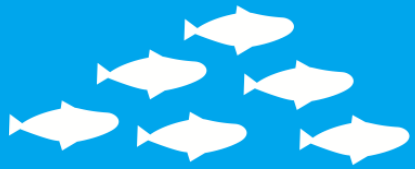
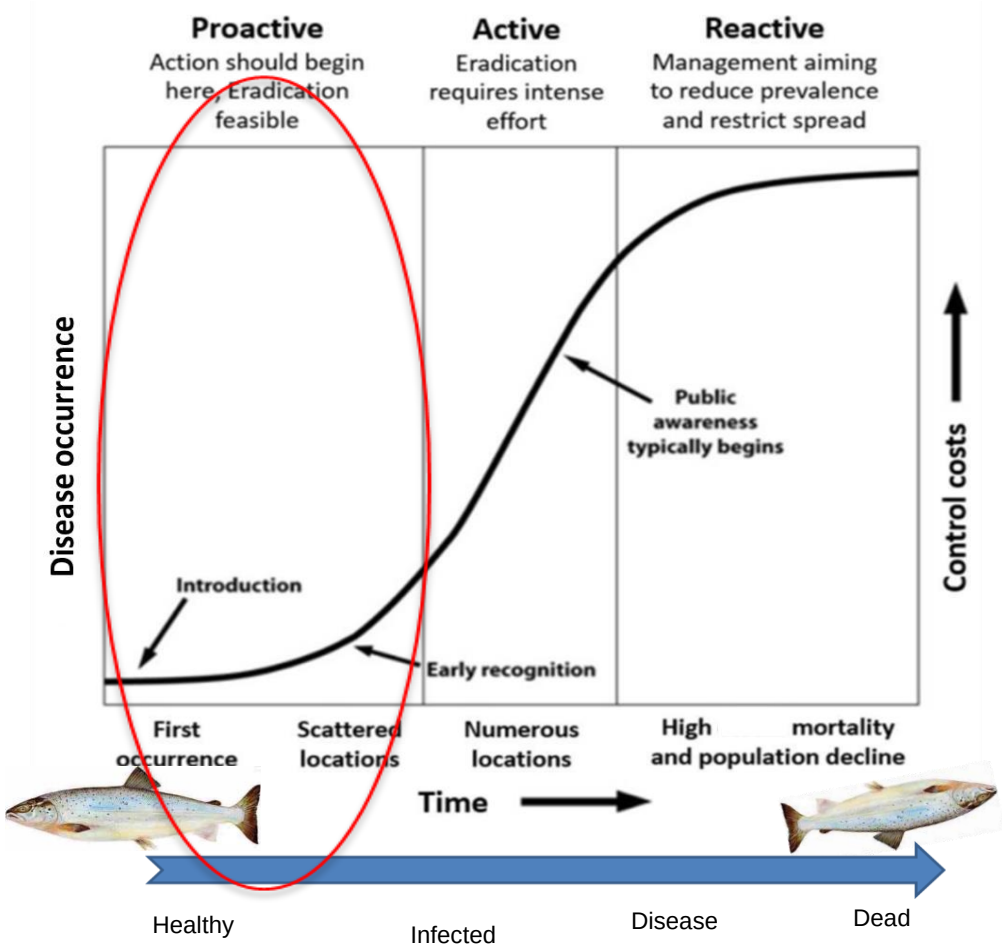
Veterinærinstituttet
Norwegian Veterinary Institute

Support on emergency disease preparedness & early detection

Mona Dverdal Jansen, Section for epidemiology



Focus on biosecurity, early detection & emergency reponse for effective control



Emergency disease preparedness?

Preparedness =

“A state of readiness and capability of human and material means, structures, communities and organisations enabling them to ensure an effective rapid response to a disaster, obtained as a result of actions taken in advance.”

https://www.oie.int/app/uploads/2021/03/disastermanagement-ang.pdf

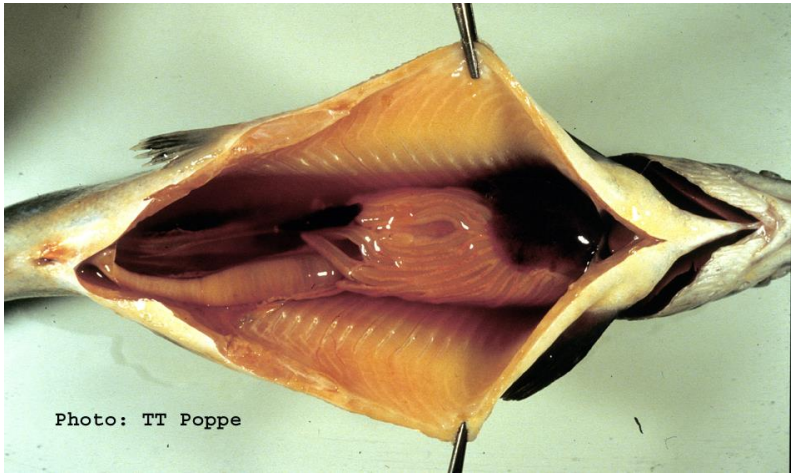
Early detection system?

Characteristics: (adapted from original)

- Broad awareness - characteristic signs of listed & emerging diseases
- Veterinarians & Aquatic animal health professionals (AAHPs) - trained in disease recognition & reporting
- Aquatic Animal Health Services - able to undertake rapid and effective disease investigation, incl. laboratory access
- Legal obligation of veterinarians & AAHPs to report suspicions of disease occurrence to the Competent Authority

https://www.oie.int/fileadmin/Home/eng/Health_standards/aahc/2010/glossaire.pdf

Awareness: Disease recognition



Awareness: Disease recognition

OIE experts
& networks

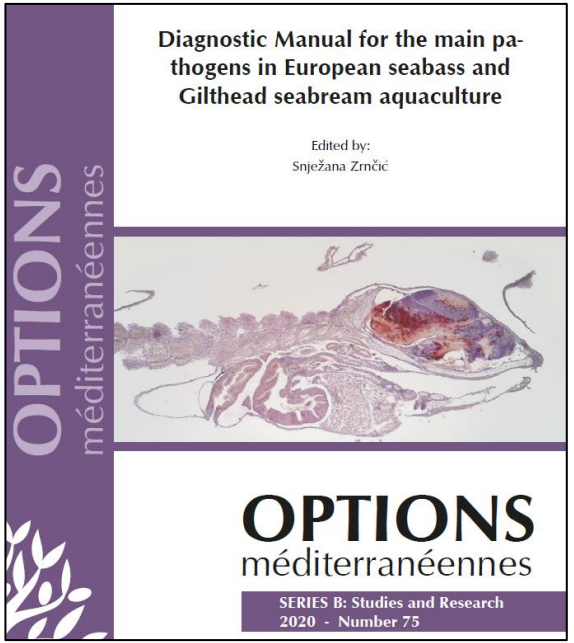
CHAPTER 2.3.5.

INFECTION WITH HPR-DELETED OR HPR0 INFECTIOUS SALMON ANAEMIA VIRUS

1. Scope

Infection with infectious salmon anaemia virus (ISAV) means infection with the pathogenic agent highly polymorphic region (HPR)-deleted ISAV, or the non-pathogenic HPR0 (non-deleted HPR) ISAV of the Genus *Isavirus* of the Family *Orthomyxoviridae*.

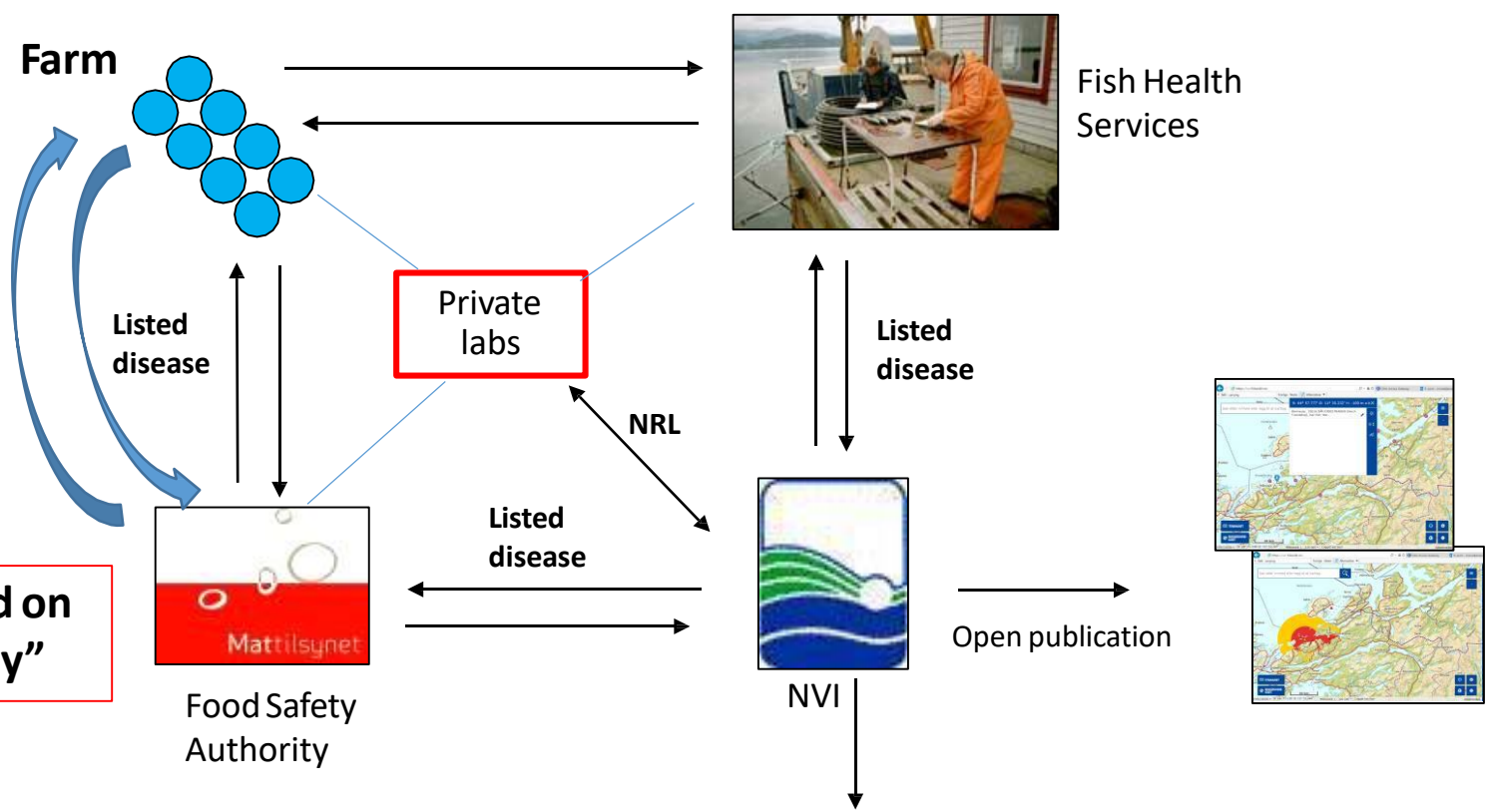
IHPR-deleted ISAV may cause disease in Atlantic salmon (*Salmo salar*), which is a generalised and lethal condition characterised by severe anaemia, and variable haemorrhages and necrosis in several organs. The disease course is prolonged with low daily mortality (0.05–0.1%) typically only in a few cages. Cumulative mortality may become very high



Public-private partnership in disease recognition & reporting

Companies required to report on incidences (ac. Food Law)

Restrictions based on "impact on society"

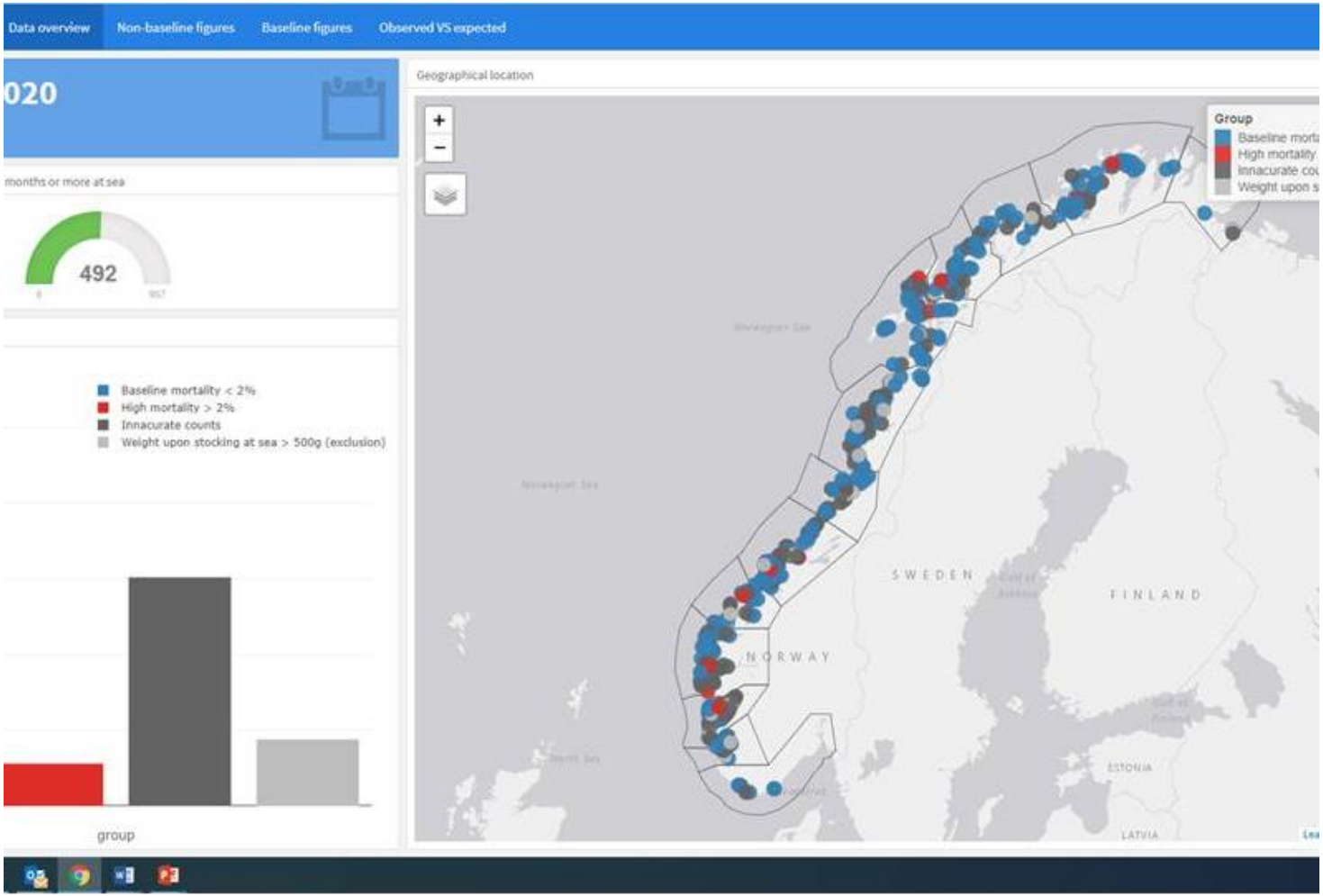


Surveillance

- Targeted surveillance
- Passive surveillance
- Syndromic surveillance

Sample size!

Design prevalence	Sensitivity(%)	Specificity(%)	Sample size	Maximum number of false positive if the population is free
2	100	100	149	0
2	100	99	524	9
2	100	95	1,671	98
2	99	100	150	0
2	99	99	528	9
2	99	95	1,707	100
2	95	100	157	0

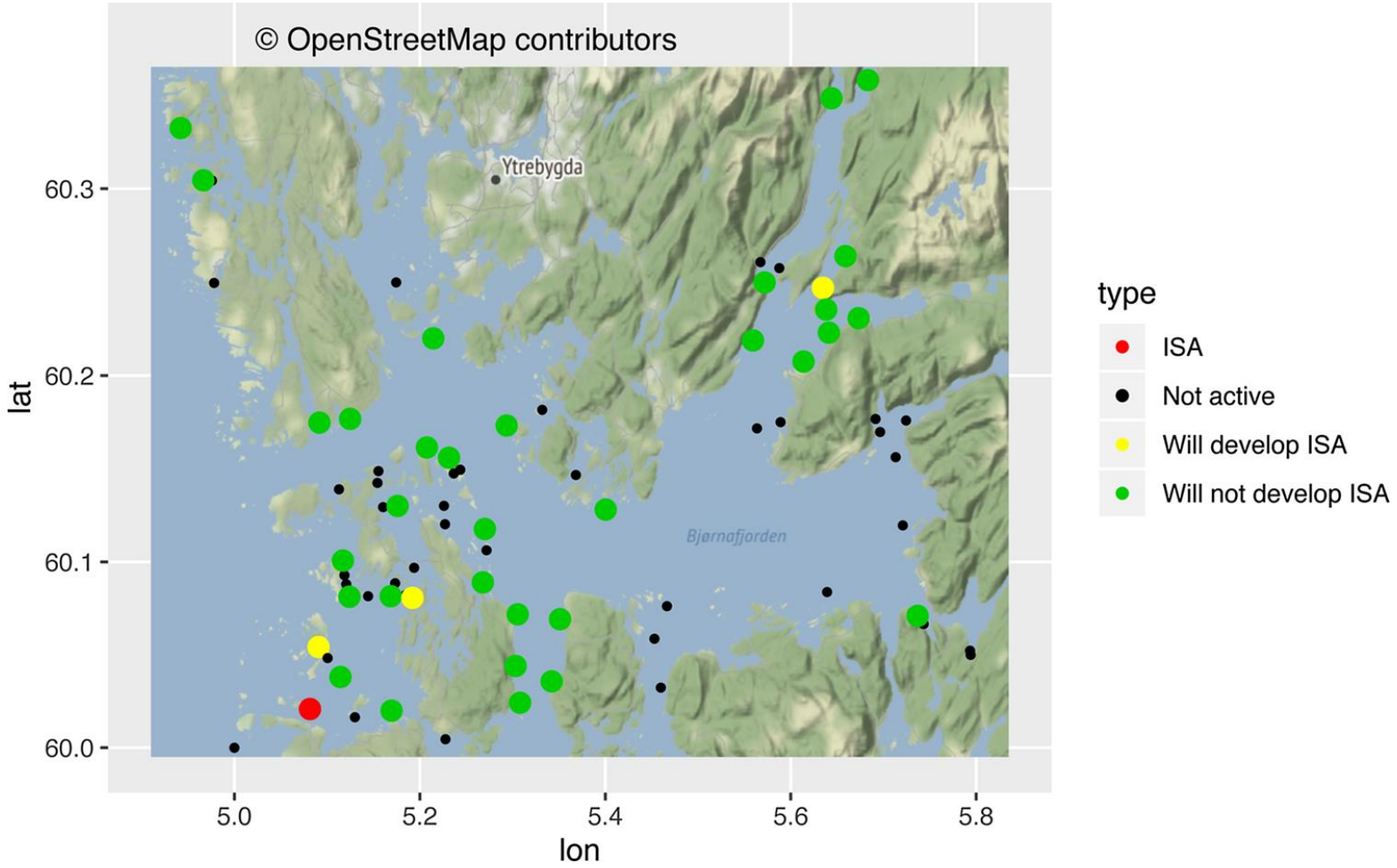


Bang Jensen *et al.*, 2021

Risk assessments

Likelihood estimate	Consequence rating					
	insignificant	minor	moderate	major	catastrophic
remote	negligible	low	low	low	medium
unlikely	low	low	medium	medium	high
possible	low	medium	medium	high	high
likely	low	medium	high	high	extreme
certain	low	high	high	extreme	extreme

https://www.oie.int/fileadmin/Home/eng/Health_standards/aahc/current/chapitre_biosecu_estab_aqua.pdf



Aldrin *et al*., 2020

Vitenskapskomiteen for mattrygghet
Norwegian Scientific Committee for Food Safety

Risikovurdering - stamfiskovervåking og vertikal smitteoverføring

Uttalelse fra Faggruppe for dyrehelse og dyrevelferd i Vitenskapskomiteen for mattrygghet

Rapport 12 - 2018

Smitte mellom oppdrettsfisk og villfisk:
Kunnskapsstatus og risikovurdering

Dok.nr.06/804

Vitenskapskomiteen for mattrygghet
Norwegian Scientific Committee for Food Safety

Opinion of the Panel on Animal Health and Welfare of the Norwegian Scientific Committee for Food Safety
26.01.07

Which risk factors relating to spread of Infectious Salmon Anaemia (ISA) require development of management strategies?

instituttets rapportserie
Norwegian Veterinary Institute's Report Series

Rapport 1 · 2016

Risikovurdering for smitte med
Gyrodactylus salaris til norske elver
i Troms og Finnmark fra grenseområder
i Russland, Finland og Sverige

Endelig rapport

ttets rapportserie
an Veterinary Institute's Report Series

Rapport 7 · 2011

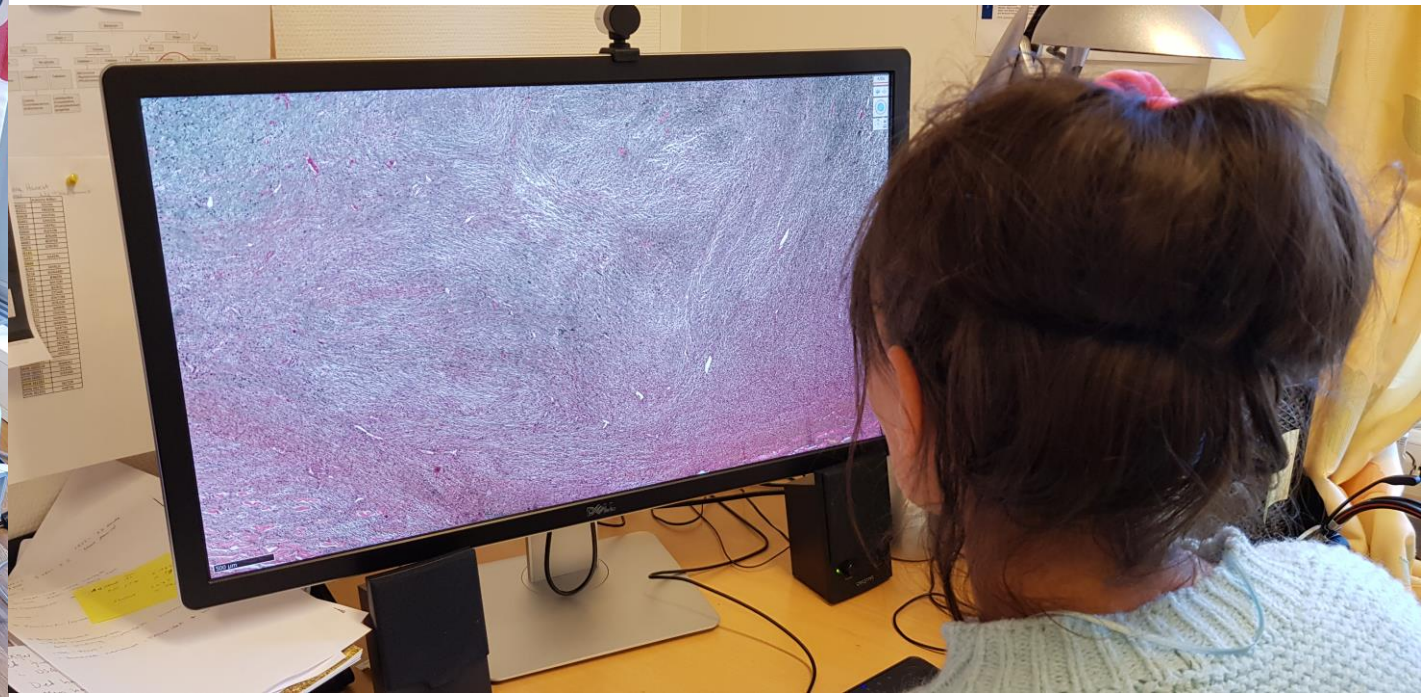
Risikovurdering for spredning av pancreas disease virus (PD-virus) ved bruk av leppefisk i norsk lakseﬁskoppdrett

Diagnostics

OIE reference laboratories

OIE Collaborating Centers

General aquatic animal diagnostic laboratories



Photos: Geir Bornø

We don’t need to know everything before taking action!

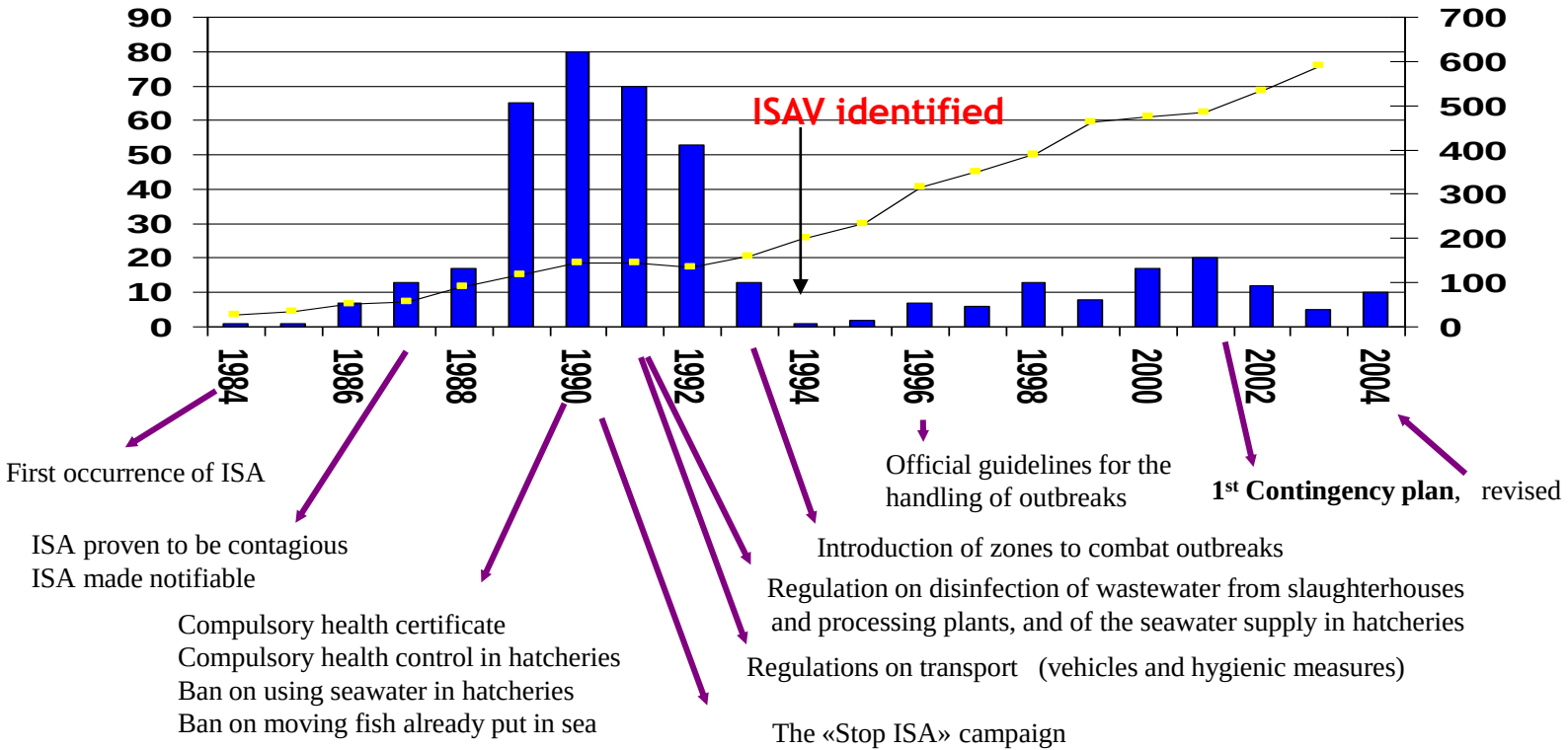


Foto: Northern Lights Salmon as

Total loss;

9 companies affected

> 8 mill dead salmon

> 14,400 tonnes

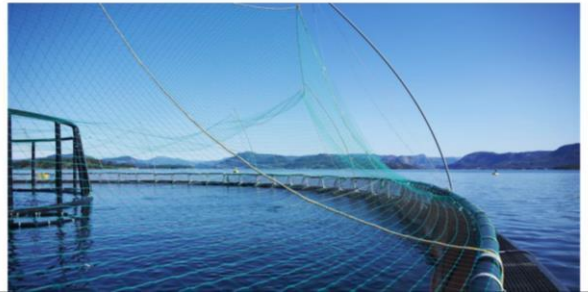
> 40 -50 mill € ?

New diseases in aquatic animals - contingency plans

Statens tilsyn for planter, fisk, dyr og næringsmidler

Mattilsynet

Nye sykdommer hos akvatiske dyr – faglig beredskapsplan



Forskrift om drift av akvakulturanlegg (akvakulturdrift...

Innholdsfortegnelse

0 Endret ved forskrift 19 april 2018 nr. 673.

§ 7. *Beredskapsplan*

Det skal til enhver tid foreligge en oppdatert beredskapsplan. Ved samdrift skal det foreligge en felles beredskapsplan.

Beredskapsplanen skal bidra til å ivareta smittehygiene og fiskevelferd i krisesituasjoner. Den skal blant annet gi oversikt over smittehygieniske og dyrevernmessige tiltak som er aktuelle å iverksette for å hindre og eventuelt håndtere akutt utbrudd av smittsom sykdom og massedød, herunder opptak, behandling, transport, maksimum oppholdstid for fisk i rørsystemer ved systemsvikt, slakting og destruksjon av syke og døde akvakulturdyr.

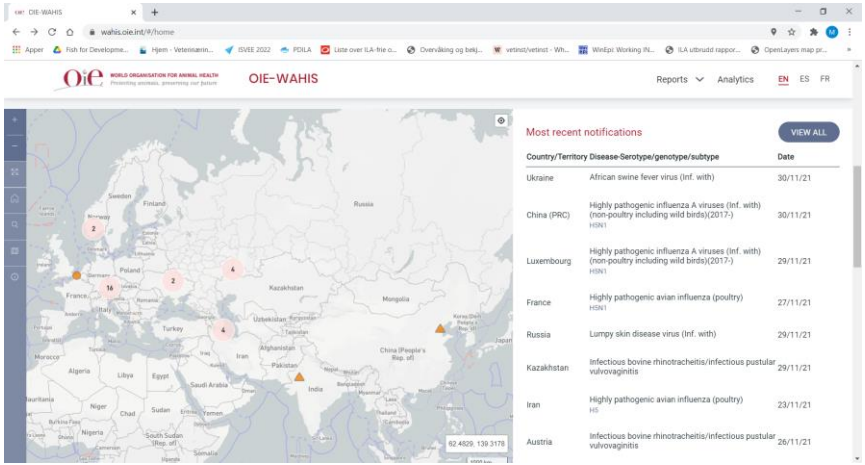
Beredskapsplanen skal videre gi oversikt over tiltak for å hindre og eventuelt håndtere dødelighet ved skadelige alge- og manetforekomster, levemiljøforhold som er uforenlig med artens krav og akutt forurensning.

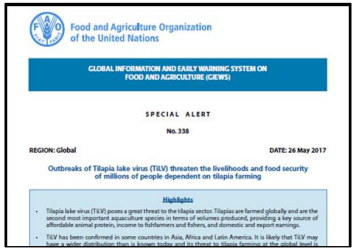
Beredskapsplanen skal også inneholde oversikt over hvordan rømming kan oppdages, begrenses og gjenfangst effektiviseres, herunder forholdsregler ved sleping av merder og håndtering av fisk og merder under lasting og lossing.

0 Endret ved forskrift 18 des 2009 nr. 1705 (i kraft 1 jan 2010).

Awareness: Horizon scanning

A systematic examination of information to identify potential threats, risks & emerging issues




Food and Agriculture Organization of the United Nations

GLOBAL INFORMATION AND EARLY WARNING SYSTEM ON FOOD AND AGRICULTURE (GIEWS)

SPECIAL ALERT

No. 338

REGION: Global DATE: 26 May 2017

Outbreaks of Tilapia lake virus (TiLV) threaten the livelihoods and food security of millions of people dependent on tilapia farming

Highlights

- Tilapia lake virus (TiLV) poses a great threat to the tilapia sector. Tilapias are farmed globally and are the second most important aquaculture species in terms of volumes produced, providing a key source of affordable animal protein, income to fishfarmers and fishers, and domestic and export earnings.
- TiLV has been confirmed in some countries in Asia, Africa and Latin America. It is likely that TiLV may


NACA

DISEASE ADVISORY

Asia Regional Aquatic Animal Health Programme

Tilapia Lake Virus (TiLV) – an Emerging Threat to Farmed Tilapia in the Asia-Pacific Region

Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand

- *TiLV (an Orthomyxo-like RNA virus) is an emerging disease of cultured tilapia in the Asia-Pacific region;*
- *Originally observed and reported in Israel, Ecuador, Colombia and Egypt, TiLV is now confirmed in cultured tilapia in Thailand causing mass mortalities;*

Cefas


Veterinærinstituttet
Norwegian Veterinary Institute

Report 41a/2021

The Health Situation in Norwegian Aquaculture 2020

European Union Reference Laboratory for Fish Diseases

National Veterinary Institute, Technical University of Denmark, Copenhagen

EPIZONE

Thank you for listening!

Veterinærinstituttet

Norwegian Veterinary Institute

www.vetinst.no