procedures are outlined to raise/file and respond to discrimination complaints. Employers shall respect the principle of equal pay for equal work.</p> <p>Evidence of discrimination incidence: Worker testimony shall be able to support 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.</p> <p>a. Provide and ensure the implementation of an anti-discrimination policy, stating that the company does not engage/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. Verify that all the workers have received a copy of the anti-discrimination policy and/or are aware and understand the policy. Confirm that they are aware of its content.</p>
4.3.2	<p>Indicator: Number of incidences of discrimination</p> <p>Requirement: None</p> <p>Applicability: All</p>	a. Maintain a register with complaints (including complains on discrimination).

4.3.3	<p>Indicator: Equality of salaries and opportunities. All hired workers, independent of their gender, origin, race or religion, receive equal pay, benefits, promotion opportunities, job security arrangements and training opportunities for equal work at equal role and experience levels within the same hierarchical position.</p> <p>Requirement: Evidence of equality of salaries and opportunities.</p> <p>Applicability: All</p>	a. Maintain records of employees' salary changes, promotions and training opportunities. For first audits, farm records must cover ≥ 6 months.
4.3.4	<p>Indicator: Respect of maternity rights and benefits</p> <p>Requirement: Employers shall not test for pregnancy and shall not sanction and/or dismiss on the basis of marital status and shall guarantee legal rights to pregnancy/maternity leave.</p> <p>Applicability: All</p>	a. Provide and ensure the implementation of a policy protecting pregnant and lactating mothers. Minimally adhere to public policy, but even in absence thereof, some degree of protection must be applied and accounted for. > check existence of special/adjusted work schedules for pregnant or lactating women. > medical records reflect pregnancy/lactation (do note the prohibition on demanding to be told one is pregnant!). > there is a risk analysis regarding pregnancy/lactation and worker health and safety.
Footnote	[70] Discrimination: any distinction, exclusion, or preferences, which has the effect of nullifying or impairing equality of opportunity or treatment. Not all 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.	
Criterion 4.4: Work environment health and safety		
Compliance Criteria (Required Client Actions):		
4.4.1	<p>Indicator: Percentage of workers trained in health and safety practices, procedures and policies relevant to the job. Safety equipment provided and maintained and in use.</p> <p>Requirement: 100% of workers trained. Certificates of training issued by the relevant competent national or provincial authority or by such an authority-recognized training center are required for operations with more than five employees [71] and evidence that safety equipment is in use by workers.</p> <p>Applicability: Farms with more than 5 employees</p>	<p>Instruction to Client on Indicator 4.4.1 Work environment health and safety There must be evidence that all farm workers have been trained and fully understand the training. If interviewed, workers need to exhibit knowledge and understanding of safety hazards and safety practices. Workers trained in health and safety practices, procedures and policies Minimization of hazards/risks in the working environment, including documented systemic procedures and policies to prevent workplace hazards and their risks, shall exist and the information shall be available to the workers. Emergency response procedures shall exist and be known by workers. Warning signs in appropriate language or with easy to understand pictures shall be used around hazardous equipment and/or (chemical) substances. All workers shall have the right to remove themselves from imminent serious danger without seeking permission from the company. Offer regular health and safety training for hired workers (once a year and for all new workers), including training on potential hazards and risk minimization.</p> <p>a. Maintain records and copies of training certificates for all employees. Where governments programs don't offer training private training from independent companies and from an HR department with a well structured plan. > Auditors should check and verify the credentials of the organisation providing the training.</p> <p>b. Ensure that all workers use safety equipment as applicable. For equipment that is on site, it should show signs of (recent) use, and is in effective working condition.</p>

4.4.2	<p>Indicator: Monitoring of accidents and incidents and corrective actions.</p> <p>Requirement: All job-related accidents and incidents must be recorded and corrective actions must be documented and implemented.</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.4.2 Determining occurrences of health and safety-related accidents, and violations recorded and corrective actions taken At a minimum, all job-related accidents that require some form of professional medical attention (nurse or doctor) shall be recorded. Documentation shall be generated with regard to occupational health and safety violations. The recommendation is to include records of the number of incidents and the number of man-days lost due to incidents. A corrective action plan shall be implemented in response to job-related accidents and violations of safety practices that have occurred. This needs to analyze and address the root causes and remediate and prevent future risks or accidents of a similar nature.</p> <p>a. Maintain records of of all accidents and corrective actions taken. For first audits, farm records must cover ≥ 6 months.</p> <p>b. Ensure that corrective actions are in place as relevant. In cases where continued repetition of same class of accidents are reported, a historical trend of decreasing frequency should be demonstrated.</p>
4.4.3	<p>Indicator: Medical expenses coverage.</p> <p>Requirement: Employer must provide a proof of coverage of all expenses related to any accident/injury occurring under the responsibility of the employer when not covered under national law.</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.4.3 Proof of accident coverage. There shall be sufficient compensation to cover expenses and income losses for all hired workers who suffer from accidents or injuries that take place in the work environment. Special consideration must be given to temporary, migrant or foreign workers who may fall outside of laws relevant to protection in case of job-related injuries or health issues. Documents pertaining to worker insurance can be verified with the indicated insurance company.</p> <p>a. Provide evidence of the list of all permanent workers and evidence of health insurance coverage for all workers.</p>
Footnote		[71] Certificate of training issued by the relevant competent national or provincial authority or by such authority recognized or recommended training centre or institution.
Criterion 4.5: Minimum and fair wages [73] or “decent wages”		
Compliance Criteria (Required Client Actions):		
4.5.1	<p>Indicator: Minimum wage level as applicable to their specific job/task description.</p> <p>Requirement: All hired [74] workers, including temporary workers, must receive pay greater than or equal to legally set minimum wage according to country or region in country (whichever applies). Payments must be done: in legal tender, at the workplace or in the worker’s bank account, at the frequency specified in the contract, with clearly documented pay slips given to workers, including identification of any deductions, advanced payments and/or agreed contributions.</p> <p>Applicability: All</p>	<p>a. Be in possession of legal documents showing minimum wages for the location where the farm operates. > verify contracts; wage records, and pay slips. > verify overtime rates. > verify the termination records. > verify for debts and deductions and/or deposits. > random check with workers whether they know legal minimum wage and whether records reflect reality.</p> <p>b. Maintain copies of employees' contract and ensure that at least minimum wages are paid to employees.</p> <p>c. Maintain receipts of salary payments, signed by workers. For first audit, receipts must cover ≥ 6 months.</p> <p>d. Ensure that payslips given to workers include identification of any deductions, advanced payments and/or agreed contributions.</p>
4.5.2	<p>Indicator: Permanent workers are paid fair wages. Salaries, if not already at a “fair wage” level, are gradually increased to include sufficient funds for a worker’s basic needs plus a discretionary income that allows for savings and/or pension payments</p>	<p>a. If minimum wage has not been established by law, calculate basic needs wages, in consultation with workers and their representative organizations, and cost of living assessments from credible sources. Document the process and ensure that all workers have access to it at reasonable times.</p>

4.5.2	<p>Requirement: Evidence available confirming fair wages or gradual pay rises through time-series of pay slips in farm administration and in the hands of workers</p> <p>Applicability: All</p>	b. Maintain records of salary payments as in 4.5.1c, showing fair wages or progressive pay increase.
4.5.3	<p>Indicator: Punishment through infringement of workers' rights or wages.</p> <p>Requirement: No allowance for withholding any part or all of worker salaries, benefits or rights acquired or stipulated by law. Not even as punishment of (alleged) wrongdoings on the part of the worker (cf. ILO 29 and 105).</p> <p>Applicability: All</p>	<p>a. Ensure that all employees are consistently treated with dignity and respect (e.g. no physical abuse).</p> <p>b. Ensure that no deductions in pay and/or benefits for disciplinary actions (e.g. for the accidental breaking of equipment).</p>
4.5.4	<p>Indicator: There is a mechanism for setting wages and benefits (including, if applicable, the combination of pay and harvest sharing arrangements).</p> <p>Requirement: Decision-making criteria and processes for wage and benefit adjustments are known by all workers</p> <p>Applicability: All</p>	<p>a. Provide a declaration stating the mechanism used for setting wages.</p> <p>b. Ensure that employees are aware of the mechanism used for setting wages.</p>
4.5.5	<p>Indicator: Revolving labor-contract schemes designed to deny long-time workers full access to fair and equitable remuneration and other benefits</p> <p>Requirement: Prohibited</p> <p>Applicability: All</p>	a. Ensure that contracting schemes does not deny long-time workers full access to fair and equitable remuneration and other benefits.
Footnote	<p>[73] Fair or decent wages: a wage level that enables workers to support the average sized family above the poverty line. Basic needs include essential expenses such as food, clean water, clothes, shelter, transport, education, obligatory taxes, plus a discretionary income, as well as legally mandated social benefits (which may include health care medical insurance, unemployment insurance, retirement, etc). OECD countries define 50% of median-level income in a given country as the minimum income that provide such basic needs. In cases where harvest- or profit-sharing arrangements are used between those who own the farm and those who are employed to work on the farm, the financial value of legal minimum wage or 50% of median wage-level in country (whichever is highest) needs to be guaranteed income of the employee regardless of farm performance.</p>	

Footnote	[74] Hired workers: permanent workers and temporary workers. Permanent worker: Persons whose main job is a permanent job or with a work contract of unlimited duration and regular workers whose contract last for 12 months and over. Temporary worker: Workers whose main job is an occasional, casual or seasonal worker; daily workers, works seasonal or temporary under contract with duration of less than 12 months. In case of re-hiring the same worker: if the total of the two hiring periods, irrespective of the time between hiring periods, goes beyond 12 months total (including, if any, probation periods), then the worker is a permanent one.
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Criterion 4.6: Access to freedom of association and the right to collective bargaining

		Compliance Criteria (Required Client Actions):
4.6.1	<p>Indicator: Percentage of workers with access to trade unions, worker organizations, and/or have the ability to self-organize and the ability to bargain collectively [75] or to have access to representative(s) chosen by workers without management interference</p> <p>Requirement: 100% of workers have access, if they so choose, to worker organizations capable of representing them independently from the employer.</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.6.1 Freedom of association and collective bargaining Determining the percentage of workers with access to trade unions, the ability to bargain collectively, and/or worker access to the appropriate representative(s) chosen by workers without management interference. Companies shall ensure that workers interested in collective bargaining or joining a union or worker organization of their choice are not subjected to discrimination. When rights are restricted, the company should make it clear to workers that they are willing to engage workers in collective dialogue through a representative structure and that they will allow workers to freely elect or choose their own representatives. Workers have the freedom to form and join any trade union or worker organization permitted by the laws of the country, free of any form of interference from employers or competing organizations set up or backed by the employer. The ILO specifically prohibits “acts which are designated to promote the establishment of worker organizations or to support worker organizations by financial or other means, with the object of placing such organizations under the control of employers or employers’ organizations.” Evidence provided will be cross-checked with the indicated union or by the organization chosen by the worker.</p> <p>a. Maintain copies of employees' contracts and ensure that co- signed contracts don't explicitly restrict the right to associate freely.</p> <p>b. Ensure that workers have the freedom to form and join any trade union and/or worker association, and are free of any form of interference from employers or competing organizations set up or backed by the employer. 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.</p> <p>c. Ensure that trade unions and/or civil society organizations involved in Labor rights, are able to access/inform all workers directly (posters, pamphlets, visits).</p> <p>d. Ensure that trade union and/or civil society representatives have access to their members in the workplace at at mutually agreed time with farm management.</p> <p>e. Provide a declaration explicitly stating the employer's commitment to freedom of association and collective bargaining rights of all. > Not absolutely necessary on paper. This declaration is known by workers as well as its intent. In very restricted environments this mutual agreement (= to allow + not to abuse) has been known to exist verbally in the presence of trusted civil society organisations. Employers can indicate how they did this and auditors can verify that.</p>
4.6.2	<p>Indicator: Members of unions or worker organizations are not discriminated against by employers</p> <p>Requirement: Employers shall not interfere with or penalize workers for exercising their right of representation.</p> <p>Applicability: All</p>	<p>a. Ensure that employees are not hindered in exercising their right of representation.</p>

Footnote	[75] Bargain collectively: voluntary negotiation between employers and organizations of workers in order to establish the terms and conditions of employment by means of collective (written) agreements.
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Criterion 4.7: Harassment and disciplinary practices in the working environment causing temporary or permanent physical and/or mental harm

		Compliance Criteria (Required Client Actions):
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4.7.1	<p>Indicator: Fairness of disciplinary measures</p> <p>Requirement: No instances of abuses [76].</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.7.1 "Disciplinary actions in the work environment Determining incidences of abusive disciplinary actions There shall be absolutely no engagement in or support of corporal punishment, mental or physical coercion, or verbal abuse. Fines or wage deductions shall not be acceptable as a method for disciplining workers, as indicated by policy statements and evidence from worker testimony. Evidence of non-abusive disciplinary policies and procedures If disciplinary action is required, progressive verbal and written warnings shall be engaged. The aim should always be on improving the worker before letting him or her go, as indicated by policy statements and evidence from worker testimony."</p> <p>a. Ensure that disciplinary measures are fair and that there are no instances of abuses. Auditor should review records of disciplinary actions taken by employer; to whom; and the reason for doing so. In this way, auditor can quantify the different DAs rendered</p> <p>b. Maintain records of any action taken in response to instances of harassment or abusive disciplinary actions. Response shall be appropriate and intended to prevent re-occurrence. > in cases where no written records exist or are incomplete: verify with union or WA or NGO as indicated by the workers. Auditors should cross-check that issues were addressed in community meetings through compliance with the PSIA and where an "alert incidence" exists, should verify with external labor commissioner/agent.</p>
4.7.2	<p>Indicator: Clear, fair and transparent disciplinary policies and procedures</p> <p>Requirement: Evidence of documentation and communication to all workers</p> <p>Applicability: All</p>	<p>a. Provide and ensure the implementation of an anti-harassment and abusive disciplinary action policy. Auditor should ascertain that copies of the anti-harassment and abusive disciplinary policies are annexed to the worker contracts and that the worker was fully verbally briefed on the policy.</p>
4.7.3	<p>Indicator: Prohibition of harassment</p> <p>Requirement: Evidences that any instances have been addressed and resolved</p> <p>Applicability: All</p>	<p>a. Maintain records of any action taken in response to instances of harassment. Response shall be appropriate and intended to prevent re-occurrence. > in cases where no written records exist or are incomplete: verify with union or WA or NGO as indicated by the workers.</p>
Footnote	[76] Physically or mentally. Mental Abuse: characterized by the intentional use of power, including verbal abuse, isolation, sexual or racial harassment, intimidation, or threat of physical force.	
<i>Criterion 4.8: Overtime compensation and working hours</i>		
Compliance Criteria (Required Client Actions):		

4.8.1	<p>Indicator: Maximum number of regular working hours: Eight hours/day or 48 hours/week (maximum average over 17 week period) including "stand-by" hours; with at least one full day (including two nights) off in every seven-day period</p> <p>Requirement: Reflected in records available on the farm and 100% compliance expressed in worker interviews [77].</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 4.8.1 - Overtime and working hours Determining incidences, violations and abuse of working hours and overtime.</p> <p>Hours actually worked include time spent at the workplace on productive activities and on other activities that are part of the tasks and duties of the jobs concerned (e.g., cleaning and preparing working tools). It also includes time spent at the workplace when the person is inactive for reasons linked to the production process or work organization (e.g., stand-by time), as paid workers remain at the disposal of their employer during these periods. Hours actually worked also include short rest periods spent at the workplace because they are difficult to distinguish separately, even if workers are not "at the disposal" of their employer during those periods. Explicitly excluded are lunch breaks, as they normally are sufficiently long enough to be easily distinguished from work periods. Employer shall comply with applicable laws and industry standards related to working hours. A "normal work week" can be defined by law but shall not, on a regular basis (constantly or the majority of the time), exceed 48 hours. Variations based on seasonality may apply. Farms are encouraged to keep work-time records.</p> <p>Personnel shall be provided with at least one full day (including two nights) off in every seven-day period during which they shall not be denied permission to leave farm premises. Workers are not obliged to leave the farm during off-time, but have the right to do so if they wish. Where farm locations are too remote to allow workers to enjoy relaxation at home, with family or in places of recreation of their choosing, the farm owner shall provide transport (both ways) and enough time off to allow workers such enjoyment at least once every 17 weeks. Workers will not be discouraged from keeping work-time records (in cases when the farm does not do so itself).</p> <p>All overtime shall not exceed 12 hours per week for more than two consecutive weeks, and total work time (including overtime) shall not exceed 60 hours on average over a 17-week period. All overtime shall be paid at a premium of minimally +25% over regular wage. Overtime work shall be voluntary. Exceptions to this last requirement can be made in cases where overtime is necessary to meet short-term business demands, as long as it is legal and there is a collective bargaining agreement in place that addresses this issue. In accordance to ILO convention C-183, protection is given to women before and just after childbirth. Women in these situations are not obliged to perform work that could endanger the health of both mother and/or child. Pregnancy or infant child care shall never be a reason to terminate the employment and the burden of proof in cases of dismissal lies with the employer. Cash benefits during pregnancy and/or infant child care shall minimally be at the level of in-country prevalent social minima provided by government in accordance to laws and regulations pertaining to sickness, unemployment and/or (temporary) disability. When seeking employment, women shall not be subject to pregnancy tests or required to submit certificates of such a test except where required by national laws or regulations."</p>
4.8.2	<p>Indicator: Right to leave the farm after completion of daily work duties</p> <p>Requirement: Evidence of freedom of movement for all employees</p> <p>Applicability: All</p>	<p>a. Maintain timesheets or worker attendance roll document signed by the worker. For first audits, farm records must cover ≥ 6 months.</p> <p>b. Ensure that the regular time worked by farm workers does not exceed 8h/day or 48h/week.</p>
4.8.3	<p>Indicator: Minimum time off from work, with the right but not the obligation to leave farm premises if accommodations are on the farm, except where both the employer and employee agree that off-days cannot be accommodated on the farm</p> <p>Requirement: Four full 24-hour periods per month</p> <p>Applicability: All</p>	<p>a. Ensure that all workers have at least 4 days/month off.</p> <p>b. Maintain timesheets for all employees. For first audits, farm records must cover ≥ 6 months.</p>

4.8.4	<p>Indicator: Transport provided to workers (in cases where farm locations are remote) to allow workers to enjoy relaxation at home, with family or in places of recreation of their choosing.</p> <p>Requirement: The farm owner shall provide transport to and from the first location from which regular public transport is available.</p> <p>Applicability: All</p>	a. Ensure that employees receive transport to and from the first location from which regular public transport is available.
4.8.5	<p>Indicator: Overtime compensation is provided</p> <p>Requirement: Paid at a premium rate^[78] of at least 25% above the wage for normal hours</p> <p>Applicability: All</p>	<p>a. Ensure that for all employees, overtime hours are paid at a premium rate of at least 25% above the wage form normal hours.</p> <p>b. Maintain records of payments for overtime hours.</p>
4.8.6	<p>Indicator: Overtime is voluntary, and not longer than 12 hours/week.</p> <p>Requirement: Occasionally (not on a regular basis).</p> <p>Applicability: All</p>	<p>a. Ensure that for all employees, overtime hours are voluntary.</p> <p>b. Ensure that for all employees, overtime hours do not exceed a maximum of 12h/week.</p> <p>c. Ensure that for all employees, overtime hours occur on an exceptional basis.</p> <p>d. Maintain timesheets for all employees. For first audits, farm records must cover ≥ 6 months. Random check for time sheet accuracy.</p> <p>e. Maintain copies of employees' contracts and ensure that employees' contracts state the overtime conditions and associated rights.</p>
4.8.7	<p>Indicator: Rights to maternity leave, including daily breaks or a reduction of hours of work to address child care needs.</p> <p>Requirement: Maternity leave is a minimum of 14 weeks (total period off-duty period including before and/or after moment of birth) and includes a guarantee to return to the job. Payment during this period shall minimally be at the level of social insurance offered by the country.</p> <p>Applicability: All</p>	a. Ensure that all women employees are aware (and benefit) of their right to receive maternity leave with a minimum of 14 weeks and with a continuation of payment.
Footnote	[77] Audits will check whether workers are familiar with the guidance (on 4.8.1.) and use worker interviews to check for compliance. Compliance expressed in interviews.	
Footnote	[78] Premium rate: a rate of pay higher than the regular workweek rate. Must comply with national laws/regulations and/or fair wage standard. Must be 125% of normal rate or higher.	
<i>Criterion 4.9: Worker contracts are fair and transparent</i>		
Compliance Criteria (Required Client Actions):		

4.9.1	<p>Indicator: Allowance for labor-only contracting relationships [79] or false apprenticeship schemes [80] including revolving / consecutive labor contracts to deny benefit accrual.</p> <p>Requirement: None</p> <p>Applicability: All</p>	<p>a. Ensure that employees have written copies of their labor contracts.</p> <p>b. Ensure that no employee works with an apprentice contract for longer than six months.</p> <p>c. Ensure that employees understand their labor contracts.</p>
4.9.2	<p>Indicator: All workers have the appropriate and applicable permits for working in the country.</p> <p>Requirement: Employer has a list of permit reference numbers or copies of permits for all concerned workers.</p> <p>Applicability: All</p>	<p>a. Maintain a list of permit reference numbers or copies of permits (as applicable) for all employees</p>
4.9.3	<p>Indicator: Workers are fully aware of their employment conditions and confirmed their agreement (verbal or written). Written employment policies and procedures are required when there are more than five hired workers.</p> <p>Requirement: Evidence of contract agreement for all workers. Written contracts: a complete contract is filed in the office, mutually signed and copies are available to the worker. Verbal agreements: employer and worker cite consistent employment conditions in independent interviews.</p> <p>Applicability: All</p>	<p>Instructions to Clients on Indicator 4.9.3 Worker contracts have to be fair and transparent. Contracts include provisions on: date of entry, notice period, probation period, salary and salary policy, expected working hours, policies on overtime, farm safety protocols, terms of insurance, policies on disciplinary measures, list of obligatory expenses, other specific rights and obligations of both parties, both signatures (with clearly typed or written names and addresses) and date of signing. The general or collective provisions may be annexed to the signed contract, but the worker shall have a full printed copy of those. Farms with more than five hired workers shall follow formalized paper-based contract and policy procedures. On farms with fewer workers, where farmer and workers engage in verbal contracting practices, confidential interviews with the farm owner, worker(s) and the surrounding community (e.g., a local schoolteacher, in the event of children working on the farm) may be necessary to validate whether fair and transparent (i.e., verbal) contracting is taking place. Cooperatives (groups of farms) amounting to in total more than five hired workers will comply with the paperwork that is specified in the indicators.</p> <p>a. If Written contracts: Ensure that all employee contracts are mutually signed and copies are available to the employee.</p> <p>b. If Verbal contracts: Ensure that all employee understand and can cite employment conditions. If verbal additional policies should be provided printed to the worker</p> <p>c. If more than 5 hired workers, develop and implement written employment policies and procedures</p>
4.9.4	<p>Indicator: Probation period stipulated in contract</p> <p>Requirement: The probation period shall follow prevalent law in the country, but not be more than 30 days in cases laws do not exist or are not applicable [81].</p> <p>Applicability: All</p>	<p>a. Maintain copies of contracts of employees and ensure that the probation time is clearly stated in compliance with the local laws and in the absence of legal probationary period then the probationary period is not to exceed -1 month.</p> <p>b. Ensure that probation times are understood by employees and respected.</p>

4.9.5	<p>Indicator: In subcontracting [82] or home-working arrangements, the farm owner shall assure that labor laws, social security laws and ratified ILO provisions have been duly respected and complied with</p> <p>Requirement: Confirmation that sub-contractors and intermediaries have contracts with their workers that are in accordance with laws and regulations</p> <p>Applicability: Producers adopting subcontracting or home-working arrangements</p>	<p>Instructions to Client on Indicator 4.9.5 - Sub-contracting and home-working arrangements. Sub-contracting crews for specific labor intensive tasks (e.g., harvesting, sorting) is common practice in shrimp aquaculture but often a sparsely or non-regulated part of the business. Through sub-contracting, such services on farms may unwittingly become associated with labor issues that may exist in this sparsely regulated part of the industry. Farms take an appropriate measure of social responsibility by exercising due diligence before hiring the services of a specific provider. This due diligence is incorporated in this requirement by farmers showing evidence that they have screened service providers on possible violations of basic worker rights. > verify how farm screens subcontractors for their performance regarding worker treatment and health and safety provisions. > verify that farm has informed subcontractors, in writing, on the need to comply with this policy. > visit randomly 1-2 subcontractors and/or verify in interview with (regular) workers.</p> <p>a. Auditors should verify that farms have sent sub-contracting service providers letters requesting that their workers were contracted legally. Auditors should verify that farms have in their possession letters from sub-contractors stating the names and ages of their workers and that they are legally contracted.</p> <p>b. Provide evidence that service providers have been screened on possible violations of basic worker rights.</p> <p>c. Ensure that all workers employed by subcontractors or intermediaries and conducting activities of relevance to the farm abide to the farms health and safety regulations/procedures</p>
Footnote	[79] 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 protection.	
Footnote	[80] False Apprenticeship Scheme: the practice of hiring workers under apprentice-ship terms without stipulating terms of the apprenticeship/ wages under contract. It is a —false apprenticeship if its purpose is to underpay people, avoid legal obligations, or employ children.	
Footnote	[81] If the law of the producing countries requires more, the law must be followed.	
Footnote	[82] Sub-contracted worker: not directly contracted by farm but through an intermediary party (sub-contractor).	
Criterion 4.10: Fair and transparent worker-management systems [83]		
Compliance Criteria (Required Client Actions):		
4.10.1	<p>Indicator: The employer ensures that all workers have access to appropriate channels of communication with managers on matters relating to labor rights and working conditions.</p> <p>Requirement: Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings are available.</p> <p>Applicability: All farms with >5 workers</p>	<p>Instructions to Client on Indicator 4.10.1-4 - Fair and transparent mechanism to resolve collective conflicts Records of the meetings and filed complaints can be inspected and verified with management, workers, and the union or another organization of which a worker is a member. The minutes and complaints related documents shall include the agenda (in case of meeting), the resolution or action points upon which both parties agreed and a list of meeting participants (in case of meeting).</p> <p>a. Ensure that workers can file complaints and critical issues anonymously (suggestion: maintain complaint boxes for employees throughout the farm)</p> <p>b. Ensure that workers are aware of the farm's complaints procedure and are encouraged to use them by farm management.</p> <p>c. Maintain records of meetings (at least twice per year) held with the workforce. Records must include list of participants, agendas and agreed action plan and summaries. For first audits records must cover at least 1 meeting</p>
4.10.2	<p>Indicator: Percentage of issues raised by workers which are recorded, responded to and monitored by employer.</p>	<p>a. Maintain a register recording issues raised by workers (including complaint forms), date and response taken. For first audit, register must contain all records of the previous ≥ 6 months.</p>

	<p>Requirement: 100%</p> <p>Applicability: All farms with >5 workers</p>	<p>b. Ensure that employees have access to the register at reasonable times. > verify, in the absence of complaints, with union or WA or NGO as indicated by workers.</p>
4.10.3	<p>Indicator: Clear plan, with process actions and timeframe, is developed to address complaints, and comply with.</p> <p>Requirement: List of complaints, corresponding action plan and timeframe for resolution is available.</p> <p>Applicability: All farms with >5 workers</p>	<p>a. Maintain a register recording issues raised by workers and including the plan (including actions and timeframe) for addressing yet to be resolved conflicts.</p> <p>b. Ensure that the plan is adhered to.</p>
4.10.4	<p>Indicator: Percentage of complaints that are resolved within three months after being received.</p> <p>Requirement: 90%, according to the timeframe of 4.10.3.</p> <p>Applicability: All farms with >5 workers</p>	<p>a. Maintain evidence of issues raised by workers and being resolved. Evidence may include letters signed by employees or their representatives.</p> <p>b. Record the issues being resolved in the register as for 4.10.2.</p> <p>c. Maintain monthly summaries and calculations of the percentage of issues resolved within 1 month.</p>
Footnote	[83] Applicable to farms with more than 5 workers.	
Criterion 4.11: Living conditions for workers accommodated on the farm		
Compliance Criteria (Required Client Actions):		
4.11.1	<p>Indicator: Living conditions for workers accommodated on the farm are decent and safe.</p> <p>Requirement: All facilities are clean, sanitary, rainproof, safe and suitable for habitation. Shared quarters need to include provisions that allow for visibility privacy, such as walls, curtains or movable rattan/bamboo screens. Potable water and cooking facilities or catering facilities are available to all accommodated workers on the farm premises.</p> <p>Applicability: All</p>	<p>Instruction to Client on 4.11.1 and 4.11.2</p> <p>This criterion is about providing resident workers with basic but decent amenities for life. The criterion is not intended for makeshift shelters used on farms to allow workers to occasionally shelter from rain or take a quick nap in between shifts. The living conditions are for permanent or semi-permanent eating, sleeping, resting, indoor recreation and personal hygienic care. International labor codes (ILO, SA8000) also make reference to the availability of light, and the minimum private space per person of 4 m2 in shared sleeping quarters. > verify on site the location, condition, and size of the accommodation. > verify it is being used by workers (not management only); that it is not just temporarily in use.</p> <p>a. Ensure that employees accommodated on the farm have access to decent and suitable living habitation with facilities that are clean, sanitary and rainproof.</p> <p>b. Ensure that shared quarters include provisions that allow for visibility, privacy, such as walls, curtains or movable rattan/bamboo screens.</p> <p>c. Ensure that all accommodated employees have access to potable water and cooking facilities or the availability of catering facilities.</p>

4.11.2	<p>Indicator: Adequate facilities for women.</p> <p>Requirement: Separate and suitable sanitary and toilet facilities are available for men and women, with the possible exception of married couples being accommodated together.</p> <p>Applicability: All farms with >5 workers</p>	a. Provide separate and suitable sanitary and toilet facilities are available for men and women, with the possible exception of married couples being accommodated together. > if women are present in the workforce (worker and payslip records): verify existence and condition of separate sanitary facilities
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PRINCIPLE 5: MANAGE SHRIMP HEALTH AND WELFARE IN A RESPONSIBLE MANNER

Criterion 5.1: Disease prevention

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
5.1.1	<p>Indicator: Develop and maintain an operational health plan addressing:</p> <p>1) Pathogens that can come from the surrounding environment into the farm (e.g., predator and vector control),</p> <p>2) Pathogens that can spread from the farm to the surrounding environment (e.g., effluent filtration/sterilization, and waste such as dead-shrimp management)</p> <p>3) Spreading of pathogens within the farm. Critical to avoid cross contamination, detect and prevent emerging pathogen(s), and monitor external signs of pathologies and moribund animals</p> <p>Requirement: Demonstration that the operational health plan is functional</p> <p>Applicability: All</p>	<p>Instruction to Auditor on 5.1.1</p> <p>The auditor must be able to understand the rationale for the components of the health plan and understand the risks associated with the farming operation and how the farm plans to continuously improve production practices to address these measures. The auditor needs to be assured that the farm is not contaminating or spreading disease to the surrounding environment, has enacted good prevention measures adapted to the localized risks and has mechanisms to prevent the spread of infections from one pond to another. For example, if a small-scale farm, upon experiencing mortality events likely to be caused by WSD (e.g., as determined using gross signs and/or quick pond-side tests), does not discharge water to the natural environment, it would be in compliance with this requirement. In areas where access to diagnostic capacity is limited, gross signs can be used to perform diagnoses.</p> <p>a. Provide and maintain an operational health plan that addresses:</p> <p>1) Pathogens that can come from the surrounding environment into the farm (e.g., predator and vector control)</p> <p>2) Pathogens that can spread from the farm to the surrounding environment (e.g., effluent filtration/sterilization, and waste such as dead-shrimp management)</p> <p>3) Spreading of pathogens within the farm. Critical to avoid cross contamination, detect and prevent emerging pathogen(s), and monitor external signs of pathologies and moribund animals.</p>	A. Review health plan for compliance.
5.1.2	<p>Indicator: Filtration of inlet water for minimizing the entry of pathogens</p> <p>Requirement: Nets, grills, screens or barriers of the appropriate mesh size [85] are present on all farm or pond inlets.</p> <p>Applicability: All</p>	a. Ensure that all farm or pond inlets have nets, grills, screens or barriers of appropriate mesh size.	A. Confirm the presence of these nets, grills, screens or barriers at farm or pond inlets.

<p>5.1.3</p>	<p>Indicator: Annual average farm survival rate [86] (SR): 1) Unfed and non-permanently aerated pond systems 2) Fed but non-permanently aerated pond [87] systems 3) Fed and permanently aerated pond systems.</p> <p>Requirement: SR >25% SR >45% SR >60%</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 5.1.3 - Survival Rate (SR)</p> <p>Step 1 - Individual Pond Survival Rate Calculation The estimated number of shrimp harvested is calculated by dividing the harvested biomass by the harvest average body weight and SR can be estimated for each pond using the following formula: % Pond Survival Rate = [(Harvested Biomass/Average Body Weight)/Stocked PL Count] Farmers are responsible for all counts, including the stocked PL count and hatchery counts. The stocked PL count needs to be taken when PLs are transferred from the hatchery to the farm, whether they are stocked directly in grow-out ponds or in some intermediate, nursery raceway or pond.</p> <p>Step 2 - The Annual Average Survival Rate is the weighted average value for all ponds harvested during the last 12 months and is calculated as follows: SR in % = ((% Pond1 Survival Rate x number to postlarvae stocked in pond 1) + (% Pond2 Survival Rate x number to postlarvae stocked in pond 2) + ... + (Pond n Survival Rate x number to postlarvae stocked in pond n)) / Total number of postlarvae stocked in all ponds</p> <p>A counting system will be important for the ASC Shrimp Standard to describe a method of counting PLs so that the SR measure is meaningful. All individual pond survival rates of 95% and above are assumed to result from an underestimation of postlarvae number and as a consequence cannot be included in the calculation of the annual average survival.</p>	
		<p>a. Farm should demonstrate actual farm on-farm counting work sheets and they may or may not correlate with purchase receipts. Maintain records to show the total number of shrimp stocked into each enclosure during the last 12 months. For first audits, farm records must cover ≥ 6 months and records must cover at least 1 full crop per site (see preamble). In case supplying hatchery is vertically integrated to farm, exit countings at hatcheries can be used instead.</p>	<p>A. review farm post-larvae counting work sheets. Farm post larvae work sheets shall not exceed 5% margin of error. If company is integrated (larvae supplier + farm) 1 count is sufficient. Auditor will need to confirm the accuracy of the method used by the farm.</p>
		<p>b. Maintain harvest records for each crop (e.g. selling receipts or processing plant receipts) that are sufficient to show the total number of shrimp harvested from each enclosure. For first audits, records must cover at least 1 full crop per site (see preamble).</p>	<p>B. Review records. Confirm that farm records are sufficient to determine number of shrimp harvested from each enclosure.</p>
		<p>c. Calculate the weighted average of the Real Percentage Mortality (see above). Provide calculations to the auditor. Calculation should be based on hatchery postlarvae count if hatchery is vertically integrated to the farm. For farms that have independent hatchery suppliers, calculations should be based on farm counts and cross reference with the hatchery counts.</p>	<p>C. Review farm's calculations to verify accuracy cross reference with the hatchery counts. Categorise the farming system into 1 of the 3 categories and confirm that average real percentage mortality confirms to the requirement</p>
<p>5.1.4</p>	<p>Indicator: Percent of stocked postlarvae (PLs) that are Specific Pathogen Free (SPF) [88] or Specific Pathogen Resistant (SPR) [89] for all important pathogens [90].</p> <p>Requirement: 100% if commercially available [91], i.e., if for any given species, at least 20% of the PLs stocked in the country are from SPF or SPR stocks, then the supply is deemed commercially available. If not commercially available, PLs screened for all important pathogens can be used.</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 5.1.4</p> <p>If more than 20% of a country's production uses SPF or SPR broodstock for a given species, farmers certified under this standard must do so as well. Farmer must maintain a list of hatcheries in the country/region, indicating which ones produce SPF/SPR PLs. Auditor will need to verify whether SPF/SPR PLs are deemed commercially available based on the % of hatcheries producing SPF/SPR PLs. For non SPF or non-SPR seed to meet this standard, all World Organisation for Animal Health (OIE) [92] -listed diseases have to be tested for to prove the seed is clean, unless there is clear, scientifically based evidence that the country is free of that disease, or that the species reared by the farmer is not sensitive to that particular disease."</p>	
		<p>a. Be in possession of receipts and/or statements from postlarvae supplier indicating SPF and SPR status of hatchery broodstock and the pathogens for which the postlarvae was tested. Maintain records during the last 12 months. For first audits, farm records must cover ≥ 6 months.</p>	<p>A. If the country and species is listed by the farmer as a country/species for which 100% SPF/SPR postlarvae is required, confirm that all postlarvae stocked originated from SPF or SPR broodstock.</p>
		<p>b. Maintain list of OIE for which postlarvae diseases must be tested (see Instructions above).</p>	<p>B. Confirm that the OIE list is accurate and that postlarvae was tested for the relevant OIE listed diseases.</p>

		c. If any of the OIE listed diseases is not relevant (see Instruction), present evidence (e.g. peer reviewed papers or copies of official statement from the Competent Authority).	C. Review evidence and confirm its accuracy.
Footnote	[85] Justification of mesh size must be demonstrated to the auditor and be based on local disease risk factors (e.g. presence, likely vectors, etc).		
Footnote	[86] Survival rate does not include hatchery survival.		
Footnote	[87] Permanent aeration refers to aeration capacity installed during more than 90% of the grow-out period for sustaining a high biomass that exceeds the natural carrying capacity of the culture system and for feeding at the corresponding rate to ensure the best possible growth rate. Emergency aeration is not considered as permanent aeration.		
Footnote	[88] Specific Pathogen Free: a term used for animals that are guaranteed free of particular pathogens. The certified stock claim is accompanied by a list of the absent pathogens.		
Footnote	[89] Specific Pathogen Resistant describes a genetic trait of a shrimp that confers some resistance against one specific pathogen. SPR shrimp usually result from a specific breeding program designed to increase resistance to a particular virus. Within these requirements, programs using a —mass selection approach (e.g. taking all the survivors from a pond) are acceptable, provided the —resistant status of the stock can be scientifically demonstrated.		
Footnote	[90] All diseases, for which the species farmed is susceptible, listed by the OIE or the national competent authority.		
Footnote	[91] See Appendix for details on exceptions and SPR/ SPF eligibility.		
Footnote	[92] http://www.oie.int		
Criterion 5.2: Predator [93] control			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
5.2.1	<p>Indicator: Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List [94] national listing processes [95], or other official lists [96].</p> <p>Requirement: None</p> <p>Applicability: All</p>	<p>Instruction for Client on Indicator 5.2.1 This requirement does not apply to pond water treatment. Intentional lethal predator control is defined as actively trying to kill an animal. The use of passive predator exclusion fences and devices is strongly encouraged.</p> <p>a. Maintain a list of all predator control devices and their locations.</p> <p>b. Maintain a list of all protected, threatened or endangered species potentially visiting the farm and display list with relevant species at relevant places on-farm</p> <p>-</p>	<p>A. Review predator control procedure and list of predator control devices.</p> <p>B. Review list for accuracy</p> <p>C. Inspect sites to verify no use of lethal predator controls which may- cause mortality of protected, threatened or endangered species</p>
5.2.2	<p>Indicator: Allowance for use of lead shot and select chemicals for predator control.</p> <p>Requirement: None</p> <p>Applicability: All</p>	<p>Instruction to Client on Indicator 5.2.2 Only chemicals registered in the country of production can be used. Additionally, the use of pesticides must be compliant with the requirements of 5.3.5.</p> <p>a. Farm controls predators and maintains a list of predator control devices (as per 5.2.1a).</p> <p>-</p>	<p>A. Review list of predator control devices and confirm that no lead shots or non-approved chemicals are used for predator control</p> <p>B. Inspect sites to verify no use of lead shots or non-approved chemicals for predator controls.</p>
	<p>Indicator: In case lethal predator control is used, a basic monitoring program must be in place for documenting the</p>	<p>a. If lethal predator control is used, develop and maintain a monitoring program.</p>	<p>A. Review the results of the monitoring program and verify its appropriateness and accuracy of results</p>

5.2.3	frequency of visits, variety of species and number of animals interacting with the farm. Requirement: Yes Applicability: All	b. farm shall identify and monitor all incidents where lethal predator control was used, specifying the date, species, method used and rationale for using lethal force instead of non-lethal alternatives.	B. Verify the farm's monitoring program of endangered species protection.
Footnote	[93] Predator: Any animal that lives by preying on other animals.		
Footnote	[94] IUCN red lists can be accessed via www.iucnredlist.org .		
Footnote	[95] National listing process: Any process that occurs at the national, provincial, state, or other level within-country that evaluates species conservation status against a set of defined criteria recognized by relevant governance. Such listing processes may be legally binding (e.g. Endangered Species Act in the U.S.A. or the Species at Risk Act in Canada), or may not be legally binding. (e.g. species listings created by COSEWIC in Canada (Committee on the Status of Endangered Wildlife), or the Red Data Book in Vietnam).		
Footnote	[96] Note: does not apply to pond water treatment and any aquatic animals that are contained within it.		
Criterion 5.3: Disease management and treatment			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
		Instructions to Client on Indicator 5.3.1 This requirement applies to all antibiotics, all application methods and to both direct use and medicated feed. This indicator does not apply to hatcheries, on or off site.	
5.3.1	Indicator: Allowance for use of antibiotics and medicated feed on ASC-labeled products (farm can be certified but specific product receiving medicated feed will not be authorized to carry ASC label). Requirement: None Applicability: All	a. Farm to prepare a list of all veterinary medicines, chemicals and biological products used on the farm in the past 12 months. For first audits, records must cover at least 1 full crop per site (see preamble). b. Provide records detailing the use of any veterinary medicines, chemicals and biological products on each enclosure in the farm in the last 12 months. For first audits, records must cover at least 1 full crop per site (see preamble). c. If any antibiotics or medicated feed is used, detail and maintain a traceability system to ensure that no treated product is sold as ASC labeled. In these cases farm needs to hold a valid ASC Chain of Custody Certification.	A. Review farm's list of medicines, chemicals and biological products. B. Review records to confirm farm usage of products. During on-site inspection, verify there is no evidence for unrecorded use of any veterinary medicines, chemicals or biological products (i.e. no empty containers or non-inventoried warehouse supplies). C. Capture sufficient evidence that an organization operates an accurate traceability system. If farm uses/used any antibiotics or medicated feed is used, check validity of farm's Chain of Custody.
5.3.2	Indicator: Allowance for the use of antibiotics categorized as critically important by the World Health Organization [97] (WHO), even if authorized by the pertinent national authorities. Requirement: None Applicability: All	a. Maintain a list of all antibiotics used on the farm in the last 12 months. For first audits, records must cover at least 1 full crop per site (see preamble). b. Farm did not use any antibiotics critically important for human medicine as categorized by the WHO and antibiotics as banned by the competent national authorities in the last 12 months. c. Demonstrate working knowledge of critically important WHO antibiotics and antibiotics as banned by the competent national authorities and show that they are not used on the farm.	A. Review list of antibiotics used. B. Cross check list of antibiotics used by the farm against the WHO list of antibiotics critical to human medicine and antibiotics as banned by the competent national authorities. C. Review farmer's knowledge on banned antibiotics. D. During on-site visits, verify there is no evidence of use of antibiotics critical for human medicine through direct observation and inspection.

5.3.3	<p>Indicator: Information on chemical storage and usage.</p> <p>Requirement: Records of stocks and usage are available for all products.</p> <p>Applicability: All</p>	<p>Instructions to Client on Indicator 5.3.5 To know the lists of banned or restricted pesticides, refer to the following documents: Annex III of the Rotterdam Convention on Prior Informed Consent http://www.pic.int/TheConvention/Chemicals/AnnexIIIChemicals/tabid/1132/language/en-US/Default.aspx Stockholm Convention on Persistent Organic Pollutants. Annex A, B and C: http://www.pops.int/documents/convtext/convtext_en.pdf http://www.pops.int/documents/convtext/convtext_en.pdf The WHO-recommended classification of pesticides by hazard and guidelines to classification: http://www.who.int/ipcs/publications/pesticides_hazard_2009.pdf</p>	
		a. Maintain storage spaces for all veterinary medicines, chemical and biological products provided in 5.3.1a	A. Verify that storage spaces are available and adequate for safety and preservation of quality.
		b. Provide records detailing the use of any veterinary medicines, chemicals and biological products on each pond in the farm in the last 12 months. For first audits, records must cover at least 1 full crop per site (see preamble).	B. Review records to confirm farm usage of products. During on-site inspection, verify there is no evidence for unrecorded use of any veterinary medicines, chemicals or biological products (i.e. no empty containers or non-inventoried warehouse supplies).
5.3.4	<p>Indicator: Proper use of chemical products by farm workers</p> <p>Requirement: Evidences of worker awareness / training and instructions are available</p> <p>Applicability: All</p>	a. Develop Standard Operating Procedures for the use of veterinary medicines, chemicals and biological products.	A. Review SOP for content of the safe use and implementation of veterinary medicines, chemicals and biological products.
		b. Ensure that employees are familiar with the SOP.	B. Verify through interviews that employees are aware of procedures for proper chemical usage and that they have access to current instructions.
		-	C. During on-site visits, verify there is no evidence of failure to comply with the SOP.
5.3.5	<p>Indicator: Allowance for treating water with pesticides banned or restricted by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs) or classed as “extremely hazardous” or “highly hazardous” (classes Ia and Ib) by the World Health Organization (WHO).</p> <p>Requirement: None</p> <p>Applicability: All</p>	a. Maintain a list of all products used on the farm (as per 5.3.1a) in the last 12 months. For first audits, records must cover at least 1 full crop per site (see preamble).	A. Review list of products used for completeness.
		b. Prepare declaration stating that farm did not use any pesticides banned or restricted by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs) or the World Health Organization (WHO).	B.-Review declarations and during on-site visits, verify there is no allowance for treating water with pesticides banned or restricted by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), or classed as “extremely hazardous” or “highly hazardous” (classes Ia and Ib) by the World Health Organization (WHO).
5.3.6	<p>Indicator: Allowance for discharge of any hazardous chemicals [98] without previous neutralization[99].</p> <p>Requirement: None</p> <p>Applicability: All</p>	a. Maintain SOP at in 5.3.4a and ensure that they include procedures for neutralization.	A. Review SOP for appropriateness.
		b. Ensure that employees are familiar with the SOP.	B. Interview employees and assess compliance.
		-	C. During on-site visits, verify there is no evidence of failure to comply with the SOP.

5.3.7	<p>Indicator: Use of probiotic bacterial strains excluding the use of fermented product to seed further batches.</p> <p>Requirement: Only probiotic products approved by the appropriate competent authorities can be used.</p> <p>Applicability: All</p>	a. Provide records detailing the use of any biological products on the farm in the last 12 months. For first audits, records must cover at least 1 full crop per site (see preamble).	A. Review records to confirm farm usage of products. During on-site inspection, verify there is no evidence for unrecorded use of any veterinary medicines, chemicals or biological products (i.e. no empty containers or non-inventoried warehouse supplies). Provide an inventory detailing the probiotics used and dosing over the past 12 months.
		b. For the list provided in 5.3.7a, show that each item is approved for aquaculture by relevant national authorities. If the regulatory agency in charge of aquaculture does not approve probiotics or other biological agents, that producers should be capable of showing purchase records, invoicing and product information associated with any probiotics used.	B. Confirm that listed products used are approved for aquaculture.
		c. If on site fermentation is practiced, maintain and comply with the protocol provided by the suppliers, including taking all required precautions to ensure that they do not have contaminant strains.	C. Verify that protocols are available, appropriate and complied with.
		d. If on site fermentation is practiced, ensure that fermented products are not used for seeding further fermentation batches and that all batches must be seeded using a commercial probiotic.	D. Verify through site visit and employee interviews that there are no signs of fermented products having been used for seeding further fermentation batches.

Footnote [97] 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 [98] Hazardous chemicals need to be identified through a risk analysis. Common hazardous products used in shrimp farming are lime, disinfectants, sodiummetabisulfite, pesticides, including natural piscicides such as teaseed and rotenone (refer to Boyd and Massaut 1999 and Gräslund and Bengtsson 2001 for a review of risks with chemicals).

Footnote [99] This does not mean that the discharge must be pH neutral; but need to ensure that chemicals are broken down and treated water must be held for the appropriate retention time before release to ensure that animals in the receiving waters are not killed. If water is discharged, the effect of lime would have been naturally neutralized by the time water is discharged. For chemicals applied to ponds, farmers need to wait until effect is neutralized before discharging the water. This indicator is meant to address the case of chemicals used during harvest (metabisulphite, chlorine) that could be dumped in public canals. The indicator has evolved to make it more general as some people are also worried with chemicals used in ponds. In this case, farmers just need to show that they do not discharge the water before some time. For chemicals used in harvest they need to throw the remains in some farm canal or settling pond, or neutralize it chemically before discharging to a public canal.

PRINCIPLE 6: MANAGE BROODSTOCK ORIGIN, STOCK SELECTION AND EFFECTS OF STOCK MANAGEMENT

Criterion 6.1: Presence of exotic or introduced shrimp species

	Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
	<p>Instructions to Client on Indicator 6.1.1 - Use of Non-Indigenous Shrimp Species</p> <p>Applicability: Indicator 6.1.1 applies only to farms culturing non-indigenous species. Farms that only culture indigenous shrimp species are exempt from this indicator. However the burden of proof rests with farms to show that a cultured species is indigenous to an area. Farms may provide evidence from reputable independent sources such as peer-reviewed papers, IUCN, FAO or other international organizations. Once confirmed, the auditors shall record "not applicable" under these compliance criteria.</p> <p>To demonstrate compliance with Indicators 6.1.1, farm must provide hatchery permits and import licenses.</p> <p>More information on ICES code of practice on the introductions and transfers of marine organisms can be found at http://www.ices.dk/reports/general/2004/icescop2004.pdf . Farmers must demonstrate that they have a working knowledge of the guidelines and have complied with them for culturing a non-native species.</p>	

<p>6.1.1</p>	<p>Indicator: Use of non-indigenous shrimp species [104].</p> <p>Requirement: Allowed, provided it is in commercial production locally [105] AND there is no evidence [106] of establishment or impact on adjacent ecosystems by that species AND there is documentation (hatchery permits, import licenses, etc.) that demonstrates compliance with introduction procedures as identified by regional, national and international importation guidelines (e.g., OIE and ICES [107]).</p> <p>Applicability: All</p>	<p>a. Auditors to check by inspection of farm documents that postlarvae supplier has identified the species (Latin name) of shrimp farmed. Maintain records of postlarval purchases over the last 12 months. For first audits, farm records must cover ≥ 6 months.</p>	<p>A. Confirm that the farmed species is accurately identified in purchase records.</p>
		<p>b. Prepare documentary evidence (peer-reviewed papers, IUCN, FAO or other international organization). If species is not indigenous, please refer to c and d (below).</p>	<p>B. Confirm that documentation shows the farmed species is indigenous to the water system if the farmed species is indigenous to the water system, provide documentary evidence (peer-reviewed papers, IUCN, FAO or other international organization). If species is not indigenous, please refer to c and d (below).</p>
		<p>c. Prepare documentary evidence (peer-reviewed papers, official government [competent authority] statements or other comparable references that the species is commercially produced locally.</p>	<p>C. Confirm that documentation shows the farmed species is commercially farmed locally if the species is not indigenous, provide Prepare documentary evidence (peer-reviewed papers, official government [competent authority] statements or other comparable references that the species is commercially produced locally.</p>
		<p>d. If the species is not indigenous, provide documentary evidence (peer-reviewed papers, official government [competent authority] statements or other comparable references indicating no negative impacts.</p> <p>Negative impact by a self-recruiting stock includes but is not restricted to:</p> <ul style="list-style-type: none"> - changing the genetic diversity of wild shrimp through interbreeding - competition (e.g. displacement of local species) - habitat destruction 	<p>D. Review, as a minimum, evidence of no negative impact and assess its accuracy and appropriatenes by means such as an internet review, including, as a minimum, a Google search.</p>
		<p>e. If the species is not indigenous, provide documentary evidence (hatchery permits, import licenses, etc.) that demonstrates compliance with introduction procedures as identified by regional, national and international importation guidelines (e.g., OIE and ICES)</p>	<p>E. Review evidence and assess its accuracy and appropriateness including hatchery documentation on OIE compliance and regional and national importation laws.</p>
	<p>Indicator: Prevention measures in place to prevent escapes at harvest and during grow-out include (A-F):</p>		
	<p>A. Effective screens or barriers of appropriate mesh size for the smallest animals present; double screened when non-indigenous species.</p> <p>Requirement: Yes</p> <p>Applicability: All</p>	<p>a. Provide farm records indicating shrimp sizes (e.g. average weight recorded monthly). For first audits, records must cover at least 1 full crop per site (see preamble).</p>	<p>A. Review records for shrimp size in different holding units.</p>
		<p>b. Maintain records indicating the size of net mesh or grills for the entire farm, and record how selected mesh size is most appropriate for the smallest animals present at the time used. For first audits, farm records must cover ≥ 6 months.</p>	<p>B. Review records for mesh or grill size. Confirm that the mesh /grill size that was selected was appropriate for the smallest animals present at the time used.</p>

		c. If the species is not indigenous, ensure that double screens are used on both intake and discharge points at all times	C. During the on-site visit, inspect the size of net mesh or grills to confirm compliance. Where non-indigenous species are in culture, confirm that the farm has used double screens.
6.1.2	B. Perimeter pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events [108]. Requirement: Yes Applicability: All	a. Provide official records or statement showing local maximum water level (river levels, tide levels, flooding levels, etc) in the previous 25 years. b. Be in possession of a statement from local authorities or reputable organisation reporting the altitude (m above sealevel) of the bund in its lowest point. Show location of bund low-point on a map of the farm.	A. Review records covering ≥ 25 years or statement from government agencies to establish the maximum height of high water when flooding occurs. B. Review statement and map. During the on-site visit. Review evidence and verify that the lowest bund height is sufficient to cope with 25 years height.
	C. Regular, timely inspections are performed and recorded in a permanent register. Requirement: Yes Applicability: All	a. Provide farm records in a permanent register for periodic and regular inspection of net mesh or grills used in production (e.g. grow-out) units. b. Arrange for the auditor to observe an inspection during the on-site visit.	A. Review records to verify inspections are regular and timely. B. Witness the farm performing an inspection of meshes and grills to confirm that the program is effective.
	D. Timely repairs to the system are recorded. Requirement: Yes Applicability: All	a. Keep records of mitigation and repairs in a permanent register. For first audits, records must cover at least 1 full crop per site (see preamble).	A. Review the register to verify repairs are performed and recorded.
	E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded. Requirement: Yes Applicability: All	a. Identify the quantity and location of all trapping devices. The term 'trapping device' does not include mesh or grid barriers.	A. Review how the farm uses trapping devices to monitor escapees.
		b. Maintain a record of regular (at least weekly) trap inspections and observed escapees.	B. Review records of inspection and observed escapees.
		c. Configure traps properly and located suitably to ensure effective farm-wide monitoring of escapees.	C. During the on-site visit, inspect to verify that traps are configured properly and located suitably to ensure effective farm-wide monitoring of escapees.
F. Escape recovery protocols in place. Requirement: Yes Applicability: All	a. Develop and implement escape recovery protocols	A. Review escape recovery protocols and assess that protocols are implemented, there are records of escapes, records of actions taken and records of procedural modifications to prevent reoccurrence.	
6.1.3	Indicator: Escapes and actions taken to prevent reoccurrence. Requirement: Records are available for inspection. Applicability: All	a. When escapees are detected, record any actions taken to prevent reoccurrence. For first audits, these records must cover at least 1 full crop per site (see preamble).	A. Review the suitability of any actions taken by the farm to prevent reoccurrence.
Footnote	[104] At the time of publication of the ASC Shrimp Standard.		
Footnote	[105] Locally: within the country of production.		
Footnote	[106] The GSC recognizes that establishing —no evidence— is difficult and this issue will be monitored by the ASC Technical Advisory Group who will evaluate this on a case by case basis to determine how this should be applied in various localities.		

Footnote	[107] International Council for the Exploration of the Sea.		
Footnote	[108] Exceptional Flood Events= 25-year flood events.		
Criterion 6.2: Origin of postlarvae or broodstock			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
6.2.1	<p>Indicator: PL and broodstock have appropriate disease-free status and sources meet regional, national and international importation guidelines (e.g., OIE and ICES)</p> <p>Requirement: Documentation provided demonstrating compliance within two years of standard's publication date for wild monodon broodstock sourced locally; applicable immediately in all other cases</p> <p>Applicability: All</p>	a. Provide documentary evidence proving testing of postlarvae for all relevant pathogens (see list in 5.1.4b and additional evidence in 5.1.4c) unless the pathogens is not present in the country. Maintain records of postlarvae purchases or receptions over the last 12 months. For first audits, farm records must cover ≥ 6 months.	A. Review evidence and confirm its accuracy.
		b. For all farms using broodstock other than wild monodon and for farms stocking postlarvae from wild monodon broodstock from the 1st January 2015 onwards. Provide documentary evidence proving testing of shrimp broodstock for all relevant pathogens (see list in 5.1.4b and additional evidence in 5.1.4c). Maintain records of postlarvae purchases over the last 12 months. For first audits, farm records must cover ≥ 6 months.	B. Review evidence and confirm its accuracy.
		c. If farm is vertically integrated with it's hatchery, staff should have working knowledge of the introduction/importation guidelines referred to in this requirement.	C. Assess farm management's working knowledge of guidelines.
6.2.2	<p>Indicator: Percent of total postlarvae from closed loop hatchery (i.e., farm-raised broodstock)</p> <p>Requirement: P. vannamei, P. indicus, P. stylirostris 100% P. monodon must be increased over time, and reach 100% within six years after the publication of the standard.</p> <p>Applicability: All</p>	a. Provide a declaration from postlarvae supplier identifying the species (Latin name) of shrimp farmed and the source of broodstock (including whether it is wild-caught or captive-reared). Maintain records of postlarvae purchases over the last 12 months. For first audits, farm records must cover ≥ 6 months.	A. Review declarations and verify that only captive-reared broodstock is used for all species other than P. monodon and from the 1st January 2019, also for P. monodon broodstock.
6.2.3	<p>Indicator: Origin of wild-caught broodstock</p> <p>Requirement: Sourced from locally fished broodstock only [114].</p> <p>Applicability: Farms using seed generated from wild-caught P. monodon</p>	a. Provide a declaration from postlarvae supplier identifying the source (coast where harvested and country of harvesting) of broodstock. Maintain records of postlarvae purchases over the last 12 months. For first audits, farm records must cover ≥ 6 months.	A. Review declarations and verify that only broodstock fished along the same coasts of the same country where the farm is located is used
6.2.4	<p>Indicator: Allowance for wild-caught PL other than natural tidal flow into ponds</p>	a. Be in possession of statement from seed supplier(s) that the seed is not wild-caught (e.g. seed is derived from a broodstock held in captivity).	A. Verify that farm has statements from seed suppliers.

	Requirement: None Applicability: All	b. Maintain seed receipts for all stocking events. For first audits, farm records must cover ≥ 6 months.	B. Verify the farm maintains accurate records for sourcing of seed.
Footnote	[114] Sourced from the same country, water body, and/or genetic subpopulation.		
Criterion 6.3: Transgenic shrimp [116]			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
6.3.1	Indicator: Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp) Requirement: None Applicability: All	a. When GM shrimp are commercially available to the industry; farms should provide a declaration from its' source hatchery that the farm does not use genetically engineered (transgenic) shrimp.	A. Verify declaration of no use of genetically engineered strains.
		b. Deleted due to redundancy with a.	B. Deleted due to redundancy with A.
Footnote	[116] Transgenic Shrimp: a subset of GMOs, are organisms which have inserted DNA that originated in a different species. Some GMOs contain no DNA from other species and are therefore not transgenic but cisgenic.		
PRINCIPLE 7: USE RESOURCES IN AN ENVIRONMENTALLY EFFICIENT AND RESPONSIBLE MANNER			
Criterion 7.1 - Traceability of raw materials in feed			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
7.1.1	Indicator: Evidence of basic traceability of feed ingredients, including source, species, country of origin and harvest method demonstrated by the feed producer [118]. Requirement: List of all ingredients making up more than 2% of the feed available provided on company letterhead. Applicability: All	a. Be in possession of a statement (on feed manufacturer company letterhead) of the feed supplier identifying all the feed ingredients making up more than 2% of the feed	A. Confirm that farm has records
		b. For all feed ingredients making up more than 2%, provide copies of 3rd party statements as stated at invoice from feed ingredient supplier indicating the country of origin and (for fish products), fishing area according to FAO major fishing areas and subdivisions. (http://www.fao.org/fishery/cwp/handbook/H/en), species and harvest method. Note: not all major areas have subdivisions for reporting to the FAO.	B. Review statements for completeness and confirm compliance
7.1.2	Indicator: Demonstration of chain of custody and traceability for fisheries products in feed through an ISEAL member or ISO 65 compliant certification scheme that also incorporates the FAO [119] Code of Conduct for Responsible Fisheries. Requirement: Yes Applicability: All	a. Provide 3rd party evidence (through an ISEAL member or ISO 65 compliant certification scheme that incorporates the FAO Code of Conduct for Responsible Fisheries) demonstrating chain of custody and traceability for all marine ingredients other than products of trimmings. A list of suitable schemes is available on the ASC website . Following steps can be followed: 1. Identify all feed suppliers to the farm. 2. Prepare a list of all feed types purchased during the last 12 months. 3. For each type of feed, request from the feed supplier a list of all fisheries products that were used as feed ingredients. 4. Where feed ingredients include certified inputs (as per this requirement), request the feed supplier to provide evidence of 3rd-party traceability certification (e.g. chain of custody certificate).	A. Review evidence and confirm compliance.

Footnote	[118] Traceability must be at a level of detail that permits the feed producer to demonstrate compliance with the requirements in this document. Compliance would be in the form of third-party documentation of quality assurance schemes and traceability of ingredients. This requirement also assumes that the feed producer will make available to the farm a full list of feed ingredients and is aware that the relevant portion of the auditor report may be disclosed to purchasing retailers although the ingredient sources may be not revealed.
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Footnote	[119] Food and Agricultural Organization of the United Nations (FAO).
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Criterion 7.2 - Origin of aquatic and terrestrial feed ingredients

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
7.2.1a	<p>Indicator: Timeframe for 100% (mass balance) fishmeal and fish oil used in feed to come from fisheries [122] certified by a full ISEAL member [123] that has guidelines specifically promoting ecological sustainability of forage fisheries</p> <p>Requirement: Within five years following the date of standards publication</p> <p>Applicability: All, after March 2019</p>	<p>Instruction to Clients for Indicator 7.2.1b - 100% of Fish Meal & Fish Oil from Certified Sources</p> <p>Farms are required to obtain detailed information from their feed suppliers about the sourcing of fishery products that are used as feed ingredients. It is the farm's responsibility to obtain relevant information from the supplier. The ASC recognizes, however, that feed suppliers will require a period of time to come into compliance with this Indicator.</p> <p>Applicability: Indicator 7.2.1a comes into full effect in March 2019. In the interim, farms may choose to show compliance with either Indicator 7.2.1a or Indicator 7.2.1b (they are not required to comply with both indicators). If a farm chooses to comply with 7.2.1b, then Indicator 7.2.1 is not applicable and the auditor shall record this fact in the audit report.</p> <p>Note: the terms fishmeal and fish oil as used in this audit manual are equally applicable to products from invertebrate fisheries such as squid or other non-fish species.</p>	
		<p>a. Be in possession of a statement from feed manufacturer identifying the origin of all marine meals and oils products used as feed ingredients (to specify genus, species and region of harvest). For first audits, farm records must cover ≥ 6 months and all the feed requirements apply only to marine meals and oils on site.</p>	<p>A. Confirm that farm has statement from feed manufacturer identifying the origin of all marine meals and oils products used as feed ingredients (to specify genus, species and region of harvest).</p>
		<p>b. Provide evidence that fish meal and fish oil products used in feed are from sources certified as compliant to the standards of an ISEAL member.</p>	<p>B. Review evidence and confirm compliance.</p>
7.2.1b	<p>Indicator: FishSource score [122] [124] [125], for the fishery(ies) from which a minimum of 80% of the fishmeal and fish oil by volume is derived (See Appendix IV, subsection 3 for explanation of FishSource scoring)</p> <p>a. for Fishsource Criteria 4 (spawning biomass assessment)</p> <p>b. for Fishsource Criteria 1, 2, 3 and 5</p> <p>Requirement:</p> <p>a. 8</p> <p>b. 6</p> <p>or compliance with alternative interim proposal 7.2.1c</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 7.2.1b - FishSource Score of Products Used in Feed</p> <p>To determine FishSource scores of fish species used as feed ingredients, do the following:</p> <ul style="list-style-type: none"> - go to http://www.fishsource.org/ - select "Species" drop down tab to the left - select the species that is utilized by the farm as a source of fish meal or oil - confirm that the search identifies the correct species, then select the top tab that reads "Scores" - Review scores to verify compliance. <p>If results show the species does not meet all the criteria, then the feed does not meet requirements of the Standard. If the species has not been assessed (i.e. it is not listed on the FishSource website), then the feed does not meet requirements of the Standard. Contact FishSource via Sustainable Fisheries Partnerships to identify the species as a priority for assessment.</p>	
		<p>a. Be in possession of statement from feed manufacturer as for Indicator 7.2.1a. If fish products include products non compliant to the FS scores set in this requirement or not part of an Improver Program (IP) as defined in the requirement, the statement shall indicate also the maximum level of inclusion of non compliant fish products (mass balance calculations can be used). For first audits, farm records must cover ≥ 6 months and all the feed requirements apply only to fish on site.</p>	<p>A. Verify that farm possesses information about feed ingredients.</p>

7.2.1c	<p>Indicator: Lacking a FishSource assessment a fishery could be engaged in an Improvers Programme. (transparent and public Fisheries Improvement Project (FIP) with periodic public reporting (refer to Appendix VII).</p> <p>Requirement: See Appendix VII for details on compliance</p> <p>Applicability: All</p>	<p>b. For farms not using feed containing fish meal and fish oil from a manufacturer part of an Improver Program (IP). Provide a FS score for each species used as a feed ingredient (or for all species indicated in 7.1.1b.b) in all feeds used by the farm during the last 12 months. For first audits, farm records must cover ≥ 6 months and all the feed requirements apply only to fish on site.</p>	<p>B. Review FS scores for species used in feed and confirm compliance. Cross check against species listed in feed supplier declarations.</p>
		<p>c. For farms using feed containing fish meal and fish oil from a manufacturer part of an Improver Program (IP). Provide evidence (e.g. communications, agreements, meeting minutes, etc.) that the fish meal and fish oil manufacturer has joined an IP with a publically available workplan and reports on progress at least annually.</p> <p>A consulting party shall ensure that the milestones in the Action Plan are being adhered to annually, and reports on progress are to be posted publicly.</p>	<p>C. Review evidence and confirm accuracy (compliance with Appendix VII)</p> <p>A consulting party shall ensure that the milestones in the Action Plan are being adhered to annually, and reports on progress are to be posted publicly.</p>
7.2.2	<p>Indicator: Percentage of non-marine ingredients from sources certified by an ISEAL member's certification scheme that addresses environmental and social sustainability</p> <p>Requirement: 80% for soy and palm oil within five years from the date of the ASC Shrimp Standard's publication</p> <p>Applicability: All, after March 2019</p>	<p>a. Be in possession of a statement from feed manufacturer identifying the percentage of soy and palm-ingredients that are certified by an ISEAL guideline compliant standard for environmental and social sustainability.</p>	<p>A. Confirm that farm has statement from feed manufacturer identifying the respective percentage of soy and palm ingredients certified to an ISEAL compliant standard.</p>
		<p>b. Provide evidence that soy products and palm oil used in feed (as listed in 7.2.2a) are from sources certified as compliant to the standards of an ISEAL member.</p>	<p>B. Review evidence and confirm compliance. Auditor should witness photocopy of certificate as well as statement of compliance by feed manufacturer.</p>
Footnote	[122] This requirement applies to fishmeal and oil from forage fisheries and not to by-products or trimmings used in feed.		
Footnote	[123] Such as the Marine Stewardship Council (MSC) which encourages positive steps towards promoting the sustainability of capture fisheries.		
Footnote	[124] http://www.fishsource.org/		
Footnote	[125] Or equivalent score using the same methodology		
Criterion 7.3: Use of genetically modified (GM) ingredients in feed			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
	<p>Indicator: Allowance for feed containing ingredients that are genetically modified ONLY when information regarding the use of GM ingredients in shrimp feed is made easily available to retailers and end consumers, including:</p> <p>a. Disclosure on the audit reports if GMO ingredients were used in the feed fed to shrimp</p> <p>b. Disclosure if GMO ingredients were used in the feed fed to ASC-certified shrimp all along the supply chain up to the retailer. Total disclosure on the</p>	<p>Instruction to Clients and Auditors for Indicator 7.3.1</p> <p>Evidence of the presence or absence of GM ingredients in feeds must be collected by the auditor. Evidence must include feed manufacturer declarations and records and testing of a feed sample (e.g., using biomolecular tools to confirm the presence or absence of GM – according to the limit of detection and tolerance commonly accepted by the current legislations). Three possible conclusions can arise, depending on whether clear evidences of presence or absence of GMOs are collected or doubts remain in the absence of clear declarations from the feed manufacturer:</p> <ul style="list-style-type: none"> - Feeds used are guaranteed GM-free - Feeds used contain GM ingredients - Feeds used may contain GM ingredients <p>Such conclusions from the analysis of evidence need to be communicated through the chain of custody according to the decision tree in the Standard.</p>	

7.3.1	<p>revised auditor reports are published on an easy-access database on the ASC web page (when available). This database, when available, should be made available on demand to retailer and consumers.</p> <p>c. Use of the most adequate, fast and user-friendly communication tools to inform retailers and consumers on all certified products</p> <p>Requirement: Yes [132]</p> <p>Applicability: All</p>	<p>a. Be in possession of a statement (on feed manufacturing company letterhead) of the feed supplier identifying all the feed ingredients making up more than 2% of the feed (as per 7.1.1a). Statement shall indicate the GMO status of each ingredient as follows:</p> <ul style="list-style-type: none"> - GM-free (DNA-testing lab results required to accompany feed manufacturer's statement). - GM - unknown 	<p>A. Confirm that farm has records. Communicate information to the ASC for posting on a dedicated database</p>
7.3.2	<p>Indicator: List (footnote) of feed ingredients does not contain any GMO</p> <p>Requirement: Yes</p> <p>Applicability: Farmers using GM-free feed</p>	<p>a. (as per 7.3.1a) Be in possession of a statement (on company letterhead) of the feed supplier identifying all the feed ingredients making up more than 2% of the feed. Statement shall indicate the GMO status of each ingredient as follows:</p> <ul style="list-style-type: none"> - GM-free - GM - unknown 	<p>A. Confirm that farm has records and that none of the ingredients has a "GM" status</p>
7.3.3	<p>Indicator: Non-GMO feed traceability by the feed producer and on the farm</p> <p>Requirement: Yes</p> <p>Applicability: Farmers using GM-free feed</p>	<p>a. Feed manufacturers to supply a list to farmer of all ingredients that have a potential to be GM sources</p>	<p>A. Review list and supporting documents generated through the literature search and confirm the accuracy of the list including, if available, the Identity Preservation (IP) certificates</p>
		<p>b. Maintain records indicating the source (including country of origin) of all ingredients listed in 7.3.3a</p>	<p>B. Verify the traceability of the ingredient list back to the primary source</p>
7.3.4	<p>Indicator: Samples taken randomly by the auditor are tested negative by PCR</p> <p>Requirement: Yes</p> <p>Applicability: Farmers using GM-free feed</p>	<p>a. Allow the auditor to take samples from different kinds of feed available at the farm</p>	<p>A. Collect samples and submit them to a laboratory ISO 17025 accredited or laboratories operated by universities/governmental offices for using PCR or other molecular test capable of identifying GM products. Confirm the GM-free status of the feed samples</p>

Footnote [132] Certified organic or GMO-Free by an accredited certifier.

Criterion 7.4: Efficient use of wild fish [136] for fishmeal and oil

		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
7.4.1	<p>Indicator: Feed Fish Equivalence Ratio (FFER) [137] L. vannamei and P. monodon</p> <p>Requirement: L. vannamei ≤1.35:1 and P. monodon ≤1.9: 1</p>	<p>Instruction to client for 7.4.1. FFERm = (%fishmeal in feed x eFCR) / 22.2 In case a farm uses different feeds, a weighted average fishmeal content must be calculated as follows: % fishmeal in feed = [(%fishmeal Feed A x quantity Feed A used) + (%fishmeal Feed B x quantity Feed B used) + ...+ / *Total quantity of Feeds A, B+,...+ Please note that fisheries by-products that meet the sustainability and traceability criteria in 7.1 and 7.2 do not count in these calculations and can therefore be used to assist producers with achieving compliance.</p>	<p>A. Verify that farm possesses information about percent inclusion of fish meal and fish oil for all feed types.</p>

	Applicability: All	<p>b. Maintain records (e.g. receipts) showing weight of shrimp harvested. For first audits, records must cover at least 1 full production cycle per site (see preamble).</p>	B. Verify the farm keeps records showing weight of shrimp harvested.
		<p>c. Calculate the weighted average FFER</p>	C. Review calculations to verify accuracy. Confirm compliance.
7.4.2a	<p>Indicator: Economic Feed Conversion Ratio (eFCR)</p> <p>Requirement: Records are available</p> <p>Applicability: All</p>	<p>Instructions to Clients and Auditor for Indicator 7.4.2a The eFCR is calculated for all harvests over the last 12-month period. $eFCR = \text{Feed, Kg or MT} / \text{Net aqua cultural production, Kg or MT (wet weight)}$. Raw data of all enclosures must be available and needs to be randomly checked by auditor during audit.</p>	
		<p>a. Be in possession of receipts and/or statements from feed supplier indicating feed volume purchased. For first audits, farm records must cover ≥ 6 months and records must cover at least 1 full crop per site (see preamble).</p>	A. Review records to confirm that farm has records for all seed.
		<p>b. Maintain records showing the type of feed and the total weight used.</p>	B. Confirm that farm has complete and accurate records for feed.
		<p>c. Maintain records (e.g. receipts) showing weight of shrimp harvested by ponds. For first audits, records must cover at least 1 full crop per site (see preamble).</p>	C. Verify the farm keeps records by ponds showing weight of shrimp harvested.
		<p>d. Calculate eFCR and yield for each crop harvested during the last 12 months using the formulas given in the Standard. For first audits, records must cover at least 1 full crop per site (see preamble).</p>	D. Review calculations for accuracy and completeness.
		<p>e. Calculate weighted average eFCR for the complete production cycle using the formula given in the Standard.</p>	E. Review calculations for accuracy.
7.4.2.b	<p>Indicator: Protein Retention Efficiency</p> <p>Requirement: Records are available</p> <p>Applicability: All</p>	<p>Instructions to Clients and Auditor for Indicator 7.4.2b Protein Retention Efficiency (PRE) = $[\% \text{ protein in harvested shrimp} / (eFCR \times \% \text{ protein in feed})] \times 100\%$ In case several feed formulations are used, a weighted average protein content need to be calculated based on the quantities of the different feeds consumed over the last 12-month period.</p>	
		<p>a. Maintain records showing the type of feed and the amount used. This requirement applies to all feed used in the crops that are included in the calculation. For first audits, records must cover at least 1 full crop per site (see preamble).</p>	A. Confirm the farm has complete and accurate records for feed used.
		<p>b. Be in possession of relevant documentation of % protein content from feed suppliers for all feed used in the crops included in the calculation. For first audits, records must cover at least 1 full crop per site (see preamble).</p>	B. Verify the farm possesses documentation for % protein. For those that use TN, conversion to protein is done by calculating $TN * 6.25$. Documentation could be labels on feed bags or claims on feed invoice statements.

		c. Use results of 7.4.2.a. and the protein content for the whole shrimp animal that is referenced in scientific literature to calculate the PRE.	C. Review farm's calculations. Cross-check purchase records against the feed quantities reported by the farm.
Footnote	[136] Fisheries byproducts that meet the sustainability and traceability criteria in 7.1 and 7.2 do not count in the following wild fish for fishmeal and oil calculations and can therefore be used to assist producers with achieving compliance.		
Footnote	[137] Feed Fish Equivalency Ratio (FFER): the quantity of wild fish used per quantity of cultured fish produced (x:x).		
Criterion 7.5: Effluent contaminant load			
		Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):
		<p>Instructions to Clients and Auditors on Indicator 7.5.1 and 7.5.2</p> <p>For farms that operate on a flow through system with earthen construction or earthen bottoms: they have 2 options to calculate nutrients load. For those farms to simplify equation (1) below can be used and effluent is corrected for nutrient losses in sediments, air and contained in the shrimp at harvest. For those farms that operate in intensive systems with non-earthen bottoms (e.g. liners or concrete) they should use formula 2 below which only addresses nutrient loads dissolved in the inflow and effluents:</p> <p>(1) N load kg/ton shrimp = N input in kg x 0.3 / tons of shrimp produced P load kg/ton shrimp = P input in kg x 0.2 / tons of shrimp produced Where: NP input = kg of NP inputs from feeds and fertilizers Feed NP (kg) = (kg Feed 1 applied) x (% NP Feed 1 content) + (kg Feed 2 applied) x (% NP Feed 2 content) + etc. Fertilizer NP (kg) = (kg Fertilizer 1 applied) x (% N/P Fertilizer 1 content) + (kg Fertilizer 2 applied) x (% NP Fertilizer 2 content) + etc.</p> <p>Farms that control the discharge of effluents and can actually measure the volume of effluent water: NP load (kg/ton shrimp) = ((NP concentration in effluent water in mg/L – NP concentration in supply water in mg/L) x volume of effluent water in m3) / 1000 x tons of shrimp produced</p> <p>(2) Farms that cannot measure the volume of effluent water: NP load (kg/ton shrimp) = (((NP concentration in effluent water in mg/L - NP concentration in supply water in mg/L) x volume of pond water in m3 x average number of production cycles per pond over 12 months) + ((NP water concentration in pond in mg/L - NP concentration in supply water in mg/L) x volume of pond water in m3 x average daily % water renewal x average number of production cycles per pond over 12 months)) / 1000 x tons of shrimp produced over 12 months</p> <p>Note: NP stands for N or P depending on the indicator to which the formula applies</p>	
		a. maintain records for daily water exchange rates, including diagram showing general water flows through the farm. For first audits records must cover 1 full crop per site. (see pre-amble).	A. Verify farm keeps records showing daily water exchange rates including diagram showing general water flows through the farm.
		b. Maintain records showing the type of feed and fertiliser and the amount used. For first audits, records must cover at least 1 full crop per site (see preamble).	B. Confirm the farm has complete and accurate records for feed used.
		c. Maintain records (e.g. receipts) showing weight of shrimp harvested. For first audits, records must cover at least 1 full crop per site (see preamble).	C. Verify the farm keeps records showing weight of shrimp harvested.

7.5.1	<p>Indicator: Nitrogen effluent load per ton of shrimp produced over a 12-month period [138].</p> <p>Requirement: Less than 25.2 kg N per ton of shrimp for <i>L. vannamei</i>. Less than 32.4 kg N per ton of shrimp for <i>P. monodon</i>.</p> <p>Applicability: All</p>	d. Farms that operate earthen ponds at a daily water exchange rate of 10% or lower: Be in possession of evidence (either from the manufacturer, from an independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices) indicating N content in each feed and fertilizer used.	D. Verify the farm possesses evidence.
		e. Farms that DO NOT operate earthen ponds at a daily water exchange rate of 10% or lower: - Submit results of N concentration in effluent water from a fully independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices. - Submit results of N concentration in supply water from a fully independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices.	E. Confirm the laboratory is suitably qualified to conduct water testing. Review test results
		f. Farms that DO NOT operate earthen ponds at a daily water exchange rate of 10% or lower: Maintain records of water intake. For first audits, records must cover at least 1 full crop per site (see preamble).	F. Verify the farm keeps complete records of water intake.
		g. In situations where it is impractical for farms to accurately measure the volume of effluent water (e.g. due to irregular seasonal flooding), farms shall provide a diagram describing farm and size and volume of each enclosure	G. Verify accuracy through direct observation. For first time audits: auditors should cross-check the accuracy of the farm's map of at least 1 pond chosen randomly using Google Maps, satellite images or similar means (if detailed information is available).
		h. In situations where it is impractical for farms to accurately measure the volume of effluent water (e.g. due to irregular seasonal flooding), farms shall provide records of stocking and harvest events in each enclosure and a calculation of the average number of production cycles per pond over 12 months	H. Review records and verify accuracy of the calculation
		i. In situations where it is impractical for farms to accurately measure the volume of effluent water (e.g. due to irregular seasonal flooding), farms shall submit results of N concentration in pond water from a fully independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices.	I. Confirm the laboratory is suitably qualified to conduct water testing. Review test results
		j. In situations where it is impractical for farms to accurately measure the volume of effluent water (e.g. due to irregular seasonal flooding), farms shall provide evidence indicating average daily % water renewal.	J. Review evidence and confirm accuracy
		k. Apply the relevant formula and calculate N discharge per ton of shrimp produced	K. Review farm's calculations to confirm the farm complies with the Requirement.
		a. Maintain records showing the type of feed and fertilizer and the amount used. For first audits, records must cover at least 1 full crop per site (see preamble).	A. Confirm the farm has complete and accurate records for feed used.
		b. Maintain records (e.g. receipts) showing weight of shrimp harvested. For first audits, records must cover at least 1 full crop per site (see preamble).	B. Verify the farm keeps records showing weight of shrimp harvested.

<p>7.5.2</p>	<p>Indicator: Phosphorous effluent load per ton of shrimp produced over a 12-month period.</p> <p>Requirement: Less than 3.9 kg P per ton of shrimp for L. vannamei. Less than 5.4 kg P per ton of shrimp for P. monodon.</p> <p>Applicability: All</p>	<p>c. Farms that operate earthen ponds at a daily water exchange rate of 10% or lower: Be in possession of evidence (either from the manufacturer or from an independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices) indicating P content in each feed and fertilizer used.</p>	<p>C. Verify the farm possesses evidence.</p>
		<p>d. Farms that DO NOT operate earthen ponds at a daily water exchange rate of 10% or lower: Be in possession of evidence (either from the manufacturer, from an independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices or laboratories operated by university's/governmental offices) indicating P content in each feed and fertilizer used.</p>	<p>D. Confirm the laboratory is suitably qualified to conduct water testing. Review test results</p>
		<p>e. Farms that DO NOT operate earthen ponds at a daily water exchange rate of 10% or lower: Maintain records of water intake. For first audits, records must cover at least 1 full crop per site (see preamble).</p>	<p>E. Verify the farm keeps complete records of water intake.</p>
		<p>f. Farms that CANNOT measure the amount of effluent water: provide a diagram describing farm and size and volume of each enclosure</p>	<p>F. Verify accuracy through direct observation. Cross-check the accuracy of the farm map or diagram using Google Map, satellite images or similar means (if detailed information is available).</p>
		<p>g. Farms that CANNOT measure the amount of effluent water: provide records of stocking and harvest events in each enclosure and a calculation of the average number of production cycles per pond over 12 months</p>	<p>G. Review records and verify accuracy of the calculation</p>
		<p>h. Farms that CANNOT measure the amount of effluent water: Submit results of P concentration in pond water from a fully independent ISO 17025 accredited laboratory or laboratories operated by university's/governmental offices.</p>	<p>H. Confirm the laboratory is suitably qualified to conduct water testing. Review test results</p>
		<p>i. Farms that CANNOT measure the amount of effluent water: Provide evidence indicating average daily % water renewal.</p>	<p>I. Review evidence and confirm accuracy</p>
		<p>j. Apply the relevant formula and calculate P discharge per ton of shrimp produced</p>	<p>J. Review farm's calculations to confirm the farm complies with the Requirement.</p>
	<p>Indicator: Responsible handling and disposal of sludge and sediments removed from ponds and canals.</p>	<p>Instructions to Clients and Auditor for Indicator 7.5.3 Sediment disposal sites should be surrounded by embankments to avoid runoff and, if they are in areas with highly permeable soil or in a freshwater zone, they should be lined with clay or plastic to avoid infiltration. Embankments should be 0.75 meters high and twice as large as the area needed for the volume of sediment to be stored so that at least half (0.375 meters) of the storage height for rainfall would be available. This amount of extra storage volume would capture the rainfall from the 100-year rainfall event in most areas and prevent runoff from the stockpiled sediment.</p>	
		<p>a. Provide a detailed sludge and sediment management plan. The plan will ensure that no sludge or sediments in any form is discharged directly into receiving waters or natural ecosystems.</p>	<p>A. Review the farm's sludge/sediment management plan.</p>
		<p>b. Maintain records of sludge sediment disposal and or movements. For first audits, farm records must cover ≥ 3 months.</p>	<p>B. Review records to confirm appropriate disposal according to plan.</p>

7.5.3	<p>Requirement: No discharge or disposal of sludge and sediments to public waterways and wetlands.</p> <p>Applicability: All</p>	<p>c. If sludge/sediments is transferred to an external party, be in possession of a declaration from the receiving party that specifies the sludge volume, delivery date, and expected use. The party shall declare that the sludge will not be discharged directly into receiving waters or natural ecosystems.</p>	<p>C. If yes to (c), confirm farm has appropriate documentary evidence.</p>
		<p>d. If a sludge/sediment repository is used, provide a map showing its location within the farm or documents showing legal access to the repository (either ownership or a statement from the owner of right of use).</p>	<p>D. If yes to (d), inspect sludge repository during on-site visit.</p>
		-	<p>E. During local community and employee interviews, verify there is no evidence that the farm discharged sludge/sediments directly into receiving waters on natural ecosystems at least for the previous 1 year</p>
7.5.4	<p>Indicator: Treatment of effluent water from permanently aerated ponds.</p> <p>Requirement: Evidence that all discharged water goes through a treatment system [139], and concentration of settleable solids in effluent water < 3.3 mL/L [140].</p> <p>Applicability: Farms with permanently aerated ponds</p>	<p>Instructions to Clients and Auditor for Indicator 7.5.4</p> <p><i>Specifications for settling basins</i></p> <p>Settling basins must be constructed according to the following specifications: Hydraulic retention time (HRT) = nine hours; (This will avoid the settling basin from having to be cleaned out frequently to maintain a minimum HRT of six hours.) Design of basin must include seepage and erosion reduction control features (e.g., proper soil texture, good compaction and grass cover); Water enters at surface of basin through a weir or pumping; Water exits surface of basin through a weir on opposite side; If basin is square or nearly so, a baffle must be provided to avoid the short-circuiting of flow; A drain structure should be provided so that the basin can be emptied. Posts must be placed at five places in the basin. These posts will extend to the height of the full-basin water level. They will be used to estimate average depth of sediment accumulation. Sediment depth cannot exceed one-fourth (25%) of the original basin depth, as measured by the distance from the top of the post to the sediment surface.</p> <p><i>Alternatives to settling basins for effluent treatment</i></p> <p>Farms that do not have enough space for a settling basin can use production ponds adjacent to the pond being harvested as settling basins. Another alternative is to use drainage canals as settling basins, where sills can be installed at intervals in the bottoms to trap sediment. The use of production ponds and drainage canals as settling basins allows for the treating and recycling of all the water from harvested ponds is a practice that the Standard would encourage. Alternatively, grassed strips or vegetated ditches or other artificial wetlands can be used for treating pond effluents. Suspended solids and other wastes are removed as the effluent passes over or through the vegetation.</p>	
		<p>a. Provide a detailed effluent water treatment plan including the calculation of the hydraulic retention time.</p>	<p>A. Review the farm's effluent water treatment plan.</p>
		<p>b. Maintain a settlement basin-managed following the specifications of this requirement.</p>	<p>B. During on-site visit, inspect the settlement basin or a suitable alternative and confirm compliance.</p>
		<p>c. Maintain records of water discharge from the settlement basin or suitable alternative. For first audits, farm records must cover ≥ 3 months.</p>	<p>C. Review records to confirm appropriate effluent management according to plan.</p>
		<p>d. Maintain records of settleable solids measurement on all instances of water discharge following the specification in [140]</p>	<p>D. Review records for completeness and confirm compliance</p>
		<p>e. Arrange for a settleable solid measurement to take place while the auditor is at the farm.</p>	<p>E. Witness the measurement of settleable solids to confirm compliance with procedures.</p>

7.5.5	<p>Indicator: Percentage change in diurnal dissolved oxygen (DO) relative to DO at saturation in receiving water body [141] for the water's specific salinity and temperature.</p> <p>Requirement: ≤ 65%</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 7.5.5 - Measuring Percent Change in Diurnal Dissolved Oxygen Dissolved oxygen (DO) concentration must be measured in the receiving water body 0.3 meters below the water surface one hour prior to sunrise and two hours prior to sunset (temperature and salinity must also be recorded at the time of DO measurements). DO values must be expressed as a percentage of saturation, and the difference between sunset and sunrise values (diurnal DO fluctuation) must be calculated. Measurements must be made at least twice a month and can be made as frequently as daily. In the case of coastal waters influenced by tides, dates must be chosen such that the measurement time (one hour prior to sunrise and two hours prior to sunset) corresponds to high and low tides, to reflect variations related to the tidal regime. The annual mean diurnal DO fluctuation shall be less than 65%. Shrimp farms may discharge into channels or streams connected to larger, open water areas of a river or estuary. The sampling site for DO concentration in the receiving water for a particular farm should be located in the segment of the water system into which effluent is directly discharged. Sampling stations should be outside of the zone where mixing is not yet complete and concentrations of some water quality variables would be elevated above ambient for the receiving water. The sample shall be taken at some point at least 200 meters from the outfall, but near the shore to avoid a dangerous situation related to sample collection. Farms that can demonstrate that concentrations of total N and total P in discharged water are lower than in the receiving water body, or have not discharged any water since the last audit (or for the last 12 months in the case of the first audit) through the use of water recirculation techniques, would be exempt from complying with this indicator. In some situations, farms may be unable to identify a site suitable for sampling which is located 200m below the farm outfall (e.g. when bio-filtration is used). Such farms may request a variation (to the auditor if they can demonstrate that the sampling station for monitoring is located at the first possible point t in the receiving water where there is a large distance between the outfall and the receiving water.</p> <table border="1" data-bbox="1163 772 2881 1360"> <tr> <td data-bbox="1163 772 2024 846">a. Provide DO measurements .</td> <td data-bbox="2024 772 2881 846">A. Review dataset to confirm that monitoring covers the required timeframe.</td> </tr> <tr> <td data-bbox="1163 846 2024 989">b. Calibrate all equipment at the frequency and by the method recommended by the manufacturer. Temperature, salinity and altitude are to be adjusted for in calibration or calculations.</td> <td data-bbox="2024 846 2881 989">B. Verify the farm technicians calibrate equipment as required.</td> </tr> <tr> <td data-bbox="1163 989 2024 1083">c. Calculate percent change in DO for each monitoring date using the equation in Annex D.</td> <td data-bbox="2024 989 2881 1083">C. Review calculations to confirm accuracy.</td> </tr> <tr> <td data-bbox="1163 1083 2024 1226">d. Use results of 3.2.1c to calculate the average percent change in DO over the entire 12-month monitoring period. For first audits, farm records must cover ≥ 6 months.</td> <td data-bbox="2024 1083 2881 1226">D. Confirm the average percent change in DO is ≤ 65%.</td> </tr> <tr> <td data-bbox="1163 1226 2024 1360">e. Arrange to take DO measurements while the auditor is at the farm.</td> <td data-bbox="2024 1226 2881 1360">E. Witness the farm measuring DO to confirm compliance with procedures. On-site values should fall within range of farm data for DO. If an out of range measurement is observed, raise a non-conformity.</td> </tr> </table>	a. Provide DO measurements .	A. Review dataset to confirm that monitoring covers the required timeframe.	b. Calibrate all equipment at the frequency and by the method recommended by the manufacturer. Temperature, salinity and altitude are to be adjusted for in calibration or calculations.	B. Verify the farm technicians calibrate equipment as required.	c. Calculate percent change in DO for each monitoring date using the equation in Annex D.	C. Review calculations to confirm accuracy.	d. Use results of 3.2.1c to calculate the average percent change in DO over the entire 12-month monitoring period. For first audits, farm records must cover ≥ 6 months.	D. Confirm the average percent change in DO is ≤ 65%.	e. Arrange to take DO measurements while the auditor is at the farm.	E. Witness the farm measuring DO to confirm compliance with procedures. On-site values should fall within range of farm data for DO. If an out of range measurement is observed, raise a non-conformity.
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Footnote	[138] Farms are required to determine the annual nitrogen and phosphorous effluent loads using one of the methods described in Appendix VI.											
Footnote	[139] Settling basins need to comply with characteristics given in Appendix VI.											
Footnote	[140] The settleable solids concentration at the outlet of the effluent treatment system must be measured at the beginning and at the end of the pond draining period, when that period is less than 4 hours. For ponds draining more than 4 hours monitoring should be done in 6-hours intervals. For situations of retention time of several days, monitoring should be done at a time after harvest equal to the hydraulic retention time of the treatment system. Settleable solids are measured as the volume of solids that settles to the bottom of a conical cone (Imhoff cone) in 1 hour. Use of more sophisticated methods such as spectrophotometer readings is also permitted.											
Footnote	[141] measured at a station at least 200 m down current from the farm outfall.											
Criterion 7.6: Energy efficiency												
	Compliance Criteria (Required Client Actions):	Auditor Evaluation (Required CB Actions):										

7.6.1	<p>Indicator: Energy consumption [142] by sources [143] over a 12-month period.</p> <p>Requirement: Records available for all activities.</p> <p>Applicability: All</p>	<p>Instructions to Clients for Indicators 7.6.1 and 7.6.2 - Farm Energy Consumption</p> <p>Under Indicator 7.6.1, farms are required to keep records for the amount of energy usage which is directly associated with shrimp production. This includes energy used for:</p> <ul style="list-style-type: none"> - water aeration; - water pumping; - office operations; and - internal (i.e. on-farm) transportation. <p>Farms are not required to keep records for other types of energy consumption such as transporting personnel, materials and shrimp to or from the farm site.</p> <p>Under Indicator 7.6.2, farms are required to compute the Annual Cumulative Energy Demand (ACED) which is directly associated with shrimp production. To do so, farms shall use the energy records specified above after converting units into Joules. An online conversion tool can be found at: http://tonto.eia.doe.gov/energyexplained/index.cfm?page=about_energy_conversion_calculator. As above, calculation of ACED does not include transportation to/from the farm.</p>	
		a. Maintain a list of the activities (e.g. water aeration, water pumping, offices, internal transportation, etc.) included in the calculation of energy consumption	A. Review list for completeness
		b. Maintain records (e.g. receipts) of farm energy consumption. Compute the quantity of fuel and electricity used by the farm in the last 12 months. For first audits, farm records must cover ≥ 6 months.	B. Review calculations. Verify the farm keeps records of energy consumption.
7.6.2	<p>Indicator: Annual Cumulative Energy Demand (megajoules/ton of shrimp produced) [144] over a 12-month period.</p> <p>Requirement: Records available for verification of calculations.</p> <p>Applicability: All</p>	a. Using the records in 7.6.1b calculate the Annual Cumulative Energy Demand for the farm per tonne of shrimp produced (ascertain that the period corresponding to the production tonnage is equivalent to the same period of energy consumption reported).	A. Review calculations. Verify the farm keeps records of energy consumption. And ascertain that the production period of the tonnage produced corresponds to the energy consumption.
Footnote	[142] Only activities carried out on the farm site are considered. Transport of personnel, materials and shrimp to and from farm site are not considered. For clarity, farms must list activities included in the records of energy consumption, including: water aeration, water pumping, offices, internal transportation, etc.		
Footnote	[143] Records of quantities of energy consumed must be kept by type of energy source: diesel, gasoline, natural gas, electricity, etc.		
Footnote	[144] For calculating the annual CED, quantities of different energies cumulated over 12 months and expressed in different units must all be converted to megajoules. The total amount from the different energy sources expressed in megajoules is then divided by the farm production in tonnes of head-on shrimp over the same 12-month period.		
Criterion 7.7: Handling and disposal of hazardous materials and wastes			
7.7.1	<p>Indicator: Safe storage and handling of chemicals and hazardous materials [145].</p>	Compliance Criteria (Required Client Actions):	
		Auditor Evaluation (Required CB Actions):	
		a. Identify all chemicals and hazardous materials used on the farm.	A. During on-site inspections, verify that the farm's list of chemicals and hazardous materials is accurate.
		b. Prepare a procedure for their safe storage and handling of all chemicals and hazardous materials used on the farm	B. Review the farms procedure. Verify implementation during the on-site audit.

	<p>Requirement: Evidence of procedures in place.</p> <p>Applicability: All</p>	<p>c. Ensure safe storage of all chemicals and hazardous materials.</p>	<p>C. Inspect storage areas to verify that chemicals are stored safely.</p>
		<p>d. Ensure that all employees are trained in farm procedures for safe storage and handling of chemicals and hazardous materials.</p>	<p>D. Interview farm staff to verify that employees have received training and procedures are followed.</p>
<p>7.7.2</p>	<p>Indicator: Responsible handling and disposal of wastes based on risk assessment and possibilities of recycling.</p> <p>Requirement: Evidence of procedures in place.</p> <p>Applicability: All</p>	<p>Instruction to Clients for Indicator 7.7.2 Wastes must be managed in compliance with local regulations when they exist. In all cases, wastes must be managed in a way that is safe for human health and the surrounding environment (especially natural waters), in the best possible way depending on local facilities. When appropriate facilities for waste disposal are absent in the area, shrimp farms are allowed to bury non-hazardous solid wastes on site, provided all precautions have been taken to prevent the contamination of surrounding surface and ground waters. Non-organic wastes must not be burned on site due to their potential emissions of toxic gases. Accredited waste management companies must be used where available. Farmers must demonstrate the use of the most responsible disposal solutions based on what is locally available. Where hazardous biological wastes exists, including shrimp offal and mortalities, they must be managed according to a plan based on potential risks and national and/or international guidelines, when they exist, and solutions must be identified for the disposal of hazardous non-biological wastes, including used lubricants and chemical containers. Recyclable wastes need to be identified and separated at the point of generation. Some wastes (e.g., feed bags and plastic containers) can be reused, and their return to suppliers shall be encouraged. When selling recyclable wastes to a local collector, the final destination of wastes shall be specified. The income generated by the sales of recyclable wastes should be used for providing incentives to employees for separating wastes and increasing the amount of recycling done on the farm. Where farms construct and operate their own landfills facilities they should be able to demonstrate proper expert involvement in the landfill design with specific focus on areas such as soil type, water table, flooding risk, etc. Machinery out of use and utilised for spare parts should be placed in designated landfill areas.</p>	
		<p>a. Prepare a plan for farm waste management that is based on risk assessment and national guidelines. Ensure that the plan covers responsible handling and disposal of all farm wastes.</p>	<p>A. Review the farm's waste management plan to confirm—that it explicitly addresses responsible handling and disposal of all farm wastes. Inspect the farm's disposal practices while on-site to verify that the plan is implemented.</p>
		<p>b. Provide evidence that no human or animal solid waste is being discharged into the natural environment and demonstrate that the use of the most responsible disposal solutions based on what is locally available.</p>	<p>B. Inspect the farm for any evidence of waste being discharged into the natural environment.</p>
		<p>c. Demonstrate that the farm separates and recycles waste wherever is possible (e.g. feed bags and plastic containers).</p>	<p>C. Inspect the farm for any evidence that the farm separates and recycles waste.</p>
<p>Footnote</p>	<p>[145] Bunds (waterproof wall and floor built around tanks of oil or other hazardous liquids to contain them in the event of a spillage) must be built around combustible storage containers to contain any spills. Bunds must be waterproof, with a capacity of 110% of the volume of stored material, and must not have any drain (rainwater needs to be pumped or scooped out periodically). Dry chemicals must be protected from humidity inside buildings. All containers of liquid chemicals must close hermetically. Access to all chemicals should be restricted to authorized personnel.</p>		
<p>APPENDIX A: Mangrove restoration This is meant as guidance for effective wetland restoration to be used by both farmers and auditors (FYI: appendix I, II, III, IV, V, VI and VII can be found in the standard document)</p>			

This Appendix is meant to help farmers and shrimp companies understand what is meant by 'mangrove restoration', describe what the benefits of restoration are to farmers, to outline the basic steps involved in mangrove restoration, and what role mangroves could play in farm planning and management. The appendix also gives a brief overview of the types of expertise required when carrying out mangrove restoration, and the types of institutions who could help with this task. It also includes a checklist for farmers and auditors to enable them to complete the ASC Shrimp standard requirements, and for auditors to verify this.

Ecosystem conservation and restoration is indicated in a number of criteria in the ASC Shrimp Standard in particular Criteria 2.2, which requires farmers to "restore equivalent areas converted for pumping stations and inlet/outlet canals". For "farms built or permitted before May 1999 in mangrove areas, farmers are required to compensate/offset impacts via restoration as determined by the B-EIA, national/state/local authority plans/list, or 50% of the affected ecosystem (whichever is greater)". Farmers are also required under criterion 2.4 to "maintain ecological buffers, barriers and corridors". This may also require restoration work to comply with the standards.

Definitions

Mangrove Ecosystems: Mangrove forests are among the world's most productive ecosystems. They are often called as 'tidal forests', 'coastal woodlands' or 'oceanic rainforests'. Mangroves are woody plants that grow in tropical and subtropical latitudes along the land-sea interface, bays, estuaries, lagoons, backwaters, and in the rivers, reaching upstream up to the point where the water still remains saline (Qasim, 1998). These plants and their associated organisms (microbes, fungi, other plants and animals), constitute the 'mangrove forest community' or 'mangal' (See Tomlinson PB (1986) The Botany of Mangroves. Cambridge, UK: Cambridge University Press. 413 p. for full list of true and associate mangrove plant species) The mangal and its associated abiotic factors constitute the mangrove ecosystem (Kathiresan and Bingham, 2001).

Mangrove restoration is the re-introduction and re-establishment of assemblages of native mangrove species to sites that can support them to be developed into mangrove ecosystems which perform similar functions as those that were there originally. The objective of mangrove restoration is the re-establishment of habitats (structure) and functions such as coastal protection, contribution to fishery production and enhancement of aesthetic quality of the landscape that have been lost.¹

¹ The term "restoration" has been adopted to specifically mean any activity that aims to return system to a preexisting condition (whether or not this was pristine) (sensu Lewis 1990b). The term "rehabilitation" is often also used, and is applied more generally and used to denote any activity (including restoration and habitat creation) that aims to convert a degraded system to a stable alternative

Mangrove restoration: the benefits to farmers

Healthy Mangroves can generate income and resources for farmers and at the same time offer protection to extreme events, e.g. storms, and more gradual processes such as salt water intrusion and shoreline erosion provided they are present in large enough areas.

Near and offshore fish and shrimp catches increase and diversify with the increasing presence of mangroves in the inter-tidal zone. They also provide habitats and serve as nursery grounds for the juveniles of aquatic organisms on which near and offshore fisheries are based. Increased fish and shrimps catches nearby can function as an extra income for the farmers themselves or through a local payment scheme can generate income for the landowner who restores mangroves of which local fishermen benefit.

Mangroves are primarily used for timber requirements and firewood. Non-wood products, bark (for tannin), leaves (fodder and vegetables), fruits (to make beverages), honey, wax and thatching material as well as finfish and shellfish are also collected from mangrove ecosystems.

Mangrove ecosystem also sequester a large amount of carbon, this so-called blue carbon can be marketed. Farmers can sell those CO2-credits on the voluntary emission market.

Mangrove restoration methods

The following five ecological principles, considerations and practical suggestions are based on a well-established process called "Ecological Mangrove Restoration"², building on lessons learnt from rehabilitation attempts worldwide³.

1. Understand the ecology of the mangrove species at the site, in particular the patterns of reproduction, propagule distribution, and successful seedling establishment.

2. Understand the hydrologic patterns (in particular the depth, duration and frequency of tidal inundation) that control the distribution and successful establishment and growth of (targeted) mangrove species.

3. Assess modifications of the original mangrove environment that currently prevent natural regeneration (recovery after damage).

4. Restore hydrology and other environmental conditions that encourage natural recruitment of mangrove propagules and successful plant establishment. For example through rehabilitation of creeks or removal of small dams further inland, to ensure appropriate tidal inundation characteristics and sufficient freshwater flow towards the mangrove stands (Lewis, 2005). Where human modifications of the coast include large-scale conversion of mangroves to aquaculture ponds, restoration of these ponds back to mangroves – through hydrological restoration, e.g. by partial removal of pond dikes - should be considered, which would also assist with coastal stabilization, providing erosion protection from storm waves (Stevenson et al., 1999; Lewis et al., 2006, Winterwerp 2013);

5. Only consider actual planting of propagules, collected seedlings, or cultivated seedlings after determining (through steps 1-4) that natural recruitment will not provide the quantity of successfully established seedlings, rate of stabilization, or rate of growth of saplings established as objectives for the restoration project.

This practical manual offers guidance on mangrove planting: <http://www.wetlands.org/LinkClick.aspx?fileticket=EaD3s%2Bil5Mw%3D&tabid=56>

This was recently updated with a sixth step, incorporating socio-economic aspects and monitoring requirements (Lewis, 2009).

Challenges of successful mangrove restoration:

Much of the post-tsunami effort to restore coastal greenbelts involved simple planting of mangrove seedlings and propagules. There have been numerous failures, already, due to planting of inappropriate species, and in inappropriate locations.

Failure occurs, in general, due to a lack of understanding of the restoration site itself:

- What was its history?
- What mangrove species grew there?
- Where did they grow?
- What caused the destruction or degradation of the mangroves?
- What were their hydrological requirements?
- How deep was the substrate in which they grew?
- What were the fresh water inputs to the area?
- Where did exchange of tidal and sea water take place?

² Stevenson et al. 1999; Lewis, 2005

³ Erftemeijer & Lewis, 2000; Lewis, 2001; Primavera & Esteban, 2008

Priority areas for mangrove restoration

Farmers should focus their mangrove restoration efforts in order of priority:

1) Areas regulated by local or national regulation – the nearest potential green belt or riparian strip

When the mangrove greenbelt functionality is restored and the riverine mangrove functionality is restored:

2) Integrated with traditional and extensive aquaculture systems, through silvofisheries approach.

While intensive farm can integrate mangrove in their area include water outlet, and waste management plant areas.

In the case where several smallholders together restore an area, they should strive for maximum connectivity between mangrove plots to maximize the functionality of the ecosystem.

Suggested checklist for farmers and guideline auditors on a complete Mangrove Restoration process and report

	Validated	To be improved
Understand the ecology of the mangrove species at the site, in particular the patterns of reproduction, propagule distribution, and successful seedling establishment.		
Understand the hydrologic patterns (in particular the depth, duration and frequency of tidal inundation) that control the distribution and successful establishment and growth of (targeted) mangrove species.		
Assess modifications of the original mangrove environment that currently prevent natural regeneration (recovery after damage).		
Restore hydrology and other environmental conditions that encourage natural recruitment of mangrove propagules and successful plant establishment.		
Only consider actual planting of propagules, collected seedlings, or cultivated seedlings after determining (through steps 1-4) that natural recruitment will not provide the quantity of successfully established seedlings, rate of stabilization, or rate of growth of saplings established as objectives for the restoration project.		

Relevant institutions, programs - internationally and nationally:

Wetlands International
 IUCN - Mangroves for the Future program
 IUCN – Commission on Ecosystem Management (CEM): Restoration Thematic group (http://www.iucn.org/about/union/commissions/cem/cem_work/cem_restoration/)
 Society for Ecological Restoration
 GIZ CZM SocTrang (<http://czm-soctrang.org.vn/en/Home.aspx>)
 Mangrove Action Project