Seafood product standard:

Organic Sea (ORG.SEA)

www.OrgSea.org

Content:

ORGANIC SEA 2

PRODUCT QUALITY: 2

Parasites 2

Purging: 2

Stress 2

Traceability: 3

Data logging/records 3

Feed 3

FISH WELFARE: 4

Water velocity (important for actual access to oxygen and stress of fish)) 4

Water exchange 4

Water Quality 4

Fish density 4

Purging 4

Slaughtering 5

IMPACT ON ENVIRONMENT: 6

Bio-security / protection the local natural fish stocks. 6

Effluents to recipient: 6

Effluent to public or private sewage plant, or to drying bed 6

Effluent to inland water ways 6

Effluent to semi enclosed sea 7

Effluent to open sea 7

CONTROL: 8

CONTACT: 8

Organic Sea

Organic Sea, is a quality standard for seafood products, with preference to product quality, fish welfare and impact on the environment.
The **Organic Sea** standard, is an alternative to those organic seafood standards, which have a political origin, designed to favour conventional fish farming.

The **Organic Sea** standard aim to secure:
High product quality, free of parasites, suitable for the Raw fish market, as well as for premium cuisine in general.

To obtain the **Organic Sea** certification, the following production conditions are mandatory:

Product quality:

Parasites

Products should be secured 100% free of parasites

Intake water for fish farm needs to be either a bacteria/pathogen free and parasite free subsoil intake, or alternatively all intake water to the farm needs to be either pasteurising or treated by a combined treatment of a screen filtration to 30 micron, followed by a UV treatment, with a dose of minimum 120000 MWS

Purging:

Minimum 5 days of purging before harvest.
Concentration of geosmin in purge water: max. 8 ng/l

Stress

Water velocity in fish production tanks:

Salmonides: min 30% of body length per sec. average in water column.
(Water velocity has impact on flesh quality – structure and oil content - on especially salmonides.)

Methods should be applied to minimise stress on fish in general, and 10 days up to harvest indeed.

Grading not permitted the last 15 days before harvest.

Use of antibiotics are not allowed in production facility. Fish cannot be sold as ORG.SEA fish for 6 months after any treatment of fish in the facility. (A facility is considered as a separate production unit, with individual UV treatment of intake water, and bio-security zone between any other production units.

Traceability:

Any batch of fish should be traceable from eggs to harvest. A maximum of 2 batches (from eyed eggs) can be pooled in the same tank unit/section.

Data logging/records

Logging per tank:

- Feed, type and amount (daily)
- Oxygen (hourly)
- Water velocity (2 x weekly)

Central inlet and outlet to tanks within facility:

pH,	Hourly
CO2	(2 x weekly)
Ammonia	(2 x weekly)
Nitrate	2 x weekly
Nitrite	2 x weekly
Geosmin	monthly

All logged data have to be stored for a minimum of 36 months.

Feed

Minimum 50% of product in fish feed or of actual fish feed applied at facility (ORG.SEA fish produced), has to be of organic or a sustainable source.
For the last 30% of the weight increase of the fish, minimum 70% of the feed applied to the fish should be certified as organic.

The feed criteria will be under constant evaluation, but the OSC standard is balancing the fish welfare and product quality, against the demand of feeding the fish on organic feed.
Still of today truly organic feed would not satisfy the nutritional requirement of the fish.
OSC consider organic fish feed, a feed where minimum 95 % of the Ingredients comes from a fully controlled organic source.
Ingredients, which have origin from wild populations of fish, are in this sense not an organic source.

Fish welfare:

Water velocity (important for actual access to oxygen and stress of fish))

Water velocity, average in water column:

Any species: min 15% of body length per sec.
Salmonides, min 30% of body length per sec.

Water exchange

Water exchange in fish tank: minimum 1 exchange per hour.
Max holding time in tanks with water exchange of less than 1 exchange per hour (as for transport of fish or handling of fish): 3 hours

Water Quality

In fish tanks (outlets as well), the flowing parameters are accepted:

Oxygen:	min: 80% sat.
Free CO2:	Max: 16 mg
Ammonia NH3/NH4:	Max : 0,02 mg N/l
Nitrate:	Max 100 mg N/l
pH:	Min: 6.5 Max 8.4
Turbidity:	min 1 meter of visibility.
Geosmin:	max: 10 ng/l

Fish density

Organic Sea standards, does not set a specific fish density in the tanks as a norm, as this is not possible from a fish welfare point of view. Fish welfare is about water quality and water velocity.
Most fish species are schooling to feel safe, and densities of several hundred kilo of fish per m3, can be optimal as long as the water quality is good. For salmon for an example, if the water quality it good, then in cages with plenty of species, the salmon will typical School in densities of 150-300 kg/m3, for some grouper species, the optimal density will be even quite a bit higher. At low densities some fish species will become territorial, which will cause stress. A high density will require a fast water exchange in the tanks, which in itself will generate some limitations.
A system with a water exchange in the tanks of 1-2 exchanges per can support a fish density of potentially above 150 kg/m3, without compromising fish welfare, as long as the water quality parameters are within the levels listed above at the outlet point of the tank.

Purging

Addition of NaCL or other chemicals cannot be applied for purging.
Purge tank with equal salinity and quality of water compared to production tanks.
Purge with levelled levels of NaCl is not permitted.

Slaughtering

Killing method allowed:

Stunning, electric shock

If stunning applied, then to reduce stress for a period of up to 30 minutes before killing, it is permitted to transfer the fish to cooled water before stunning.
The cooled water, should be in equal chemical composition, including salinity compared to the water in purge and production tanks. The fish can be chilled to a maximum of 15 degrees below temperature in purge tank, but to no less than 3 degree C.

Addition of CO2 is not permitted for pacifying or killing the fish.

Impact on environment:

Bio-security / protection the local natural fish stocks.

Genetic pollution of wild fish stocks, ecological impact by escaping fish, and pathogen pressure on wild fish form fish farms, is becoming an increasing issue with conventional fish farming.
To be certified "Organic Sea" fish producer, the production facility has to be secured so that fish /eggs of any size cannot escape from the facility. Further that any pathogen issues or parasite issue within the facility will not even potentially cause impact on wild fish stocks in recipient of discharge waters.
Then where the outlet from a production facility enters a freshwater or a seawater recipient, the following minimum barriers between fish tanks and recipient is required.:

1) Between fish tanks and recipient, at least two times mechanical screening down to a maximum screen opening size of 50 micron.
2) A final UV treatment of a dose of 40.000 MWS, on the entire outlet to the recipient, is mandatory after the last mechanical filtration down to 50 micron.

Effluents to recipient:

Effluent to public or private sewage plant, or to drying bed

Individual evaluation, verification required, that the effluent will not cause impact on freshwater reservoirs, or the outlet eventually will meet the demands valid for effluent to inland waterways.

Effluent to inland water ways

(Lakes, ponds, rivers, streams)

Fresh Water consumption m3/kg fish produced		600 m3
BOD, Kg per ton of fish produced	:	6 kg
Ammonia Nitrogen, NH3/NH4 kg(N), per ton of fish produced	:	2 kg
Total Nitrogen, kg (N)/ton of fish produced	:	6 kg
Total Phosphorous Kg P/ton of fish produced	:	0,5 kg
Max salinity in outlets, NaCl	:	8 gr/l.

Effluent to enclosed sea area

(Fjords/locks, enclosed seas where connection to one of the principal open oceans*, is limited by passages of less than 25 nautical miles.

Fresh Water consumption m3/kg fish produced (No limitation on use of seawater)		600 m3
BOD, Kg per ton of fish produced	:	6 kg
Ammonia Nitrogen, NH3/NH4 kg(N), per ton of fish produced	:	3 kg
Total Nitrogen, kg (N)/ton of fish produced	:	10 kg
Total Phosphorous Kg P/ton of fish produced	:	2 kg

Effluent to semi enclosed sea

(Semi enclosed seas where connection to one of the principal open oceans*, is limited by a passage of less than 100 nautical miles.)

Fresh Water consumption m3/kg fish produced (No limitation on use of seawater)		600 m3
BOD, Kg per ton of fish produced	:	30 kg
Ammonia Nitrogen, NH3/NH4 kg(N), per ton of fish produced	:	5 kg
Total Nitrogen, kg (N)/ton of fish produced	:	25 kg
Total Phosphorous Kg P/ton of fish produced	:	5 kg

Effluent to open sea

(Outlet to open see or semi-open sea, with connection to one of the principal ocean, with free passage of minimum 100 miles, at any point between the outlet point at the production facility and one of the principal oceans.)

Fresh Water consumption m3/kg fish produced (No limitation on use of seawater)		600 m3
BOD, Kg per ton of fish produced	:	100 kg
Ammonia Nitrogen, NH3/NH4 kg(N), per ton of fish produced	:	10 kg
Total Nitrogen, kg (N)/ton of fish produced	:	40 kg
Total Phosphorous Kg P/ton of fish produced	:	5 kg

Control:

All facilities certified to the Organic Standard, will be checked minimum once per year, by an unannounced visit.
Water samples will be taken, and protocols and log books, as required according to the Organic Sea standard will be checked.
If critical errors are detected, then the producer will loose the organic Sea certification.
Minor faults, will result in more frequent checks at the expense of the producer.

The producers who are registered and certified to the Organic Sea standard, are paying an annual fee of 1500 EUR, and further a volume fee of 0,01 per produced kilo of fish.

Organic sea is a non profit organisation. The fees collected will finance expenses, for administration, control, R&D projects, marketing & public relation.
The profits generated, will be donated for projects with focus on restocking or improving conditions for natural fish populations.

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