

Scottish Salmon Watch, 26 June 2019

[EXPOSED: Scottish Salmon's Cascading Use of Cancer-Causing Chemical](#)



- FOI reveals 184 fish farms permitted to use Formaldehyde (Formalin)
- 51 tonnes of Formaldehyde used in 2017 & 2018 by Marine Harvest/Mowi (the only company reporting Formaldehyde use to SEPA)
- Video footage of vats of Formaldehyde piled up at The Scottish Salmon Company's Russel Burn Hatchery (which is not licensed by SEPA to use Formaldehyde)
- Campaigners call for immediate ban on Formaldehyde and a public register

Documents disclosed via Freedom of Information reveal that 184 fish farms are permitted to use and discharge the [highly toxic poison](#) and [carcinogenic chemical Formaldehyde \(Formalin\)](#). According to [data released by the Scottish Environment Protection Agency \(SEPA\) via F0190275](#), Marine Harvest (since 1 January 2019 re-named as Mowi) was the only company to officially report the use of Formaldehyde to SEPA - with 50,704 kg (50.7 tonnes) used by between May 2017 and September 2018 at their salmon farms at Glenfinnan (Loch Shiel), Invermallie (Loch Arkaig), Loch Lochy and Loch Garry [1].

Video footage taken by Scottish Salmon Watch in June 2019 [shows vats of Formaldehyde - marked "corrosive" and "danger" in Spanish stashed outside The Scottish Salmon Company's Russel Burn Hatchery on the shore of Loch Kishorn](#) [2] even though [The Scottish Salmon Company](#) did not report to SEPA the use of any Formaldehyde in 2017 and 2018 and the Russel Burn Hatchery is not licensed by SEPA to use Formaldehyde.



The salmon farming industry uses Formaldehyde via a Formalin solution as a [disinfectant to guard against parasites and diseases although there are fish welfare and environmental concerns as well as human health impacts due to its carcinogenicity \[3\]](#). Formaldehyde is [used in mortuaries to embalm corpses](#) and has been [famously used by artist Damien Hirst to pickle dead animals such as cows, lambs and sharks](#).



Other reported uses of Formalin via the [Scottish Government's Fish Health Inspectorate 'Case Information'](#) included an "accidental overdose" at Marine Harvest's Glenfinnan salmon farm in Loch Shiel in October 2017 "due to human error" leading to 1,343 dead fish and the use of Formalin at Cooke Aquaculture's salmon farm at Sallachy in Sutherland in 2017 (a site [certified by the Soil Association as "organic"](#)). Formalin was also reportedly used at [The Scottish Salmon Company's Russel Burn Hatchery](#) in July 2017 following fungus problems causing over 40,000 mortalities [4].

Here's a list of some recent uses (sourced from the [Scottish Government's Fish Health Inspectorate 'Case Information'](#)):

- February 2019 - Loch Duart's Duartmore hatchery in Sutherland
- February 2019 - Landcatch's Ormsary Smolt Unit in Argyll
- February 2019 - Kames Fish Farming salmon farm in Loch Tralaig in Argyll
- January 2019 - Cooke Aquaculture's Ardtaraig Hatchery on Loch Striven in Argyll
- January 2019 - Mowi's Inchmore Hatchery in Glenmoriston
- November 2018 - Cooke Aquaculture's Yetts O'Muckart salmon farm in Clackmannanshire
- November 2018 - Hebridean Smolts' Clachan Hatchery in Loch Carnan in South Uist
- October 2018 - Landcatch's Ormsary Smolt Unit in Argyll
- October 2018 - Scottish Sea Farms' Knock hatchery on the Isle of Mull
- October 2018 - Marine Harvest's Laddie Wood salmon farm in Loch Garry in Lochaber
- October 2018 - The Scottish Salmon Company's Kinlochmoidart Hatchery in Highland
- August 2018 - Marine Harvest's Glenfinnan salmon farm in Loch Shiel in Lochaber
- July 2018 - Marine Harvest's Loch Lochy salmon farm in Lochaber
- July 2018 - Marine Harvest's Lochailort Recirculation Hatchery in Lochaber

April 2018 - FAI Aquaculture's Aultbea fish farm in Wester Ross
 March 2018 - The Scottish Salmon Company's Langass Hatchery in North Uist
 February 2018 - Cooke Aquaculture's Furnace Hatchery on Loch Fyne
 December 2017 - Landcatch's Ormsary Smolt Unit in Argyll
 November 2017 - Scottish Sea Farms' salmon farm in Loch Ba on the Isle of Mull
 November 2017 - Marine Harvest's salmon farm in Loch Lochy in Lochaber
 October 2017 - Marine Harvest's Loch Ness salmon farm in Highland
 October 2017 - Cooke Aquaculture's "organic" salmon farm at Sallachy in Sutherland
 October 2017 - Cooke Aquaculture's Cliff salmon farm in Shetland
 October 2017 - Scottish Sea Farms' Loch Frisa salmon farm on the Isle of Mull
 October 2017 - Scottish Sea Farms' Knock salmon farm on the Isle of Mull
 October 2017 - Marine Harvest's Glenfinnan salmon farm in Loch Shiel in Lochaber
 October 2017 - Marine Harvest's salmon farm in Loch Arkaig in Highland
 July 2017 - The Scottish Salmon Company's Russel Burn Hatchery on Loch Kishorn

"Consumers should avoid chemically embalmed Scottish salmon like the plague," said Don Staniford, [Director of Scottish Salmon Watch](#). "I'd rather eat one of Damien Hirst's pickled sharks than the toxic product marketed as 'healthy' and 'responsibly sourced' Scottish salmon. The use of carcinogenic chemicals such as Formaldehyde on salmon farms should be banned immediately and those companies failing to properly report the use of Formaldehyde should have their licences revoked. Stop buying toxic Scottish salmon!"

In 2018, Scottish Salmon Watch published other videos showing [caches of toxic chemicals](#) including [vats of Formaldehyde at Kames Fish Farming near Kimelford](#) with a label warning "suspected of causing genetic defects" and "may cause cancer".



Scottish Salmon Watch's FOI request on Formaldehyde (Formalin) stemmed from an email received in March 2019 from a whistleblower at The Scottish Salmon Company:

Sent: 14 March 2019 13:55

To: Don Staniford

Subject: Re: FHI report on Kinlochmoidart Hatchery - ERM, Formalin, antibiotics & morts

Yes be worth asking SNH in Fort William why Sepa is condoning dilute Formic acid being discharged into a sssi river straight from the container. They empty 25litres of formaldehyde straight into each fish tank without following the correct procedure which should be isolating the tank. There is 10 tanks in the flothrough which runs directly into the river! This is results in the dilute formic acid being flushed into the river killing various species in the river!

In May 2019, Scottish Salmon Watch [published details of pollution problems at The Scottish Salmon Company's Kinlochmoidart Hatchery](#) which discharges into the River Moidart 'Special Area of Conservation':



Read more via:

[Close Down "Very Poor" Scottish Salmon Polluting Lochaber salmon hatchery 'should close' after sewage leak endangers pearls](#)

Earlier this month, Scottish Salmon Watch [revealed welfare abuse, infectious diseases and lice infestation inside The Scottish Salmon Company's salmon farm in Loch Shildaig.](#)



Read more via:

[Ground-Truthing Disease-Ridden Scottish Salmon](#)

[STV News on Scottish Salmon's Welfare Nightmare - watch online now!](#)

[STV News: "'Abuse' video sparks major investigation at fish farm"](#)

[Scottish Salmon Exposed - Photos from Secret Filming on Arran & in Shildaig](#)

[Gotcha: Wild Fish Caught on Camera Inside Scottish Salmon Farm](#)

[The Ferret: "'Sick' salmon film prompts government probe into Scottish fish farm"](#)

[Frankenfish Video - The Ugly Face of Lousy Scottish Salmon](#)

The Scottish Salmon Company is [ranked the worst \(along with Cooke Aquaculture\) for mass mortalities according to a report published by The Ferret in April 2019.](#)



In 2018, [photographer Corin Smith](#) revealed [shocking welfare abuse](#) inside a salmon farm operated by The Scottish Salmon Company at Vacasay in Loch Roag.



The use of toxic chemicals on salmon farms to kill parasitic sea lice (Azamethiphos, Cypermethrin, Deltamethrin, Emamectin Benzoate and Teflubenzuron) [increased by almost 1000% between 2006 and 2016](#) [6]. However, the use of Azamethiphos and Deltamethrin via well-boats, Hydrogen Peroxide, Antibiotics and Formaldehyde (Formalin) is not even publicly reported although the Scottish Government has pledged to make data on the use of Hydrogen Peroxide and data on chemical use via well boats public via the [Scotland's Aquaculture web-site](#).

"SEPA and the Scottish Government must come clean on the scale of the salmon farming industry's dependency on drugs, pesticides, antibiotics and toxic chemicals," concluded Staniford, author of '[Silent Spring of the Sea](#)'. "A public register of ALL chemicals used by salmon farms in Scotland is urgently required. The public surely have a right to know which toxic chemicals - including Formaldehyde - are being used at which salmon farms?"



Scottish Salmon Watch wrote to SEPA earlier this week (24 June 2019) questioning the accuracy of the data disclosed via [F0190275](#) [7].

Today (26 June 2019), Scottish Salmon Watch [wrote to Scottish Ministers, SEPA and the Veterinary Medicines Directorate calling for an immediate ban on the use of Formaldehyde \(Formalin\) on Scottish fish farms and the publication of data on Formaldehyde use via a public register.](#)

Contact:

Don Staniford: 07771 541826 (salmonfarmingkills@gmail.com)



Backgrounder: Chemically Embalmed Scottish Salmon

A report - "[The State of Scottish Salmon Farming in 2018](#)" - published by Scottish Salmon Watch in March 2019 detailed 80,000 mortalities at The Scottish Salmon Company's Russel Burn Hatchery in November 2018 with the use of Formalin specifically identified:

Summary:

Significant Health Events [Reported via FHI 'Case Information' in 2018](#)

- 80,000 morts at The Scottish Salmon Company's Russel Burn Hatchery in November 2018 due to fungus ("reportedly from vaccination") and "quality cull" (61,000 euthanized "as they were deformed or not feeding")

Here's details from the [Scottish Government's Fish Health Inspectorate report](#):

Case No:	2018-0628	Date of visit:	27/11/2018
Time spent on site:	4 hours	Main Inspector:	ASM
Site No:	FS0500	Site Name:	Russel Burn
Business No:	FB0169	Business Name:	The Scottish Salmon Company

Additional Case Information:

Ova and fry units being built at the moment. Due to be completed in June 2019. New shed being built and the site name changed. Reminded to contact FHI to change details.
Most of the old tanks will be replaced with new bigger ones.
Vaccination reportedly caused fungus on the site shortly before the inspection. The stress of the vaccination process is thought to have reduced immunity. This together with the fact that the smoltification is now brought on with in feed treatment rather than the salt being added to the water. This is meant that the fungal spores are not killed in the water. Salt has been ordered and will added to the water the week of the inspection.
All fish removed for VMD treated with TMS, Pyceze and Aquacen (Formalin) to combat fungus
Pre-transfer check (report not yet produced. Check conducted the day before inspection) made by company biologist and advised to move the fish to seawater. Fish will be moved in December 2018, 2 weeks post inspection.

Quality cull conducted in Nov of 4.4% (in 1 day) but not reported to MSS as it is labelled as a quality cull in the mortality record.

Recent (last 4 wks) disease problems? If yes, detail:	Fungus on site reportedly from vaccination (see additional comments)	Y	Any escapes (since last visit)?
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Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of? If other detail:	Whole fish - Dundas Chemicals
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	80,100 fish due to quality cull and fungus.
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason: 61,000 euthanized in a 'quality cull' as they were deformed or not feeding, 19/11/18, in cage D7. All killed from the same cage. 4.4% in a week.	
1. Recent treatments (last 4 wks)?	
If yes, detail:	Formalin, Pyceze

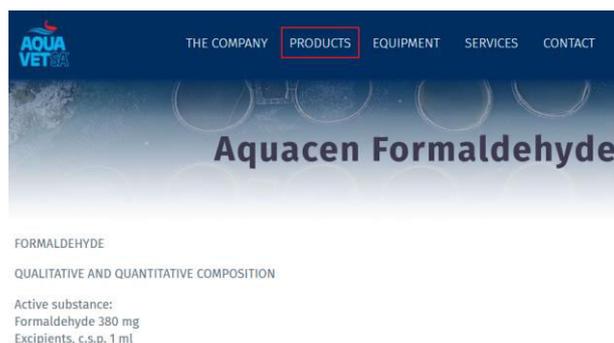
Read more via "[Disease-Ridden Scottish Salmon](#)"

Other reported uses of Formalin via the [Scottish Government's Fish Health Inspectorate 'Case Information'](#) included an "accidental overdose" at Marine Harvest's Glenfinnan salmon farm in Loch Shiel in October 2017 "due to human error" leading to 1,343 dead fish and the use of Formalin at Cooke Aquaculture's "organic" salmon farm at Sallachy in Sutherland in 2017. Formalin was also reported as used at [The Scottish Salmon Company's Russel Burn Hatchery](#) in July 2017 following fungus problems causing over 40,000 mortalities [4].

Here's a list of some recent uses sourced from the [Scottish Government's Fish Health Inspectorate 'Case Information'](#):

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Aquacen Formaldehyde is [marketed via Aquavet](#):



Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products

All unused veterinary medicinal products or waste materials derived from them should be disposed of in accordance with ruling legislation.

Nature and contents of immediate packaging

White 25 l barrels, made of high-density polyethylene, closed with high-density polyethylene screw caps and complex aluminium/high density polyethylene disc for thermo induction.

Blue 200 l barrels, made of high-density polyethylene, closed with high-density polyethylene screw caps.

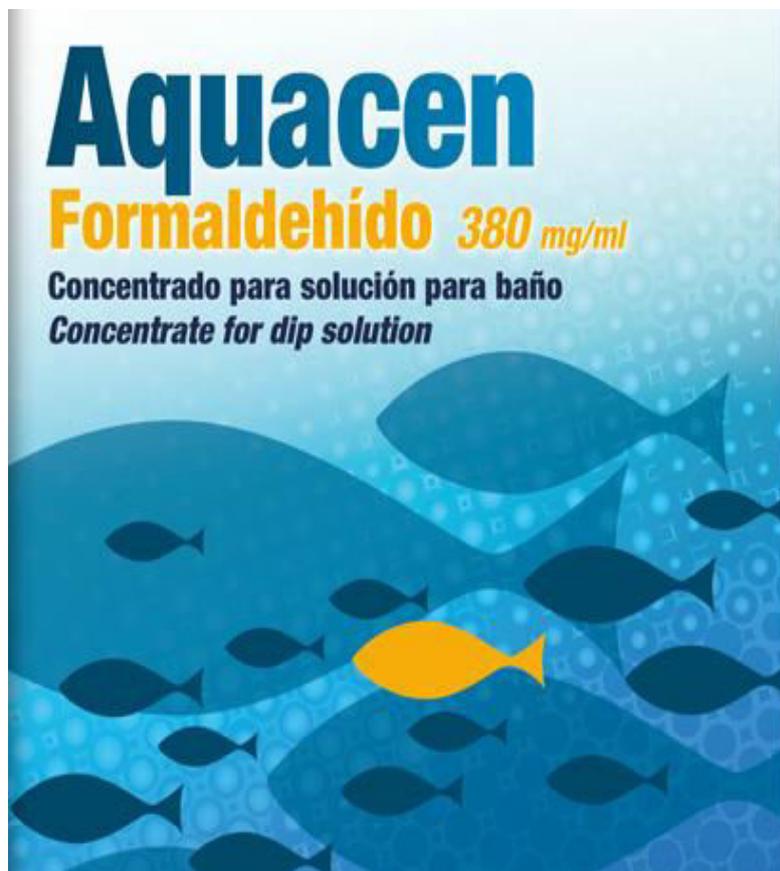
Blue 1,000 l barrels, made of high-density polyethylene, closed with high-density polyethylene screw caps.

Not all pack sizes may be marketed.



et.gr/?lang=en

Aquacen is also [available from Cenavisa in Spain](#):



The Aquacen Formaldehyde used at The Scottish Salmon Company's Russel Burn Hatchery was [imported from Spain via Europarma Scotland Ltd](#) and has 'Peligro' (Danger/Hazard) on the warning label:



Europarma Scotland's [web-site](#) advertises "a pharmaceutical grade formalin product approved for use in aquaculture under the cascade system":

The screenshot shows two pages from the Europarma website. The top page is titled 'Antifungal' and features the Europarma logo and a navigation menu with links for 'ABOUT US', 'PRODUCTS', 'SUPERSMOLT® FEED ONLY', 'THE TEAM', 'CONTACT US', 'NEWS', and 'LEGAL'. The main content area states: 'Europarma can supply a pharmaceutical grade formalin product approved for use in aquaculture under the cascade system, please [contact us](#) for further information.' The bottom page is titled 'The Team' and lists four staff members with their photos, names, titles, phone numbers, and email addresses:

Name	Title	Phone Number	Email Address
Laura Crilly	Operations Manager	+44 (0) 141 435 7100	laura@europarma-uk.com
Campbell Morrison	Key Account Manager	+44 (0) 141 435 7100	cmorrison@europarma-uk.com
Karen McKay	Customer Services	+44 (0) 141 435 7100	karen@europarma-uk.com
Mark Crawford	Warehouse & Logistics	+44 (0) 141 435 7100	mark@europarma-uk.com

Scottish fish farmers use Formaldehyde as a biocide or prescribed as a medicine via the 'Cascade' system [5]. MRCVS [reported in December 2017](#) that the Fish Veterinary Service (FVS) saw "some confusion" on the use of Formaldehyde with official guidance issued in early 2018 to ensure that fish farmers were "staying within prescribing law":

"This is a really important issue within the UK aquaculture industry, particularly given the contribution farmed Scottish salmon makes to the UK economy," said FVS president Ronnie Soutar. "Formaldehyde has been used as both a biocide and a medicine on UK freshwater fish farms for a long time but it's fair to say there has been some confusion between the two categories of use."

He continued: "Staying within prescribing law is key to the success of the UK's aquaculture industries, and we hope the new BVA/FVS guidelines will provide vets with the essential guidance needed. I know that on-going discussion is also required, particularly to address the concerns of trout farmers."

[FVS president Ronnie Soutar is [head of veterinary services at Scottish Sea Farms and the chairperson of the SSPCA](#)]

The Fish Veterinary Society and British Veterinary Association [issued joint guidance in 2018](#):



Joint guidance on the use of formaldehyde in aquaculture

Formaldehyde¹, which is classified as a Category 1B carcinogen², is used as both a biocide and a medicine in aquaculture. This note is intended as guidance to veterinary surgeons considering formaldehyde for the treatment of fish under their care.

In 2015, the UK Government issued a press release on "[Changes to Formaldehyde \(Formalin\) rules](#)" - including:

From 1 January 2016 formaldehyde will be classified as a Category 1B carcinogen. This means certain restrictions will apply to it.

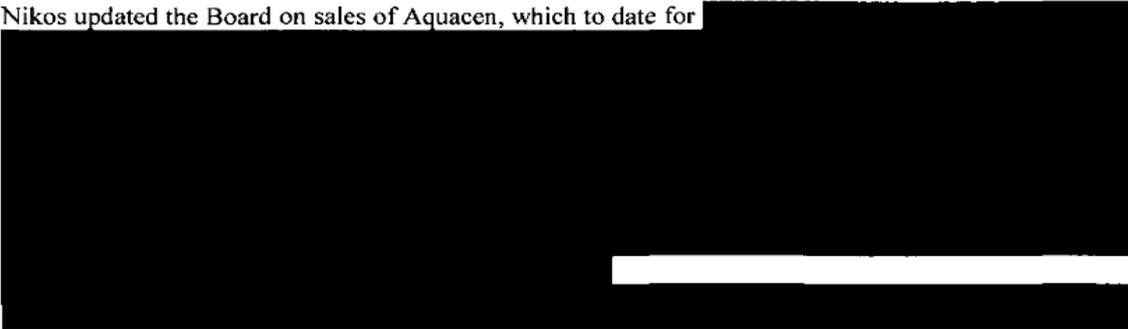
It will only be able to be used for professional use, and it can only be put on the market by a registered supplier. It will have to be labelled appropriately for its chemical categorisation and therefore used in a competent manner.

Formaldehyde (formalin) is not approved as a veterinary medicine. The veterinary medicines legislation and the biocide legislation cross over, but products are only on one or the other and not both. Therefore use in foot baths is technically as a biocide and not a veterinary medicine.

[Minutes of a meeting of Europharma Scotland Ltd directors in February 2015](#) (as filed [via Companies House](#)) referenced "sales of Aquacen":

1.1.3 Pharma Sales and Distribution

Nikos updated the Board on sales of Aquacen, which to date for



The ['Summary of Product Characteristics'](#) for Aquacen Formaldehyde includes:

5. PHARMACOLOGICAL PROPERTIES

Pharmacotherapeutic group: Ectoparasiticides, insecticides and repellents

ATCvet code: QP53AX19

5.1 Pharmacodynamic properties

Formaldehyde is an extremely reactive biocide that interacts with proteins, DNA and RNA interrupting cellular functions. High concentrations cause protein precipitation, generating cell death. It also acts as a mutagenic agent and as an alkylating agent by reacting with carboxyl, sulfhydryl and hydroxyl groups.

It is not known precisely which mechanism of formaldehyde is responsible for parasitary inactivation.

In 2013, The Global Alliance Against Industrial Aquaculture [revealed](#) that The Scottish Salmon Company were authorised by the Scottish Government to use and discharge 1,400 litres of Formalin into Loch Roag (a Special Area of Conservation) in 2011.

“The Scottish Government is clearly in a bit of pickle. The FOI documents show that the Scottish Salmon Company, aided and abetted by Marine Scotland, went rogue in Loch Roag. GAAIA is now demanding that the European Commission take swift action against the Scottish Government for speeding up the illegal discharge of toxic chemicals into a Special Area of Conservation. Cheap and nasty Scottish farmed salmon is the black sheep of the family and should be avoided like the plague.”



Read more via:

[Media Backgrounder: Formalin - Scottish Salmon's Toxic Solution](#)
[Pickled Scottish Salmon, Anyone?](#)

[Illegal Use of Formalin in a Special Area of Conservation in Scotland](#)

Formaldehyde has been regularly [found in fish imported from Asia](#).

Formaldehyde Detected in Supermarket Fish Imported from Asia

By **James Andrews** on September 11, 2013

A large number of fish imported from China and Vietnam and sold in at least some U.S. supermarkets contain unnatural levels of formaldehyde, a known carcinogen, according to tests performed and verified by researchers at a North Carolina chemical

engineering firm and North Carolina State University. Around 25 percent of all the fish purchased from supermarkets by researchers in the Raleigh, N.C., area were found to contain formaldehyde, a toxic chemical compound commonly used as a medical disinfectant or embalming agent. All of the fish found to contain the



Read more via: "[What happens when you eat fish laced with formalin](#)"

Notes to Editors:

[1] A [FOI reply from the Scottish Environment Protection Agency \(F0190275\)](#) disclosed various documents on the use of the carcinogenic chemical Formalin (Formaldehyde):

F0190275	Finfish- Chemical use (Formalin)	11/04/2019
<ul style="list-style-type: none">• Description: Please provide information on the use of Formalin on salmon farms and hatcheries since 1 January 2017. Please include data on the use of Formalin (and Formaldehyde). Please also provide information on any objections, complaints and concerns regarding the use of Formalin on salmon farms and hatcheries. Please provide information on discharges of Formalin, wastewater treatment of Formalin, environmental impacts and any mitigation strategies to deal with the environmental impacts of Formalin use.• Information: Please refer to the attached response letter and released information.• Related documents:<ul style="list-style-type: none">◦ F0190275 EIR Response - R◦ F0190275 ELMS - R◦ F0190275 sites◦ F0190275-Formaldehyde		

Download the documents via:

- [F0190275 EIR Response - R](#)
- [F0190275 ELMS - R](#)
- [F0190275 sites](#)
- [F0190275-Formaldehyde](#)

A [letter from SEPA dated 11 April 2019](#) includes:

Response

[1] Please refer to the enclosed spreadsheet which details the use of Formaldehyde provided in quarterly returns to SEPA since January 2017.

[2] SEPA's consultations page (<https://www.sepa.org.uk/regulations/consultations/>) identifies that CAR/L/1008962 Loch Garry, CAR/L/1008960 Loch Shiel and CAR/L/1001886 Camus na Mult, Loch Ness are the only advertised applications for freshwater fish farms which fall within the time period of the request. We confirm that SEPA did not receive any objections regarding the use of Formalin in response to the advertisement of these applications. Regulation 10(4)(a) of the EIRs applies;

(4) *A Scottish public authority may refuse to make environmental information available to the extent that:-*

(a) it does not hold that information when an applicant's request is received.

The exception in regulation 10(4)(a) is subject to the public interest test in regulation 10(1)(b) of the EIRs. As SEPA does not hold the information in question there is no conceivable public interest in requiring that the information be made available.

Further to the response provided above, to provide information in relation to complaints and concerns regarding the use of Formalin on salmon farms and hatcheries we have conducted a search of SEPA's Environmental Licence Management System (ELMS) for any complaints which refer to Formalin or Formaldehyde. We have found one event that relates to a freshwater salmon farm. Please refer to the attached document, "F0190275 – ELMS R".

The information released with this response will be placed into the public domain. Therefore we have redacted some personal information and other information which may lead to the identification of individuals. We have done this under the terms of regulations 11(1) and 11(2) of the EIRs. The exceptions in regulation 11 regulate the relationship between the EIRs, the General Data Protection Regulation (GDPR) and the Data Protection Act 2018 (the DPA 2018). In this instance, the exception is absolute and we have not applied the Public Interest Test.

[3] In relation to information on discharges of Formalin, wastewater treatment of Formalin, environmental impacts and any mitigation strategies to deal with the environmental impacts of Formalin use. Please refer to the attached list of fish farm licences that may permit the use of formalin, detailing 184 sites.

In accordance with Regulation 6(1)(b) of the EIRs we advise that this information is publicly available and easily accessible. We advise that copies of licences are available from SEPA's Registry. <https://www.sepa.org.uk/contact/registry/>

Each licence details the treatment data at each site (where there is any). In addition information relating to any mitigation strategies that may be employed at sites that have a licence to use formalin, where held would also be held within the individual licences.

An Excel spreadsheet ([F0190275 ELMS - R](#)) details a complaint in November 2018 filed against the use of Formaldehyde by a fish farm in Loch Awe:

ACTION	ACTIVITY	CATCHMENT	GEOGRAPHICAL_LOCAL_AUTHORITY	LOCATION_DESCRIPTION
30/11/2018 [email address removed] via SCC: [personal details removed] a freshwater Salmon farm rearing smolts, the loch is approx 1 mile long and a few hundred yards wide, over the last 2 weeks the farmers have taken around 20 blue 40l drums of formaldehyde out to the 5 cages to treat the fish,[personal details removed]I am concerned that this chemical could be contaminating our air and water supply, [personal details removed] there is a strong smell blowing over from the cages a mixture of dead fish and formaldehyde, could this be of any threat to us?03/12/2018 [Name removed] - [email address removed] :I am emailing in response to your enquiry last Friday and apologise we have not responded sooner. We regulate fish farms with respect to discharge to the water environment and if you can give us more detail in terms of the fish farm site, we can investigate your complaint. However in terms of the health concerns you have raised, I recommend you contact environmental health at Argyll and Bute council. Their number is 01546 605519 or the main switch line is 01546 605522.23.12.2018 [Name removed] - no update and probably primarily a matter for environmental health. No further SEPA action required.	Waste - Unlicensed	River Awe	Argyll & Bute	Braevallich Fish Farm, Loch Awe, Dalmailly

An Excel spreadsheet ([F0190275 sites](#)) details 184 fish farms with a licence to use Formalin (Formaldehyde) - including:

Site Name	Licence Number
ALLT MOR FISH FARM, CLACHAN	CAR/L/1000307
Allt Mor Hatchery abstraction	CAR/L/1039410
Amhuinnsuidhe Hatchery	CAR/L/1002200
Ardessie	CAR/L/1002039
Ardtaraig Hatchery, Clachaig, Dunoon	CAR/L/1003707
Ardtornish	CAR/L/1003993
Barvas Hatchery, North Uist	CAR/L/1002202
BRAEVALLICH FISH FARM, LOCH AWE, DALMALLY	CAR/L/1000232
Burnhouse Hatchery, Stromness	CAR/L/1001980
Cairndow	CAR/L/1000559
Camus nam Mult FCFF, Loch Ness	CAR/L/1001886
CARNASSERIE MILL FF	CAR/L/1000260
Clachan Hatchery, TE to Loch Carnan, Uist	CAR/L/1002193
Clachbreac hatchery, Ormsary, Lochgilphead	CAR/L/1003314
Cleigh Mill Hatchery	CAR/L/1000251
College Mill Fish Farm	CAR/L/1001101
Corrie Mhor, Russel Burn Salmon Farm, Kishorn	CAR/L/1002995
Couldoran Hatchery, Kishorn	CAR/L/1002178
Dougarie Hatchery, Dougarie, Isle of Arran	CAR/R/1013824
Drimsallie Mill Hatchery	CAR/S/1095018
Duartmore (North side)	CAR/L/1003972
Duartmore (South side)	CAR/L/1002029

Site Name	Licence Number
Hollywood	CAR/L/1003582
Inchmore Hatchery, Glenmoriston	CAR/L/1003069
Inverailort Tank Fish Farm	CAR/L/1001937
Invergarry	CAR/L/1001913
INVERMALLIE FISH FARM, LOCH ARKAIG, LOCHAILORT	CAR/L/1002071
Inverpolly Hatchery	CAR/L/1002075
Kames Fish Farm Hatchery	CAR/L/1000827
KINLOCHMOIDART HATCHERY, KINLOCHMOIDART, LOC	CAR/L/1001840
Knock Hatchery (Southern Outfall)	CAR/L/1000245
LOCH BA FCFF, GRULINE, ISLE OF MULL	CAR/L/1000257
Loch Damh (North) FCFF, Shieldaig, Strathcarron	CAR/L/1003924
LOCHAILORT SMOLT UNIT	CAR/S/1003967
Quoys Hatchery	CAR/L/1004946
Scottish Sea Farms hatchery, BARCALDINE	CAR/L/1003509

Another Excel spreadsheet ([F0190275-Formaldehyde](#)) detailed 50704251 grams (50,704 kg or 50.7 tonnes) of Formaldehyde used by Marine Harvest (since 1 January 2019 [re-named as Mowi](#)) between May 2017 and September 2018 at their salmon farms in Glenfinnan, Invermallie (Loch Arkaig), Loch Lochy and Loch Garry:

Site Name	Operator	Licence	Month	Formaldehyde (active ingredient in grams)
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Aug-17	356250
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Sep-17	1106250
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Oct-17	3226875
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Nov-17	2212500
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Dec-17	56250
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Jul-18	375000
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Aug-18	225000
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Nov-17	1200000
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Dec-17	1762500
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Jan-18	2325000
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Feb-18	2456250
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Mar-18	318750
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Sep-18	18750
Loch Garry	Marine Harvest (Scotland) Ltd	CAR/L/1008962	Jul-17	239063
Loch Garry	Marine Harvest (Scotland) Ltd	CAR/L/1008962	Aug-17	547688
Loch Garry	Marine Harvest (Scotland) Ltd	CAR/L/1008962	Sep-18	140625
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	May-17	75000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jun-17	918750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jul-17	2193750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Aug-17	4200000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Sep-17	2831250
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Oct-17	1725000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Nov-17	1218750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Dec-17	2525000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jan-18	3093750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Feb-18	3712500
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Mar-18	4443750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Apr-18	562500
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jun-18	637500
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jul-18	2231250
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Aug-18	1818750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Sep-18	1950000

Here's Scottish Salmon Watch's FOI request dated 14 March 2019:

From: Don Staniford [mailto:salmonfarmingkills@gmail.com]
 Sent: 14 March 2019 14:36
 To: 'AccessstoInformation'
 Subject: FOI re. Formalin use salmon farms & hatcheries since 1 January 2017

Please provide information on the use of Formalin on salmon farms and hatcheries since 1 January 2017.

Please include data on the use of Formalin (and Formaldehyde).

Please also provide information on any objections, complaints and concerns regarding the use of Formalin on salmon farms and hatcheries.

Please provide information on discharges of Formalin, wastewater treatment of Formalin, environmental impacts and any mitigation strategies to deal with the environmental impacts of Formalin use.

As context, the Scottish Government's Fisheries Health Inspectorate visited Kinlochmoidart Hatchery on 9 October 2018 - revealing the use of the carcinogenic Formalin which was "flushed through a number of tanks".

Via: <https://www2.gov.scot/Topics/marine/Fish-Shellfish/FHI/CaseInformation/caseinfo2018/octdec>

[Cases 20180392-20180509](#)

Page 259 to page 270: <https://www2.gov.scot/Resource/0054/00546463.pdf>

Case No:	2018-0493	Date of visit:	09/10/2018
Time spent on site:	3 Hrs	Main Inspector:	WJM
Site No:	FS0146	Site Name:	Kinlochmoidart Hatchery
Business No:	FB0169	Business Name:	The Scottish Salmon Company
Case Types:	1 <input type="checkbox"/> ECI	2 <input type="checkbox"/> CNI	3 <input type="checkbox"/> VMD
Water Temp (°C):	11.5	Thermometer No:	Site
Observations:	Region: HI	Water type:	F
Dead/weak/abnormally behaving fish present?	<input type="checkbox"/> Y	If yes, see additional information/clinical score sheet.	
Clinical signs of disease observed?	<input type="checkbox"/> N	If yes, see additional information/clinical score sheet.	
Gross pathology observed?	<input type="checkbox"/> N	If yes, see additional information/clinical score sheet.	
Diagnostic samples taken?	<input type="checkbox"/> N		

Additional Case Information:

Slight increased mortalities during week 39 put down to post vaccination. Levels still remained below reporting criteria and dropped back to normal levels following week.

Formalin flushed through a number of tanks (5,6,11,12) for costia

FHI contact details not updated on escape plan for Kinlochmoidart. Issue raised with site manager and will be corrected.

Water comes in via river passed through screens, but site also has 3 boreholes providing top up water for recirculation tanks.

A few morts noted in a few tanks. Maximum 2/tank. No signs of disease, no diagnostics taken. Fish sampled for VMD appeared healthy.

Increased Mortalities

wk 23 - S0 2.7% (35,000), S1 1.27% (7,000)
 wk 24 - S0 2.54% (32,000), S1 0.59% (3,000)
 wk 25 - S0 1.47% (18,000), S1 0.3% (1,600)
 wk 26 - S0 1.69% (20,000), S1 0.18% (900)
 wk 27 - S0 1.48% (17,500), S1 0.26% (1,400)

ERM put down as main cause, fish treated with antibiotics and mortalities started to decrease wk 24. Tank flow through 10 (S0 stock) worst affected, accounting for nearly 50% (19,000) of the morts wk 23 but dropped to 6,000 on wk 24. S0 stock worst affected during. Fish also stressed during this period due to increased water temperatures because of the weather.

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Ensiled - on site
If other detail:	
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	Wk 37 - 40: 5336 (0.56%), 4957 (0.53%), 6404 (0.68%), 5334 (0.57%)
5. Evidence of recent increased/atypical mortalities?	N
If yes, facility nos/no mortality per facility/no stock per facility/reason:	
6. Any other peaks in mortality during period checked?	Y
If yes, detail:	Wk 7 - 8%. Due to pump failure and airlock in pipework. Wk23,24,26 & 27 due to ERM and stress from increased water temperature (see additional information)
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	Antibiotics administered.
8. Have 'mortality events' been reported to FHI? If no, add MRT case and enter on mortality events sheet.	Y

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Formalin used only in tanks 5, 6, 11 & 12

Data via Page 259 to page 270: <https://www2.gov.scot/Resource/0054/00546463.pdf>

Scottish Salmon Watch has already received this email (sic) earlier today from a whistleblower:

"Yes be worth asking why Sepa is condoning dilute Formic acid being discharged into a sssi river straight from the container. They empty 25 litres of formaldehyde straight into each fish tank without following the correct procedure which should be isolating the tank. There is 10 tanks in the flothrough which runs directly into the river! This is results in the dilute formic acid being flushed into the river killing various species in the river!"

Please consider this a request for information under the relevant Freedom of Information and Environmental Information Regulations including both the Freedom of Information (Scotland) Act 2002 and the Environmental Information (Scotland) Regulations 2004 (as well as any other new or other regulations which may be appropriate).

Please provide this information electronically via email.

Please acknowledge receipt of this FOI request.

Many thanks and I look forward to a response shortly.

Best fishes,

Don

Here's a map of the Russel Burn hatchery [published by SEPA](#):

Site Name : Russel Burn



The Scottish Salmon Company have [operated the salmon farm since 2006](#):

Operator Transfers

Operator Transfer	
Transfer Date	05/04/2006
Old Operator	Corrie Mhor Salmon Ltd
New Operator	The Scottish Salmon Company
Data supplied by Marine Scotland on 13/06/2019	

Site Details	
Site ID	FS0500
Site Name	Russel Burn
Address	Russel Burn Kishorn Strathcarron IV54 8XF
Telephone Number	01546 602172
Date Registered	27/03/1989
Operator	The Scottish Salmon Company
Aquaculture Type	Fish
Water Type	Freshwater
Species	Atlantic Salmon
Health Surveillance Frequency	Medium
Production reported to Marine Scotland within last 3 years?	Yes
National Grid Reference	NG821405
Easting	182100
Northing	840500
Marine Scotland Management Area	Not in a management area
Local Authority	Highland
Region	Highland
View on Map	View on map
Data supplied by Marine Scotland on 13/06/2019	

[3] A scientific paper - [Use of formalin in intensive aquaculture: properties, application and effects on fish and water quality](#) - published in 2018 includes:

Formalin exposure: consequences for fish

In the literature, there are studies with controversial conclusions about the possible consequences for fish, as a result of formalin/formaldehyde exposure. Some studies have reported negative effects in rainbow trout (*Oncorhynchus mykiss*) (Williams & Wooten 1981; WHO 1989; Buchmann *et al.* 2004), sea bream (*Sparus aurata*) and sea bass (*Dicentrarchus labrax*) (Yildiz & Ergonul 2010) and olive flounder (*Paralichthys olivaceus*) (Jung *et al.* 2003). The most common negative consequences reported by authors are the permanent damage in gills (Shepherd & Bromage 2001), in gill lamellar epithelium (Williams & Wooten 1981) and alterations in mucous cells (Buchmann *et al.* 2004). In addition, hypochloremia, reduced blood pH or increase in blood haemoglobin and plasma protein concentrations are examples of toxic effects reported in the literature for rainbow trout and Atlantic salmon (WHO 1989 and authors cited therein). Jung *et al.* (2003)

And:

Effects on aqueous effluents and environment

Formalin can reach the environment through effluent discharge after bath treatments in aquaculture systems. The effluent containing formalin may be released into natural environment with or without a specific treatment. When the aqueous effluent containing formalin is not subject to any specific treatment before its release into environment,

the reduction in formalin concentration is often achieved by dilution (WHO 1989; Masters 2004). The recommendation is that the formaldehyde concentrations that are released into environment do not exceed 1 mg L^{-1} (FDA 1995). Other specific limit values for formaldehyde discharge are reported in Masters (2004) and cover almost all range between 0.74 and 2.4 mg L^{-1} .

When water is discharged into a settlement tank outside and remain there for some period of time, the concentrations of formalin that are then released into the natural environment (effluent) would be smaller. In this situation, the decrease in formalin concentration occurs not only by the dilution of water containing formalin. As a result of exposure to the environmental conditions in the settlement tank, natural degradation of formalin also happens, in addition to oxidation–reduction reactions described above.

Finally:

Conclusions

Formalin is a disinfectant used in aquaculture to kill the infectious agents, but may have several negative effects on fish and water quality. The main effects reported as a consequence of formalin exposure to fish are damage in gills and alterations in mucous cells. LC_{50} of formalin is an indicator of the acute toxicity for fish. It is strongly affected by the type of species, their size/weight and by water characteristics. With respect to water quality, formalin may affect it in fish tanks during the treatment (depression of oxygen

levels), in the water treatment system, namely on biofilter, and when it is discharged into environment. In the environment, formalin can suffer reactions such as oxidation, biodegradation and indirect photodegradation (the direct photodegradation does not occur). The removal methodologies of formaldehyde from aquaculture's waters proposed in literature (such as aeration, biodegradation, biofiltration, neutralization) were not completely efficient and the advanced oxidation treatments may be a good and efficient alternative.

The [National Cancer Institute's web-site states](#):

Can formaldehyde cause cancer?

Although the short-term health effects of formaldehyde exposure are well known, less is known about its potential long-term health effects. In 1980, laboratory studies showed that exposure to formaldehyde could cause nasal cancer in rats. This finding raised the question of whether formaldehyde exposure could also cause cancer in humans. In 1987, the U.S. Environmental Protection Agency (EPA) classified formaldehyde as a probable human carcinogen under conditions of unusually high or prolonged exposure (1). Since that time, some studies of humans have suggested that formaldehyde exposure is associated with certain types of cancer. The International Agency for Research on Cancer (IARC) classifies formaldehyde as a human carcinogen (2). In 2011, the National Toxicology Program, an interagency program of the Department of Health and Human Services, named formaldehyde as a known human carcinogen in its 12th *Report on Carcinogens* (3).

Read more via:

[Use of formalin in intensive aquaculture: properties, application and effects on fish and water quality](#)

[Use of Formalin to control fish parasites](#)

[Medical Management Guidelines for Formaldehyde](#)

[Genotoxicity of formaldehyde: molecular basis of DNA damage and mutation](#)

[Media Backgrounder: Formalin - Scottish Salmon's Toxic Solution](#)

[IARC Classifies Formaldehyde as Carcinogenic](#)

[Formaldehyde: evidence of carcinogenicity](#)

[4] A [Scottish Government Fish Health Inspectorate report in February 2019](#) detailed the use of Formalin at [Loch Duart's Duartmore Hatchery](#):

Case No:	2019-0097	Date of visit:	20/02/2019
Time spent on site:	2 hours	Main Inspector:	
Site No:	FS0062	Site Name:	Duartmore Hatchery
Business No:	FB0398	Business Name:	Loch Duart Ltd

Additional Case Information:

Site inspected following receipt by APHA of a non site-specific welfare complaint regarding Loch Duart. Accompanied APHA vets on visit.

Ova are stripped at Geisgeil Tank Site and transferred to Ormsary Hatchery for fertilisation and incubation. Ova are brought back to Duartmore Hatchery for hatching. Site grows fish to 5g and then transferred to Duartmore for ongrowing.

Very few treatments administered per cycle - a couple of treatments with formalin for Costia, but looking at using artificial seawater for this in future.

Mortalities are transferred to Badcall office for uplift to Gray Composting.

Two more [Scottish Government Fish Health Inspectorate reports in February 2019](#) detailed the use of Formalin at Landcatch's Ormsary Smolt Unit "up to twice a week to prevent fungal infections":

Case No:	2019-0060	Date of visit:	25/02/2019
Time spent on site:	2.5 hours	Main Inspector:	[REDACTED]
Site No:	FS0575	Site Name:	Ormsary Smolt Unit
Business No:	FB0081	Business Name:	Landcatch Natural Selection Ltd

S0s brought onto site in January 2019.
Formalin prescribed and administered under CASCADE.

Case No:	2019-0061	Date of visit:	25/02/2019
Time spent on site:	1.5 hours	Main Inspector:	[REDACTED]
Site No:	FS0681	Site Name:	Ormsary Hatchery
Business No:	FB0081	Business Name:	Landcatch Natural Selection Ltd

Stock on site currently hatching.
Some post hatch mortalities observed, low mortality % no clinical signs observed.
Water treated with Formalin up to twice a week to prevent fungal infections.

Another [Scottish Government Fish Health Inspectorate report in February 2019](#) detailed the use of Formalin by [Kames Fish Farming salmon farm in Loch Tralaig](#):

Case No:	2019-0062	Date of visit:	26/02/2019
Time spent on site:	2.5 hours	Main Inspector:	[REDACTED]
Site No:	FS0468	Site Name:	Loch Tralaig
Business No:	FB0134	Business Name:	Kames Fish Farming Ltd

All waste held at Kames Bay Pier, prior to being transported to Energen for disposal.
Fungus has been present on site during cycle, treated with formalin.

Another [Scottish Government Fish Health Inspectorate report in January 2019](#) detailed the use of Formalin by [Cooke Aquaculture's Ardtaraig Hatchery](#):

Case No:	2019-0018	Date of visit:	22/01/2019
Time spent on site:	6 hrs	Main Inspector:	WJM
Site No:	FS0648	Site Name:	Ardtaraig Hatchery
Business No:	FB0235	Business Name:	Cooke Aquaculture (Freshwater) Ltd

1. Recent treatments (last 4 wks)?	[REDACTED]	Y
If yes, detail:	Formalin	
If other, detail:	[REDACTED]	
2. Medicines records available for inspection?	[REDACTED]	Y
3. Are records complete and correctly entered?	[REDACTED]	Y
4. Are fish in a withdrawal period?	[REDACTED]	Y
5. If yes, what treatment(s)?	Formalin	

Another [Scottish Government Fish Health Inspectorate report in January 2019](#) cited Formalin at Mowi's [Inchmore Hatchery](#):

Case No:	2019-0037	Date of visit:	04/02/2019
Time spent on site:	5.5 hours	Main Inspector:	[REDACTED]
Site No:	FS0226	Site Name:	Inchmore
Business No:	FB0119	Business Name:	Mowi Scotland Ltd

All ova in from Norway - Mowi

import from 19/12/18 - fish split with Finfish. Electronic cert detailed Inverpolly has destination. Consignment was split at Aberdeen airport. Finfish have original copy. Imports team to contact Mowi.

Morts peak; 0.46%/site/week - post vaccine weeks 5 and 6.

Withdrawal for TMS, formalin, pyceze weeks 5 and 6 post vaccine use.

A [Scottish Government Fish Health Inspectorate report in November 2018](#) reported Formalin use at [Cooke Aquaculture's Yetts O'Muckart salmon farm in Clackmannanshire](#):

Case No:	2018-0608	Date of visit:	29/11/2018
Time spent on site:	2.5hours	Main Inspector:	KAS
Site No:	FS0371	Site Name:	Yetts O' Muckart
Business No:	FB0235	Business Name:	Cooke Aquaculture (Freshwater) Ltd

Additional Case Information:

Stocks on site all appeared healthy. Manager stated this has being the best crop of fish through the site so far - fish all from Holmwrangle and will be from Holmwrangle again next year.

Fish will be going off as 2019 s1's in March/April to Ness of Copister

Also stocked in July with s0's from cairndow following problems with water at Cairndow, these fish all went out in October to Stead of Aithness

Vaccinating over last 2 weeks with PD7. First batch vaccinated just about back to taking full feed.

Treated weekly with prophylactic formalin plus post vac formalin dosage at the moment.

6. Any other peaks in mortality during period checked?	Y
If yes, detail:	lesions late August, early Sept - controlled with pyceze and formalin treatment. Mortalies 50-100/tank peak at 500/tank but returned to normal within 2 weeks. No antibiotics used.
7. Have increased (unexplained) mortalities been reported to vet or FHI?	Y
If yes, detail action:	FVG - significant flank lesions

1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Formalin

A [Scottish Government Fish Health Inspectorate report in November 2018](#) reported Formalin use at [Hebridean Smolts' Clachan Hatchery in Loch Carnan in South Uist](#):

Case No:	2018-0611	Date of visit:	27/11/2018
Time spent on site:	3 hours	Main Inspector:	JET
Site No:	FS0398	Site Name:	Clachan Hatchery
Business No:	FB0444	Business Name:	Hebridean Smolts Ltd

Additional Case Information:

Water very dark in colour, difficult to observe fish below surface.
 Small number of fish with lesions observed in tanks 5 and 6, very active in water and unable to be caught with hand nets.
 Fish sampled for VMD appeared healthy
 Stock on site hatched at Mingarry Hatchery, then on-grown at Loch Na Shibaidh Mhor and Loch A'Clachan. Moved to Clachan Hatchery for grading and vaccination. Due to move fish to sea sites March - April 2019.
 Formalin treatment prescribed by vet via cascade.

Recent (last 4 wks) disease problems?	<input checked="" type="checkbox"/>	Any escapes (since last visit)?	<input type="checkbox"/>
If yes, detail:	Some fish with lesions on site, low mortality, treated with Formalin and Pyceze, samples to be sent to FVG for further analysis.		

1. Recent treatments (last 4 wks)?	<input checked="" type="checkbox"/>
If yes, detail:	Formalin, T.M.S., Pyceze
If other, detail:	
2. Medicines records available for inspection?	<input checked="" type="checkbox"/>
3. Are records complete and correctly entered?	<input type="checkbox"/>
4. Are fish in a withdrawal period?	<input checked="" type="checkbox"/>
5. If yes, what treatment(s)?	Formalin, T.M.S.

A [Scottish Government Fish Health Inspectorate report in October 2018](#) detailed the use of Formalin at Landcatch's Ormsary Smolt Unit:

Case No:	2018-0437	Date of visit:	23/10/2018
Time spent on site:	1 hour	Main Inspector:	JET
Site No:	FS0575	Site Name:	Ormsary Smolt Unit
Business No:	FB0061	Business Name:	Landcatch Natural Selection Ltd

Recent (last 4 wks) disease problems?	<input checked="" type="checkbox"/>	Any escapes?	<input type="checkbox"/>
If yes, detail:	Fungus infection (saprolegnia) - mainly affecting 2018 S0 stock		

5. Evidence of recent increased/atypical mortalities?	<input checked="" type="checkbox"/>
If yes, facility nos/no mortality per facility/no stock per facility/reason:	S0 stock week 41 increased from 6000/week to 11248/week. Following week dropped back down to 6270/week - Saprolegnia - site has been treating with formalin.

A [Scottish Government Fish Health Inspectorate report in October 2018](#) detailed the use of Formalin by Scottish Sea Farms at their Knock hatchery on the Isle of Mull to treat fungus:

Case No:	2018-0481	Date of visit:	03/10/2018
Time spent on site:	5hrs	Main Inspector:	SAE
Site No:	FS0254	Site Name:	Knock
Business No:	FB0125	Business Name:	Scottish Sea Farms Ltd

Recent (last 4 wks) disease problems? Y

If yes, detail:

5. Evidence of recent increased/atypical mortalities? Y

If yes, facility nos/no mortality per facility/no stock per facility/reason:

6. Any other peaks in mortality during period checked? Y

1. Recent treatments (last 4 wks)? Y

If yes, detail:

If other, detail:

2. Medicines records available for inspection? Y

3. Are records complete and correctly entered? Y

4. Are fish in a withdrawal period? Y

5. If yes, what treatment(s)?

A [Scottish Government Fish Health Inspectorate report in October 2018](#) detailed the use of Formalin by [Marine Harvest's Laddie Wood salmon farm in Loch Garry](#):

Case No:	2018-0491	Date of visit:	08/10/2018
Time spent on site:	4 hrs	Main Inspector:	WJM
Site No:	FS1104	Site Name:	Laddie Wood, Loch Garry
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

1. Recent treatments (last 4 wks)? Y

If yes, detail:

If other, detail:

2. Medicines records available for inspection? Y

3. Are records complete and correctly entered? Y

4. Are fish in a withdrawal period? Y

5. If yes, what treatment(s)?

A [Scottish Government Fish Health Inspectorate report in October 2018](#) detailed the use of Formalin by [The Scottish Salmon Company's Kinlochmoidart Hatchery](#):

Case No:	2018-0493	Date of visit:	09/10/2018
Time spent on site:	3 Hrs	Main Inspector:	WJM
Site No:	FS0146	Site Name:	Kinlochmoidart Hatchery
Business No:	FB0169	Business Name:	The Scottish Salmon Company

Additional Case Information:

Slight increased mortalities during week 39 put down to post vaccination. Levels still remained below reporting criteria and dropped back to normal levels following week.

Formalin flushed through a number of tanks (5,6,11,12) for costia

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	<input type="checkbox"/> Y
If yes, detail:	Formalin
If other, detail:	
2. Medicines records available for inspection?	<input type="checkbox"/> Y
3. Are records complete and correctly entered?	<input type="checkbox"/> Y
4. Are fish in a withdrawal period?	<input type="checkbox"/> Y
5. If yes, what treatment(s)?	Formalin used only in tanks 5, 6, 11 & 12

A [Scottish Government Fish Health Inspectorate report in August 2018](#) detailed the use of Formalin at [Marine Harvest's Glenfinnan salmon farm in Loch Shiel](#):

Case No:	2018-0353	Date of visit:	20/08/2018
Time spent on site:	3 hours	Main Inspector:	JET
Site No:	FS0742	Site Name:	Glenfinnan
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

Additional Case Information:

23/07/2018 vaccinations carried out (PD3)

Post vaccination treatments of formalin and pyceze administered.

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	<input type="checkbox"/> Y
If yes, detail:	Formalin, T.M.S., Pyceze
If other, detail:	
2. Medicines records available for inspection?	<input type="checkbox"/> Y
3. Are records complete and correctly entered?	<input type="checkbox"/> Y
4. Are fish in a withdrawal period?	<input type="checkbox"/> Y
5. If yes, what treatment(s)?	Formalin, T.M.S.

A [Scottish Government Fish Health Inspectorate report in July 2018](#) detailed the use of Formalin "as biocide" at [Marine Harvest's Loch Lochy salmon farm](#):

Case No:	2018-0281	Date of visit:	03/07/2018
Time spent on site:	2 hours	Main Inspector:	AJW
Site No:	FS0150	Site Name:	Loch Lochy
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

Additional Case Information:

Morts currently 0.01% site wk. Looking for further input of 105,000 (41g) wk 6th August and 400,000 from Lochailort this week. Larger stock going off site 23rd July to Muck and Rum. Smaller stock remaining on until October 2018.

Dead fish on site incinerated

12th June; bath treatment formalin and pyceze, post transfer treatment in Q3 fish.

Formalin used as biocide but precautionary 500days applied.

Another [Scottish Government Fish Health Inspectorate report in July 2018](#) detailed the use of Formalin at [Marine Harvest's Lochailort Recirculation Hatchery](#):

Case No:	2018-0282	Date of visit:	03/07/2018
Time spent on site:	6 hours	Main Inspector:	AJW
Site No:	FST269	Site Name:	Lochailort Recirculation Hatchery
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

Additional Case Information:

20g fish being moved out to Lochy this week. 80g fish going to sea from next Monday - Eirisort and Muck.

Treatment for gill and gut fungus in fry unit Q1 parr destined for Lochy in October. Formalin and pyceze.

Treatments and Medicines Records

1. Recent treatments (last 4 wks)?		Y
If yes, detail:	formalin and pyceze this week in fry unit for gill and gut health	
If other, detail:		
2. Medicines records available for inspection?		Y
3. Are records complete and correctly entered?		Y
4. Are fish in a withdrawal period?		Y
5. If yes, what treatment(s)?	Formalin in Q1 Fry	

A [Scottish Government Fish Health Inspectorate report in April 2018](#) detailed the use of Formalin at [FAI Aquaculture's Aultbea fish farm](#):

Case No:	2018-0084	Date of visit:	18/04/2018
Time spent on site:	4 hours	Main Inspector:	JET
Site No:	FS0941	Site Name:	FAI Aultbea
Business No:	FB0439	Business Name:	FAI Aquaculture Ltd

Treatments and Medicines Records

1. Recent treatments (last 4 wks)?		Y
If yes, detail:	Branzil, Formalin, Pyceze	
If other, detail:		
2. Medicines records available for inspection?		Y
3. Are records complete and correctly entered?		Y
4. Are fish in a withdrawal period?		Y
5. If yes, what treatment(s)?	Branzil, Formalin	

A [Scottish Government Fish Health Inspectorate report in March 2018](#) detailed the use of Formalin at The Scottish Salmon Company's Langass Hatchery:

Case No:	2018-0108	Date of visit:	27/03/2018
Time spent on site:	2 hours	Main Inspector:	ALW
Site No:	FS0643	Site Name:	Langass Hatchery
Business No:	FB0169	Business Name:	The Scottish Salmon Company

Additional Case Information:

Site used to produce company's Hebridean strain of fish. Broodstock transferred onto site in late spring. Produce eyed ova for production sites and future broodstock

Select 1,000 viable ova from each family for incubation in specially modified comphatch system (trays divided into smaller compartments). Each family is raised in a separate 1m tank. Numbers reduced to 500 at 10g, 250 at 30g and to final 100 per family prior to transfer to Loch Geireann. At this point the fish are weighed, length noted and individually tagged. The families are then mixed in cages at Loch Geireann.

The site is currently being upgraded with a new incubation and holding shed which will be stocked in the next 5-6 weeks. This new facility will have a dedicated incubation area (comphatch systems, buckets and zuger jars) and 200 1m tanks for on-growing. The tanks are fed by robot with a track above the tanks for the hoppers to move along. The current facility (88 1m tanks) will be dismantled. In addition the square tanks in the other building have been removed and replaced with six 5m tanks and two 4m tanks mainly for holding the broodstock.

Currently have one of the large tanks stocked with 147,000 first feeding fry as reserve fish if needed at another site. Also stripped some sea trout broodfish, but no site was available to grow the ova so the ova were culled.

Broodstock for 2018 and 2019 seasons currently at Treanay, but 2020 broodstock currently at Loch Geireann will transfer to Ormsary Broodstock Unit next month. In the future the site will receive green ova and milt from Hebridean broodstock held at Ormsary. Genetic testing will be undertaken to help improve the line.

Recently had gut fungus in a couple of tanks, but treated with formalin. Fish on site appeared healthy.

Treatments and Medicines Records

1. Recent treatments (last 4 wks)?		Y
If yes, detail:	Formalin	

A [Scottish Government Fish Health Inspectorate report in February 2018](#) detailed the use of Formalin at Cooke Aquaculture's Furnace Hatchery on Loch Fyne:

Case No:	2018-0049	Date of visit:	27/02/2018
Time spent on site:	2.5 hours	Main Inspector:	JET
Site No:	FS0339	Site Name:	Furnace (FW)
Business No:	FB0235	Business Name:	Cooke Aquaculture (Freshwater) Ltd

Treatments and Medicines Records

1. Recent treatments (last 4 wks)?		Y
If yes, detail:	Formalin, T.M.S.	
If other, detail:		
2. Medicines records available for inspection?		Y
3. Are records complete and correctly entered?		Y
4. Are fish in a withdrawal period?		Y
5. If yes, what treatment(s)?	Formalin, T.M.S.	

A [Scottish Government Fish Health Inspectorate report in December 2017](#) detailed the use of Formalin at Landcatch's Ormsary Smolt Unit in Argyll:

Case No:	2017-0620	Date of visit:	13/12/2017
Time spent on site:	1 hour	Main Inspector:	AJW
Site No:	FS0575	Site Name:	Ormsary Smolt Unit
Business No:	FB006T	Business Name:	Landcatch Natural Selection Ltd

Additional Case Information:

Fish going from E19. Not vaccinated. Finished vaccinating other fish last week. Some fin rot and fungus in vaccinated fish treated with formalin. E19 no fungus issues and not treated

Site morts 1/12/17- 13/12/17; 1054, 0.08% attributed to fungus, HSS and post vaccination.

A [Scottish Government Fish Health Inspectorate report in November 2017](#) detailed the use of Formalin at [Marine Harvest's salmon farm in Loch Lochy in Lochaber](#):

Case No:	2017-0560	Date of visit:	29/11/2017
Time spent on site:	5 hours	Main Inspector:	JET
Site No:	FS0150	Site Name:	Loch Lochy
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

2017 Q4 production, fish stocked May 2017 - October 2017. Fish affected by fungus throughout cycle, weekly mortality between 1000-3000 (0.1% - 0.2%).

A number of fish in cages 25 and 26 (Finfish stock) had visible lesions, however the fish were very active and deep in the water column and so were unable to be caught for further examination.

Recent (last 4 wks) disease problems?	Y	Any escapes (since last visit)?	N
If yes, detail:	RTFS detected in Finfish Hatchery stock (November 2018). Treated with formalin and pyceze.		

[RTFS = Rainbow Trout Fry Syndrome which is "[increasingly causing problems in Atlantic salmon](#)"]

6. Any other peaks in mortality during period checked?	Y
w/b 16/10/2017 4227 (0.9%) attributed to fungus, pox virus and smolting. Stock all sent out to sea by 30/10/2017. Pre-transfer health check carried out, showed stock positive for salmon pox, branchiomonas and Flavobacterium psychrophilum, mortality levels relatively low and fish in acceptable health for transfer.	

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin, T.M.S., Pyceze
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Formalin, T.M.S.

A [Scottish Government Fish Health Inspectorate report in November 2017](#) detailed the use of Formalin at [Scottish Sea Farms' salmon farm in Loch Ba on the Isle of Mull](#):

Case No:	2017-0549	Date of visit:	07/11/2017
Time spent on site:	2 hours	Main Inspector:	JET
Site No:	FS0429	Site Name:	Loch Ba
Business No:	FB0125	Business Name:	Scottish Sea Farms Ltd

Additional Case Information:

Site has been reduced to 4 cages (16m2)
 Dead fish waste ensiled at Knock hatchery facility and collected for disposal
 Prophylactic formalin and pyceze treatments carried out 2 days after each stocking during October 2017

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin, Pyceze
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Formalin

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at [Marine Harvest's Loch Ness salmon farm](#):

Case No:	2017-0436	Date of visit:	09/10/2017
Time spent on site:	3.5 hrs	Main Inspector:	ASM
Site No:	FS0434	Site Name:	Loch Ness
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin, Pyceze
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Formalin, Pyceze

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at [Cooke Aquaculture's Sallachy salmon farm](#) (certified by the Soil Association as "organic"):

Case No:	2017-0443	Date of visit:	24/10/2017
Time spent on site:	2 hours	Main Inspector:	JET
Site No:	FS0887	Site Name:	Sallachy Site
Business No:	FB0235	Business Name:	Cooke Aquaculture (Freshwater) Ltd

Additional Case Information:

Organic site
 Fish became affected by fungal infection (sapronelegia) post grading w/b 25/09/2017. Unable to treat with Pyceze due to Soil Association objection (Organic site status).
 Treated with formalin: Cages 1-3 20/10/17, cages 4-6 21/10/17, cages 7-8 22/10/17, cages 9-10 23/10/17. Approved by Soil Association. Further formalin treatment planned for 25/10/17.

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	<input type="checkbox"/> Y
If yes, detail:	Formalin
If other, detail:	
2. Medicines records available for inspection?	<input type="checkbox"/> Y
3. Are records complete and correctly entered?	<input type="checkbox"/> Y
4. Are fish in a withdrawal period?	<input type="checkbox"/> Y
5. If yes, what treatment(s)?	Formalin

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at [Cooke Aquaculture's Cliff salmon farm in Shetland](#):

Case No:	2017-0460	Date of visit:	03/10/2017
Time spent on site:	2 hrs	Main Inspector:	WJM
Site No:	FS1095	Site Name:	Cliff Site
Business No:	FB0095	Business Name:	Cooke Aquaculture Scotland Ltd

Recent (last 4 wks) disease problems?	<input type="checkbox"/> Y	Any escapes (si
If yes, detail:	Saprolegnia like skin lesions, most likely secondary to fungal infection	

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	<input type="checkbox"/> Y
If yes, detail:	Formalin
If other, detail:	
2. Medicines records available for inspection?	<input type="checkbox"/> Y
3. Are records complete and correctly entered?	<input type="checkbox"/> Y
4. Are fish in a withdrawal period?	<input type="checkbox"/> Y
5. If yes, what treatment(s)?	Formalin

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at [Scottish Sea Farms' Loch Frisa salmon farm on the Isle of Mull](#):

Case No:	2017-0456	Date of visit:	10/10/2017
Time spent on site:	2h	Main Inspector:	DJT
Site No:	fs0428	Site Name:	Loch Frisa
Business No:	FB0125	Business Name:	Scottish Sea Farms Ltd

Treatments and Medicines Records

1. Recent treatments (last 4 wks)?		Y
If yes, detail:	Formalin, Pyceze	
If other, detail:		
2. Medicines records available for inspection?		Y
3. Are records complete and correctly entered?		Y
4. Are fish in a withdrawal period?		Y
5. If yes, what treatment(s)?	Formalin	

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at Scottish Sea Farms' [PRV-infected](#) Knock salmon farm on the Isle of Mull:

Case No:	2017-0455	Date of visit:	10/10/2017
Time spent on site:	5h	Main Inspector:	DJT
Site No:	fs0254	Site Name:	Knock
Business No:	FB0125	Business Name:	Scottish Sea Farms Ltd

16 May 2017 testing for PRV on two tanks following positive results on sea site post transfer, PCR tests on site were positive for PRV but there was no clinical expression however fungus was evident these fish were culled out on site.

Treatments and Medicines Records

1. Recent treatments (last 4 wks)?		Y
If yes, detail:	Formalin, Pyceze	
If other, detail:		
2. Medicines records available for inspection?		Y
3. Are records complete and correctly entered?		Y
4. Are fish in a withdrawal period?		Y
5. If yes, what treatment(s)?	Formalin	

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at Marine Harvest's Glenfinnan salmon farm in Loch Shiel:

Case No:	2017-0494	Date of visit:	23/10/2017
Time spent on site:	3.5 hours	Main Inspector:	ALW
Site No:	FS0742	Site Name:	Glenfinnan
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

Additional Case Information:

Current stock due to go out to sea sites next month. Fish will be transferred to East Loch Tarbert, Gorsten, Marulaig, Skipport, Stulaigh and Torridon. Fish are transferred via lorry to Mallaig onto Wellboat.

Site stocked with Q4 generation, but will produce Q3 and Q4 next year. Q3s will only be on site for approx 6 weeks.

Fish were vaccinated on site with PD3 vaccine. Fish are treated with formalin and pyceze to control fungus. Accidental overdose in one cage during treatment with formalin for fungus due to human error (dosing pump not working correctly). Increase in mortality in cage 11 over a couple of weeks, but has reduced to expected levels now.

5. Evidence of recent increased/atypical mortalities?

If yes, facility nos/no mortality per facility/no stock per facility/reason:

P11 / 1,343 / 75,000 / overdose during formalin/pyceze treatment.

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin, Pyceze
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Formalin

A [Scottish Government Fish Health Inspectorate report in October 2017](#) detailed the use of Formalin at [Marine Harvest's salmon farm in Loch Arkaig](#):

Case No:	2017-0495	Date of visit:	24/10/2017
Time spent on site:	4.5 hours	Main Inspector:	ALW
Site No:	FS0649	Site Name:	Loch Arkaig
Business No:	FB0119	Business Name:	Marine Harvest (Scotland) Ltd

Additional Case Information:

Fish from Inverpollly and Lochailort Recirc Unit. Fish probably going out to sea sites in Loch Linnhe, but not certain. No longer holding fish for River Lochy Association.

Currently grading and vaccinating with Winvil 3 vaccine. Started post vaccination treatments with formalin and pyceze to prevent fungus. Have four mobile pens to move fish around site.

Treatments and Medicines Records	
1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin, Pyceze
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	
If other, detail:	Formalin

A [Scottish Government Fish Health Inspectorate report in July 2017](#) detailed the use of Formalin at [The Scottish Salmon Company's Russel Burn Hatchery on Loch Kishorn](#):

Case No:	2017-0315	Date of visit:	28/07/2017
Time spent on site:	0	Main Inspector:	PMM
Site No:	FS0500	Site Name:	Russel Burn
Business No:	FB0169	Business Name:	The Scottish Salmon Company

Additional Case Information:

Mortalities post vaccination, formalin treatment conducted and numbers dropped to normal levels.

Case No:	2017-0315	Site No:	FS0500	Date of visit:	28/07/2017
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Start date:	End date: (if applicable)	Size of fish:	Average weight of affected population:	Species:	Yearclass:	Timescale	Mortality rate recorded(%):	Explained/ unexplained:	If explained, select reason(s):
17/07/2017	27/07/2017	5g to smolting	40g	SAL	2017 presmolt	Weekly	4.42	Explained	Fungus

Total mortality during event (if available):	Additional information (e.g. action taken by company):	Action taken by FHI (include case no where applicable):
40,873	Mortality event attributed to fungus post vaccination. Affected stock were treated with formalin and numbers have dropped.	No further action required. Mortalities dropping to normal levels post treatment.

Fish Health Inspectorate 'Case Information' for 2013-2019 (including details of fish farms using Formalin) is available [online here](#)

[5] MRCVS [reported in December 2017:](#)

New guidance on the use of formaldehyde in fish

Guidelines clarify regulations vets should abide by

New guidelines to assist veterinary surgeons considering formaldehyde for the treatment of fish have been approved by the British Veterinary Association (BVA).

Developed by the BVA and the Fish Veterinary Society (FVS), the guidelines clarify how formaldehyde can be used and what regulations vets must abide by. They also include information for formaldehyde's use as a biocide.

Formaldehyde is classified as a Category 1B carcinogen. It is used both as a medicine to treat fish and as a biocide to disinfect facilities and equipment.

The use of formaldehyde to treat or prevent fish diseases falls within the scope of the Veterinary Medicines Regulations. Veterinary surgeons can only prescribe the compound via the Cascade, as there are no authorised medicinal products containing formaldehyde in the UK.

At least one formaldehyde product is licensed in several Mediterranean countries. But the use of this requires a special Import Certificate from the Veterinary Medicines Directorate. This more costly option - together with conflicting information within the industry itself - meant there was a need for clarifying guidance to help other vets in this situation.

"This is a really important issue within the UK aquaculture industry, particularly given the contribution farmed Scottish salmon makes to the UK economy," said FVS president Ronnie Soutar. "Formaldehyde has been used as both a biocide and a medicine on UK freshwater fish farms for a long time but it's fair to say there has been some confusion between the two categories of use."

He continued: "Staying within prescribing law is key to the success of the UK's aquaculture industries, and we hope the new BVA/FVS guidelines will provide vets with the essential guidance needed. I know that on-going discussion is also required, particularly to address the concerns of trout farmers."

The guidelines were approved at BVA Council on 13 December and will soon be available on the BVA website.



"Formaldehyde has been used as both a biocide and a medicine on UK freshwater fish farms for a long time" - Ronnie Soutar, FVS president.

FVS and BVA [reported in 2018](#):

Joint guidance on the use of formaldehyde in aquaculture

Formaldehyde¹, which is classified as a Category 1B carcinogen², is used as both a biocide and a medicine in aquaculture. This note is intended as guidance to veterinary surgeons considering formaldehyde for the treatment of fish under their care.

Use as a veterinary medicine

The use of formaldehyde to treat or prevent fish diseases, such as freshwater ectoparasitism, falls within the scope of the Veterinary Medicines Regulations. As there are no authorised medicinal products containing formaldehyde in the UK, veterinary surgeons can only prescribe using the Cascade.

Veterinary surgeons prescribing formaldehyde-containing products should be familiar with [VMD guidance on the Cascade](#) and be aware that the effectiveness and toxicity of the product is likely to vary between fish species and with environmental conditions. In addition to guidance on user safety, including appropriate Personal Protective Equipment (PPE), clients should be made aware that the prescribed product is unauthorised in the UK and the implications thereof.

Food-producing animals may only be treated with medicines authorised in a member country of the European Union. FVS and BVA are aware that at least one formaldehyde product is licensed in several Mediterranean countries. The use of this, or any other product which meets the criteria now or in the future, requires a Special Import Certificate from the Veterinary Medicines Directorate. There is an on-line process for this via the [VMD's website](#).

¹ Formaldehyde is CH₂O, the simplest aldehyde. Formalin is the name for saturated (37%) formaldehyde solution. Thus, a protocol calling for 10% formalin is roughly equivalent to 4% formaldehyde

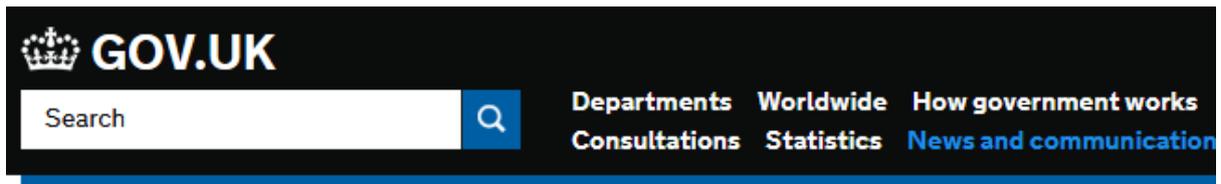
² <https://www.gov.uk/government/news/changes-to-formaldehyde-formalin-rules>

Use as a biocide

Formaldehyde's use as a biocide in the absence of live fish, for example for the disinfection of facilities or equipment, does not fall within medicines regulations. Fish farmers, as professionals, may use industrial grade formaldehyde in this way without veterinary involvement.

Formaldehyde is also used in other livestock industries as a fumigant, disinfectant and for pest control. Definitions of biocidal product types [may be found online](#).

In 2015, the UK Government [issued a press release explaining changes to the rules](#):



The screenshot shows the GOV.UK website header. It includes the GOV.UK logo, a search bar with a magnifying glass icon, and a navigation menu with links for Departments, Worldwide, How government works, Consultations, Statistics, and News and communication.

[Home](#) > [Environment](#) > [Wildlife, animals, biodiversity and ecosystems](#) > [Animal and plant health](#)

Press release

Changes to Formaldehyde (Formalin) rules

Informal note on Defra's position on Formaldehyde (Formalin)

Published 23 November 2015

From: [Centre for Environment, Fisheries and Aquaculture Science](#)

From 1 January 2016 formaldehyde will be classified as a Category 1B carcinogen. This means certain restrictions will apply to it.

It will only be able to be used for professional use, and it can only be put on the market by a registered supplier. It will have to be labelled appropriately for its chemical categorisation and therefore used in a competent manner.

The registered supplier is the company or consortium which has supported its application through the [REACH process](#). Formaldehyde's application was supported by Germany, so it is assumed a German company has done the technical safety work.

The following impacts will happen on its use for animal related agriculture:

- there is no UK legal definition of 'professional'. Therefore users in the UK are required to be competent and using the chemical in a professional activity.
- Fish, poultry, sheep and cattle farmers - as professionals - will be able to continue to use products containing formaldehyde for dis-infection, fumigation and foot bathing purposes. It can be used for other professional purposes eg preservation of samples for histopathology.
- whoever is physically using the product must be competent enough to meet the restrictions and precautions detailed by the labelling. There is no requirement to prove competency before purchase and use. However if a health and safety issue arose through its use and be investigated, and the person using it found not to have been suitably trained and competent, then there could be grounds for prosecution.

- UK suppliers of formaldehyde containing products will have 2 options in becoming registered suppliers:
 - they would need to become part of the German consortium and pay a fee
 - the German registered supplier cannot refuse, if asked, to share the appropriate data and provide a letter of access to another company when requested. There is no barrier to the requesting company being asked to pay for this access, but it then makes them part of the registered supplier supply chain and able to access the product.

Additionally formalin is being considered in the evaluation programme of the biocidal products regulations. Approval for its use as a biocide will be for 5 years from when a Member State unqualified majority vote agrees to it. [HSE](#) believes it is unlikely a qualified majority will not be reached for formalin ie it should be approved. Again approval means that use comes with precautions and restrictions stipulated in appropriate labelling. These may be to wear specific personal protective equipment, or use it only below certain concentration limits.

Formaldehyde (formalin) is not approved as a veterinary medicine. The veterinary medicines legislation and the biocide legislation cross over, but products are only on one or the other and not both. Therefore use in foot baths is technically as a biocide and not a veterinary medicine.

Read more on the [Formaldehyde REACH Consortium online here](#):

Consortium/SLT

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Formaldehyde REACH Consortium [back](#)

The manufacturers of Formaldehyde joined efforts for their REACH compliance activities and have officially launched the Formaldehyde REACH consortium on March 11th 2010. **The dossier was successfully submitted in 2010.**

Consortium description

Through the **Formaldehyde consortium**, the manufacturers have decided to join efforts to prepare a consistent registration dossier building on the experience gained during the Formacare program. The project management and secretariat of the consortium lays in the responsibility of **ReachCentrum**. The technical content preparation of the registration dossier will be managed by the Lead Registrant BASF.

Substances covered

The following substance is covered by the Formaldehyde Consortium:

Substance name	EC number	CAS number	SIP	Uses	SIEF Agreement
Formaldehyde	200-001-8	50-00-0	SIP	Uses	SIEF Agreement

A report - "[Review of freshwater treatments used in the Scottish freshwater rainbow trout aquaculture industry](#)" - published in 2015 by the Scottish Aquaculture Research Forum included:

SARF 100 Review of Freshwater Treatments

5.4 Formalin

Formalin is an aqueous solution of 37-40% formaldehyde gas and 6-13% (12%) methane (that prevents polymerization and the formation of paraldehyde, which is toxic to fish. Formalin was widely used by all the respondents to control an important range of disease problems. These included white spot, bacterial gill disease and a range of other ectoparasites (particularly costia, microcotyle and flukes such as trichodina). Reasons for its use were its reported high efficacy against the main diseases indicated, coupled with its cheap relative cost and its relatively high margin of safety. The high margin of safety is reflected in the wide range of dosing and application rates quoted by the respondents. Formalin is effective both as a bath or dip treatment for fry and older fish, but is also a good egg treatment for control of saprolegnia. One respondent reported that when he treated eggs with formalin they were visibly cleaner after the treatment and were reportedly more easily transported. This was in contrast to treatment with others chemicals (eg Pyceze), where the eggs were reportedly quite 'sticky' after treatment.

5.4.1 Likely continued availability of formalin

Formalin is typically sourced from wholesalers as a biocide and its use is not directed by veterinarians (it is not a licensed medicine). There are concerns over the likely continued availability of formalin. Although its potential environmental risks are considered to be limited (US FDA, 1995), a number of studies have raised concerns over its reported safety to workers. This has culminated in the production of a report by the US National Toxicology program that states formalin is 'known to be a carcinogen' based on sufficient evidence of carcinogenicity from studies in humans and supporting data on mechanisms of carcinogenesis (National Toxicology Program, 2011). The BPR has exclusion criteria (Article 5. 1a) that prohibit the authorisation of active substances 'which have been classified in accordance with Regulation (EC) No 1272/2008 as, or which meet the criteria to be classified as, carcinogen category 1A or 1B'. However, there is some latitude in the regulations that allows a product containing an active substance to be approved that are referred to in Article 5. 1 (Article 5.2) where:

- The risk to humans, animals or the environment from exposure to the active substance in a biocidal product, under realistic worst case conditions of use, is negligible, in particular where the product is used in closed systems or under other conditions which aim at excluding contact with humans and release into the environment
- It is shown by evidence that the active substance is essential to prevent or control a serious danger to human health, animal health or the environment.

5.4.2 Use of formalin containing medicinal products in other EU Member States and internationally

As described above, formalin-containing products used in the UK rainbow trout industry are typically marketed for use as biocides. At the present time, there is no product with formalin as its main active ingredient that is marketed for use as a veterinary medicinal product in the UK. There is a product, Aquacen (<http://www.cenavisa.net/acuicultura>), that has an MA from the Spanish authorities (2127 ESP) for the control of disease in turbot, *Psetta maxima*, caused by ectoparasite *Philasteridis dicentrachi*. A veterinarian may be able to prescribe under the cascade a veterinary medicinal product (VMP) not authorised in the UK, but authorised in another Member State (MS) for use, in this case any

food producing animal species, in accordance with an import certificate issued by the VMD (<https://www.vmd.defra.gov.uk/sis/sic-application.aspx>). This would be to avoid causing unacceptable suffering, where there is no suitable veterinary medicine authorised in the UK to treat a condition, or veterinary medicine authorised in the UK for use in another animal species or for a different condition in the same species.

<http://www.vmd.defra.gov.uk/pdf/vmgn/vmgnote13.pdf>

Of less direct relevance, there are also three formalin containing (37% by weight of formaldehyde gas in water) licensed products available in the US to treat ectoparasites in freshwater fish species, including rainbow trout. Information on these products and their approvals can be found on the FDA website.

<http://www.fda.gov/AnimalVeterinary/DevelopmentApprovalProcess/Aquaculture/ucm132954.htm>

In summary, all three approvals cover use of these products in the US for the control of (a) external protozoa (*Chilodonella* spp., *Costia* spp., *Epistylis* spp., *Ichthyophthirius* spp., *Scyphidia* spp. and *Trichodina* spp.), and the monogenetic trematode parasites (*Cleidodiscus* spp., *Dactylogyrus* spp., and *Gyrodactylus* spp.) on all finfish, (b) fungi of the family Saprolegniaceae on all finfish eggs and (c) external protozoan parasites (*Bodo* spp., *Epistylis* spp., and *Zoothamnium* spp.) on penaeid shrimp.

For actual treatment of external parasites, the labels recommend using 1 hour maximum exposures to up to 170 mg/l for treatments over 50°F (=) and up to 250 mg/L for treatments less than 50°F . Important safety and efficacy data used to support the licensing of these formalin products was obtained under the US Aquatic Animal Drug Approval Partnership (AADAP) Program <http://www.fws.gov/fisheries/aadap/home.htm>.

[6] Read more on toxic chemical use in salmon farming via:

[Fish farming industry bids to relax limits on toxic pesticide](#)
[Fish farms under investigation for allegedly breaking environmental rules](#)
[Wildlife widely damaged by fish farm pesticides, says Sepa](#)
[Salmon industry toxins soar by 1000 per cent](#)
[Sky-Rocketing Chemical Use on Scottish Salmon Farms](#)
[Scottish Government under fire for helping block pesticide ban](#)
[Fish farm industry 'lashes out' on pesticide controls](#)
[Editorial: "Welcome move in pesticide scandal"](#)
[Fish farms industry now at war with SEPA over toxic-loch pesticide](#)
[Scottish Government under fire for helping block pesticide ban](#)
[Editorial: "Holyrood must investigate pesticide claims"](#)
[Scottish government accused of intervening to block ban on toxic pesticide](#)
[Revealed: secret role of US drug company in fish farm pesticide row](#)
[Scottish government accused of colluding with drug giant over pesticides scandal](#)
[Ban on polluting pesticide dropped after complaint from fish farmers](#)
[Government watchdog bowed to industry pressure on fish farm pollution](#)
[Crackdown on fish farm pesticides after Sunday Herald investigation](#)
[Mapped: the 45 lochs polluted by fish farm pesticides](#)
[Revealed: Scandal of 45 Lochs Trashed by Pollution](#)
[Salmon farming in crisis: 'We are seeing a chemical arms race in the seas'](#)
[Scottish fish farmers use record amounts of parasite pesticides](#)

[Chemicals to control salmon parasites](#)

More background via Scottish Salmon Watch's '[Chemicals](#)'

[7] From: **Don Staniford** <salmonfarmingkills@gmail.com>

Date: Mon, Jun 24, 2019 at 7:54 PM

Subject: Queries re. F0190275

To: AccesstoInformation <foi@sepa.org.uk>

Re. [F0190275](#)

Could you please double-check the FOI reply for completeness?

I have two specific queries/points:

1) Russel Burn Hatchery (The Scottish Salmon Company) is not listed in the Excel spreadsheet [F0190275 sites](#) as one of the 184 fish farms licensed to use Formaldehyde (Formalin) but it seems clear that it is being used.

Here's a video showing vats of Formaldehyde at the hatchery in June 2019:

<https://vimeo.com/344042944>

A report - "[The State of Scottish Salmon Farming in 2018](#)" - published by Scottish Salmon Watch in March 2019 detailed 80,000 mortalities at The Scottish Salmon Company's Russel Burn Hatchery in November 2018 with the use of Formalin identified.

Here's details from the [Scottish Government's Fish Health Inspectorate report](#):

Case No:	2018-0628	Date of visit:	27/11/2018
Time spent on site:	4 hours	Main Inspector:	ASM
Site No:	FS0500	Site Name:	Russel Burn
Business No:	FB0169	Business Name:	The Scottish Salmon Company

Additional Case Information:

Ova and fry units being built at the moment. Due to be completed in June 2019. New shed being built and the site name changed. Reminded to contact FHI to change details.

Most of the old tanks will be replaced with new bigger ones.

Vaccination reportedly caused fungus on the site shortly before the inspection. The stress of the vaccination process is thought to have reduced immunity. This together with the fact that the smoltification is now brought on with in feed treatment rather than the salt being added to the water. This is meant that the fungal spores are not killed in the water. Salt has been ordered and will added to the water the week of the inspection.

All fish removed for VMD treated with TMS, Pyceze and Aquacen (Formalin) to combat fungus

Pre-transfer check (report not yet produced. Check conducted the day before inspection) made by company biologist and advised to move the fish to seawater. Fish will be moved in December 2018, 2 weeks post inspection.

Quality cull conducted in Nov of 4.4% (in 1 day) but not reported to MSS as it is labelled as a quality cull in the mortality record.

Recent (last 4 wks) disease problems?	Y	Any escapes (si
If yes, detail:	Fungus on site reportedly from vaccination (see additional comments)	

Mortality Records	
1. Mortality records available for inspection?	Y
2. How are mortalities disposed of?	Whole fish - Dundas Chemicals
If other detail:	
3. Mortality records complete and correctly entered?	Y
4. Recent mortality (last 4 wks):	80,100 fish due to quality cull and fungus.
5. Evidence of recent increased/atypical mortalities?	Y
If yes, facility nos/no mortality per facility/no stock per facility/reason:	61,000 euthanized in a 'quality cull' as they were deformed or not feeding, 19/11/18, in cage D7. All killed from the same cage. 4.4% in a week.

1. Recent treatments (last 4 wks)?	Y
If yes, detail:	Formalin, Pyceze
If other, detail:	
2. Medicines records available for inspection?	Y
3. Are records complete and correctly entered?	Y
4. Are fish in a withdrawal period?	Y
5. If yes, what treatment(s)?	Pyceze

2) Re. the Excel spreadsheet detailing reported use of Formaldehyde in 2017 and 2018 ([F0190275-Formaldehyde](#)) surely there are other companies using it? Marine Harvest is the only company reporting use:

Site Name	Operator	Licence	Month	grams)
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Aug-17	356250
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Sep-17	1106250
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Oct-17	3226875
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Nov-17	2212500
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Dec-17	56250
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Jul-18	375000
Glenfinnan	Marine Harvest (Scotland) Ltd	CAR/L/1008960	Aug-18	225000
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Nov-17	1200000
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Dec-17	1762500
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Jan-18	2325000
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Feb-18	2456250
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Mar-18	318750
Invermallie, Loch Arkaig	Marine Harvest (Scotland) Ltd	CAR/L/1002071	Sep-18	18750
Loch Garry	Marine Harvest (Scotland) Ltd	CAR/L/1008962	Jul-17	239063
Loch Garry	Marine Harvest (Scotland) Ltd	CAR/L/1008962	Aug-17	547688
Loch Garry	Marine Harvest (Scotland) Ltd	CAR/L/1008962	Sep-18	140625
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	May-17	75000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jun-17	918750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jul-17	2193750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Aug-17	4200000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Sep-17	2831250
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Oct-17	1725000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Nov-17	1218750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Dec-17	2525000
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jan-18	3093750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Feb-18	3712500
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Mar-18	4443750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Apr-18	562500
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jun-18	637500
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Jul-18	2231250
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Aug-18	1818750
Loch Lochy	Marine Harvest (Scotland) Ltd	CAR/L/1002140	Sep-18	1950000

Thanks - I was just going through this information and it doesn't ring true. It would therefore be much appreciated if you can double-check your records.

For example, if you trawl through the Fish Health Inspectorate's 'Case Information' ([online here](#)) you will see numerous cases reporting the use of Formalin (cases which are not reported as in #2 above).

Best fishes,

Don

Director of Scottish Salmon Watch