FORM 1 – REQUEST FOR INTERPRETATION OR VARIANCE

This form shall be used for the submission of requests by CABs to the ASC to request interpretations of the ASC normative requirements and/or requests for variance from specific normative requirements.

Before submitting a request using this form:

1. CABs shall check the ‘ASC Variation and Interpretation Log File’ to identify if similar requests have been processed.
2. CABs shall not submit a request which has already been processed unless there is a material change in the new request that was not present in an earlier request.
3. Variations that have been approved may be applied when similar circumstances are present.

NOTE: ASC publishes the ‘ASC Variation and Interpretation Log File’ as an excel file that contains all processed applications for variations and interpretations. This file includes links to download the full text of variation and interpretation requests that have been processed. This file contains requests that have been approved and those that have been denied.

PROCESS

Communication between CAB’s and ASC on the status of the request will occur through the ASC Secretariat (certification@asc-aqua.org).

Type 2 request will be under scrutiny of the VR-committee. This committee consists, at a minimum, of two members of the ASC Technical Advisory Group as well as the CEO and Standards Director of the ASC.

Depending on the nature of the request additional technical experts may be consulted. These can be, but are not limited to, members of the ASC Technical Advisory Group, former WWF Aquaculture Dialogue Members, or other technical experts.

The ASC will normally process requests Type 1 Requests within 5 days and Type 2 Requests within 15 days. CABs will be informed if additional time is needed.
I CAB Request

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<tr>
<th>1.1 NAME OF CAB</th>
<th>1.2 DATE OF SUBMISSION</th>
<th>1.3 CAB CONTACT PERSON</th>
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1.5 SOURCE OF THE REQUIREMENT FOR WHICH THE VARIATION OR INTERPRETATION IS REQUESTED

□ Type 1 – Requirement Found in the CAR
X Type 2 – Requirement found in an ASC Standard

1.6 LIST OF SITES FOR WHICH THE VARIATION IS REQUESTED

NOVA SEA AS, ASC CERTIFIED SITES

1.7 ASC DOCUMENT REFERENCE

2.5.1

1.8 BACKGROUND (PROVIDE FULL EXPLANATION OF THE ISSUE)

Variance request to allow for the use of targeted acoustic startle technology (TAST) on ASC certified farms.

We have applied previously for another VR (VR 259) regarding criteria 2.5.1 at one of our farms, Rensøya N, which is ASC certified. This VR is still under assessment, but in support of it and in an attempt to find a solution to the animal welfare and salmon health issues related to the presence of seals around our farms, we have been investigating various alternative, non-lethal means to deter seals.

We appreciate the ASC's goals of environmental protection and healthy fish. ASC specifically prohibits the use of acoustic deterrence devices by certified farms under Standard 2.5.1. The newly available targeted acoustic startle technology (TAST) promotes both environmental protection and healthy fish; and we seek a variance to use TAST as a predator deterrent on ASC certified farms.

TAST was initially developed by researchers at the University of St. Andrews, and subsequently in conjunction with GenusWave. We have studied compelling research regarding the use of TAST which show that it offers a significant advance over traditional ADDs/AHDs.

TAST harnesses the acoustic startle reflex, which has been shown to induce avoidance behavior without a decrease in responsiveness over time in the majority of tested seals (Götz and Janik 2011). This approach only requires low noise doses by using:

• brief, isolated sound pulses that are
• emitted at significantly lower duty cycles and
• lower source levels compared to ADDs.

Target-specificity is achieved by choosing a frequency band where hearing sensitivity in the target-species (seals) is higher than in non-target species (porpoise & dolphins).

This method has been shown to be successful in deterring seals from a fish farm while not adversely affecting the behavior and distribution of harbor porpoise (Götz and Janik 2015). The effect on seals was limited to a confined area around the fish farm of less than 250m. Equally important is the long-term success of the deterrence. Target mammals do not habituate to TAST. Instead, repeated exposure increases animal responsiveness.

In a consecutive study, a startle-reflex based system reduced seal predation by ~91-97% on a fish farm over the course of one year while operating at a duty cycle of only 1% (Janik & Götz 2016). The device tested in this study emitted a noise dose that was more than one order of
magnitude (more than factor 10) lower than any ADD. The 2nd study also replicated the previous result, i.e. that harbor porpoise distribution around the fish farm remained the same during control and test periods.

There is therefore no risk of hearing damage associated with this method when considering realistic exposure scenarios (see discussion and supplementary material)

As we previously mentioned in VR 259, Nordland County (where all our farms are located) has the highest estimated population of harbor seals (Phoca vitulina) in the whole of Norway. A study from the Norwegian Institute of Marine Research (Havforskningsinstituttet) found that 1.5 times more seals are estimated to live here than in the county with the second highest estimated population (Nilsen and Bjørge 2015). We have previously documented and informed the ASC of numerous instances of seals in close proximity to our farms, in some cases leading to panic swimming and other stress induced reactions from the salmon.

Using the TAST device will keep the seals away from our salmon which will provide our salmon with a more tranquil, less stressful and healthier environment.

TAST is more aptly described as an ASD (acoustic startle device), not an ADD, due its different approach and acoustic emission pattern. The TAST approach allows the:

- noise dose to be lowered dramatically,
- effects on non-target species (harbor porpoise) to be mitigated,
- avoidance of harm to the target mammal.

As a result, TAST achieves fish and mammal health as well as environmental compliance. Therefore, instead of requesting permission to use an ADD, we are requesting the inclusion of this ASD in the allowed predator control measures. The justification is based on the fact that the TAST ASD is the only acoustic predator control solution available on the market whose efficacy and environmental compliance has been documented in peer-reviewed papers in the scientific literature.

TAST has been implemented in an industrial prototype and is available for use on fish farms as ‘SalmonSafe’ marketed through GenusWave ltd. (www.Genuswave.com).

It is also important to note that TAST will enable us to comply with Norwegian law. Norwegian law requires us to reduce stress on our salmon from predators (akvakulturdriftsforskriften, §30).

We believe that TAST is the only viable solution that provides improved welfare and health for our salmon. TAST avoids unnecessary stress (as required by Norwegian law (akvakulturdriftsforskriften, §30)) and avoids impact on other wildlife.

We therefore request the ASC’s approval for the use of targeted acoustic startle technology on ASC certified farms.

References

Link to Norwegian aquaculture management regulation: [https://lovdata.no/dokument/SF/forskrift/2008-06-17-822](https://lovdata.no/dokument/SF/forskrift/2008-06-17-822)

1.9 RECOMMENDED ACTION/DECISION

DNV GL recommends that a Variance Request is granted to use targeted acoustic startle technology (TAST) on Nova Sea AS ASC certified farms considering the special circumstances in this area. Use of TAST to be recorded and evaluated per season.

II ASC Determination

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<th>2.1 STATUS</th>
<th>2.2 DATE OF THE ASC DETERMINATION</th>
<th>2.3 ASC VR LOG REFERENCE</th>
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2.4 ASC DETERMINATION ON VARIANCE REQUEST

2.5 ASC INTERPRETATION