

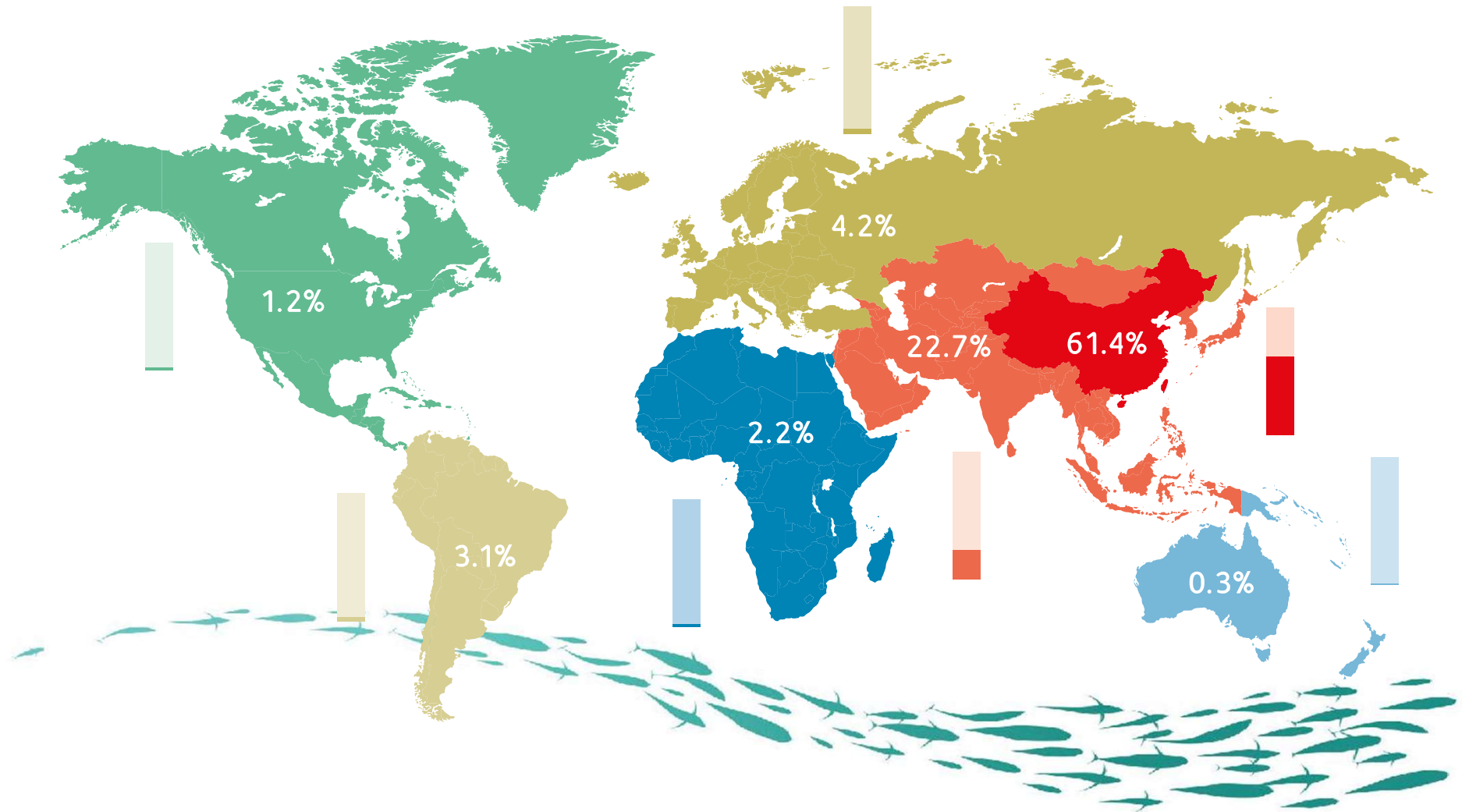
Environmental sustainability and social responsibility of shrimp farming

**1st International Symposium on Shrimp
farming in Europe, Bremen, 5 April 2017**



Koji Yamamoto
ASC General Manager Japan

Where does aquaculture take place?





ASC Vision - A world where aquaculture plays a major role in supplying food and social benefits for mankind whilst minimising negative impacts on the environment

ASC Mission - To transform aquaculture towards environmental sustainability and social responsibility using efficient market mechanisms that create value across the chain

Who are we?



- Independent, not-for-profit certification & labelling programme
- Market-based mechanism
- Established in 2010: WWF & IDH
- Global & voluntary
- Work with industry, NGOs and all others who want to participate
- Based on science, industry best practices & transparency



ASC programme



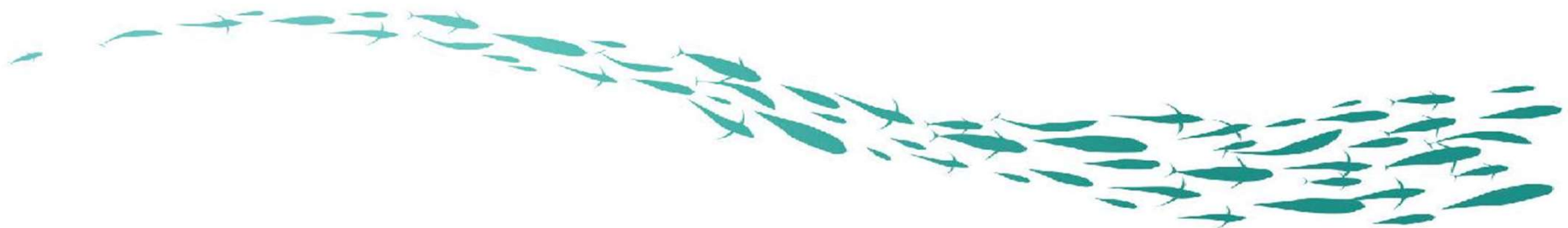
**ASC Farm
Standards**



Chain of Custody Certification
Shared platform with MSC



**ASC Labelled
Products**



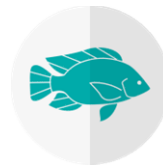
8 Farm Standards

7 Principles:
Environmental,
Social & Community

Indicators setting
'thresholds'

Disclosure of
monitoring data

Stakeholder
consultation



Tilapia



Salmon



Shrimp



Abalone



Pangasius



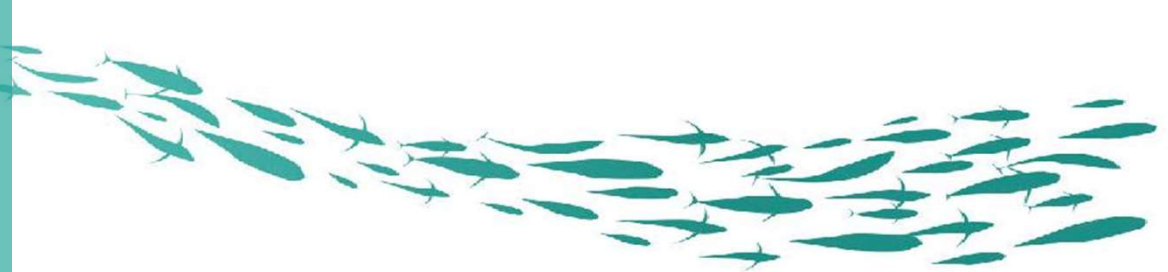
Trout



Seriola &
Cobia



Bivalves -
Mussels,
Oysters,
Clams &
Scallops

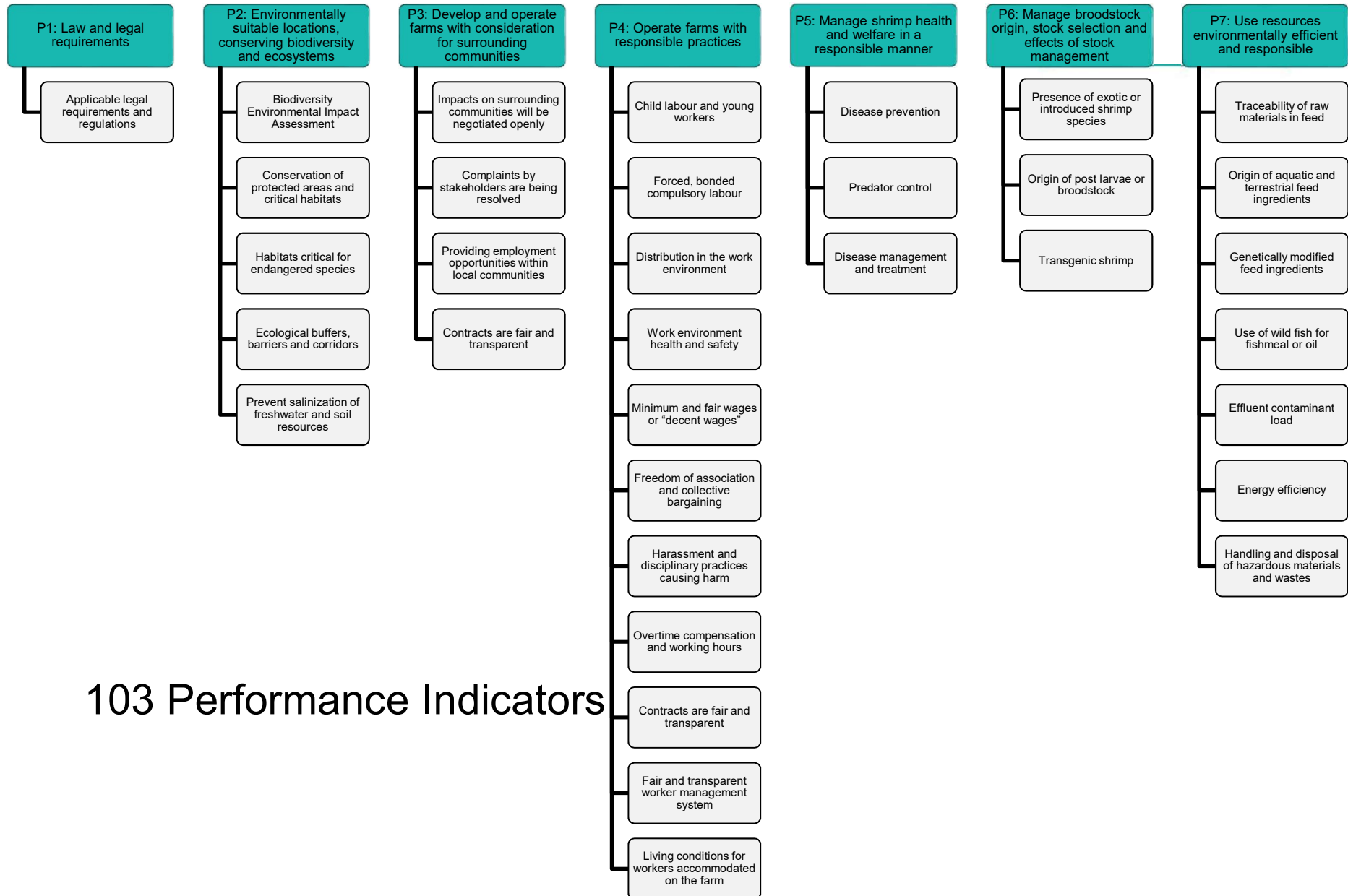




The ASC Shrimp Standard v1.0

Applicable to all species under the genus *Litopenaeus* and *Penaeus*

Other species of shrimp are eligible for certification if they can meet the performance thresholds specified in the standard.





ASC Farm Certification Process

Valid from: 2017

Farmer signs contract with **ASC** qualified independent certifier



On-site audit takes place



Draft audit report posted for **public feedback** on the ASC website



30 days

± 3 days

30 days

15 days

20 days



Audit announced on ASC's website allowing for **stakeholder input**



Audit report drafted



Certifier decides if **farm complies** with the ASC requirements

ASC certification issued if compliance is confirmed

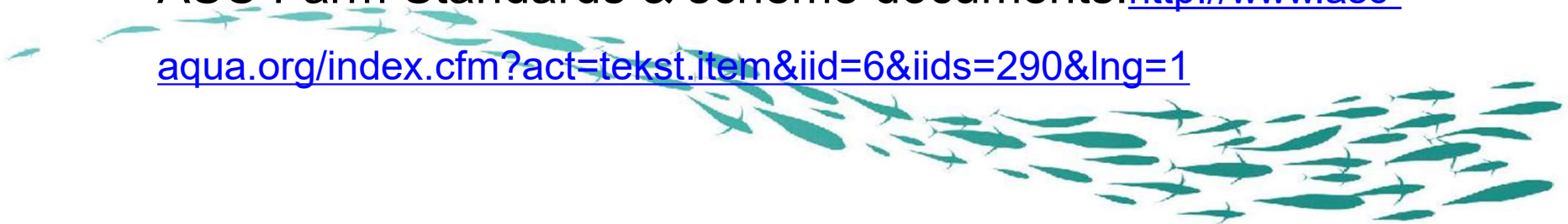
Time in total: ~ 4 months

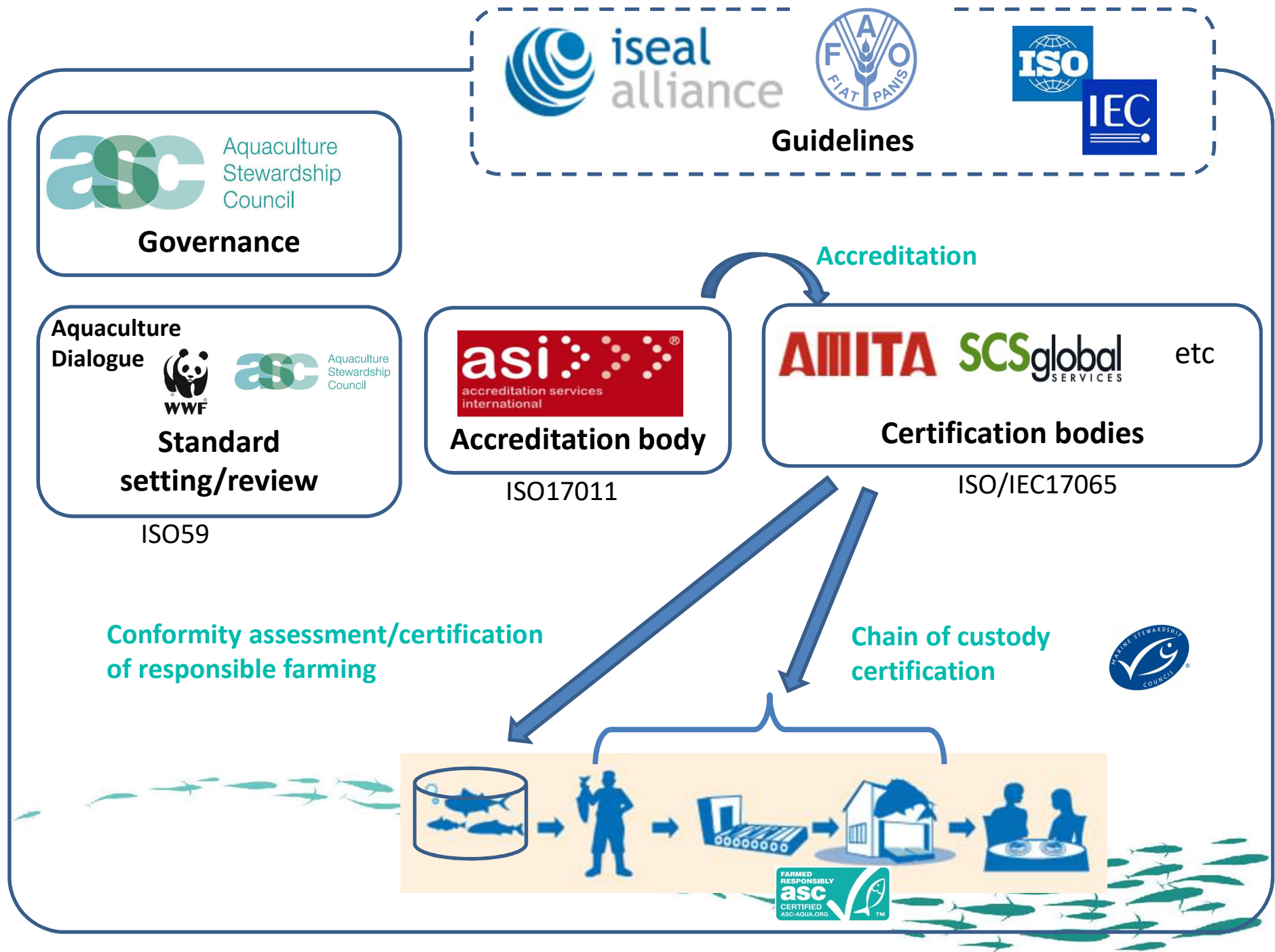
Note: All days displayed are working days

Transparency



- Farms in assessment: <http://www.asc-aqua.org/index.cfm?act=tekst.item&iid=4&iids=258&lng=1>
- Certified farms: <http://www.asc-aqua.org/index.cfm?act=tekst.item&iid=4&iids=204&lng=1>
- Find a certifier: <http://www.accreditation-services.com/archives/standards/asc>
- CoC certified companies: <http://www.asc-aqua.org/index.cfm?act=tekst.item&iid=4&iids=226&lng=1>
- ASC Farm Standards & scheme documents: <http://www.asc-aqua.org/index.cfm?act=tekst.item&iid=6&iids=290&lng=1>

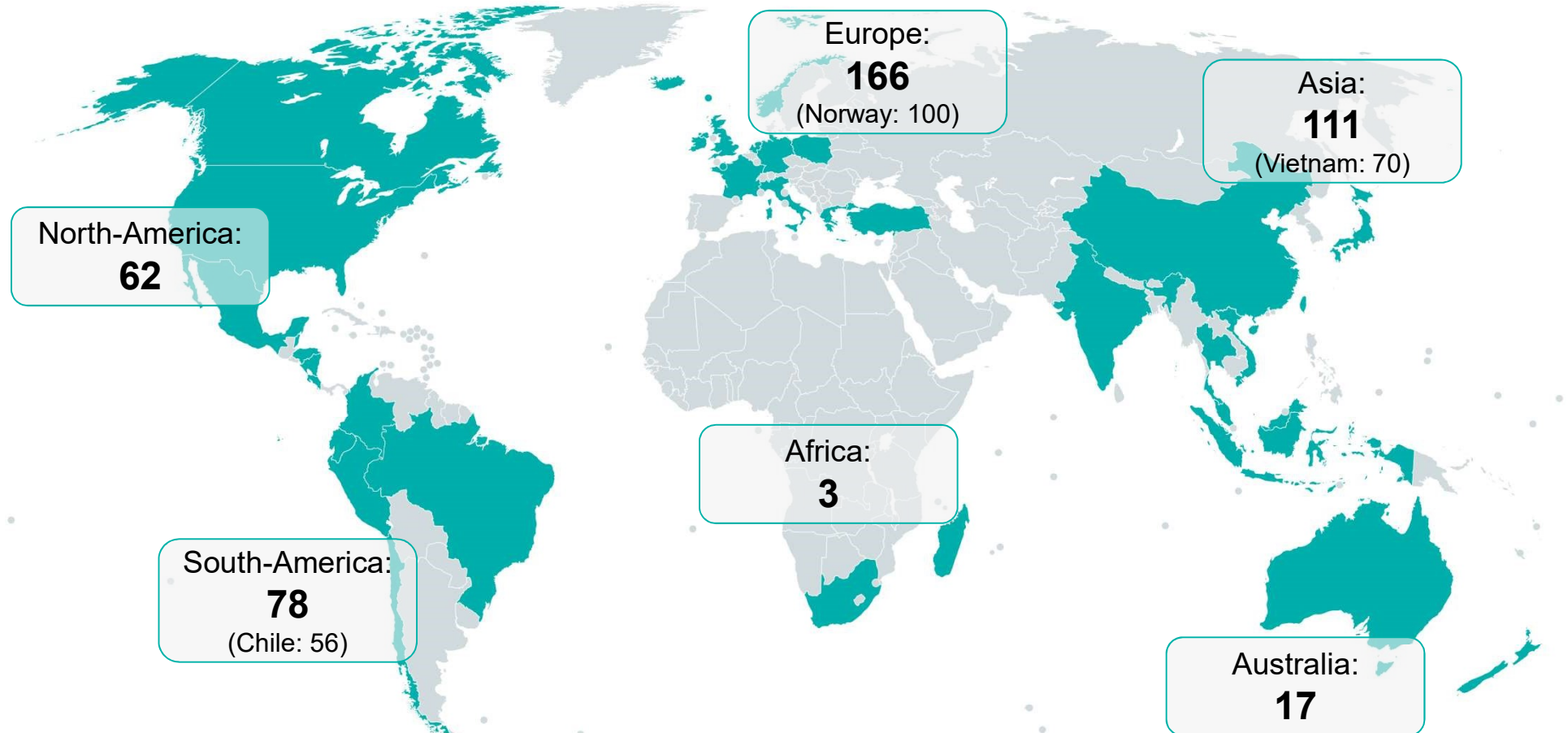




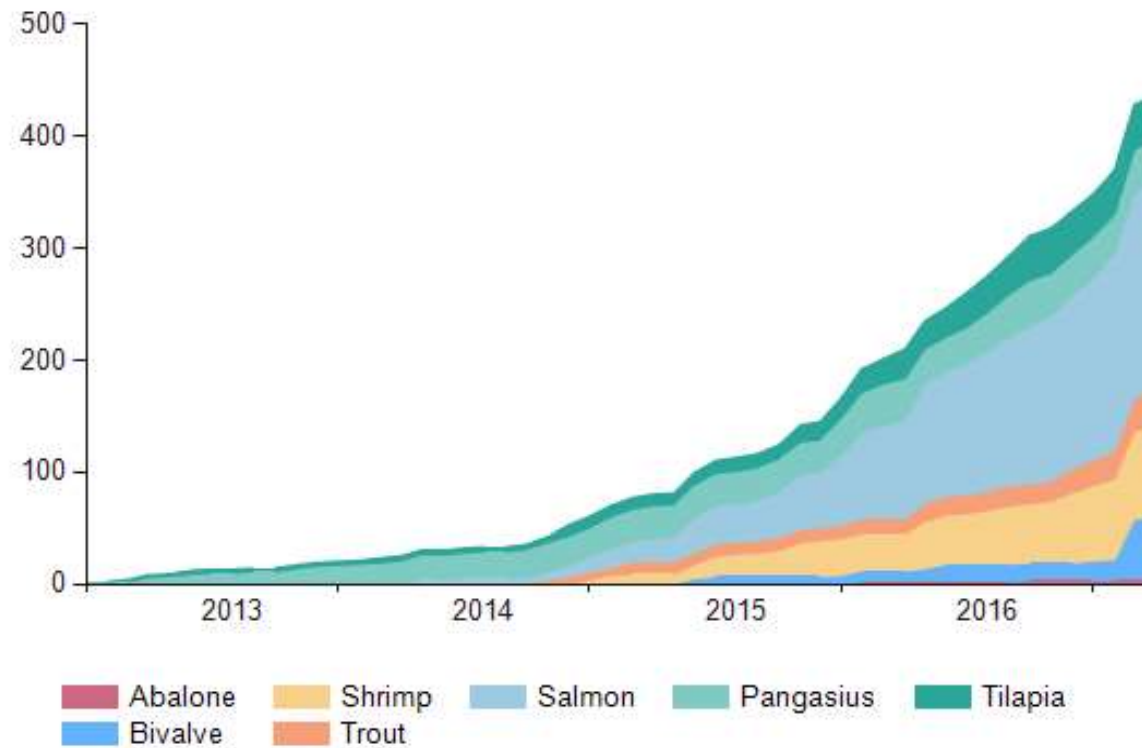
What is the status?



Certified farms



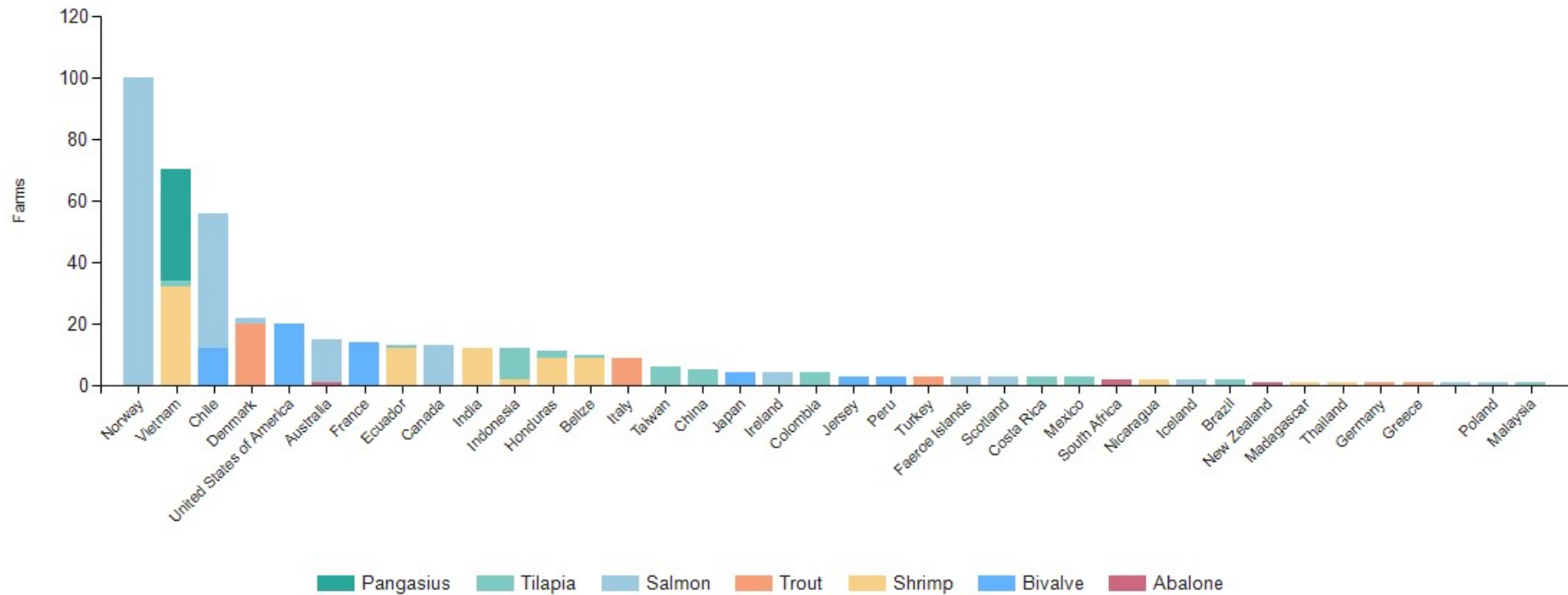
Certified farms



437 certified farms

37 countries

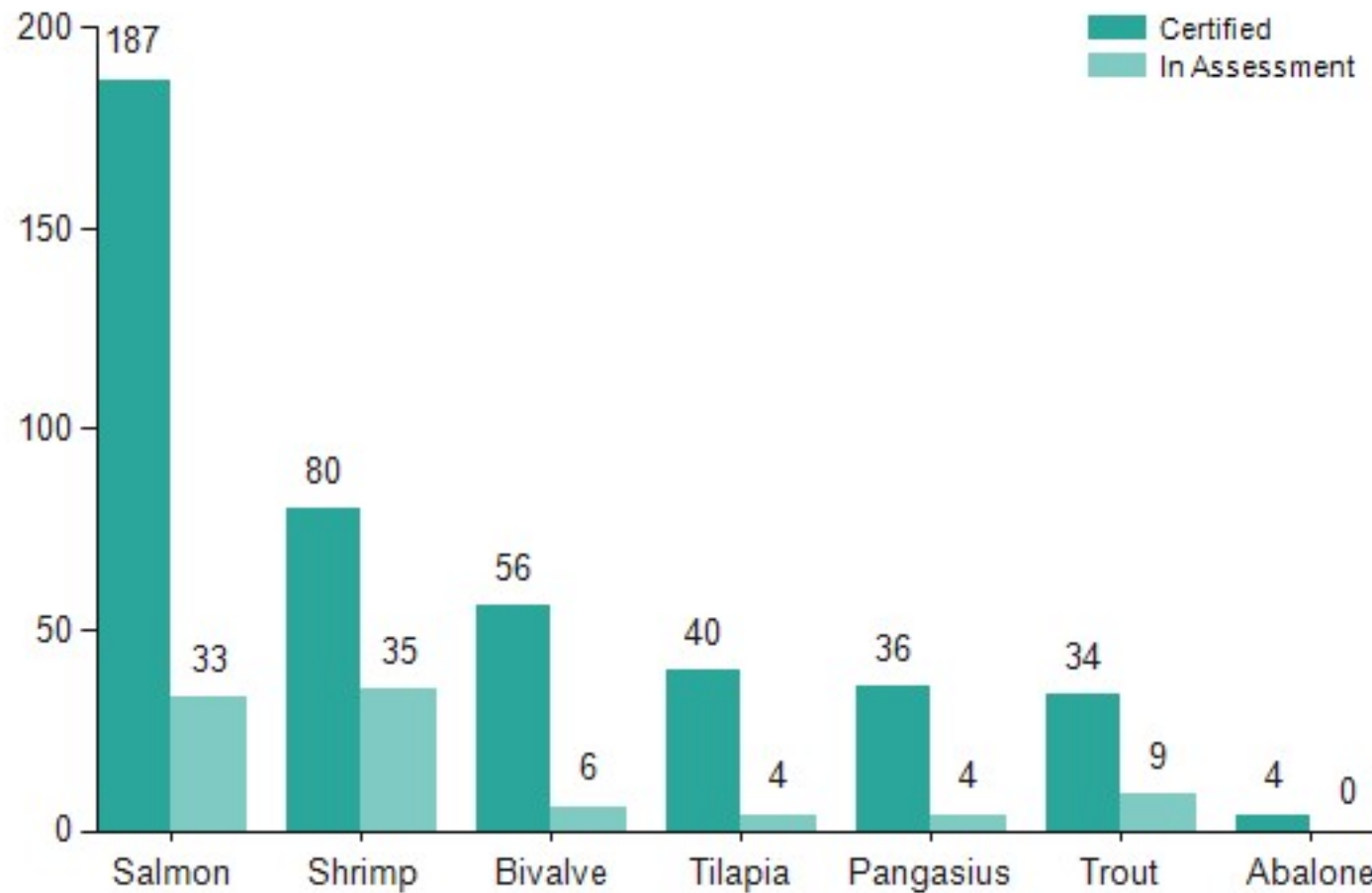
Certified farms



437 certified farms

37 countries

Farms in programme



Farms in programme

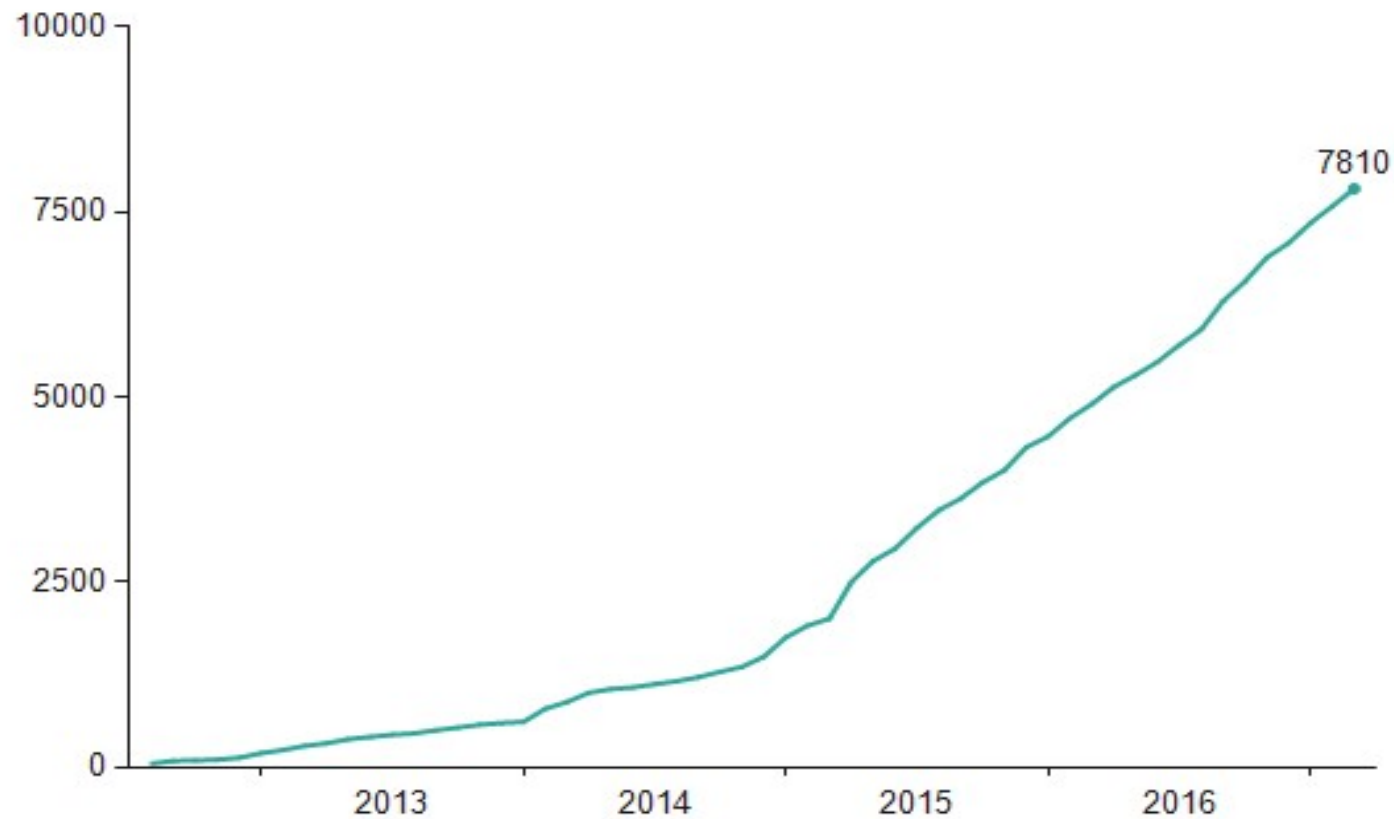


ASC Farm Standard	Farms certified	Certified volume (t)	% of global production*	Farms in assessment	# of certification companies**
Abalone	4	730	0-1%	0	1
Bivalve	56	45.475	0-1%	6	6
Pangasius	36	198.379	9-10%	4	2
Salmon	187	573.134	22-23%	33	5
Shrimp	80	125.451	2-3%	35	4
Tilapia	40	146.141	2-3%	4	4
Freshwater trout	34	19.121	2-3%	9	4
Total	437	1.108.431	3-4%	91	

* FAO Yearbook. Fishery and Aquaculture Statistics – 2014. Published in 2016.

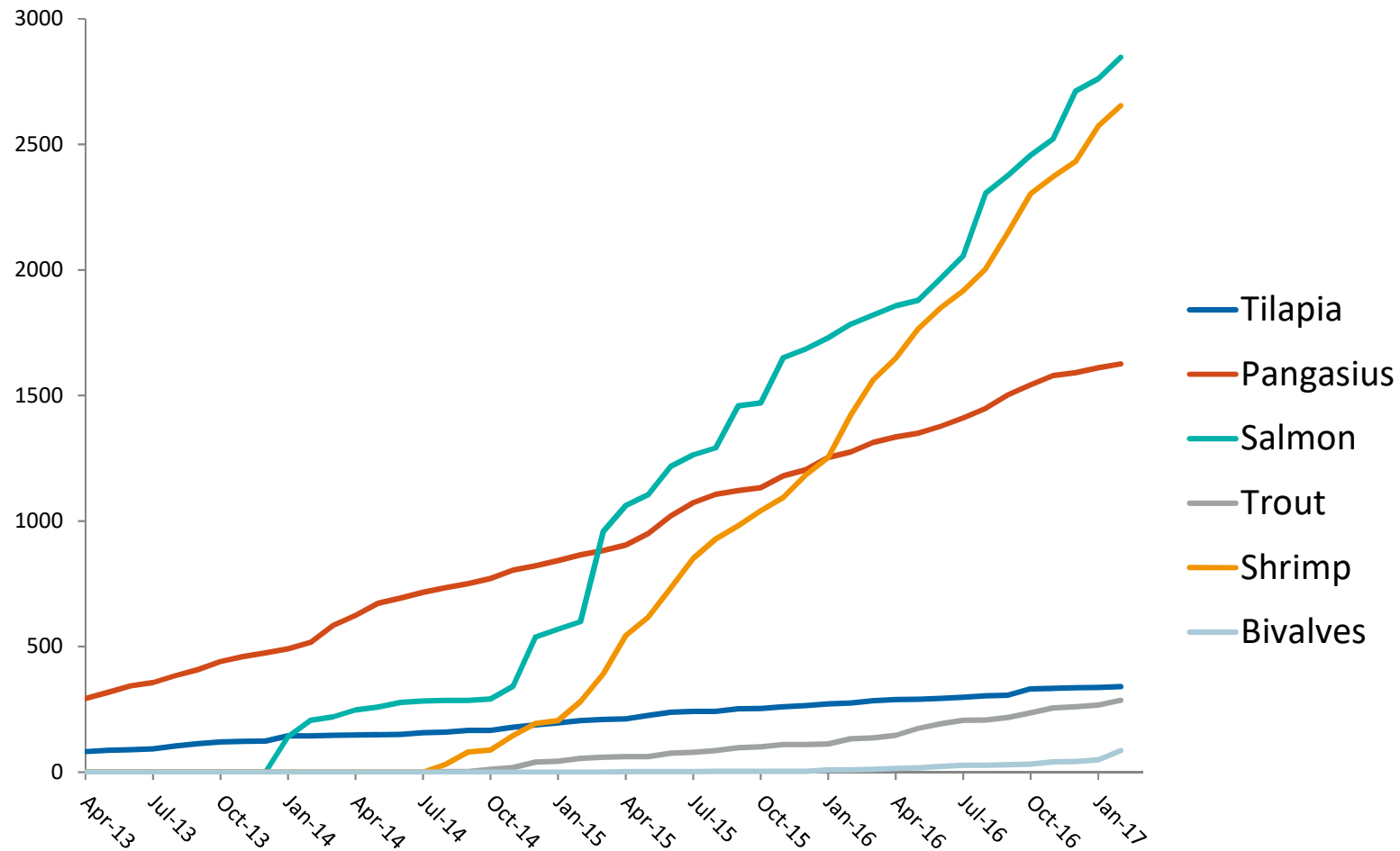
** Number of certification companies that have performed audits for these species.

Products in the market

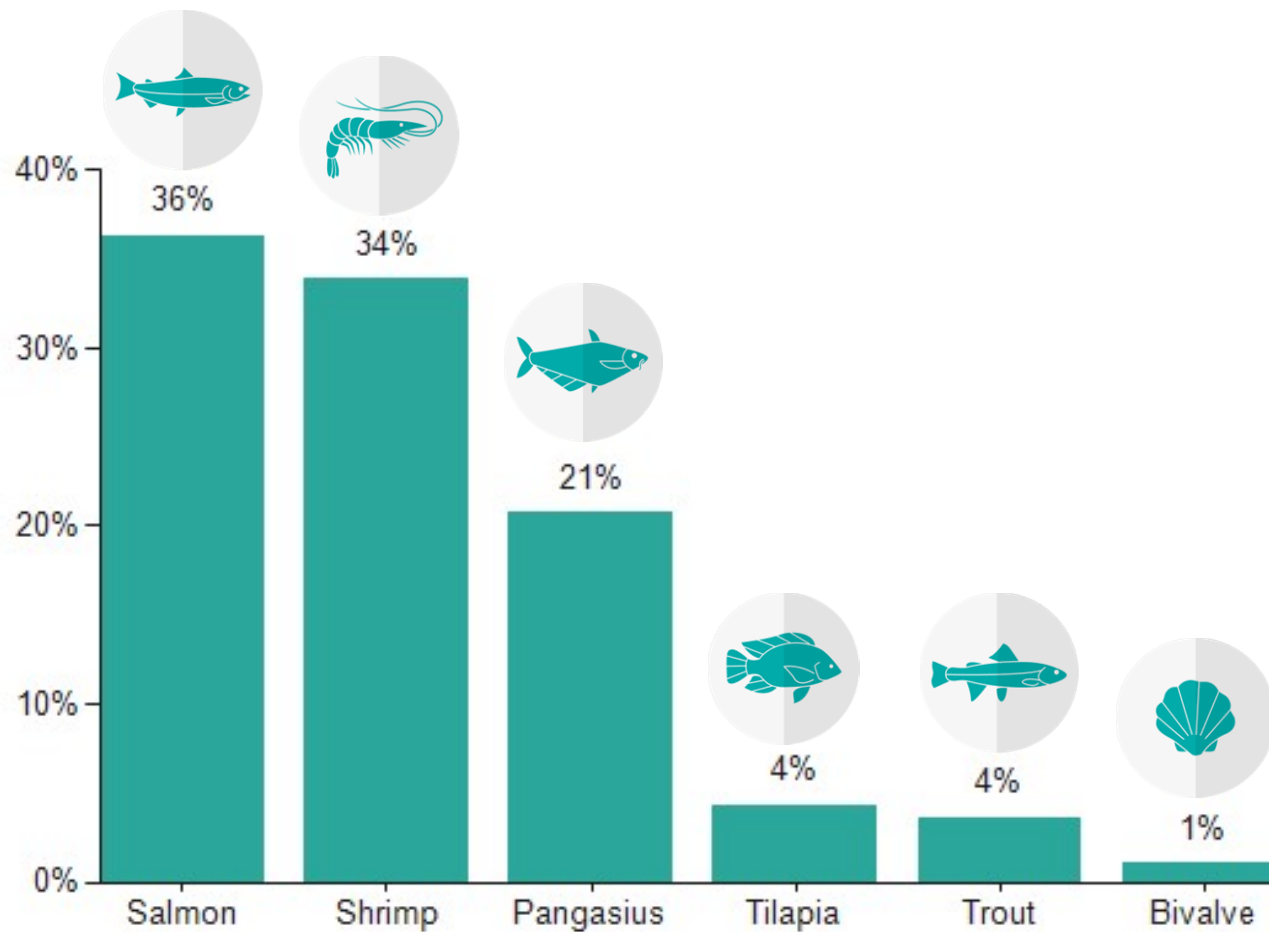


7810 approved products **58** markets **1151** CoC companies

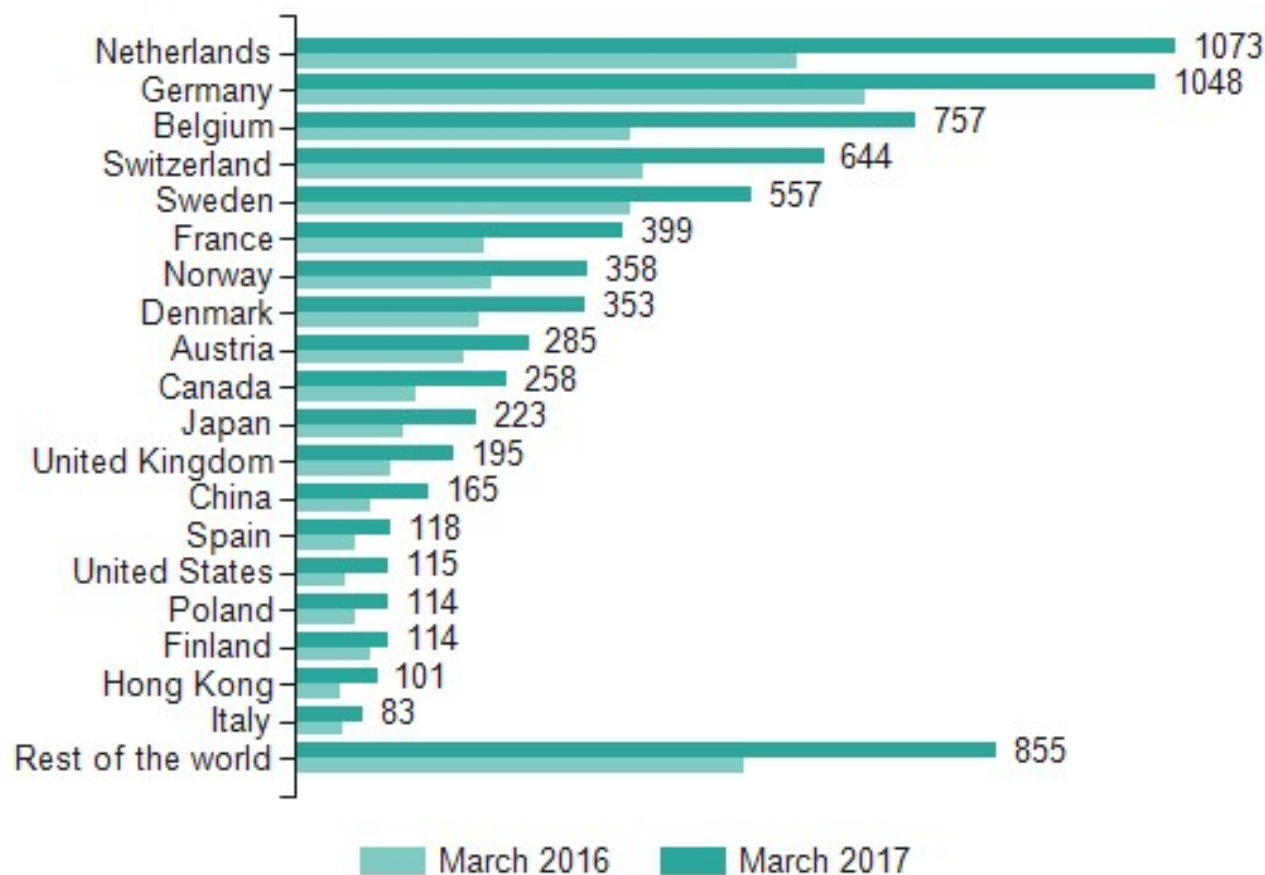
FARMED RESPONSIBLY
asc
CERTIFIED
ASC-AQUA.ORG



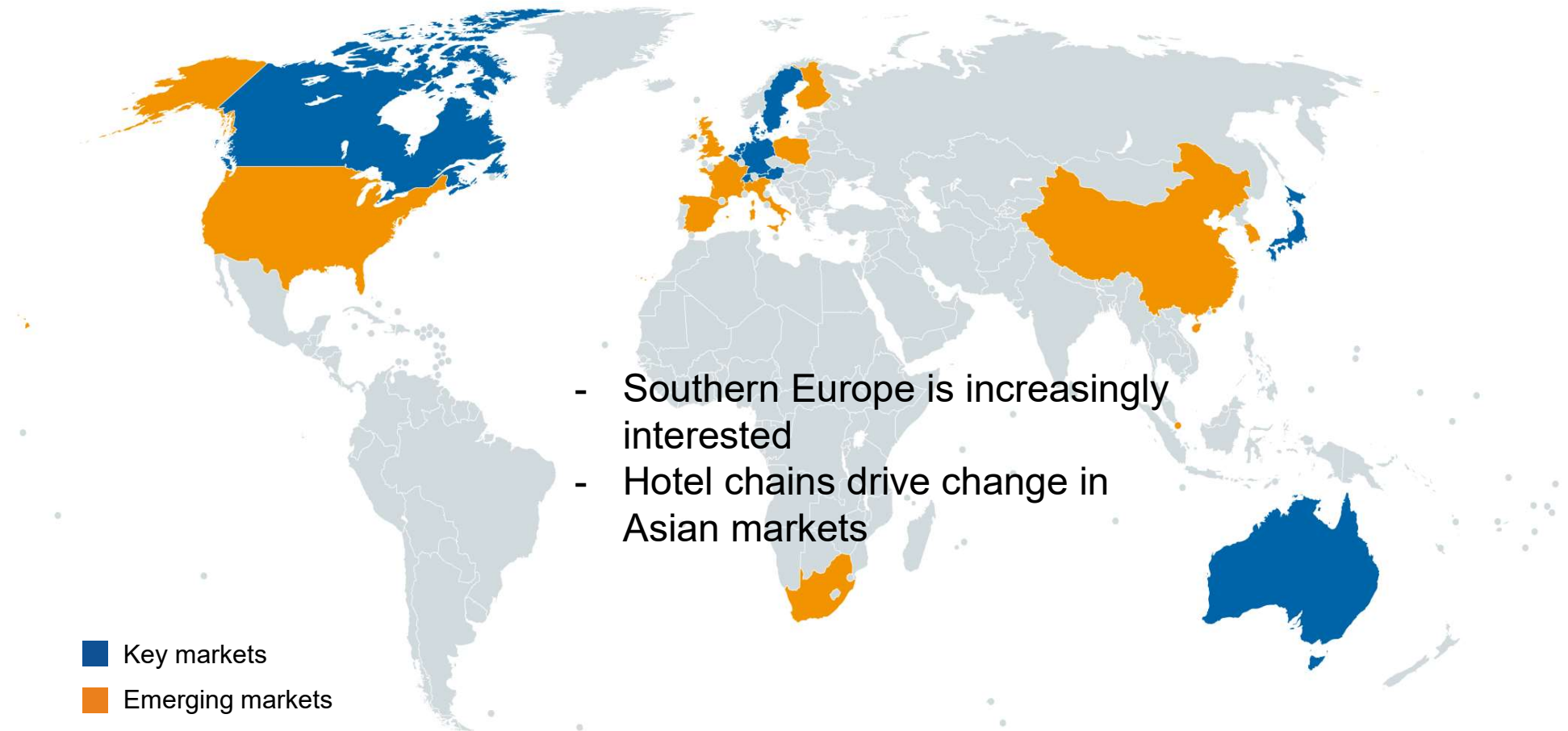
Share of products in the market



Which markets lead?



but... emerging markets



ASC data

Lidl Germany,
Netherlands and
Belgium committed
to source 100%
ASC certified
farmed seafood by
2018





FILIÈRE QUALITÉ
Carrefour

Ingjerd Nordheim

Eleveuse de saumon
à Hitra, Norvège,
partenaire depuis
plus de 20 ans.



Le saumon de Norvège
Filière Qualité Carrefour



ASC-C-01102

- ① Fermes certifiées ASC
- ② Fraîcheur garantie
- ③ Sans traitement antibiotique et nourri sans OGM (OGM)

Carrefour in France revolutionizing
the market: selling ASC salmon and shrimp
at 30 certified fresh fish counters



Offering ASC
certified salmon in
384 IKEA
restaurants in 48
countries





Introduction of 6
ASC certified
species.
10% of seafood
sales is certified
by 2020



MIGROS

gsi GLOBAL SALMON INITIATIVE



JUMBO



Pick n Pay



WOOLWORTHS



METRO GROUP



nutreco



AEON

HYATT



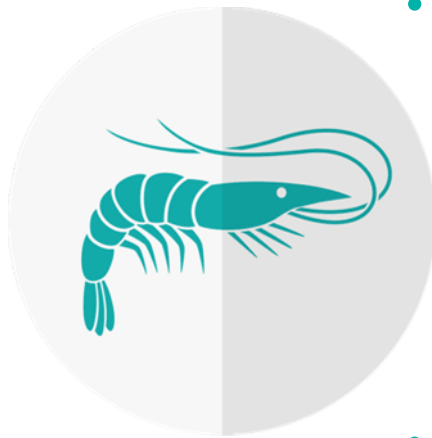
Ahold



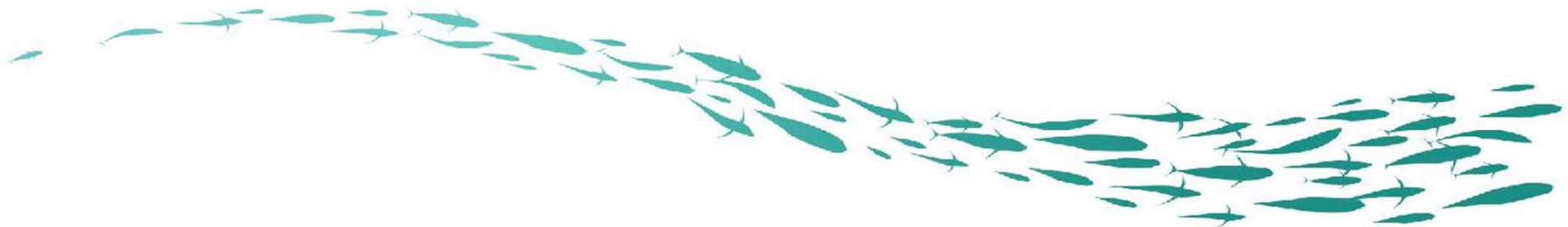
REWE

ASC Supporters

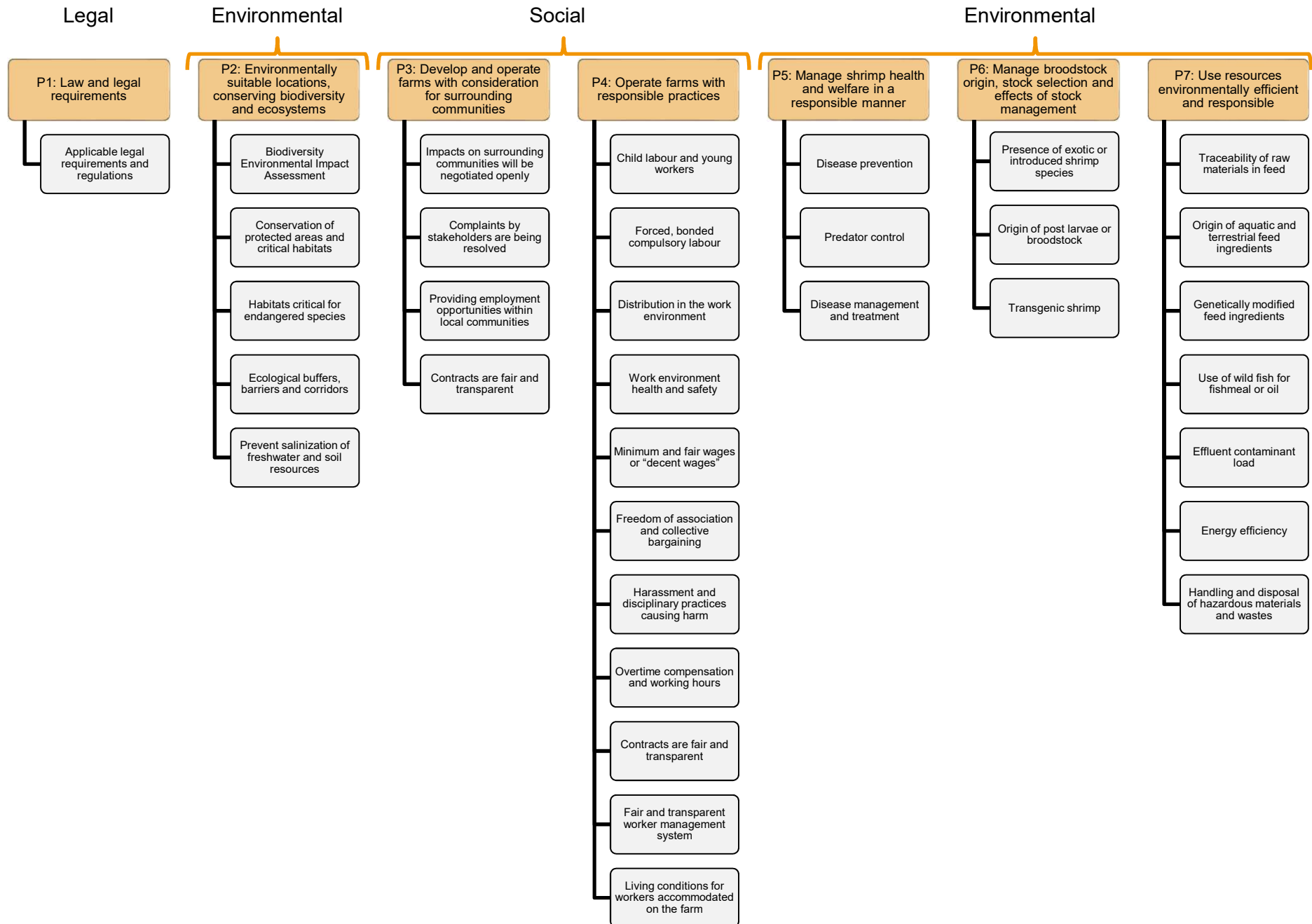
The ASC Shrimp Standard...



- ... is available in English
- ... applies globally to all type of production systems
- ... is the second longest ASC Standard
- ... currently covers species under the genus *Litopenaeus* and *Penaeus*. Other species of shrimp are eligible for certification if they can meet the performance thresholds specified in the Standard



The principles of the ASC Shrimp Standard



Environmental Principles

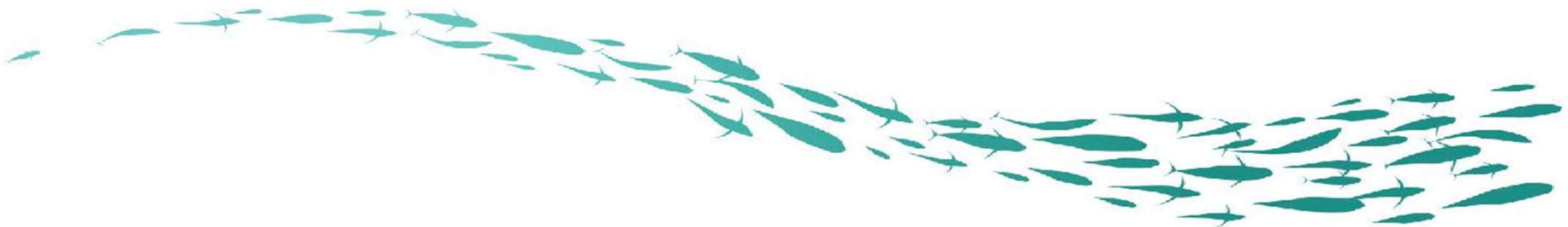


Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems

Principle 5 – Manage shrimp health and welfare in a responsible manner

Principle 6 – Manage broodstock origin, stock selection and effects of stock management

Principle 7 – Use resources in an environmentally efficient and responsible manner



Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems



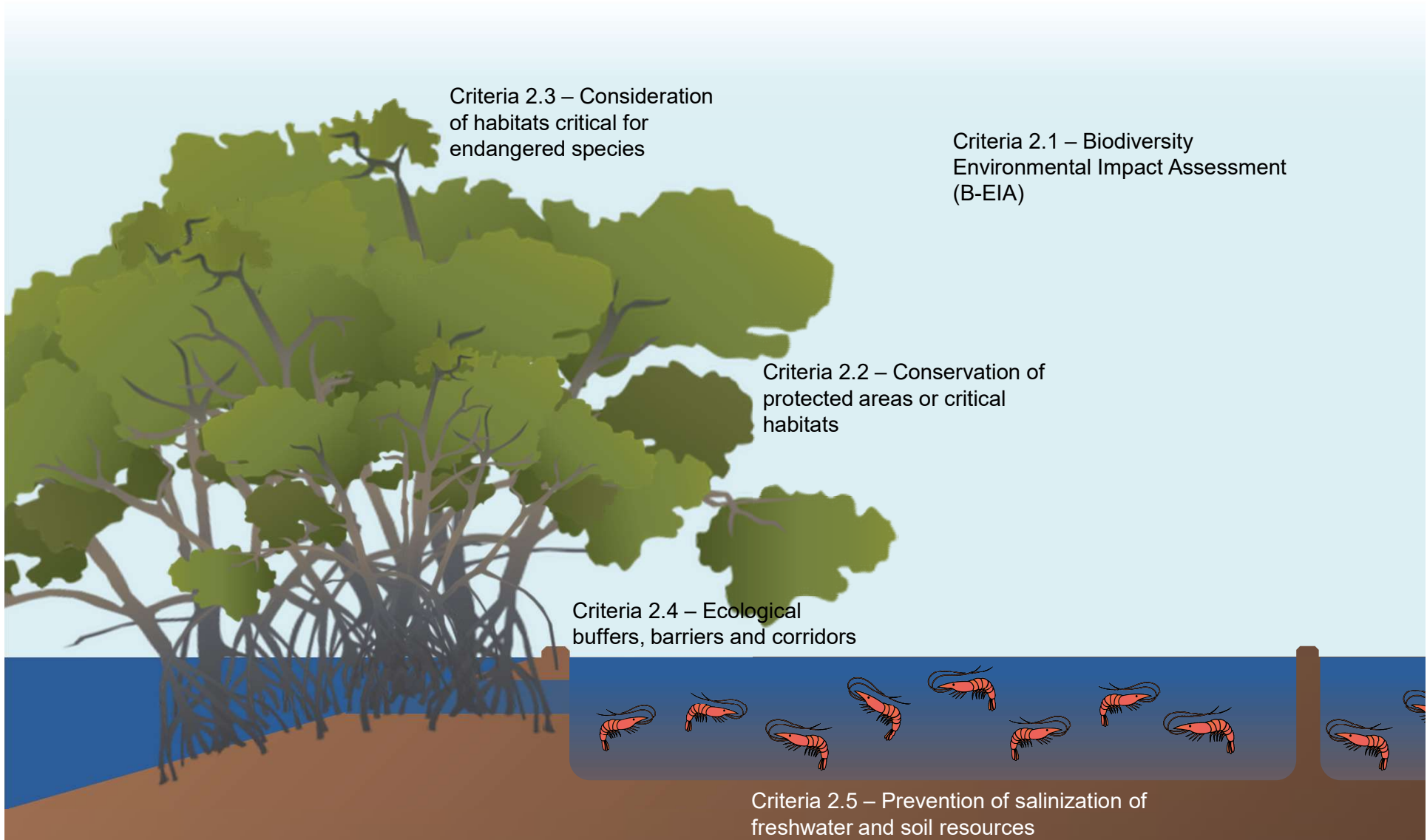
Criteria 2.3 – Consideration of habitats critical for endangered species

Criteria 2.1 – Biodiversity Environmental Impact Assessment (B-EIA)

Criteria 2.2 – Conservation of protected areas or critical habitats

Criteria 2.4 – Ecological buffers, barriers and corridors

Criteria 2.5 – Prevention of salinization of freshwater and soil resources



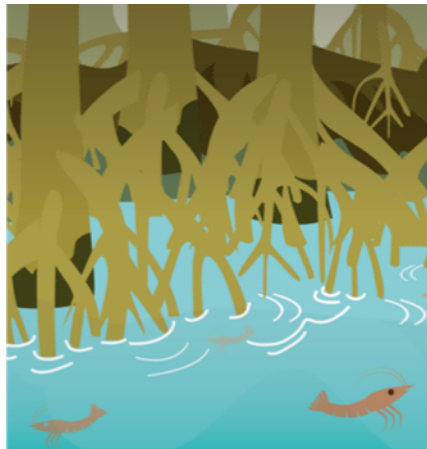
Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems



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

INDICATOR	REQUIREMENT
2.1.1 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 I.	Completed

Assessment to analyse, monitor and manage the past, current and potential future environmental impacts of the aquaculture operation, particularly on biodiversity



B-EIA methodology in short

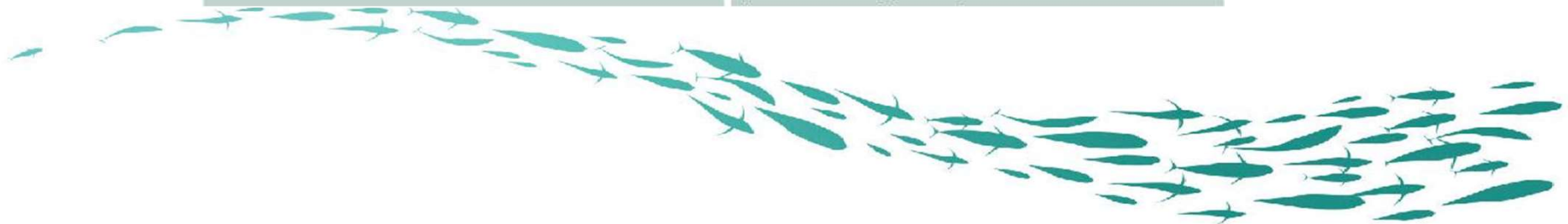
- ✓ Define the scope of the assessment
- ✓ Study the impacts
- ✓ Propose mitigating and offsetting requirements
- ✓ Have the B-EIA report reviewed
- ✓ Put management, monitoring and evaluation systems in place

Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems



Criterion 2.2: Conservation of protected areas or critical habitats

INDICATOR	REQUIREMENT
2.2.1 Allowance for siting in Protected Areas (PAs). ¹¹	None, except within PAs with IUCN category V if the farming system is regarded as traditional land use ¹² , 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. ¹³
2.2.2. Allowance for siting in mangrove ecosystems ¹⁴ and other natural wetlands ¹⁵ , or areas of ecological importance as determined by the B-EIA or national/state/local authority plans/list.	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 ¹⁶ 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). ¹⁷

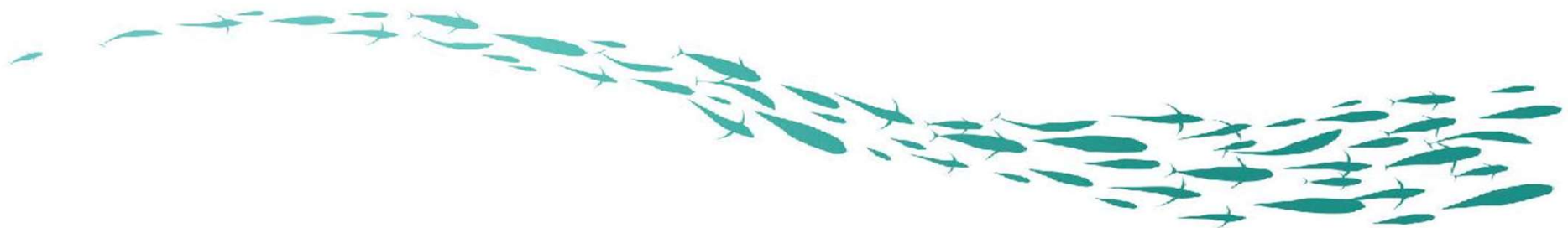


Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems



Criterion 2.3: Consideration of habitats critical for endangered species

INDICATOR	REQUIREMENT
2.3.1 Allowance for siting farms ²⁷ in critical habitats of endangered species ²⁸ as defined by the IUCN Red List, national listing processes ²⁹ or other official lists. ³⁰	None
2.3.2. Maintain habitats critical for endangered species within farm boundaries and implement protection measures of such areas.	Implement protection measures of habitats identified by the B-EIA process. ³¹

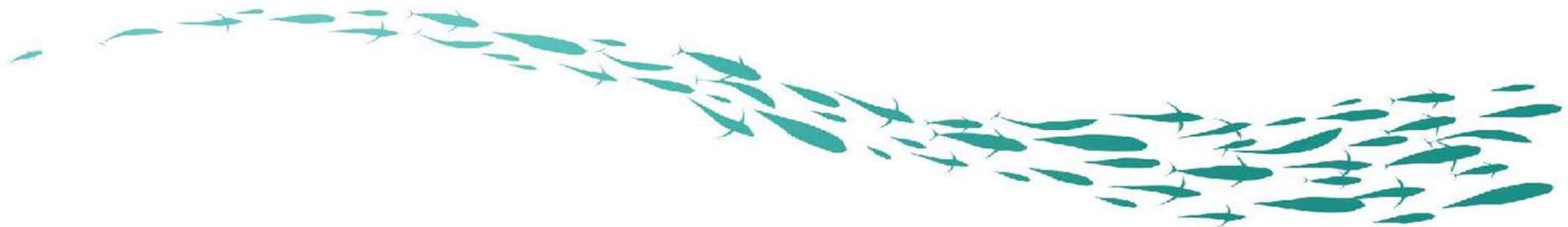


Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems



Criterion 2.4: Ecological buffers, barriers and corridors

INDICATOR	REQUIREMENT
2.4.1. Coastal barriers: Minimum permanent barrier (or natural) between farm and marine environments. ³⁵	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.
2.4.2. Riparian buffers: Minimum width of permanent native and natural vegetation between farms and natural ³⁶ aquatic/brackish environments. ³⁷	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.
2.4.3. Corridors: Minimum width of permanent native and natural vegetation through farms to provide human or native wildlife movement across agricultural landscapes.	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.

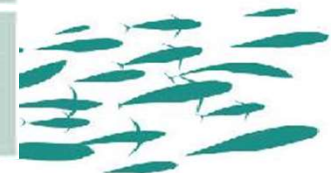


Principle 2 – Site farms in environmentally suitable locations while conserving biodiversity and important natural ecosystems

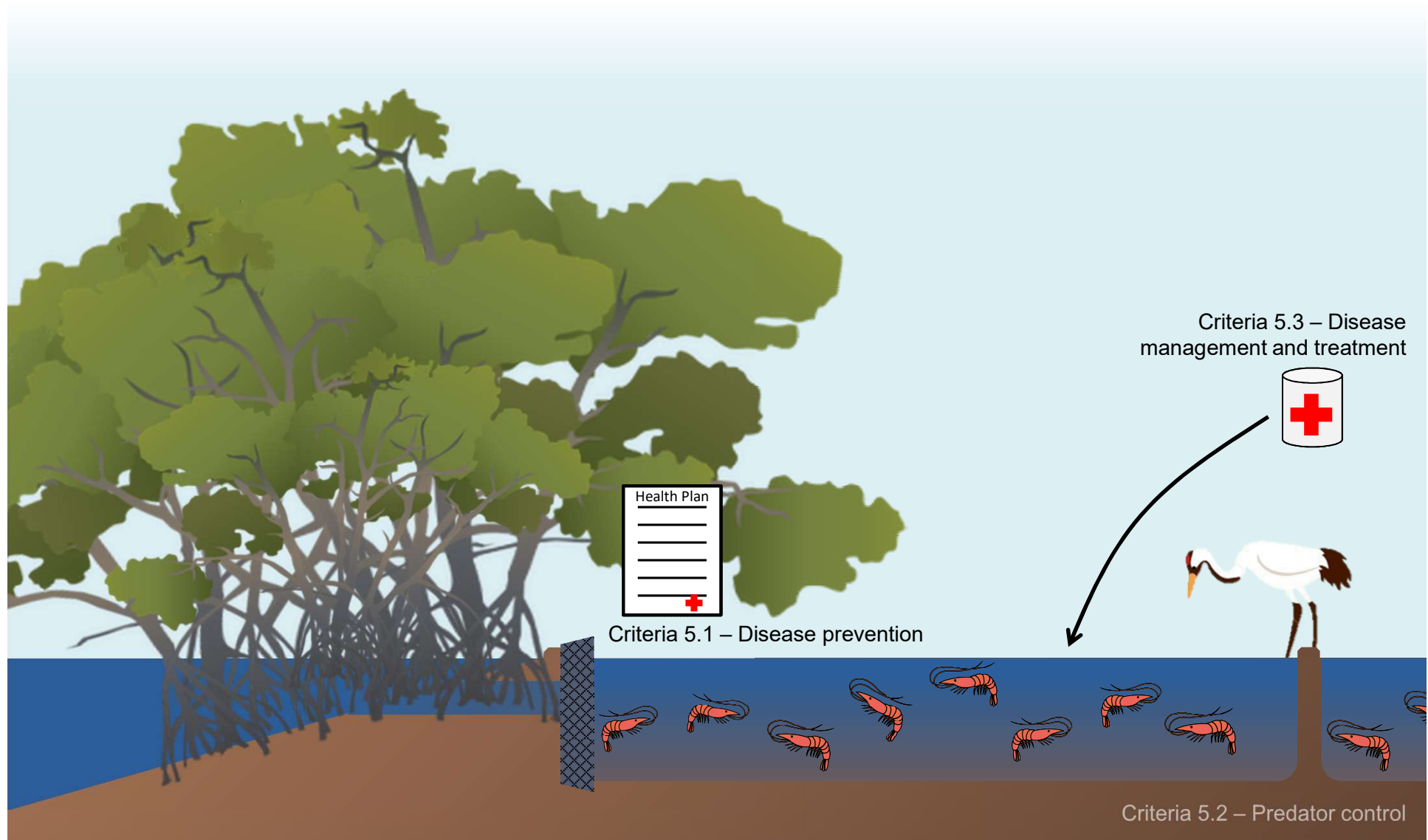


Criterion 2.5: Prevention of salinization of freshwater and soil resources

INDICATOR	REQUIREMENT
2.5.1. Allowance for discharging saline water to natural freshwater bodies. ⁴⁴	None
2.5.2. Allowance for the use of fresh groundwater in ponds.	None
2.5.3. Water-specific conductance or chloride concentration in freshwater wells used by the farm or located on adjacent properties. ⁴⁵	For all freshwater wells (identified prior to full assessment), specific conductance may not exceed 1,500 mhos per centimeter and/or chloride concentration may not exceed 300 milligrams per liter. ⁴⁶
2.5.4. Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields. ^{47 48}	No net increase when compared to the first year of monitoring.
2.5.5. Specific conductance or chloride concentration of sediment prior to disposal outside the farm.	The specific conductance or chloride concentration values must not exceed those of the soil in the disposal area. ⁴⁹



Principle 5 – Manage shrimp health and welfare in a responsible manner



Principle 5 – Manage shrimp health and welfare in a responsible manner



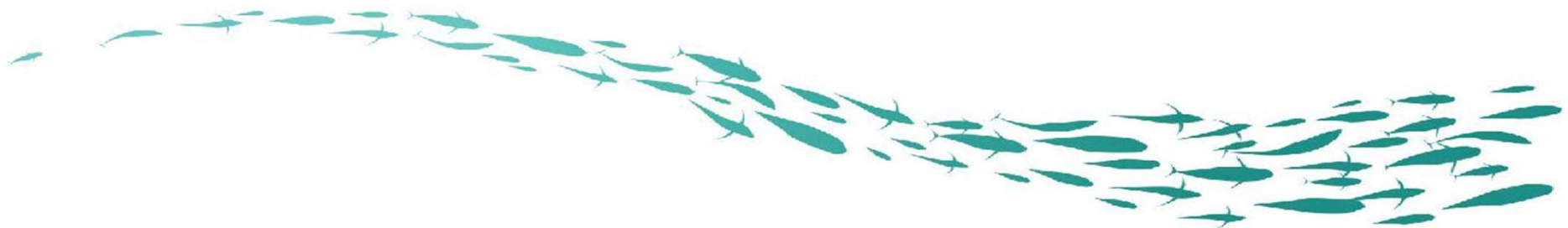
Criterion 5.1.: Disease prevention

INDICATOR	REQUIREMENT
5.1.1. Develop and maintain an operational health plan addressing: 1) Pathogens that can come from the surrounding environment into the farm (e.g., predator and vector control) 2) Pathogens that can spread from the farm to the surrounding environment (e.g., effluent filtration/sterilization, and waste such as dead-shrimp management) 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.	Demonstration that the operational health plan is functional.
5.1.2. Filtration of inlet water for minimizing the entry of pathogens.	Nets, grills, screens or barriers of the appropriate mesh size⁸⁵ are present on all farm or pond inlets.

Principle 5 – Manage shrimp health and welfare in a responsible manner



5.1.3. Annual average farm survival rate ⁸⁶ (SR): 1) Unfed and non-permanently aerated pond systems 2) Fed but non-permanently aerated pond systems ⁸⁷ 3) Fed and permanently aerated pond systems	SR >25% SR >45% SR >60%
5.1.4. Percent of stocked post larvae (PLs) that are Specific Pathogen Free (SPF) ⁸⁸ or Specific Pathogen Resistant (SPR) ⁸⁹ for all important pathogens ⁹⁰ .	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.

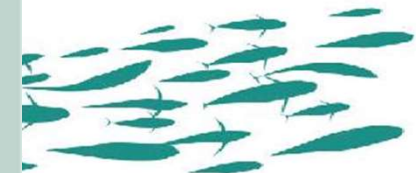


Principle 5 – Manage shrimp health and welfare in a responsible manner

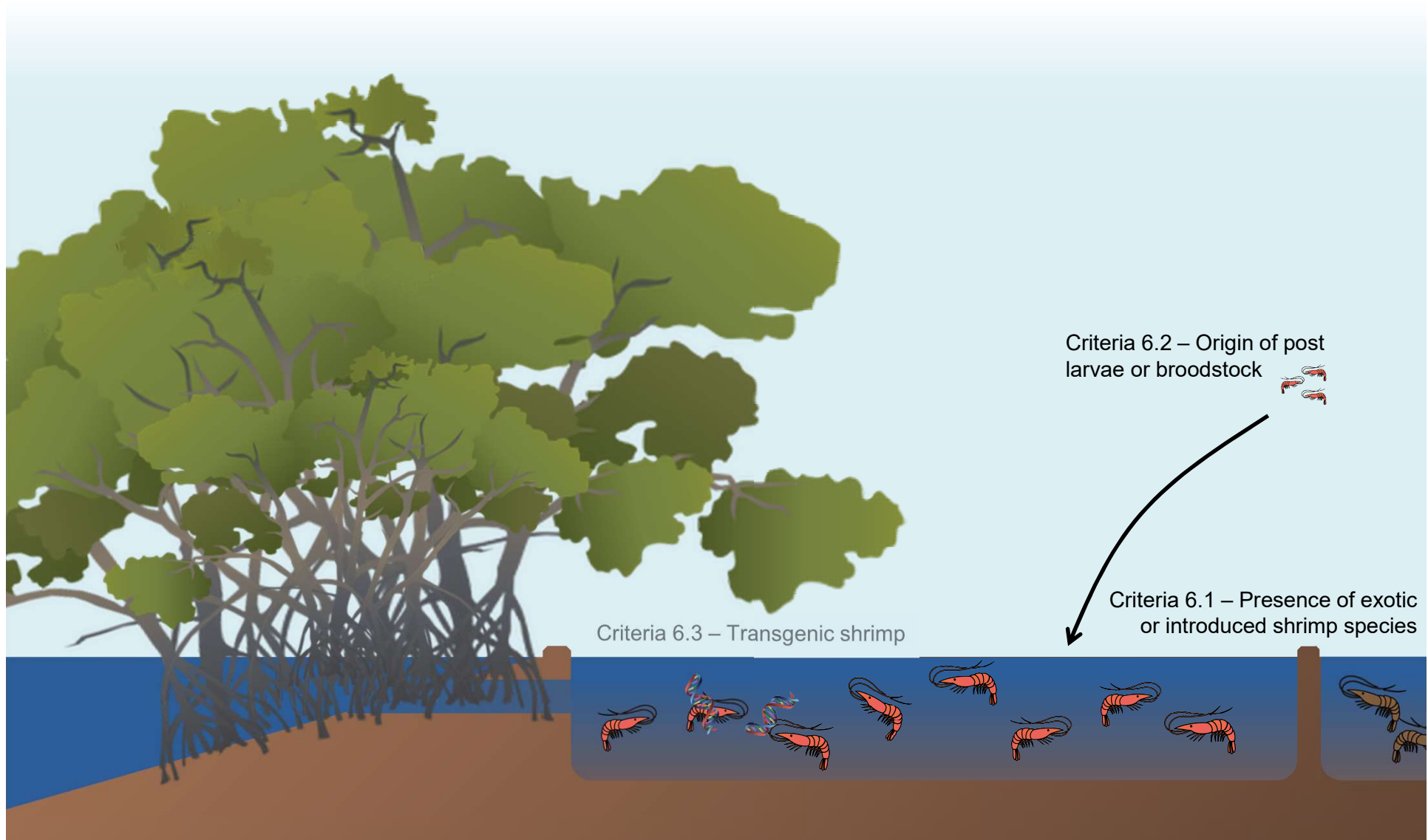


Criterion 5.3.: Disease management and treatment

INDICATOR	REQUIREMENT
5.3.1. Allowance for use of antibiotic 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).	None
5.3.2. 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.	None
5.3.3. Information on chemical storage and usage.	Records of stocks and usage are available for all products.
5.3.4. Proper use of chemical products by farm workers.	Evidences of worker awareness/ training and instructions are available.
5.3.5. 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).	None



Principle 6 – Manage broodstock origin, stock selection and effects of stock management



Principle 6 – Manage broodstock origin, stock selection and effects of stock management



Criterion 6.1.: Presence of exotic or introduced shrimp species

INDICATOR	REQUIREMENT
6.1.1. Use of non-indigenous shrimp species. ¹⁰³	Allowed, provided it is in commercial production locally ¹⁰⁴ AND there is no evidence ¹⁰⁵ 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 ¹⁰⁶).
6.1.2. Prevention measures in place to prevent escapes at harvest and during grow-out include: A. Effective screens or barriers of appropriate mesh size for the smallest animals present; double screened when non- indigenous species.	Yes B. Perimeter pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events¹⁰⁷ C. Regular, timely inspections are performed and recorded in a permanent register D. Timely repairs to the system are recorded E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded F. Escape recovery protocols in place
	Yes Yes Yes Yes Yes
6.1.3. Escapes and actions taken to prevent reoccurrence.	Records are available for inspection.



Principle 6 – Manage broodstock origin, stock selection and effects of stock management



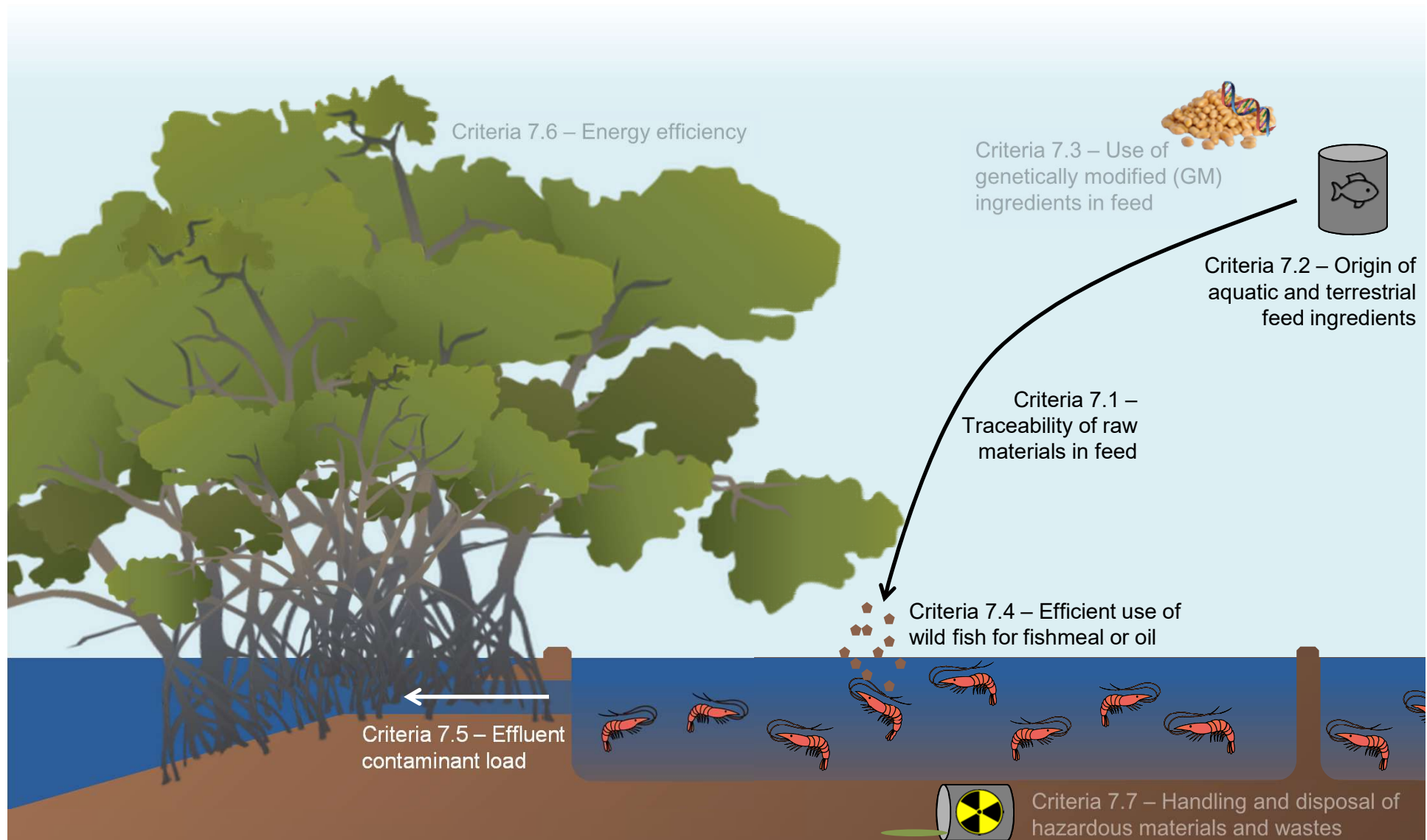
Criterion 6.2.: Origin of post larvae or broodstock

INDICATOR	REQUIREMENT
6.2.1. PL and broodstock have appropriate disease-free status and sources meet regional, national and international importation guidelines (e.g., OIE and ICES).	Documentation provided demonstrating compliance within two years of ASC Shrimp Standard publication date for wild <i>monodon</i> broodstock sourced locally; applicable immediately in all other cases.
6.2.2. Percent of total post larvae from closed loop hatchery (i.e., farm-raised broodstock).	<i>P. vannamei</i> , <i>P. indicus</i> , <i>P. stylirostris</i> 100% <i>P. monodon</i> must be increased over time, and reach 100% within six years after the publication of the ASC Shrimp Standard.
6.2.3. Origin of wild-caught broodstock.	Sourced from locally fished broodstock only. ¹¹³
6.2.4. Allowance for wild-caught PL other than natural tidal flow into ponds.	None

Species specific requirement. To allow certification of other shrimp species, this requirement will need to be expanded



Principle 7 – Use resources in an environmentally efficient and responsible manner

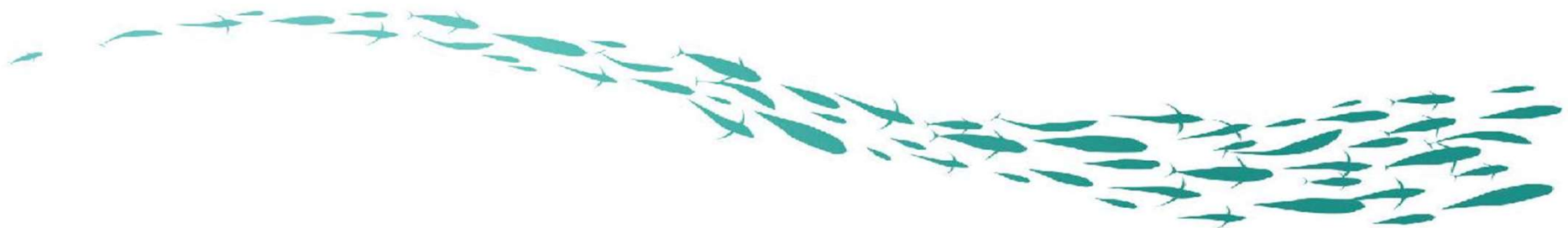


Principle 7 – Use resources in an environmentally efficient and responsible manner



Criterion 7.1.: Traceability of raw materials in feed

INDICATOR	REQUIREMENT
7.1.1. Evidence of basic traceability of feed ingredients, including source, species, country of origin and harvest method demonstrated by the feed producer. ¹¹⁷	List of all ingredients making up more than 2% of the feed available provided on company letterhead.
7.1.2. 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 ¹¹⁸ Code of Conduct for Responsible Fisheries.	Yes



Principle 7 – Use resources in an environmentally efficient and responsible manner



Criterion 7.2.: Origin of aquatic and terrestrial feed ingredients

INDICATOR	REQUIREMENT
7.2.1. a. Timeframe for 100% (mass balance) fishmeal and fish oil used in feed to come from fisheries¹²¹ certified by a full ISEAL member¹²² that has guidelines specifically promoting ecological sustainability of forage fisheries. <i>OR FOR THE INTERIM 7.2.1b. or 7.2.1c.</i>	Within five years following the date of standards publication.
7.2.1. b. FishSource score^{123 124}, 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) a. for Fishsource Criteria 4 (spawning biomass assessment) b. for Fishsource Criteria 1, 2, 3 and 5	a. 8 b. 6 or compliance with alternative interim proposal 7.2.1c
7.2.1. c. Lacking a FishSource assessment a fishery could be engaged in an Improvers Program. (transparent and public Fisheries Improvement Project (FIP) with periodic public reporting (refer to Appendix VII).	See Appendix VII for details on compliance.
7.2.2. Percentage of non-marine ingredients from sources certified by an ISEAL member's certification scheme that addresses environmental and social sustainability.	80% for soy and palm oil within five years from the date of the ASC Shrimp Standard publication.

Interim feed solution!



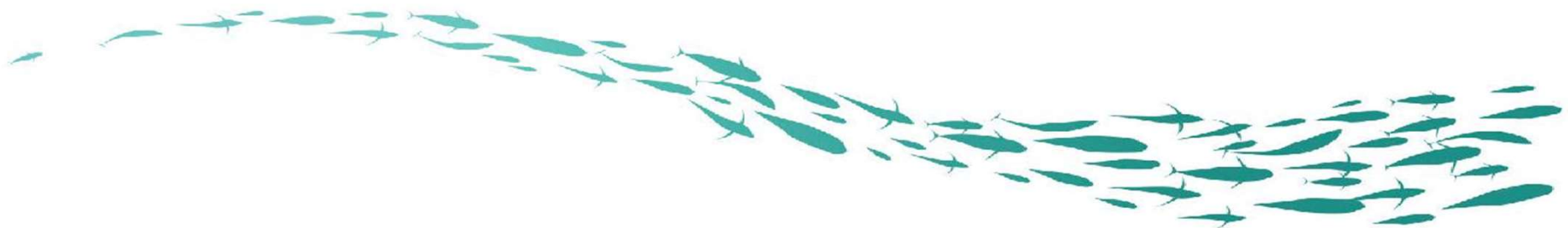
Principle 7 – Use resources in an environmentally efficient and responsible manner



Criterion 7.4.: Efficient use of wild fish¹³² for fishmeal or oil

INDICATOR	REQUIREMENT
7.4.1. Feed Fish Equivalence Ratio (FFER) ¹³³ <i>L. vannamei</i> <i>P. monodon</i>	<i>L. vannamei</i> 1.35:1 <i>P. monodon</i> 1.9: 1
7.4.2. a. Economic Feed Conversation Ratio (eFCR)	Records are available
AND	
7.4.2. b. Protein Retention Efficiency	Records are available

Species specific



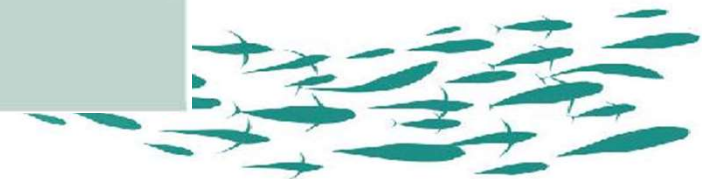
Principle 7 – Use resources in an environmentally efficient and responsible manner



Criterion 7.5.: Effluent contaminant load

INDICATOR	REQUIREMENT
7.5.1. Nitrogen effluent load per ton of shrimp produced over a 12-month period. ¹³⁴	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> .
7.5.2. Phosphorous effluent load per ton of shrimp produced over a 12-month period.	Less than 3.9 kg P per ton of shrimp for <i>L. vannamei</i> . Less than 5.4 kg P per ton of shrimp for <i>P. monodon</i> .
7.5.3. Responsible handling and disposal of sludge and sediments removed from ponds and canals.	No discharge or disposal of sludge and sediments to public waterways and wetlands.
7.5.4. Treatment of effluent water from permanently aerated ponds.	Evidence that all discharged water goes through a treatment system ¹³⁵ , and concentration of settleable solids in effluent water < 3.3 mL/L. ¹³⁶
7.5.5. Percentage change in diurnal dissolved oxygen (DO) relative to DO at saturation in receiving water body ¹³⁷ for the water's specific salinity and temperature.	≤ 65%

Species specific



Programme developments:

- 1) Standard for Feed
- 2) Aligned core standard
- 3) Group certification methodologies
- 4) Standards for new species
- 5) Supportive tools for producers





ASC Feed Standard Development

Expected launch: Q3 2017

Contact person: Michiel Fransen

The ASC Feed Standard will address main environmental and social impacts for marine ingredients, terrestrial plant and animal ingredients and for the feed mill.

Why?

Feed is a major contributor to the overall environmental and social impact of aquaculture.

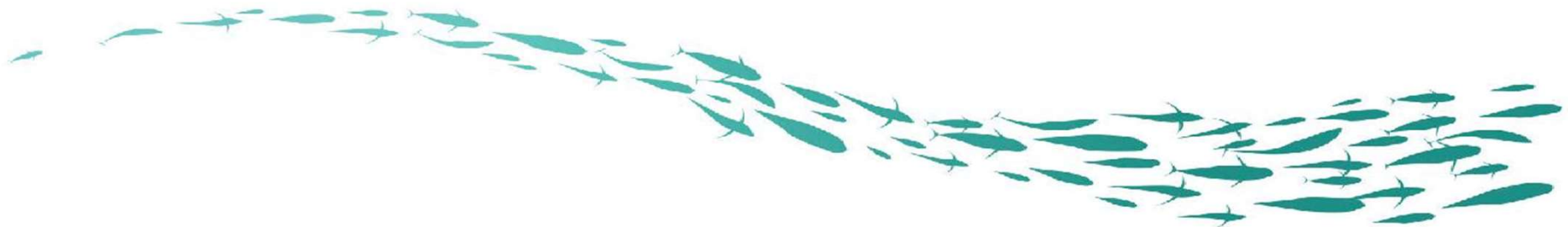
Currently:

Second round of public consultation scheduled for May 2017

RAS Shrimp farms



- Demonstrate responsible farming operation and opportunity to enhance your market access
- Possible to get certification using existing ASC shrimp standards (Version 1, March 2014)
- System specific standards (including RAS, Biofloc) under development (including standards on energy)



Thank you!



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Aquaculture Stewardship Council



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