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1	I have responded to the Great Cumbrae proposal as well. With some slight amendments relating to the different location, much of this submission will repeat my earlier one. As a former fish farmer I am well aware of the environmental impact of effluent from fish farms whether faecal, food waste or chemical. The area of the proposed cages is an important fishing area for both local fishing boats, mainly deploying creel lines and pots, and amateurs fishing from the shore or from small craft. The area is also popular with divers seeking scallops which are also abundant in the area. The waters of this part of the Clyde have in recent years recovered remarkably well from the days when sewage waste was dumped in the area and before many of our communities were linked to sewage treatment systems, having been heavily reliant on direct discharge into the sea or via septic tanks. This recovery has resulted in the return of many fish species which had become scarce and the resultant return of larger marine animals such as harbour porpoise, dolphins, basking sharks and even whales and orca. This development will set back this recovery. I am a bit surprised that the applicant has not made more of the prevailing weather conditions which are mainly from the south west. Arran, Northern Ireland and Kintyre may provide some protection but the seas can be extremely rough at times in the winter. Cage damage or breakdowns in the anchoring/moorings have been many times a huge concern for environmentalists, in particular escapees diluting native wild stocks of sea trout and even salmon. Recent incidents nearby have highlighted these concerns. The north west coast of Wee Cumbrae is going to be very vulnerable to any breakways or damage.	The proposed area is along a rocky and steep area of seabed, and directly above the habitats of lobster, prawns, crab etc and particularly in the direct line of many of the migratory fish such as mackerel which feed along this coastline during the summer months. Algal blooms are not uncommon and these will become more common with the deposits from the cages encouraging them. The seal population in the area, although mainly concentrated on the east and south sides of the island, is relatively large and healthy and there does not appear to be any mention in the applications about how Dawnfresh are likely to deal with seal attacks on the nets, which will result in escapees as well as losses of stock. As mentioned the porpoises and dolphins as well as large cetaceans are more frequently seen in the area and are likely to be disturbed by effluent or to disturb the caged stock as well as possible countermeasures deployed by Dawnfresh such as seal scarers or other sonic devices.	I am concerned, from my own experience about all of the chemicals mentioned as being used. I am unconvinced by the survey results as to dispersion or by claims that chemicals have little or no significant residual impact on the treated fish themselves and its possible transmission into human and other food chains, either directly or indirectly. Additionally the effect on the marine life of the immediate area is by no means clear. I am especially concerned about the concentrations of chemical dispersion and residues in Millport Bay on Great Cumbrae as the models seem to indicate high levels and the possibility of the fast currents through the Tan carrying heavier waste such as faecal matter and food waste into the Bay. There are popular tourist beaches here, the Newton Beach has consistently recorded Blue Flags for cleanliness, and Kames Bay which is also an SSSA and should be considered for special protection from these residues.	Effluent from cages is a pollutant. The waters of the Clyde are significantly cleaner than they were 20 years ago. Particularly in these post-covid 19 pandemic times, many more users of these water environments are going to be making use of the facilities provided locally which will enable them to enjoy sports and activities that use these waters.	The area is popular with yacht racing, regattas, coastal rowing, kayaking and other water sports. Diving is also popular in this area both for scallops and for exploration of wrecks of which there are some in the area. Fishing is a regular past time for many, especially on Cumbrae and the proposed area is one of the most popular areas for shore based fishing by rod. It is also a popular route for trolling for mackerel which become abundant in the area in the summer. Commercial fishing is also likely to be impacted.	As in my previous reply
2	Sea bed contamination Chemical dosing genetically modified fish escaping and weakening wild stock population disposal of dead fish carcasses Navigational hazards Water flow in the areas concerned	The local population, as already threatened by additional commercial activity in the area. The availability of fish waste to resident local aquatic species allowing build up of toxins and mortality.	chemicals used to treat nets and floating structures to stop general marine fouling	Navigational hazards Sites are known fishing marks	Line Fish Yachting and boating	Metal derivatives Like cuprous oxide, silicones and to a lesser extent nowadays tributyl tin.
3	Dangerous chemical added to the Firth of Clyde, this will affect the whole food chain in the marine environment.	Directly opposite on the other side of the firth is a SSSI with fragile sea grass and native oysters.	neurotoxic chemicals including Azemethiphos, Cypermethrin and Deltamethrin will end up on popular beaches including Kames Bay and all along the Pencil and Largs Beach. never mind the humans, these chemicals will do damage to the whole ecosystem.	These same chemicals were used in sheepdip, release of which has wiped out many water courses, eliminating insects life and wiping out fish, the same farmers who used it, suffered severe mental health problems with increased risk of suicide. Not what you want for bathing waters.	Fishing, tourism, all around the Clyde.	neurotoxic chemicals including Azemethiphos, Cypermethrin and Deltamethrin will end up on popular beaches including Kames Bay and all along the Pencil and Largs Beach.
4	It can be seen from the dispersion modelling that the chemicals used in these proposed fish farms will wash up on the beaches. The waters around these areas are used by swimmers and people who are on the water using a huge variety of watercraft.	These chemicals will have a negative impact on many species. I am not a chemist or a marine biologist but I would not, as someone who swims in these waters, want to be exposed to them.		This activity will discourage lots of people from using the beaches and the waters around this area of the North Ayrshire coast. Families will. It want children exposed to chemicals in the water, recreational water users will also not want to be exposed.	Swimming, paddling, kayaking, windsurfing and paddleboarding at Largs and Fairlie.	

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5	<p>District Salmon Fishery Boards have a statutory responsibility to protect and improve salmon and sea trout fisheries in their district and are statutory consultees in the planning process for fish farms. Whilst Argyll DSFB do not routinely respond to CAR licence applications for fish farms, we believe that the proposed location for this development is inappropriate from the perspective of migratory salmonids and the interests of other water users. There are a number of important rivers and fisheries that would be affected by the proposed farm site, including those in Argyll and Arran, the Clyde and Loch Lomond (which includes the Endrick Water Special Area of Conservation - https://sitelink.nature.scot/site/8252), which are not covered by a District Salmon Fishery Board. Our primary concern are impacts on wild salmonid fish and this is covered in the section below.</p>	<p>This and two other proposed Dawnfresh sites lie on an important migration pathway for Atlantic salmon which all fish arising from the inner Clyde will utilise. We would emphasise that both Atlantic salmon and sea trout are Priority Marine Features – the habitats and species of greatest conservation importance in inshore waters.</p> <p>The proposed development, taken together with the other two proposed CAR licences in this area by the same company, represent a significant additional biomass of farmed fish in an area of the inner Clyde with no history of open cage fish farming. This will represent a highly significant addition of host fish for sea lice on an important migratory pathway for wild fish. It is important to emphasise that the total lice load arising from a marine fish farm is a function of the number of lice per farmed fish, and the total number of fish maintained in the cages. Maximum biomass consented via the CAR licensing system therefore has a direct influence on the number of larval sea lice released into the environment. As set out above, we therefore consider that SEPA must take the potential impacts on wild fish, and the associated impact on interests of other users of the water environment fully into account when considering these applications. Fish arising from many important local rivers, inevitably must migrate directly past the proposed developments on their migration through the inner Clyde, placing those fish at risk from lethal or damaging infestation from sea lice.</p> <p>We would also highlight the potential risk of the effects of escaped farmed species on wild fish populations which is widely recognised within peer reviewed scientific literature (e.g. Glover et al. 2017). A recently recorded instance at the Mowi Scotland Ltd. Carradale North site saw 48,834 farmed salmon escape during a storm event in August 2020. A study of scale samples monitored the distribution of the escaped fish and found widespread dispersion of the farmed salmon. There were documented cases of farmed fish found within 17 rivers, the majority of which were captured within the Clyde and Loch Lomond systems and a number of rivers in Ayrshire and Argyll (Fisheries Management Scotland, 2021). Rainbow trout are a non-native species and have the potential to impact on native fish species through competition and predation. In addition, rainbow trout in the wild are not covered by wild fisheries legislation. Experience from previous escapes of rainbow trout from Dawnfresh farms, particularly in Loch Etive where at least</p>		<p>Scotland's wild salmon and sea trout are at crisis point with many populations below conservation limits, particularly on the West Coast within the 'Aquaculture zone'. Whilst wild salmon face a range of pressures, specific pressures from the aquaculture industry include impacts from escapes and sea lice. Salmon and sea trout fisheries are an important component of Scotland's rural economy. These fisheries and associated infrastructure rely on healthy populations of fish returning to Scotland's rivers. Scottish salmon rivers are categorised by Marine Scotland Science under the salmon conservation regulations according to the likelihood of them meeting their conservation limits. The gradings of rivers have been published for 2021. 104 rivers across Scotland are graded as Category 3, meaning there is a less than 60% probability of meeting their conservation limit. Where salmon populations are below their conservation limits, any additional pressure, including from sea lice, cannot be considered sustainable.</p> <p>Whilst Argyll DSFB do not routinely respond to CAR licence applications for fish farms, we believe that the proposed location for this development is inappropriate based on the aforementioned impacts on the water environment, which will have a knock-on effect on other water users, including fisheries managers and anglers.</p> <p>As mentioned previously, the impacts of sea lice and farmed fish escapes can be detrimental to the water environment. Experience from previous escapes of rainbow trout from Dawnfresh farms, particularly in Loch Etive where at least 35,000 fish have escaped since 2015, have shown that in addition to these potential ecological impacts, the escapes create a significant nuisance to fishery owners and angling businesses. We therefore consider that SEPA must take the potential impacts on wild fish, and the associated impact on interests of other users of the water environment fully into account when considering this application.</p>	<p>As above, this farm, alongside the other two proposed CAR licences in this area, has the potential to impact fisheries management and angling activities in a number of important rivers and fisheries.</p>	

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		<p>35,000 fish have escaped since 2015, have shown that in addition to these potential ecological impacts, the escapes create a significant nuisance to fishery owners and angling businesses. Dawnfresh have refused to recognise or compensate for these impacts. SEPA have direct responsibility for non-native species in rivers, so it is important that this potential impact is fully considered in determining this CAR licence. We have attached a short summary of the science which underpins our objection. Whilst the impacts of sea lice arising from farms may be mitigated by strategically planning farm locations, there is no current strategic plan within which this can happen. We are conscious that SEPA, Marine Scotland, NatureScot and local authorities are developing a strategic framework related to sea lice impacts on wild fish, but this is still in development. In the meantime, the precautionary principle should apply, and Argyll DSFB strongly object to a licence being granted for each of the three proposed farms.</p> <p>References Fisheries Management Scotland (2021). Monitoring for the presence of farmed salmon in West Coast Scottish rivers following an escape from the Carradale North salmon farm. Half a century of genetic interaction between farmed and wild Atlantic salmon: Status of knowledge and unanswered questions. Fish and Fisheries, 18(5), 890–927. https://doi.org/10.1111/faf.12214</p>				
6	<p>The insecticides and waste feed used in fish farming will enter the local water course. This will have an adverse impact on local sealife and the wildlife that feed in the waters. In addition, the livelihoods of local fishermen could be threatened if langoustine stocks are affected. I've read the modelling document and although the concentrations are predicted to be low, it is just that, a prediction, not fact. Better to be safe than sorry. Plus the wind data they were using was from Glasgow Airport, not local to the area.</p>	<p>Ballochmartin and Kames Bays are close by SSSIs with a variety of invertebrates that support bird life such as cormorants, shags, oystercatchers, lapwings and redshanks. Dolphins, basking sharks, harbour porpoises, seals, minke whales and otters also feed on marine life and organisms in these waters. Polluting the water/marine organisms with insecticides would have a disastrous effect on the whole food chain.</p>	<p>Deltamethrin - highly toxic to aquatic organisms and honey bees Cypermethrin - toxic to aquatic insects and crustaceans Azamethiphos - highly toxic to birds and aquatic species Waste Feed</p>	<p>Langoustine/crab fishermen: cypermethrin is toxic to crustaceans, could impact fishing stocks directly or indirectly via aquatic organisms that crustaceans feed on. High number of wild swimmers, bathers, jet skiers, paddle boarders, kayakers in the local waters, they could become ill from swallowing waste feed, fish faeces, insecticides.</p>	<p>High number of wild swimmers, bathers, sailing school boats, jet skiers, paddle boarders, kayakers in the local waters, they could become ill from swallowing waste feed, fish faeces, insecticides</p>	<p>Cypermethrin azamethiphos Deltamethrin</p>
7	<p>Chemicals added to the water for lice prevention are carcinogenic and detrimental to the natural organisms in the sea. Seals will be discouraged from this area and surrounding areas. The concentrated excreta from all these fish will pollute the sea bed.</p>	<p>Seals will be discouraged, zooplankton will be killed by some of the chemicals, thus discouraging basking sharks and other plankton eaters.</p>	<p>CYPERMETHRIN AND DELTAMETHRIN both recognised carcinogens and AZMETHIPHOS is a killer of plankton.</p>	<p>Local fish stocks will be depleted, and sea bed will be polluted, thus affecting fishermen. Tourism will be affected due to reduction of various sea mammals. Mankind will be affected due to yet more pollution as a result of man's detrimental influences.</p>	<p>Tourism in general, natural history enthusiasts in particular. Fishermen.</p>	<p>CYPERMETHRIN AND DELTAMETHRIN both recognised carcinogens and AZMETHIPHOS is a killer of plankton.</p>
8	<p>The chemicals being used will impact the wildlife and sea creatures</p>					
9	<p>I strongly object to this. It will destroy our beautiful landscape and kill off our marine life.</p>					

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10	<p>Argyll and Bute Council Opinion response to the Dawnfresh 19/00233/SCRSCO screening/scoping application on the 17 May 2019</p> <p>This opinion from the ABCouncil stated the proposed fish farm is likely to give rise “to significant environmental effects”</p> <p>Fish faecal matter will affect water quality: For 94 years, from 1904 until 31 December 1998, the sewage sludge from Glasgow was shipped down the Clyde and dumped at Garroch Head of the south of Bute. On the SEPA website the water quality of the whole area around Arran, Bute and the Cumbraes was only moderate and the website cited sewage as the reason. Only in the last several years has the water quality in this area been upgraded to good. How can it be sensible to now allow three fish farms to allow untreated faeces from tens of thousands of caged fish enter this fragile area? Dr Luxmore, who before retiring was senior nature conservation officer at the National Trust Scotland said that one fish farm of the size proposed produces the sewage equivalent of a town twice the size of Oban. With three farms proposed across the mouth of the Clyde we would be allowing waste equivalent to that of 105,000 enter the waters. That is not acceptable.</p> <p>No other form of farming would be allowed to let the untreated waste of its animals freely enter and pollute the environment. The idea that faeces and/or chemicals will be dispersed is not an acceptable argument: dispersal does not equal disappearance – it simply means it will be moved somewhere else.</p> <p>Use of highly toxic chemicals will affect other species in the area:</p> <p>The applicant plans to use azamethiphos, cypermethrin, deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. They’re utility in fighting lice by causing the destruction of their shells will also affect other crustaceans in the area. The South Bute site is already fished by CFA and there is a young lobsterman who is not a CFA member who works that exact area. For the Cumbrae applications, it seems ridiculous that £1.8m is being spent to reintroduce oysters, including placing 1300 in the Largs Yacht Haven and Fairlie Quay Marina, and then fish farms will be introduced adjacent to these sites so that these toxic chemicals will impact those oysters. The oysters are touted as purifiers of water and a boon to the environment but if these neuro toxins affect them the money and project overall will be in vain.</p> <p>*There are otters that swim in the area of the proposed South Bute fish farm. Otters</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind data and Inverkip meteorological data is used in the modelling. Any of us who live in this area know that the winds and weather we face here are completely different to Inverkip and even more so to Glasgow airport. And after the ECCLR report in 2018 chastised SEPA for lack of oversight and SEPA reformed its application standards, why are these applications being allowed to use old data input to outdated modelling systems to submit this application?</p>	<p>I think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p> <p>The proposed fish farms are directly in the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. Wild swimmers would lose a stretch of the Bute coastline for their swimming activities. Please refer to the Bute Outdoor Swimming Society FB group page (approx. 500 members) and see the swims that have taken place from Kilchattan Bay to Glencallum Bay. Also, there is currently no knowledge of the possible effects of the toxic bath treatments on humans, so again the precautionary principle should be applied.</p> <p>The newly established paddle boarding company on Bute would lose a stretch of coast line for its customers.</p>	As above in 6A	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>As above, I again would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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	<p>are a European protected species and SEPA has an obligation to apply the precautionary principle here to protect them. These will be affected directly by absorbing the chemicals if they are in the water at the time of treatments and indirectly through eating shellfish that have been affected by the chemicals.</p> <p>SEPA's own study in 2018 in Shetland showed that chemical dispersion could be wider than modelled as well as chemicals lasting longer than expected. Why should we believe this will not happen in the Clyde? https://consultation.sepa.org.uk/sector-plan/finfishaquaculture/supporting_documents/Fish%20Farm%20Survey%20Report.</p> <p>Lice soup will be created in the Clyde, impacting wild salmonids Holding 2500t of fish in an open cage will build up a concentration of lice which will be exacerbated by the relatively close proximity of the three proposed farms across the entrance of the Clyde. This will impact on the wild salmonids exiting and re-entering the Clyde as they leave and return to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation. *The Scottish Government, and thus SEPA as its agent, is obliged to protect these wild salmonids as they travel through Scottish waters. It has recently been established that lice from fish farms can impact wild salmonids and any doubt about the magnitude of such impact should be subjected to the precautionary principle and this application rejected. Please refer to this model for impact of lice from fish farms and thus the impact on the water environment https://vimeo.com/496948354</p>					
11	The chemicals will spread around the area with the tide	All species and habitats	All chemicals	Tourism will suffer as they won't want to go into the water due to chemicals	Water sports and swimming	All chemicals

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Otters</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind data and Inverkip meteorological data is used in the modelling. Any of us who live in this area know that the winds and weather we face here are completely different to Inverkip and even more so to Glasgow airport. And after the ECCLR report in 2018 chastised SEPA for lack of oversight and SEPA reformed its application standards, why are these applications being allowed to use old data in put to outdated modelling systems to submit this application?</p>

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	<p>are a European protected species and SEPA has an obligation to apply the precautionary principle here to protect them. These will be affected directly by absorbing the chemicals if they are in the water at the time of treatments and indirectly through eating shellfish that have been affected by the chemicals.</p> <p>SEPA's own study in 2018 in Shetland showed that chemical dispersion could be wider than modelled as well as chemicals lasting longer than expected. Why should we believe this will not happen in the Clyde? https://consultation.sepa.org.uk/sector-plan/finfishaquaculture/supporting_documents/Fish%20Farm%20Survey%20Report.</p> <p>Lice soup will be created in the Clyde, impacting wild salmonids</p> <p>Holding 2500t of fish in an open cage will build up a concentration of lice which will be exacerbated by the relatively close proximity of the three proposed farms across the entrance of the Clyde. This will impact on the wild salmonids exiting and re-entering the Clyde as they leave and return to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation. *The Scottish Government, and thus SEPA as its agent, is obliged to protect these wild salmonid as they travel through Scottish waters. It has recently been established that lice from fish farms can impact wild salmonids and any doubt about the magnitude of such impact should be subjected to the precautionary principle and this application rejected.</p> <p>Please refer to this model for impact of lice from fish farms and thus the impact on the water environment</p> <p>https://vimeo.com/496948354</p>					
13	<p>As per Argyll and Bute Council Opinion response to the Dawnfresh 19/00233/SCRSCO screening/scoping application on the 17 May 2019 I believe that the proposed fish farm is likely to give rise "to significant environmental effects" that will not be recoverable.</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>All chemicals and their potential impact. The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind</p>	<p>I think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p> <p>The proposed fish farms are directly in the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. Wild swimmers would lose a stretch of the Bute coastline for their swimming activities. Please refer to the Bute Outdoor Swimming Society FB group page (approx. 500 members) and see the swims that have taken place from Kilchattan Bay to Glencallum Bay. Also, there is currently no knowledge of the possible effects of the</p>	As above	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time As above, I again would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind data</p>

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14	This application is only a short distance away from the application for a fish farm near Bute, that is too many fish farms with their potent pollution of the water in one area.	Seals, otters, oystercatchers and many other seabirds live in the area. It is used as fishing grounds for the Gannets from Ailsa Craig. It will be a negative visual impact for any one walking, sailing, swimming in the area. A fish farm is not a thing of natural beauty, which will be an obstruction which will have to be avoided as I am sure the owners will not like anyone passing close to their fish farm.	Fish farms are by their very nature pens with many fish living in close company, which according to modern methods will need all kinds of medication and/or hormones which will eventually enter the water of the Clyde. Fish farms have also been known to use audio signals to keep seals away, causing distress.	The area depends rather heavily on tourism and any developments which will cause a negative impact are not really desirable. Fish farms do not employ many people, the fish does not get processed locally, so there are really no positive advantages to have a fish farm in the area, only negative ones. Pollution, in the form of water pollution, visual pollution and added traffic on the roads as the fish will have to be taken to the factory for processing somewhere.	Swimmers, leisure fishermen, birdwatchers, walkers, sailors, kayakers, paddle boarders and anyone else in the area and/or on the banks of the Clyde will all be negatively impacted by this development. Including the roads as the fish, when ready to be processed, will have to be taken to the factory by lorry.	As I said before, a lot of fish together will add pollution, as well as whatever medication is used, it will all end up in the river. Farmers have been working hard to stop any pollution reaching streams, rivers and the sea. There have been cases of fines for these offences, so why allow in the 21st century a fish farm with all its possible pollution in an area which will have no economic benefit or any other benefit from it.
15	This proposal from Dawnfresh three more fish farms at the in this small area of the Firth of Clyde will bring a negative environmental change to the waters and to extensive marine life in the area. The company plan to use highly toxic chemicals, Azamethiphos, Cypermethrin and Deltamethrin, which have an adverse effect on marine life and, with two of the chemicals having a carcinogenic compound, this will make its way into the marine life and humans alike.	The waters are home to the Common Grey Seals, Otters, Porpoises, Whales, Basking Sharks and many other smaller marine life. Otters are strictly protected by the Wildlife and Countryside Act of 1981.	Azamethiphos, Cypermethrin and Deltamethrin, which have an adverse effect on marine life and, with two of the chemicals having a carcinogenic effect on humans	Open water swimmers, paddle boarding and all those who partake in other water sports, together with those who use the beaches for recreation, children playing and dogs swimming	See above	Azamethiphos, Cypermethrin and Deltamethrin and the large volume of faecal matter
16	Fish food and fecal matter are known pollutants and the modelling shows impact around the whole coastal area. The chemical dosing is very concerning resulting in carcinogenic chemicals that impact zooplankton being dispersed along the coast. I think we need to ask ourselves if our desire to eat chemically dosed fish or drive business growth is worth the absolute impact this will cause to the marine environment. Although I have seen modelling, I have not seen a comprehensive impact assessment of this on SSSI, marine food chain, long term chemical imbalance of the water on local nature. We have to stop this!!	I'm worried about the whole marine environment and food chain, from algae onwards. Seagrass, shellfish, ultimately to marine mammals.	The food and fecal waste along with the lice chemicals. Highly toxic to marine life and known carcinogenic.	Wild swimming, paddle boarding, sailing. All increasingly popular and many more people using the coastal area. What is the incremental impact of regular sea bathers? Skin as well as potential ingestion.		Lice chemicals and pollution from food and feces

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17	<p>it is understood from looking at the screening / scoping response from Argyll and Bute Council relating to the Dawnfresh proposal for South Bute that benthic surveys exist for that site and have been submitted to SEPA but such information has not been made available within this consultation for Little Cumbrae. Neither is there any reference to benthic survey work in the screening / scoping conducted by North Ayrshire Council planners. How can the public comment on the quality and richness of this substrate and what damage might be done by both chemical treatments and solids discharge and deposition if there is no reference to this important baseline study component</p> <p>It is also clear from this same screening/scoping exercise that SEPA has asked for information on nitrogen and phosphorus containing substances that would emanate from the development proposed. There is no indication in the reports supporting the application that provides any perspective on either quantities or level of risk of enhancement of eutrophication taking into account existing levels of these plankton bloom promoting elements in waters with already elevated levels of these elements.</p>	<p>Clearly the recently announced intention to establish oyster beds at Fairlie Quay and Largs Marina would be a major source of concern that in future chemicals release in this confined area of the Clyde Estuary from all three Dawnfresh developments would put this oyster project at considerable risk of failure</p>	<p>As this pro forma offers no flexibility for introducing other comments outside the two questions asked I am raising additional points here</p> <ol style="list-style-type: none"> 1. It is inappropriate that the CAR application is supported by outdated evaluation processes and supporting documentation dating back to the original submission in late 2018. I am referring specifically the use of AUTODEPOMOD and guidelines including the acquisition of site conditions, water column hydrology etc which are now recognised as inadequate or flawed and now replaced in the application process by a new evaluation model coupled with more stringent data requirements including hydrographical survey work using recognised methodology. 2. There is no explanation for the time lapse, only a more recent hydrography report employing a DELFT3D model with little or no description of the model construction or the data inputs to back up the dispersion and deposition situation. Neither is there any more convincing discussion of the results related to SEPA's own specifically defined objectives regarding sea bed diversity condition or environmental quality standards making it impossible to verify the findings. 3. The three Dawnfresh developments are in close proximity and cumulative assessment of environmental impact is an important aspect that justifies evaluation. Apparently no study of this kind has either been conducted or even required at this stage by SEPA, a serious omission in the permitting process. 4. The proximity of all three development proposals introduces a heightened risk of spreading of disease vectors and infestation throughout the linked operations by natural transmission pathways and by human contact with service vessels and personnel. The low stocking density will help but there is no evidence provided that suggests SEPA has thought to engage with the company in examining how the hydrodynamic characteristics around these clustered Clyde islands could promote such adverse interactions. Specifically this same proximity could result in a continuous barrier of potential infection stretching across the very important wild salmon migration route to Loch Lomond and the Endrick catchment, sea lice population growth within the sea-trout cages being a crucial risk. SEPA as the guardian of water quality needs to play its part in removing or 	<p>The toxic chemicals employed in intensive industrial salmon and sea trout fish farming to keep diseases and pests at bay and also the excreted wastes, mainly faeces are all released untreated into the marine environment and dispersed widely in confined areas of sea raising issues of public health for those who come into contact with this pollution</p>	<p>The Clyde islands concerned in the three development proposals from Dawnfresh have for many decades been popular with day trippers and holiday visitors who take to the beaches and shores for recreation including sea bathing, kayaking and boating. These locations more than most in the West of Scotland will bring large numbers of people in contact with toxic chemicals and contaminated organic wastes.</p> <p>Although the north west coast of Little Cumbrae is not frequently visited dispersion modelling would suggest that there is a serious risk of human contact with water contamination in Millport Bay on Greater Cumbrae</p>	<p>Azamethiphos, an organophosphate, a chemical group of pesticides well known throughout on-land agriculture as carcinogens. This chemical is included in the chemicals listed in the SEPA CAR application form but its dispersion characteristics are not recorded along with other chemicals in the Xodus hydrographics report. Is this because concentrations arriving on the shores of Greater Cumbrae around Millport Bay present an unacceptable risk to bathers and other recreational water users as appears to be the case with deltamethrin ?</p> <p>Overall, and in particular taking into account what appears from the patchwork of technically compromised briefing material made available for public consultation, my view is that SEPA would be well advised to turn down the licence application on this occasion and ask the company to reapply this time with a new set of documents designed to meet the need of the regulator as specified in the latest sectoral guidance.</p>

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			<p>preventing this risk becoming a reality in its evaluation of any relevant strategy yet to be published by the company</p> <p>5. Stocking density figures presented in the Biomass Modelling Report are inconsistent and the outcome regarding maximum biomass at this site would suggest that the low recorded current and water movement velocity would result in poor dispersion and therefore render the site inappropriate.</p>			

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18	<p>The water environment would be polluted by high concentrations of fish faecal matter, food waste, dead fish, concentrated lice infestation which will impact on the wild salmonids which travel in and out of the Clyde to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation, the highly toxic chemicals, Cypermethrin, deltamethrin and azamethiphos, which are detrimental and very toxic to aquatic life with long lasting effects, and acute hazards to the aquatic environment , as well as long-term hazards. Cypermethrin is a possible human carcinogen and reduces zooplankton density and biodiversity. Dawnfresh claim that a six week rest period after farming for 22.5 months will recover the environment from the drugs, faecal waste and food waste from 4,875 tonnes of food per year producing 2,500,00kg of fish stock. That does not seem probable or even possible. Even if all the waste is dispersed, it does not disappear - it will have moved elsewhere causing detrimental impact elsewhere.</p>	<p>According to the website of the owners of Little Cumbrae, there are over 75 species of birds that nest on Little Cumbrae, many of them rare and endangered species including the Cormorants at Cormorant Perch. Harbour Porpoises and Dolphins are regularly spotted in the upper reaches of the firth and in summer 2009, a new baby dolphin was welcomed to the Firth. Basking sharks are also living within the Firth in small numbers and are occasionally seen along with the elusive but present Minke whale.</p> <p>The wild salmonids which leave and return to their spawning grounds at the Endrick Water SAC will be impacted by the concentration of lice around the farm pens and from escapees which will transfer lice and also breed with the wild fish and causing genetic changes and weakening of the species.</p> <p>The cumulative effects of the dispersion of the pharmaceutical treatments from all three proposed fish farms will have detrimental effect on the mainland coastal environment where there are newly installed oysters being bred and raised at Largs Yacht Marina and Fairlie Quay Marina.</p> <p>The water quality for any and all aquatic life in the area will be harmed by the faecal and food waste.</p>	<p>Faecal waste from such a large concentrated quantity of fish over a long period of time is harmful to the marine environment.</p> <p>The three bath treatment chemicals - Cypermethrin, deltamethrin, and azamethiphos are all environmental hazards, very toxic to aquatic life with long lasting effects, and acute hazards to the aquatic environment, as well as long-term hazards. Cypermethrin is a possible human carcinogen. As well as the potential health risks of consuming fish which have been treated with these chemicals, there is actual danger to the marine environment and aquatic life which live and/or feed in the waters. Cypermethrin also reduces zooplankton density and biodiversity.</p>	<p>It will impact on the livelihoods of the boat charter companies which do wildlife sight-seeing tours around the coast of Little Cumbrae and will impact on future tourism to the area and the island because they want to come to see nature and history, not fish farms with their noise and feed boats and equipment.</p> <p>It will impact on the owners of Little Cumbrae who have plans to use it as a meditation retreat.</p> <p>It will impact on the people who have begun raising oysters on the nearby mainland in Largs and Fairlie where the dispersion of the chemicals will end up based on the dispersion modelling, which will be harmful to the health and success of the oysters.</p> <p>The proposed farms are directly in the highest use areas for kayaking, sailing and merchant navy and all other marine traffic in the Clyde. Therefore it will impact on all of those people who travel through this area for recreational, military, or economic reasons.</p> <p>The dispersion modelling for the chemical treatments on Little Cumbrae will have a very serious detrimental effect on the residents and visitors to Great Cumbrae. The modelling report shows that all of the treatments of highly toxic chemicals from Little Cumbrae will land directly into Newtown Bay and Kames Bay at Millport. Kames Bay has been recognised as a Site of Special Scientific Interest (SSSI) by Scottish Natural Heritage, for its educational value especially. As such it is illegal to damage the integrity of this beach. Kames Bay is special in having a source of freshwater upwelling from beneath it (hence why the sand is always wet, even when it is not raining!) caused by drainage down the Great Cumbrae Fault (which is responsible for the valley up which the Ferry Road runs). That effectively creates an estuarine character to the biota of this marine beach, probably a unique feature in Britain. It is actually shocking to me that Dawnfresh would even consider this farm when their own modelling shows that all of the toxic chemicals will land directly in this bay! This is an area that is extremely popular with Cumbrae residents and visitors for paddling, wading and swimming and fishing. The bays surrounding Millport are the lifeblood of the economy of the Isle of Cumbrae. If the farm at Little Cumbrae is permitted, the owners of Dawnfresh will have destroyed the economy and future of. Millport and therefore the entire Isle of Cumbrae, as well</p>	<p>My comments to this question are the same as to the above question - please see my comments above - tourism, oyster farming, peaceful island retreat, boating, kayaking, marine traffic, swimming, wildlife watching, preserving the natural environment, and the economy of Millport.</p>	<p>Cypermethrin, deltamethrin, azamethiphos, faecal waste, food waste, fish lice,</p>

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				as the value of the property of Little Cumbrae to its owners and any possible future owners.		
19	Pollution under the farms and surrounding area due to tonnes of fish excrement and chemicals used to treat the fish in the nets also are not good for the water quality and certainly not good for anything living close to the area infected.	Sea lice will impact on salmon and sea trout, Dawnfrench have a very poor record on this, wild sea trout netting carried out by fishery biologists in 2015 recorded the worst sea lice infections ever in wild fish in Loch Etive. A year later, in 2016 the Argyll District Salmon Fishery Board reported that it could not catch ANY sea trout to sample. This was followed by a very poor grilse run in 2016 and 2017 which was the worst recorded run on the Awe by a considerable margin. HOW ELSE CAN ONE MEASURE THIS! It is common sence that if you pour chemicals into the water or have it in fish food which is excreted, it is not natural and can not be good for any living creature anywhere near, I know it has been said that sea lice can travel 20 miles from these fish cages - I suppose the chemicals are probably worse.	Any chemical is bad for the environment, but you have to add benthic pollution (uneaten fish feed, faeces, and general detritus.)	It has to impact on divers, creel fishers and any type of sport anywhere close. Divers - as no fish will be close by Creel fishers - all crustations will die Sport - the smell will put people off.		one should be very wary of ALL chemicals! Unfortunately there is nothing in this consultation to say anything about Dawnfresh, they have failed routine benthic surveys often, had a very mixed bag of results in SEPAs Compliance Assesment Scheme (CAS) had breaches of planning permission etc!
20	This development will adversely affect the marine environment and is not acceptable in this local community area.			This development will impact safe navigation of the local very busy sailing and water sports area.	Sailing	

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21	<p>Argyll and Bute Council Opinion response to the Dawnfresh 19/00233/SCRSCO screening/scoping application on the 17 May 2019</p> <p>This opinion from the ABCouncil stated the proposed fish farm is likely to give rise “to significant environmental effects”</p> <p>Fish faecal matter will affect water quality: For 94 years, from 1904 until 31 December 1998, the sewage sludge from Glasgow was shipped down the Clyde and dumped at Garroch Head of the south of Bute. On the SEPA website the water quality of the whole area around Arran, Bute and the Cumbraes was only moderate and the website cited sewage as the reason. Only in the last several years has the water quality in this area been upgraded to good. How can it be sensible to now allow three fish farms to allow untreated faeces from tens of thousands of caged fish enter this fragile area? Dr Luxmore, who before retiring was senior nature conservation officer at the National Trust Scotland said that one fish farm of the size proposed produces the sewage equivalent of a town twice the size of Oban. With three farms proposed across the mouth of the Clyde we would be allowing waste equivalent to that of 105,000 enter the waters. That is not acceptable.</p> <p>No other form of farming would be allowed to let the untreated waste of its animals freely enter and pollute the environment. The idea that faeces and/or chemicals will be dispersed is not an acceptable argument: dispersal does not equal disappearance – it simply means it will be moved somewhere else.</p> <p>Use of highly toxic chemicals will affect other species in the area:</p> <p>The applicant plans to use azamethiphos, cypermethrin, deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. They’re utility in fighting lice by causing the destruction of their shells will also affect other crustaceans in the area. The South Bute site is already fished by CFA and there is a young lobsterman who is not a CFA member who works that exact area. For the Cumbrae applications, it seems ridiculous that £1.8m is being spent to reintroduce oysters, including placing 1300 in the Largs Yacht Haven and Fairlie Quay Marina, and then fish farms will be introduced adjacent to these sites so that these toxic chemicals will impact those oysters. The oysters are touted as purifiers of water and a boon to the environment but if these neuro toxins affect them the money and project overall will be in vain.</p> <p>*There are otters that swim in the area of the proposed South Bute fish farm. Otters</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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And after the ECCLR report in 2018 chastised SEPA for lack of oversight and SEPA reformed its application standards, why are these applications being allowed to use old data input to outdated modelling systems to submit this application?</p>	<p>I think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p> <p>The proposed fish farms are directly in the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. Wild swimmers would lose a stretch of the Bute coastline for their swimming activities. Please refer to the Bute Outdoor Swimming Society FB group page (approx. 500 members) and see the swims that have taken place from Kilchattan Bay to Glencallum Bay. Also, there is currently no knowledge of the possible effects of the toxic bath treatments on humans, so again the precautionary principle should be applied.</p> <p>The newly established paddle boarding company on Bute would lose a stretch of coast line for its customers.</p>	<p>As above in 6A</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>As above, I again would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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	<p>are a European protected species and SEPA has an obligation to apply the precautionary principle here to protect them. These will be affected directly by absorbing the chemicals if they are in the water at the time of treatments and indirectly through eating shellfish that have been affected by the chemicals.</p> <p>SEPA's own study in 2018 in Shetland showed that chemical dispersion could be wider than modelled as well as chemicals lasting longer than expected. Why should we believe this will not happen in the Clyde? https://consultation.sepa.org.uk/sector-plan/finfishaquaculture/supporting_documents/Fish%20Farm%20Survey%20Report.</p> <p>Lice soup will be created in the Clyde, impacting wild salmonids</p> <p>Holding 2500t of fish in an open cage will build up a concentration of lice which will be exacerbated by the relatively close proximity of the three proposed farms across the entrance of the Clyde. This will impact on the wild salmonids exiting and re-entering the Clyde as they leave and return to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation. *The Scottish Government, and thus SEPA as its agent, is obliged to protect these wild salmonids as they travel through Scottish waters. It has recently been established that lice from fish farms can impact wild salmonids and any doubt about the magnitude of such impact should be subjected to the precautionary principle and this application rejected.</p> <p>Please refer to this model for impact of lice from fish farms and thus the impact on the water environment https://vimeo.com/496948354</p>					
22	<p>Any fish farm located in the Firth of Clyde will create a localised concentration of waste along the coastline, similar to sewage waste, and chemical pollution. This will have long term impact on the sea flora and fauna. The Firth of Clyde is already polluted by rivers, especially the Ayrshire rivers, due to the inland farms, so we do not need to make it the situation worse.</p> <p>There's an undeniable decreasing number of migratory fish entering the rivers and part of the problem is pollution.</p>	<p>Any chemical is an alien substance to the sea; chemicals should not be discharged into the water. The water is already contaminated by fuel, oils, plastic, inland farm animal waste....</p>	<p>Migratory fish is decreasing sharply and one of the causes is pollution. SEPA should help to improve the water quality and to do so SEPA should block all those projects.</p>	<p>With covid we have had an increase of people doing water sports. We need a clean sea for the swimmers I see every morning (also in the winter) along the Prestwick beach, and for the people doing paddle boarding, kayaking, surfing etc. It is time to prioritise the environment and not to those who want to exploit the environment, by making money and polluting the sea.</p>	<p>There should not be any chemical in the sea. Unfortunately the sea is already polluted by fuel, oil, plastic etc. so we must limit the damage and to do so I hope SEPA will block the creation of those trout farms. Trout farms and salmon farms should be built on inland like they are already doing in Norway, Denmark and the U.S.</p>	

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23	<p>The impact on the water environment under these applications could easily be a disaster. Highly toxic chemicals, which are used to treat the fish in open pens, will be dumped into the water. These chemicals do not 'disperse' as is suggested.</p> <p>Proposals are based on weather information irrelevant to Little Cumbrae. On Thursday 21st May I had great difficulty standing upright on the shore due to the gale force southerly winds howling through. A fish farm at Little Combrae would have problems surviving without damage on such a day – damage resulting in escaped fish infected by sea lice. These fish will in turn infect the wild species.</p> <p>The ferries from Rothesay to Weymss Bay managed to run to schedule on that same day. They were only seven miles away but obviously operating in a considerably different weather conditions</p> <p>How can these applications be taken seriously when they use weather data from Inverkip, 9 miles away and Glasgow airport 25 miles away?</p> <p>This makes weather data on the proposals irrelevant and a nonstarter.</p>	<p>Species that depend the clean water they currently enjoy will disappear. Pollution by chemicals and fish faeces will mean seals, otters, dolphins, whales and other aquatic life will disappear</p>	<p>The chemicals listed, Azamethiphos, Cypermethrin and Deltamethrin, are long lasting and highly toxic. An even more important fact is that two of them are carcinogenic, endangering human life.. These will pollute the whole width of the Clyde estuary in this area. So the coastline of Ayr, the two Cumbraes and Bute will all be no go areas at the affected stretches. This means a barrier is formed and no aquatic life, including wild salmon, will get through to the upper reaches of the Clyde.</p>	<p>The beaches will become no go areas, unsafe for all the current recreational activities. No children playing in rock pools, building sand castles and paddling, swimmers or surfers, canoes or dinghies, sailing boats, water scooters etc.</p> <p>All fishing will be affected, including scallops, lobsters, crabs, mussels and other crustaceans.</p>	<p>All activities in the surrounding waters [see above] will be endangered</p>	<p>Azamethiphos, Cypermethrin and Deltamethrin – all highly toxic Fish faeces in vast quantities</p>

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24	<p>For 94 years, from 1904 until 31 December 1998, the sewage sludge from Glasgow was shipped down the Clyde and dumped at Garroch Head of the south of Bute. On the SEPA website the water quality of the whole area around Arran, Bute and the Cumbraes was only moderate and the website cited sewage as the reason. Only in the last several years has the water quality in this area been upgraded to good. How can it be sensible to now allow three fish farms to allow untreated faeces from tens of thousands of caged fish enter this fragile area? Dr Luxmore, who before retiring was senior nature conservation officer at the National Trust Scotland said that one fish farm of the size proposed produces the sewage equivalent of a town twice the size of Oban. With three farms proposed across the mouth of the Clyde we would be allowing waste equivalent to that of 105,000 enter the waters. That is not acceptable. No other form of farming would be allowed to let the untreated waste of its animals freely enter and pollute the environment. The idea that faeces and/or chemicals will be dispersed is not an acceptable argument: dispersal does not equal disappearance – it simply means it will be moved somewhere else.</p> <p>Use of highly toxic chemicals will affect other species in the area: The applicant plans to use azamethiphos, cypermethrin, deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. They're utility in fighting lice by causing the destruction of their shells will also affect other crustaceans in the area. The South Bute site is already fished by CFA and there is a young lobsterman who is not a CFA member who works that exact area. For the Cumbrae applications, it seems ridiculous that £1.8m is being spent to reintroduce oysters, including placing 1300 in the Largs Yacht Haven and Fairlie Quay Marina, and then fish farms will be introduced adjacent to these sites so that these toxic chemicals will impact those oysters. The oysters are touted as purifiers of water and a boon to the environment but if these neuro toxins affect them the money and project overall will be in vain.</p> <p>*There are otters that swim in the area of the proposed South Bute fish farm. Otters are a European protected species and SEPA has an obligation to apply the precautionary principle here to protect them. These will be affected directly by absorbing the chemicals if they are in the water at the time of treatments and indirectly through eating shellfish that have been affected by the chemicals.</p>	<p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina The water quality of the general area due to faecal and food waste. The seal population at Millport Bay who will be shot as predators because they will see the fish farm as a food source. The local resident dolphin "Kyle" who may receive the same fate. The local population of porpoise.</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin Faecal waste from such a large number of fish for such an extended period of time I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind data and Inverkip meteorological data is used in the modelling. 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The visual impact would also affect tourism in the area.</p>	<p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would The proposed fish farms are directly in the highest use areas for kayaking, sailing, coastal rowing and merchant navy activity so any of these users will be impacted. The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours.</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin Faecal waste from such a large number of fish for such an extended period of time As above, I again would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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	<p>SEPA's own study in 2018 in Shetland showed that chemical dispersion could be wider than modelled as well as chemicals lasting longer than expected. Why should we believe this will not happen in the Clyde? https://consultation.sepa.org.uk/sector-plan/finfishaquaculture/supporting_documents/Fish%20Farm%20Survey%20Report. Lice soup will be created in the Clyde, impacting wild salmonids</p> <p>Holding 2500t of fish in an open cage will build up a concentration of lice which will be exacerbated by the relatively close proximity of the three proposed farms across the entrance of the Clyde. This will impact on the wild salmonids exiting and re-entering the Clyde as they leave and return to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation. *The Scottish Government, and thus SEPA as its agent, is obliged to protect these wild salmonids as they travel through Scottish waters. It has recently been established that lice from fish farms can impact wild salmonids and any doubt about the magnitude of such impact should be subjected to the precautionary principle and this application rejected.</p> <p>Please refer to this model for impact of lice from fish farms and thus the impact on the water environment https://vimeo.com/496948354</p>					
25	<p>Waste material from fish pens dropping to the sea bed in the immediate area. Faeces and uneaten food pellets. I am old enough to remember the disgusting smell in the area off Garroch Head when the sewage sludge boats from Glasgow dumped their toxic waste. It has taken years for the area to recover and reduce the heavy metal pollution. Why would we consider recommencing pollution in this area. The use of highly toxic chemicals for fish treatment is not acceptable. The three stated chemicals, azamethiphos, cypermethrin and deltamethrin are all toxic in the marine environment as stated by the European Chemicals Agency. The use of such materials will probably be the subject of enquiry in future years, just as the disastrous impact which many previously used land based herbicides has had on bee populations. People will then be shocked that such behaviour was sanctioned by regulators.</p>	<p>Impact on the already low numbers of native salmon and sea trout in the area. The impact on seal populations which if they have the temerity to try to eat any farmed salmon which have suddenly arrived in their environment will be forced away by constant underwater noise methods, or be shot if they fail to comply.</p> <p>This proposed fish farm is within a mile of two major resident seal populations. One is on the Broad Islands off the East coast of Little Cumbrae. The other is on the various rocks and islets in Millport Bay.</p> <p>Impact of underwater noise on cetaceans in the area. The Cumbrae Pass channel is a known hot spot for Harbour Porpoise.</p>	<p>The three sea lice treatment chemicals quoted in the CAR.</p> <p>The degradation products from faecal waste and unused food pellets.</p> <p>Any anti-fouling treatments for the nets and pens.</p>	<p>All water users in the area. Boating, sailing, kayaking, diving, fishing.</p> <p>Anyone who visits the beautiful wild island of Little Cumbrae or who travels by boat through the Cumbrae Pass from the Largs Channel.</p> <p>Anyone who wants to swim in clean unpolluted waters in the adjacent Clyde area. It is particularly noted that the dispersion models show the three toxic chemicals being directed to the beaches in Millport Bay on Great Cumbrae. This is an area used by thousands of tourist each year who expect to be able to access clean, pollution free sea water for swimming and paddling.</p> <p>The modelling takes no account of the proposed Flood Defence Scheme which is about to be implemented in Millport Bay. How can approval be granted without taking account of this major change to the hydrography? Surely the reduced water exchange behind the flood defences will lead to significant accumulation of the three toxic sea lice treatment chemicals in the bay where people access the water to swim and</p>	<p>Anyone who wants to swim in clean unpolluted waters in the adjacent Clyde area. It is particularly noted that the dispersion models show the three toxic chemicals being directed to the beaches in Millport Bay on Great Cumbrae. This is an area used by thousands of tourist each year who expect to be able to access clean, pollution free sea water for swimming and paddling.</p> <p>The modelling takes no account of the proposed Flood Defence Scheme which is about to be implemented in Millport Bay. How can approval be granted without taking account of this major change to the hydrography? Surely the reduced water exchange behind the flood defences will lead to significant accumulation of the three toxic sea lice treatment chemicals in the bay where people access the water to swim and take their children to paddle. This has surely got to be re-evaluated?</p>	<p>The three sea lice treatment chemicals quoted in the CAR.</p> <p>The degradation products from faecal waste and unused food pellets.</p> <p>Any anti-fouling treatments for the nets and pens.</p>

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				take their children to paddle. This has surely got to be re-evaluated?		
26	<p>The negative impact of industrial levels of fish farming on the water and shoreline environment has been well documented. Recent reports highlight a vast increase of lice infestation in the fish pens of existing farms, and the subsequent increased use of chemicals. These chemicals – which are toxic to humans and to aquatic life – together with hormones used to treat the fish, untreated fish faeces and uneaten food etc will stay in the waters of the Firth of Clyde for years, swilling back and forth with the tides, polluting our sea and our shores.</p> <p>Reports from Norway state that the environmental damage caused by open pen fish farming is now so critical that the Norwegian government no longer issues licences to the companies involved. As a result, Norwegian fish farming companies have now come to Scotland.</p> <p>The Firth is already circled by existing fish farms that require far stricter regulation than is currently exercised. To contemplate more farms in these circumstances would be the utmost folly. An environmental disaster driven by short term financial gain.</p>	<p>All marine and shore life in the area around the Cumbraes and between the Cumbraes and Bute is liable to be adversely affected.</p> <p>£1.8m is being spent to reintroduce oysters to the Largs Yacht Haven and Fairley Quay Marina. The toxic chemicals in use in the fish pens, together with the pollution caused by the fish faeces and uneaten food, will impact these oysters and all the money and effort spent will have been in vain.</p>	<p>The application seeks permission to use Cypermethrin, Deltamethrin and Azamethiphos as bathing treatments, all of which are highly toxic and hazardous to the aquatic environment, and to humans. Two of these chemicals are human carcinogens.</p> <p>This proposal involves dumping large quantities of untreated fish faeces, hormones and carcinogenic chemicals into the waters around Bute and the Cumbraes. Toxic chemicals will be in the water column for decades, long after the fish farms have gone. The chemicals will be ingested by all fish in the vicinity, which are then sold for human consumption. How can this be acceptable?</p>	<p>All water and shore based activity, both leisure and commercial, would be impacted by pollution from the vast quantity of untreated faeces and toxic chemicals dumped into the water. This level of pollution would be an environmental disaster for the area.</p>	<p>See above</p>	<p>Cypermethrin, Deltamethrin and Azamethiphos are all used in ‘bathing’ the fish pens and are all highly toxic, a danger to both aquatic life and to humans.</p> <p>This proposal involves dumping large quantities of untreated fish faeces, hormones and carcinogenic chemicals into the waters around Bute and the Cumbraes, damaging the environment for many years.</p>

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27	<p>District Salmon Fishery Boards have a statutory responsibility to protect and improve salmon and sea trout fisheries in their district and are statutory consultees in the planning process for fish farms. Whilst Fisheries Management Scotland do not routinely respond to CAR licence applications for fish farms, we believe that the proposed location for this development is inappropriate from the perspective of migratory salmonids and the interests of other water users. There are a number of important rivers and fisheries that would be affected by the proposed farm site, including those in North Ayrshire, the Clyde and Loch Lomond (which includes the Endrick Water Special Area of Conservation - https://sitelink.nature.scot/site/8252), which are not covered by a District Salmon Fishery Board. On that basis, Fisheries Management Scotland will be fully engaged with the licensing and wider planning process. Our primary concern are impacts on wild salmonid fish and this is covered in the section below.</p>	<p>All three proposed Dawnfresh sites lie on an important migration pathway for Atlantic salmon which all fish arising from the inner Clyde, including the Clyde and Lomond systems, will utilise. It is also high likely that Atlantic salmon and sea trout arising from rivers in North Ayrshire will utilise this area. We would emphasise that both Atlantic salmon and sea trout are Priority Marine Features – the habitats and species of greatest conservation importance in inshore waters. We also highlight that the Endrick Water is a Special Area of Conservation (SAC) with Atlantic salmon as a qualifying interest. The Endrick Water SAC is already rated as being in an ‘unfavourable’ condition by NatureScot site condition categorisation. The Habitats Directive (article 6) requires that Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive. It also states: In the light of the conclusions of the [appropriate] assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.</p> <p>The proposed development, taken together with the other two proposed CAR licences in this area by the same company, represent a significant additional biomass of farmed fish in an area of the inner Clyde with no history of open cage fish farming. This will represent a highly significant addition of host fish for sea lice on an important migratory pathway for wild fish. It is important to emphasise that the total lice load arising from a marine fish farm is a function of the number of lice per farmed fish, and the total number of fish maintained in the cages. Maximum biomass consented via the CAR licensing system therefore has a direct influence on the number of larval sea lice released into the environment. As set out above, we therefore consider that SEPA must take the potential impacts on wild fish, and the associated impact on interests of other users of the water environment fully into account when considering these applications. Of particular relevance is the close proximity of the Endrick Water SAC. Fish arising from this SAC, and many other important local rivers, inevitably must</p>		<p>Scotland’s wild salmon and sea trout are at crisis point with many populations below conservation limits, particularly on the West Coast within the ‘Aquaculture zone’. Whilst wild salmon face a range of pressures, specific pressures from the aquaculture industry include impacts from escapes and sea lice. Salmon and sea trout fisheries are an important component of Scotland’s rural economy. These fisheries and associated infrastructure rely on healthy populations of fish returning to Scotland’s rivers. Scottish salmon rivers are categorised by Marine Scotland Science under the salmon conservation regulations according to the likelihood of them meeting their conservation limits. The gradings of rivers have been published for 2021. 104 rivers across Scotland are graded as Category 3, meaning there is a less than 60% probability of meeting their conservation limit. Where salmon populations are below their conservation limits, any additional pressure, including from sea lice, cannot be considered sustainable.</p> <p>Whilst Fisheries Management Scotland do not routinely respond to CAR licence applications for fish farms, we believe that the proposed location for this development is inappropriate based on the aforementioned impacts on the water environment, which will have a knock-on effect on other water users, including fisheries managers and anglers.</p> <p>As mentioned previously, the impacts of sea lice and farmed fish escapes can be detrimental to the water environment. Experience from previous escapes of rainbow trout from Dawnfresh farms, particularly in Loch Etive where at least 35,000 fish have escaped since 2015, have shown that in addition to these potential ecological impacts, the escapes create a significant nuisance to fishery owners and angling businesses. We therefore consider that SEPA must take the potential impacts on wild fish, and the associated impact on interests of other users of the water environment fully into account when considering this application.</p>	<p>As above, this farm, alongside the other two proposed CAR licences in this area, has the potential to impact fisheries management and angling activities in a number of important rivers and fisheries, including those in North Ayrshire, the Clyde and Loch Lomond (which includes the Endrick Water SAC), which are not covered by a District Salmon Fishery Board.</p>	

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		<p>migrate directly past the proposed developments on their migration through the inner Clyde, placing those fish at risk from lethal or damaging infestation from sea lice.</p> <p>We would also highlight the potential risk of the effects of escaped farmed species on wild fish populations which is widely recognised within peer reviewed scientific literature (e.g. Glover et al. 2017). A recently recorded instance at the Mowi Scotland Ltd. Carradale North site saw 48,834 farmed salmon escape during a storm event in August 2020. A study of scale samples monitored the distribution of the escaped fish and found widespread dispersion of the farmed salmon. There were documented cases of farmed fish found within 17 rivers, the majority of which were captured within the Clyde and Loch Lomond systems and a number of rivers in Ayrshire and Argyll (Fisheries Management Scotland, 2021). Rainbow trout are a non-native species and have the potential to impact on native fish species through competition and predation. In addition, rainbow trout in the wild are not covered by wild fisheries legislation. Experience from previous escapes of rainbow trout from Dawnfresh farms, particularly in Loch Etive where at least 35,000 fish have escaped since 2015, have shown that in addition to these potential ecological impacts, the escapes create a significant nuisance to fishery owners and angling businesses. Dawnfresh have refused to recognise or compensate for these impacts. SEPA have direct responsibility for non-native species in rivers, so it is important that this potential impact is fully considered in determining this CAR licence.</p> <p>We have attached a short summary of the science which underpins our objection. Whilst the impacts of sea lice arising from farms may be mitigated by strategically planning farm locations, there is no current strategic plan within which this can happen. We are conscious that SEPA, Marine Scotland, NatureScot and local authorities are developing a strategic framework related to sea lice impacts on wild fish, but this is still in development. In the meantime, the precautionary principle should apply, and Fisheries Management Scotland strongly object to a licence being granted for each of the three proposed farms.</p> <p>References</p> <p>Fisheries Management Scotland (2021). Monitoring for the presence of farmed salmon in West Coast Scottish rivers</p>				

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		<p>following an escape from the Carradale North salmon farm. Half a century of genetic interaction between farmed and wild Atlantic salmon: Status of knowledge and unanswered questions. Fish and Fisheries, 18(5), 890–927. https://doi.org/10.1111/faf.12214</p>				

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28	<p>This opinion from the ABCouncil stated the proposed fish farm is likely to give rise “to significant environmental effects”</p> <p>Fish faecal matter will affect water quality: For 94 years, from 1904 until 31 December 1998, the sewage sludge from Glasgow was shipped down the Clyde and dumped at Garroch Head of the south of Bute. On the SEPA website the water quality of the whole area around Arran, Bute and the Cumbraes was only moderate and the website cited sewage as the reason. Only in the last several years has the water quality in this area been upgraded to good. How can it be sensible to now allow three fish farms to allow untreated faeces from tens of thousands of caged fish enter this fragile area? Dr Luxmore, who before retiring was senior nature conservation officer at the National Trust Scotland said that one fish farm of the size proposed produces the sewage equivalent of a town twice the size of Oban. With three farms proposed across the mouth of the Clyde we would be allowing waste equivalent to that of 105,000 enter the waters. That is not acceptable. No other form of farming would be allowed to let the untreated waste of its animals freely enter and pollute the environment. The idea that faeces and/or chemicals will be dispersed is not an acceptable argument: dispersal does not equal disappearance – it simply means it will be moved somewhere else.</p> <p>Use of highly toxic chemicals will affect other species in the area:</p> <p>The applicant plans to use azamethiphos, cypermethrin, deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. They’re utility in fighting lice by causing the destruction of their shells will also affect other crustaceans in the area. The South Bute site is already fished by CFA and there is a young lobsterman who is not a CFA member who works that exact area. For the Cumbrae applications, it seems ridiculous that £1.8m is being spent to reintroduce oysters, including placing 1300 in the Largs Yacht Haven and Fairlie Quay Marina, and then fish farms will be introduced adjacent to these sites so that these toxic chemicals will impact those oysters. The oysters are touted as purifiers of water and a boon to the environment but if these neuro toxins affect them the money and project overall will be in vain.</p> <p>*There are otters that swim in the area of the proposed South Bute fish farm. Otters are a European protected species and SEPA has an obligation to apply the precautionary principle here to protect them. These will be affected directly by absorbing the chemicals</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind data and Inverkip meteorological data is used in the modelling. Any of us who live in this area know that the winds and weather we face here are completely different to Inverkip and even more so to Glasgow airport. And after the ECCLR report in 2018 chastised SEPA for lack of oversight and SEPA reformed its application standards, why are these applications being allowed to use old data input to outdated modelling systems to submit this application?</p>	<p>I think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p> <p>The proposed fish farms are directly in the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. Wild swimmers would lose a stretch of the Bute coastline for their swimming activities. Please refer to the Bute Outdoor Swimming Society FB group page (approx. 500 members) and see the swims that have taken place from Kilchattan Bay to Glencallum Bay. Also, there is currently no knowledge of the possible effects of the toxic bath treatments on humans, so again the precautionary principle should be applied.</p> <p>The newly established paddle boarding company on Bute would lose a stretch of coast line for its customers.</p>	As above in 6A	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>As above, I again would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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	<p>if they are in the water at the time of treatments and indirectly through eating shellfish that have been affected by the chemicals.</p> <p>SEPA's own study in 2018 in Shetland showed that chemical dispersion could be wider than modelled as well as chemicals lasting longer than expected. Why should we believe this will not happen in the Clyde? https://consultation.sepa.org.uk/sector-plan/finfishaquaculture/supporting_documents/Fish%20Farm%20Survey%20Report.</p> <p>Lice soup will be created in the Clyde, impacting wild salmonids</p> <p>Holding 2500t of fish in an open cage will build up a concentration of lice which will be exacerbated by the relatively close proximity of the three proposed farms across the entrance of the Clyde. This will impact on the wild salmonids exiting and re-entering the Clyde as they leave and return to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation. *The Scottish Government, and thus SEPA as its agent, is obliged to protect these wild salmonids as they travel through Scottish waters. It has recently been established that lice from fish farms can impact wild salmonids and any doubt about the magnitude of such impact should be subjected to the precautionary principle and this application rejected.</p> <p>Please refer to this model for impact of lice from fish farms and thus the impact on the water environment https://vimeo.com/496948354</p>					
29	<p>No other form of farming would be allowed to let the untreated waste of its animals freely enter and pollute the environment. The idea that faeces and/or chemicals will be dispersed is not an acceptable argument: dispersal does not equal disappearance – it simply means it will be moved somewhere else.</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p>	<p>I think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p> <p>The proposed fish farms are directly in the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. Wild swimmers would lose a stretch of the Bute coastline for their swimming activities. Please refer to the Bute Outdoor Swimming Society FB group page (approx. 500 members) and see the swims that have taken place from Kilchattan Bay to Glencallum Bay. Also, there is currently no knowledge of the possible effects of the toxic bath treatments on humans, so again the precautionary principle should be applied.</p>	See 6A	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p>

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				The newly established paddle boarding company on Bute would lose a stretch of coast line for its customers.		
30	Parasites affecting the wild fish populations. Chemicals in the water affecting bathing quality			Poorer bathing quality		
31	<p>Environment - Over the last 50 years there has been great progress in cleaning up the Clyde, industrial effluent now greatly reduced, new sewage treatment plants installed to improve water quality, dumping of Glasgow's sewage sludge off the South of Bute discontinued. Not long ago SEPA registered the water quality around Arran, Bute and the Cumbraes as only moderate but in more recent years this has been upgraded to good. The river is no longer considered a dumping ground for waste.</p> <p>How can it now be sensible to allow three new fish farms to deposit untreated faeces from tens of thousands of caged fish to enter our waters. No other form of farming would be allowed to let untreated waste enter our river system. The idea that the river will disperse the effluent and chemicals is not an acceptable argument, it only means that it will be moved in diluted form to other areas, in this case the beaches and waters of the islands and North Coast which our public enjoy.</p> <p>These three proposed farms are either in or very close to the migratory run of salmon going up the Clyde and risk the salmon being contaminated by lice on their journey. Unintentional releases of large numbers of farmed fish into the rivers from fish farms in the past have also caused problems to wild stock and the businesses they support.</p> <p>The chemicals proposed for use to treat sea lice are forms of insecticides. Due to the enclosed nature of fish farms sea lice, a natural inhabitant of our waters in low numbers, proliferated and need treated, hence the chemical treatments used. Dead</p>			<p>Tourism - This area benefits from and depends heavily on tourism. Sailing, canoeing, kayaking, paddle boarding, windsurfing etc attract visitors to the area. Our beaches host a range of activities such as rock pooling, wild swimming, paddling, fishing and diving which also enhance the visitor experience for those onshore.</p> <p>The sandy areas and beaches are used for family swimming and picnics, dog walking and dog swimming etc.</p> <p>Our Largs and Millport proms are amongst the best used in Scotland by locals and visitors alike.</p> <p>Wildlife such as seals, porpoise, dolphin, otters, swans, herons and ducks to name a few add to the enjoyment of our shores.</p> <p>Any degradation of water quality, either biological or chemical contamination will affect the users of these waters both in the short and long term. Surely this is a most important consideration when there is no material or financial benefit to offset loss of amenity.</p>		

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	<p>and decaying fish can also be a problem.</p> <p>As previously said huge effort, through EU and Government controls, have been applied to clean up our waters, is this now sensible or correct to take a backward step? Especially as the local area has nothing to gain and much to lose if such developments go ahead.</p>					
32	<p>Fish farms have been proved to be detrimental to the collapse of wild fish stocks in the Argyll and Bute area over the last 20 year and adding another fish farm will further damage stocks. Sealice alone will give smolts absolutely no chance of return. Please stop installing these inshore and demand that they are build a minimum 1 mile offshore.</p>	<p>Sea trout, salmon, mackerel. Sea floor habitat in and around the farms</p>	<p>azamethiphos, cypermethrin, and deltamethrin, Which will not even prevent sealice in the sea around the nets.</p>	<p>think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p>	<p>In shore angling and creel fishing And much more</p>	<p>azamethiphos, has this even been proved to prevent sealice numbers In open water with tidal flow.</p>
33	<p>The Bute News (Argyll Media Ltd) of Friday 30.04.2021 carried an advertisement of Sepa re the application for the fish farm near Bute, but the description given, see below, will also apply to this application.</p> <p>'The discharge to the water environment of fish excreta, uneaten food and other substances resulting from the operation of a new marine pen fish farm' seems enough to warrant objection.</p> <p>There is already a fish farm in Loch Striven, at the north end of Bute, there are further applications for two more fish farms in the area, i.e. Cumbrae and South Bute, as well as a fish farm near Arran, besides this one which seems a heavy concentration of fish farms in a relatively small area, which is NOT open sea but a river. All those fish farms combined will discharge a lot of pollution into an area which is used for leisure, as well</p>	<p>All sea life will be harmed in some way by more pollution added to the river, from the smallest to the largest such as porpoises, seals, or otters. The whole area acts as a feeding ground for many birds, including Gannets from Ailsa Craig.</p> <p>Fish farms use audio methods to scare off any would-be predators, and by doing so causing distress to many animals.</p> <p>It will be a negative visual impact for any one walking, sailing, swimming in the area. A fish farm is not a thing of natural beauty, which will have to be avoided as I am sure the owners will not like anyone passing close to their fish farm.</p> <p>Not only the water quality will be impacted by the many fish farms, but also the riverbanks as the Clyde is comparatively</p>	<p>Fish farms are the marine form of battery hens, many animals penned up in a small area, heavily dosed up with all kinds of treatments, including medication, hormones and sealice treatment. Anyone or anything coming in touch with these substances not meant for them is potentially harmed by them.</p> <p>Over the years a lot of work has gone into cleaning up rivers, seas and any other surface water, farmers get into big trouble if they accidentally discharge anything harmful to the environment, so it seems a contradiction to what is practiced in conservation and a negation of risks to allow fish farms, not just one but several in one area.</p>	<p>The area depends rather heavily on tourism and leisure, therefor any developments which will cause a negative impact are not really desirable.</p> <p>Not many people are employed to work at fish farms, so there is no benefit of extra employment. The fish do not get processed locally, Dawnfresh is based in Uddingston, again no additional benefit for the area.</p> <p>Pollution of the water environment including the river banks, visual pollution of an industrial fish farm in what is up to now a relatively unspoilt area with perhaps increased road traffic of having to move the fish to the processing plant near Glasgow.</p> <p>There many be positive benefits for the Uddingston area, extra employment, extra sales and trade all over the world which will improve that area, but there do not seem to</p>	<p>Sswimmers, leisure fishermen, birdwatchers, walkers, sailers, kayakers, paddle boarders and anyone else in the area and/or on the banks of the Clyde will all be negatively impacted by this development. This part of the Clyde from Gourock to Ardrossan for instance, has many marinas, good for the leisure industry but if the area becomes less attractive with fewer marinas, or boats, than this will impact negatively on the local economies.</p> <p>Greenock has a cruise terminal, now with the Corona epidemic lessening, cruises around Britain are starting up again. Not very pretty for the passengers to have to sail past fish farms to get to the terminal.</p> <p>There is also commercial fishing in the Clyde of prawns, crabs etc, providing employment to local people, who may find that it is no longer possible to fish these waters.</p>	<p>Wild swimming, kayaking and other watersports which are in close contact with the water are becoming more popular. At the moment we can offer them a good experience with clean water, this will change if they have even the smallest chance of getting in contact with pollution as mentioned in Box 5.</p>

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	as for commercial fishing of crabs, prawns, etc.	narrow in this area with several island, so many miles of coast line.		be any positive benefits for the areas where the fish farms will be sited.	Tourism is already under stress from encroachment from all sides, it is getting much harder to find unspoilt seascapes (think windturbines for instance) as well as landscapes. There is still some present in the Clyde area, why not keep this for tourism and develop that with local people rather than adding industrial fish farms which do not benefit the local economy.	
34	Fish faecal matter from a fish farm this size will have a detrimental impact on the marine ecosystems in the surrounding area and also adversely affect the natural habitats of marine mammals. Faecal matter and fish farm chemical use will have a negative impact on the recently introduced oysters in the Fairlie and Largs area.	Otters, seals, dolphin, porpoise, whales and basking sharks are all either resident or commonly occurring species in the area. Also Oysters.	Azamethiphos, cypermethrin, deltamethrin are all toxic chemicals which will have a detrimental effect on the natural environment, the flora and fauna close by and humans who use the waters and coastline for recreational purposes.	The fish farm if it is allowed to go ahead will adversely affect kayakers and sailors who use this area extensively.	Sailors from local marinas and moorings at Largs Fairlie and Millport will be adversely affected by the location of the fish farm as it will impede their passage through the passage between the two Cumbrae isles and around Little Cumbrae.	Azamethiphos, cypermethrin and deltamethrin, are all toxic chemicals which will have a detrimental effect on the marine mammals mentioned previously and to the natural flora and fauna in the area, also the mussels which have just been introduced in the Largs and Fairlie areas.
35	It will be a blight on the relatively wild coastline of that part of Bute which is enjoyed by sailors, kayakers, wild swimmers, and walkers. It is very close to the West Island Way, one of the most popular walks on Bute. Pollution from uneaten fish food and faeces will impact the water environment. There would be an impact in terms of pollution from waste and chemicals being washed up on the shore which would adversely affect water species and also land based organisms. This is a particularly stormy part of the coast and if moorings broke as happened last year in another part of Argyll and Bute there would be massive pollution. This area has been particularly prone to serious erosion during stormy weather. The West of Scotland Walling Association spent a number of days 4 or 5 years ago building up a protective wall against the raised shore but this was washed away a couple of years later as was another bit of the raised shore. This demonstrates the strength of wave power in the area which I am sure would inevitably damage fish tanks.	There is serious concern about the long term, cumulative effect of uneaten fish food and faeces, especially beneath the cages. Over a year this could amount to approximately 10kg/m ² . It is noted from the map that this can spread for at least 2.5 km albeit in different concentrations. This cannot be good for any marine life. The proposed use of acoustic deterrents will detrimentally affect seals and cetaceans, as this is a relatively narrow part of the channel. If the other two fish farm proposals are allowed on the opposite side of the channel, only about 3.5 km away, this might even stop them coming up or down the Clyde at this point. High numbers of sea lice associated with fish farms may well impact wild populations of fish.	It is known that Azamethiphos and Deltamethrin are toxic to lobster larvae, and no doubt other organisms. Cypermethrin is also toxic. No matter what reassurances we get, mistakes, and accidents happen.	This part of the coast is used by people engaging in leisure pursuits such as sailing, kayaking and more recently paddle boarding. This would divert them to the deeper and stormier waters which are also used for commercial fishing and is also close to a main shipping channel for the whole Firth of Clyde including for nuclear submarines based at Coulport and Faslane.	There would have to be access movement in this area and any such industrial activity would seriously damage an already fragile coastline.	

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36	<p>The discussion of the models associated with this application state: "The chemicals are shown to accumulate on the south and southwestern coastline of Greater Cumbrae. All the chemical discharges modelled resulted in plumes in the vicinity of Millport and Kames Bay, which is a Site of Special Scientific Interest (SSSI) due to it being the only example of a shore dominated by sand on Great Cumbrae. The sands at Kames Bay are constantly wet and even in summer never experience severe drying, resulting in a high faunal population, including large numbers of the lugworm Arenicolamarina and the bivalve Tellina tenuis(SNH,2000). Therefore, there is a potential for chemicals to impact the fauna within this area"</p> <p>The proposed chemicals: azamethiphos, cypermethrin and deltamethrin will be significantly deleterious to sea life. With well demonstrated toxicity to lobster larve1, high toxicity to other crustacea such as shrimp2 and 100% toxicity to sea crabs, at concentrations lower than that proposed3. The impact on the SSI, which the models show will receive a high volume of the discharge, is significant and should not be allowed under SSI protective legislation. Effluent discharge (and associated eutrophication) noted in the proposal at 25kg/m2 are very significant not just for the marine environment and the species that live there, but also on water quality for those that use the area for swimming and various water sports, including on the popular sandy beach of greater Cumbrae.</p> <p>1: https://doi.org/10.1016/j.envpol.2020.114725 2: https://doi.org/10.1016/j.marenvres.2020.105007 3: https://doi.org/10.1016/j.chemosphere.2017.07.108</p>	<p>The proposed area is frequented by many cetacean species and the deep waters, immediately offshore often lead to basking sharks feeding within meters of the foreshore. Basking Sharks are listed as Endangered on the IUCN Red List and are domestically protected under Schedule 5 of the Wildlife and Countryside Act 1981, the Countryside Rights of Way Act 2000 and the Nature Conservation (Scotland) Act 2004. The proposal directly impacts their feeding grounds, not just with physical obstruction but also in altering the marine environment through effluent discharge and chemical application. Further, the proposed use of sonic deterrents with significantly negatively impact cetacean populations and not just in the immediate vicinity but in a much broader area, as well document in previously published localised marine mammal reports. There are a number of protected cetacean species that will be impacted and these are well documented in localised marine mammal reports.</p> <p>The discussion of the models associated with this application state: "The chemicals are shown to accumulate on the south and southwestern coastline of Greater Cumbrae. All the chemical discharges modelled resulted in plumes in the vicinity of Millport and Kames Bay, which is a Site of Special Scientific Interest (SSSI) due to it being the only example of a shore dominated by sand on Great Cumbrae. The sands at Kames Bay are constantly wet and even in summer never experience severe drying, resulting in a high faunal population, including large numbers of the lugworm Arenicolamarina and the bivalve Tellina tenuis(SNH,2000). Therefore, there is a potential for chemicals to impact the fauna within this area"</p> <p>The proposed chemicals: azamethiphos, cypermethrin and deltamethrin will be significantly deleterious to sea life. With well demonstrated toxicity to lobster larve1, high toxicity to other crustacea such as shrimp2 and 100% toxicity to sea crabs, at concentrations lower than that proposed3. The impact on the SSI, which the models show will receive a high volume of the discharge, is significant and should not be allowed under SSI protective legislation. Effluent discharge (and associated eutrophication) noted in the proposal at 25kg/m2 are very significant not just for the marine environment and the species that live there, but also on water quality for those that use the area for swimming and various water sports, including on the popular sandy beach of greater Cumbrae.</p>	<p>In addition to the chemical concerns listed above, well known in the industry is the rise of lice that are resistant to our current arsenal of pesticides. A recent study highlights the unique role of fish farms, leading to heritable pesticide resistance and consequently widespread infestations in the north-eastern Atlantic ocean. Resistant genes have spread through populations from Scandinavia to Greenland, and even up into Iceland where chemical pesticides are not used1. These results demonstrate the speed to which this parasite can develop widespread multiresistance, illustrating why the aquaculture industry has repeatedly lost the arms race with this highly problematic parasite1. Thus, the chemicals and modelling highlighted in this report are not relevant to the functioning of the proposed fish farm, where different chemicals and at differing concentrations will be needed in order for the fish farm to be economically viable. The impacts of these unknown treatments will be significantly different to that outlined in the proposal and impacting at different spatiotemporal scales, including on the locally designated and vulnerable SSI.</p> <p>1. https://doi.org/10.1098/rsos.210265</p>	<p>The supplied models and discussion, states that the bulk of discharge has been: "shown to accumulate on the south and southwestern coastline of Greater Cumbrae. All the chemical discharges modelled resulted in plumes in the vicinity of Millport and Kames Bay, which is a Site of Special Scientific Interest (SSSI) due to it being the only example of a shore dominated by sand on Great Cumbrae". This attractive beach and area is well used by locals and tourists alike for bathing, swimming and a host of water sports. The impact of effluent and chemical discharge, will have a significant deleterious impact and create health/safety concerns for those who use the water.</p> <p>The supplied models show dispersal of azamethiphos, cypermethrin, deltamethrin concentrating in localised bathing spots, causing significant concerns for the health of those using the water.</p>	<p>In addition to that listed above, it should also be noted that the proposed development will have a significant deleterious impact on the areas creel fisherman with crustaceans most susceptible to the proposed chemical applications. The associated decline in these marine invertebrates can be very significant1,2,3 and therefore damaging to this small local industry.</p> <p>1: https://doi.org/10.1016/j.envpol.2020.114725 2: https://doi.org/10.1016/j.marenvres.2020.105007 3: https://doi.org/10.1016/j.chemosphere.2017.07.108</p>	<p>The proposed applications of azamethiphos, cypermethrin, deltamethrin are deeply concerning and addressed elsewhere in this response. The need for further, as yet unidentified, chemicals is also of concern and again addressed in detail elsewhere in this response.</p> <p>Given the stated impact on the local SSI, the impacts on cetaceans within the area and accumulation of discharge on popular bathing spots, this application appears wholly unsuitable.</p>

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37	<p>The waters around Cumbrae are popular for watersports (sailing, rowing, canoeing, paddle boarding and open water swimming), participation in which contributes to health and well being as well as employment in the marine activities and tourism industries. The proposed installation of fish farms in these waters would be a significant deterrent and impediment to such activity as they would present navigational challenges and waters contaminated with chemicals and pathogens potentially harmful to humans</p>	<p>The waters around Cumbrae are particularly rich in sealife, which again is a major attractant to sailors and other watersports enthusiasts. Seals around Cumbrae will inevitably be attracted to the proposed fish farms and could be in danger of becoming caught up in the lines/ equipment around the installations. Dolphins and porpoises, as well as sea birds, which make up this rich marine habitat, will all likely be impacted and risk infection and injury, which would be highly detrimental to for the region as a recreational boating destination</p>	<p>The pathogens such as lice as well as cancerogenic chemicals associated with fish farms are of particular concern when these waters are extensively accessed by watersports enthusiasts. This includes children and young adults, who benefit hugely from such outdoor activity and would very likely be deterred from doing it by the presence of the proposed fish farms</p>	<p>The waters around Cumbrae are popular for watersports, participation in which contributes to health and well being. The proposed installation of fish farms in these waters would be a significant deterrent and impediment to such activity. Specifically for sailing, these waters are the base for 2 of Scotland's largest and most active Marinas: Largs Yacht Haven and Kip Marina. Recreational and competitive sailing from these sites is a regular activity contributing to the local economy and supporting many jobs. Boat owners from across the UK choose to keep their vessels in these marinas because of the excellent sailing opportunities in safe clean waters. The presence of the proposed fish farm will lead to loss of anchorages (for recreational and safe haven purposes), present navigational challenges and negatively impact water quality as chemicals and pathogenic organisms are released</p>	<p>The waters around Cumbrae, which are particularly rich in sealife, are a major attractant to sailors and other watersports enthusiasts. The risk of infection and injury to many species of birds, seals, porpoises and dolphins, which would be highly detrimental to the region as a recreational boating destination. Largs Sailing Club (LSC) who are lodging this objection, is a site for major National sailing championships, which bring significant economic benefit to the community. These events come to Largs because of the clean and available racing waters, much of which would be lost to the proposed fish farms. Sail training of children and young adults also takes place out of LSC and the proposed installations would significantly reduce available clean, safe waters to run such programmes which are recognised as being highly beneficial to health and well being</p>	<p>The pathogens such as lice as well as cancerogenic chemicals associated with fish farms are of particular concern when these waters are extensively accessed by watersports enthusiasts. This includes children and young adults, who benefit hugely from such outdoor activity and would very likely be deterred from doing it by the presence of the proposed fish farms</p>

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38	<p>Argyll and Bute Council Opinion response to the Dawnfresh 19/00233/SCRSCO screening/scoping application on the 17 May 2019</p> <p>This opinion from the ABCouncil stated the proposed fish farm is likely to give rise “to significant environmental effects”</p> <p>Fish faecal matter will affect water quality: For 94 years, from 1904 until 31 December 1998, the sewage sludge from Glasgow was shipped down the Clyde and dumped at Garroch Head of the south of Bute. On the SEPA website the water quality of the whole area around Arran, Bute and the Cumbraes was only moderate and the website cited sewage as the reason. Only in the last several years has the water quality in this area been upgraded to good. How can it be sensible to now allow three fish farms to allow untreated faeces from tens of thousands of caged fish enter this fragile area? Dr Luxmore, who before retiring was senior nature conservation officer at the National Trust Scotland said that one fish farm of the size proposed produces the sewage equivalent of a town twice the size of Oban. With three farms proposed across the mouth of the Clyde we would be allowing waste equivalent to that of 105,000 enter the waters. That is not acceptable. No other form of farming would be allowed to let the untreated waste of its animals freely enter and pollute the environment. The idea that faeces and/or chemicals will be dispersed is not an acceptable argument: dispersal does not equal disappearance – it simply means it will be moved somewhere else.</p> <p>Use of highly toxic chemicals will affect other species in the area:</p> <p>The applicant plans to use azamethiphos, cypermethrin, deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. They're utility in fighting lice by causing the destruction of their shells will also affect other crustaceans in the area. The South Bute site is already fished by CFA and there is a young lobsterman who is not a CFA member who works that exact area. For the Cumbrae applications, it seems ridiculous that £1.8m is being spent to reintroduce oysters, including placing 1300 in the Largs Yacht Haven and Fairlie Quay Marina, and then fish farms will be introduced adjacent to these sites so that these toxic chemicals will impact those oysters. The oysters are touted as purifiers of water and a boon to the environment but if these neuro toxins affect them the money and project overall will be in vain.</p> <p>*There are otters that swim in the area of the proposed South Bute fish farm. Otters</p>	<p>The otters that live and feed all around Bute but particularly those near Hawks Neb, photos of which can be seen on the Isle of Bute Facebook Group page, which are enjoyed by many</p> <p>The fishing grounds at Hawks Neb of the lobsterman and of members of the CFA</p> <p>The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC</p> <p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina</p> <p>The water quality of the general area due to faecal and food waste</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>I would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. In particular, I do not understand why we are consulting on information/data that was gathered almost three years ago. I do not understand why the required amount of current data gathering days is not met for South Bute – if there were difficulties due to weather or accidental dislodging due to another water user, surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. I do not understand why Glasgow airport wind data and Inverkip meteorological data is used in the modelling. Any of us who live in this area know that the winds and weather we face here are completely different to Inverkip and even more so to Glasgow airport. And after the ECCLR report in 2018 chastised SEPA for lack of oversight and SEPA reformed its application standards, why are these applications being allowed to use old data input to outdated modelling systems to submit this application?</p>	<p>I think it will cost some people part or all of their livelihood- and/or Clyde Fisherman Association members</p> <p>I think it will inhibit the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than negatively impact it as the proposed fish farms would</p> <p>The proposed fish farms are directly in the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours.</p> <p>Wild swimmers would lose a stretch of the Bute coastline for their swimming activities. Please refer to the Bute Outdoor Swimming Society FB group page (approx. 500 members) and see the swims that have taken place from Kilchattan Bay to Glencallum Bay. Also, there is currently no knowledge of the possible effects of the toxic bath treatments on humans, so again the precautionary principle should be applied.</p> <p>The newly established paddle boarding company on Bute would lose a stretch of coast line for its customers.</p>	As above	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin</p> <p>Faecal waste from such a large number of fish for such an extended period of time</p> <p>As above, I again would like to say that in reading the application I am concerned overall by the slipshod science that has been used in producing the applications – this casts doubt upon any assertions Dawnfresh makes. 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40	<p>At the broadest level, the use of three chemical treatments and the deposition of huge amounts of fish excrement from three closely sited farms will inevitably affect the water environment. Given all the good work that has taken place in recent years to help restore the water quality of this area of the Clyde (after it had been in a poor condition for many years certainly in part due to human sewage dumping), it is surely a step backwards by now allowing untreated faeces from tens of thousands of caged fish enter this fragile area.</p> <p>There are already simply too many fish farms in the Clyde and these are placed at a very damaging position. I also believe it is important that the impact of the 3 proposed applications (Bute + Cumbraes) should be considered collectively, since they are relatively close and the sum of the dispersal of fish waste and treatment chemicals should be considered as a whole - not individually - i.e. it is not appropriate to consider each proposed fish farm in isolation, given their proximity.</p> <p>I also believe that the proposed fish farms will impact the water environment because Dawnfresh have a record of poor behaviour in Loch Etive with a similar group of farms. This is highly relevant.</p> <p>Dawnfresh intend to use azamthiphos, cypermethrin, deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. They fight lice by causing the destruction of their shells, but this will also affect other crustaceans in the area.</p> <p>The South Bute site is already fished by CFA and there is a young lobsterman who is not a CFA member who works that exact area. SEPA carried out a study in 2018 in Shetland that showed that chemical dispersion could be wider than modelled, in addition to chemicals lasting longer than expected. Why should we believe this will not happen in the Clyde?</p> <p>The Scottish Government and SEPA is obliged to protect wild salmonid as they travel through Scottish waters. It has recently been established that lice from fish farms can impact wild salmonids and any doubt about the magnitude of such impact should not be ignored. The concentrations of lice, from the proposed 3 sites in close proximity, will impact on the wild salmonids exiting and re-entering the Clyde as they leave and return to their spawning grounds at the Endrick Waters, a European designated Special Area of Conservation.</p>	<p>The newly installed oysters at the Largs Yacht Marina and Fairlie Quay Marina. The wild salmonids that are leaving/returning to their spawning grounds at the Endrick Water SAC. Crustaceans generally that may come into contact with treatment chemicals which work by penetrating crustacean shells. Possibly any shore wildlife that are part of the food chain.</p>	<p>Azamethiphos, deltamethrin and cypermethrin. All three are highly poisonous chemicals which have the potential to harm many forms of marine life - any doubts around these cannot be set aside. in fact should deltamethrin and cypermethrin be permitted at all when MOWI are on record as claiming that they are no longer effective against sea lice. Additionally, the biochemical effects of such large deposits of waste, rich in ammonia, phosphates and nitrates are by no means agreed - again, is the evidence robust enough to allow these applications to continue? - surely not the modelling undertaken on behalf of Dawnfresh is now 3 years old, with potentially irrelevant weather data from a remote and different location - this is grounds for unreliable conclusions having been submitted by Dawnfresh. Also, the faecal waste itself, from such a large number of fish and for such an extended period of time, is not a good thing! More generally the use of Glasgow airport wind data and Inverkip meteorological data in the modelling undertaken is inappropriate: i have lived in the Clyde area for 20+ years and am adamant that the winds and weather we face here are completely different out on these local islands - it is a local weather pattern. And given that the ECCLR report in 2018 criticised SEPA for lack of oversight, why are these applications now being allowed to use old data input to outdated modelling systems as part of this application? This is highly relevant to the addition of treatment chemicals to our local waters, given the doubts around the modelling undertaken.</p>	<p>The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. This proposal is alongside two other proposals (Bute and Large Cumbrae) so it is critical that the combined impact of these 3 fish farms in a small area of the Clyde should be considered - it is surely not viable to just consider impact of each individually, given their proximity. It follows that they each impact on the locations of the other - the proposed Bute fish farm will impact on both Cumbrae islands, as well as their individual fish farms, and so on. Therefore this Little Cumbrae fish farm could impact a range of people using the water environment around Bute and Large Cumbrae:</p> <p>There is a local lobster fisherman who fishes the waters in question, as do members of the Clyde Fisherman's Assn</p> <p>Sea swimmers would lose a stretch of the Bute coastline for their swimming activities. The Bute Outdoor Swimming Society (approx. 500 members) have organised swims from Kilchattan Bay to Glencallum Bay - see their Facebook site for evidence of this.</p> <p>Similarly the newly formed paddle boarding company on Bute would lose a stretch of coast line for its customers.</p> <p>The proposed fish farms are directly in one of the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The dispersion modelling for the Bute fishfarm but also the 2 Cumbrae fishfarms shows that the coast of Big Cumbrae, particularly Millport Bay and the western shore, and the waterfront of Largs will have the three toxic chemicals washing up and accumulating after bath treatments. Can people be sure that water quality on these shorelines, which are often used by families to swim and paddle, will not be affected - surely this cannot be guaranteed. How these chemicals can be allowed to impact populated areas, without some expectation of impact on locals.</p>	<p>I believe the response here is covered by the response to the question immediately above, which I will restate for convenience: The Cumbrae farms would affect the livelihoods of all the charter companies that use the area for wildlife sight-seeing tours. This proposal is alongside two other proposals (Bute and Large Cumbrae) so it is critical that the combined impact of these 3 fish farms in a small area of the Clyde should be considered - it is surely not viable to just consider impact of each individually, given their proximity. It follows that they each impact on the locations of the other - the proposed Bute fish farm will impact on both Cumbrae islands, as well as their individual fish farms, and so on. Therefore this Little Cumbrae fish farm could impact a range of people using the water environment around Bute and Large Cumbrae:</p> <p>There is a local lobster fisherman who fishes the waters in question, as do members of the Clyde Fisherman's Assn</p> <p>Sea swimmers would lose a stretch of the Bute coastline for their swimming activities. The Bute Outdoor Swimming Society (approx. 500 members) have organised swims from Kilchattan Bay to Glencallum Bay - see their Facebook site for evidence of this.</p> <p>Similarly the newly formed paddle boarding company on Bute would lose a stretch of coast line for its customers.</p> <p>The proposed fish farms are directly in one of the highest use areas for kayaking, sailing and merchant navy activity so any of these users will be impacted.</p> <p>The dispersion modelling for the Bute fishfarm but also the 2 Cumbrae fishfarms shows that the coast of Big Cumbrae, particularly Millport Bay and the western shore, and the waterfront of Largs will have the three toxic chemicals washing up and accumulating after bath treatments. Can people be sure that water quality on these shorelines, which are often used by families to swim and paddle, will not be affected - surely this cannot be guaranteed. How these chemicals can be allowed to impact populated areas, without some expectation of impact on locals.</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin, and deltamethrin - and the amounts of these and where they end up. Faecal waste from such a large number of fish for such an extended period of time - again, the amounts of this and where ends up. Please allow the Clyde the chance to continue to grow back to full health, and not allow for the introduction of these proposed fish farms to usher in long term damage.</p>

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41	I am extremely concerned that any further expansion of aquaculture open cage production in the area will do great further damage to the very fragile stocks of wild salmon and sea trout in the area. There is a mass of scientific evidence showing the catastrophic effects which sea lice emanating from open cages have on migratory fish and 3 Government established Committees have all agreed that the status quo in respect of aquaculture regulations is 'not an option'. Hence, until at least the recommendations of the Salmon Interactions Working Group contained in their Report dated May 2020 have been implemented in full, no further expansion of the aquaculture industry ought to be approved in the area of the Firth of Clyde/Argyll waters.					
42	The obvious reasons are if you feed something it produces waste and the chemicals add to treat . Also taking vital sheltered water away from fisheries for the safety and financial impact to those fishing it .	Vital scallop and nethrop and most important herring spawning ground	Chemical and waste also disturbing the natural habitat	Fishermen of all kinds and pleasure crafts never mind ruining a place of outstanding beauty	As above	Both
43	Fish farms using open nets discharge all their organic particulate waste, all the dissolved nutrients excreted by the fish, and all the pesticides used to treat the fish into the water. They can all affect the water quality and seabed life. Fish farms also discharge sea lice larvae, threatening wild salmon and trout which are a valuable part of the water environment. The number of sea lice larvae discharged depends on the licensed fish biomass of the farm, which is set by SEPA. SEPA used to take responsibility for sea lice emissions but now declines to do so. It ought to take responsibility again, in particular for the cumulative impact of lice from multiple farms in the same waterbody, regardless of ownership.	see above re wild salmonids There seems to be no suitable place to address the inadequacy of the pollution modelling submitted by DawnFresh, so I have included it here: DF first applied for CAR licences for its Firth of Clyde farms before NewDepomod replaced AutoDepomod but this is no excuse for not submitting NewDepomod modelling as well. SEPA has acknowledged that the assumptions and simplifications inherent in AutoDepomod only make it suitable for broad risk assessment. It assumes the seabed is flat for instance and that all material transported further than 500m from the farm will vanish forever and not return on the next tide. It underestimates the dispersion of waste from the vicinity of the farm. SEPA says that it has performed its own NewDepomod modelling for this farm, but this is not provided in the application package on which we are being consulted. This is not acceptable. How can we assess the risk without seeing the NewDepomod modelling? It must be provided to the public for comment before this proposal is assessed by SEPA. The three proposed farms are close together. There is potential for cumulative impacts yet SEPA has not provided its own assessment of this risk, as it has done for instance for proposals in Kilbrannan Sound. This is inadequate. SEPA has asked DF for hydrodynamic modelling of the larger area, and says it gave DF advice on what this modelling should	All the fish farm pesticides are of concern: azamethiphos, cypermethrin, deltamethrin and hydrogen peroxide. Peer-reviewed science shows that they are all toxic to marine life at the levels used in fish farms. It seems to be impossible to load more than one document in the box below - the attached is just one example. Emamectin benzoate is also of concern but is not part of this application.	Many fishermen in the Greater Clyde catch crabs, prawns and lobsters. Fish farm pesticides are intended to kill crustaceans, so these species are vulnerable to harm. Norwegian shrimp fishermen have reported falling catches around fish farms, and so have fishermen in Wester Ross and the Hebrides. Anne Anderson (02/08/2018), then at SEPA, told us that she was aware of this but that: 'SEPA does not collect or produce data on crustacean fisheries or on the stocks that are pursued by fishermen. SEPA has been aware either through direct reports or through information provided indirectly - for example in media stories of a possible change in crustacean abundance which may have been anecdotally linked to the use of sea louse medicines such as emamectin benzoate.' This threatens jobs. Fish farm workers must have regular blood tests if they handle the organophosphate pesticide azamethiphos. It would clearly be reckless to discharge this and other bath chemicals at the concentrations used in treatments when swimmers were nearby. Treating the two farms that have applied to use azamethiphos would take ten days each time (one cage per day), so swimmers/marine animals would be exposed to this chemical every day for ten days each time (3 days at a time for the other chemicals). Mowi states that 'Over the past 5 years (2016 – 2020 inclusive), a total of 102 individual cage treatments using azamethiphos have taken place at Carradale...on 78 days during that 5-year	See above	All the licensed fish farm bath chemicals are a threat to commercially-fished crustaceans and to people in the water near the farms or well boats, at the concentrations used in fish farm cages and potentially at considerable distances beyond. SEPA does not limit the quantities of hydrogen peroxide discharged by fish farms. Modelling by Mowi for its proposed Canna farm show that 122 tonnes of this highly reactive oxidant are dumped in the sea every time a farm is treated. Its half-life is 14 days. Peer-reviewed research shows that hydrogen peroxide kills shrimps, kelp and the polychaete worms needed to aerate the sediment under fish farm cages. Escobar-Lux et al 2020 (Short-term exposure to hydrogen peroxide induces mortality and alters exploratory behaviour of European lobster (<i>Homarus gammarus</i>) https://doi.org/10.1016/j.ecoenv.2020.111111) concluded that: 'Exposure to H2O2 was toxic to all pelagic larval stages tested, with estimated median lethal concentrations (LC50) of 177, 404, 665 and 737 mg/L for stage I, II, III and IV, respectively. These concentrations represent approximately 10, 23, 40 and 43%, of the recommended H2O2 concentrations used for delousing salmon on Norwegian fish farms, respectively...Numerous behavioural parameters including distance travelled to shelter, time to locate shelter and the number of shelter inspections, were negatively affected in lobsters exposed to H2O2 when assessed immediately after the

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		<p>include. It would be more normal for DF to have submitted a modelling method statement in advance, for SEPA approval. The modelling advice has not been published but the resulting hydrodynamic modelling is of poor quality and is not fit for the purpose of assessing the cumulative risk of these three farms. Presumably SEPA will agree and ask for better modelling. For instance DF's modelling report refers to the potential for plumes of pesticides from farms to interact ('The modelling indicates that there is the potential for the bath medicines to interact with treatments from South Bute along the western coast of Great Cumbrae, if treatments conducted simultaneously.') but then models each farm's discharges separately. Why not map all three farms' discharges at the same time?</p> <p>DF's conclusion that 'It is not predicted that the discharges from the Isle of Little Cumbrae will interact with those from Greater Cumbrae' is not justified by this modelling report.</p> <p>The report does not use scientific notation - for instance, how does 0.0000001 kg/m³ compare to the 100,000 ng/L concentration for azamethiphos at the point of release (quoted in Mowi's N Kilbrannan modelling)? The report does not refer to, or model, pesticide concentrations with reference to SEPA's EQSs for the different chemicals. Fundamentally, the report undermines its own conclusions by saying 'the predicted relative highs in concentrations on the coastline are primarily due to particle accumulation, with particles not being decayed or biodegraded', and 'in the Delft3D model the particles are not acted upon once they interact with the coastline. This includes processes such as decay and bioturbation, and therefore the predicted coastal chemical densities should be considered as worst case', in other words the report says that the high concentrations of chemicals at the coastline are an artefact of the modelling rather than a real effect. The coastline is where wild swimmers are most likely to encounter these chemicals and where most creel fishermen operate. How can DF use this model to assess those impacts or impacts on PMFs, all of which depend on knowing the concentrations of bath chemicals?</p> <p>This is not acceptable. Why was hydrogen peroxide dispersion not modelled, as Mowi has done at Canna?</p> <p>Other flaws with DawnFresh's AutoDepomod modelling include: References to the Allowable Zone of Effect (AZE) which has been consigned to history - new farms have mixing zones.</p>		<p>period.' https://portal360.argyll-bute.gov.uk/my-requests/document-viewer?DocNo=22437057 Many regular swimmers swim every day. The likelihood of swimming through an organophosphate pesticide plume from Carradale on 78 occasions in five years does not sound infrequent at all. Swimmers are allowed to swim anywhere, including in fish farm pollution mixing zones. They care about the highest dose of pesticides they might encounter, even once.</p> <p>Plumes of fish farm pesticides are allowed by SEPA to disperse over 72 hours to Environmental Quality Standards established to protect lobsters but SEPA has recently confirmed that it does not know the safety thresholds for swimmers exposed to these pesticides when they are dumped in the sea. Wild swimming has grown greatly in popularity in Scotland in recent years. It is a major reason for tourists to visit this area. The risk of exposure to organophosphate nerve agents is not appealing to tourists. This also threatens jobs.</p>		<p>exposure period. However, no differences between control and exposed lobsters were detected after a 24 h post-exposure period. Our results demonstrate that short term exposures to H₂O₂ are lethal to pelagic H. gammarus life stages and can negatively affect the shelter seeking behaviour of benthic life stages, though these behavioural changes may be short-lived.'</p> <p>SEPA must assess the impact of hydrogen peroxide on marine life. It must also reassess the EQS for other bath chemicals, and apply pollution mixing zones consistently to these chemicals, as it would to other industries discharging waste into the sea.</p> <p>NB: Not providing documents as it seems only possible to upload one.</p>

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		<p>In the preamble (p3) the report says, 'the mid-range speeds observed at the site during a 90 day ADCP deployment were used in the modelling'. The main body of the document says that just 15 days of sampled tidal data are used to simulate where the waste will go (p4).</p> <p>This analysis proposes just one seabed sampling transect. SEPA now requires more sampling for all new sites, with four transects.</p> <p>More than 20kg of waste are expected to fall per metre squared per year, under the cages.</p> <p>916 tonnes of solid particulate waste would be released per year (page 11), 196t of which will leave the modelled domain (0.5km from farm) each year - this is almost certainly an underestimate, due to AutoDepomod's flaws.</p> <p>The BathAuto modelling also uses a model that SEPA acknowledges is over-simplistic. Even so, for azamethiphos it found that 'the long term model did not iterate to a compliant pass ... therefore Azamethiphos cannot be used at the site.'</p> <p>This farm is in a critically important location for migrating wild salmon smolts from the Endrick Water SAC, which must be protected beyond reasonable scientific doubt.</p> <p>How can DF expect to keep sea lice on its fish at a very low level during the wild smolt migration if this farm cannot use azamethiphos or emamectin benzoate?</p> <p>The Rural Economy and Connectivity Committee's 2018 report on salmon farming recommended that farms are not sited in wild salmon migration routes. This and the other DF proposals fly in the face of that recommendation. They should be turned down.</p> <p>DF's hydrodynamic modelling argues that SEPA's standard modelling methods are too conservative: 'it is acknowledged by SEPA, and demonstrated by site surveys, that for some sites with higher biomass loading in high energy locations the standard modelling does not sufficiently predict the deposition in the far-field and is unable to model cumulative impacts. Therefore, Dawnfresh Farming Ltd. (Dawnfresh) commissioned Xodus Group (Xodus) to develop a Delft3D hydrodynamic model for their aquaculture sites in the Firth of Clyde. The model more accurately predicts and assesses deposition within high energy environments and therefore is better at determining the maximum biomass that sites are capable of supporting without adversely impacting the benthic environment.'</p> <p>How can SEPA compare particulate waste</p>				

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		<p>modelling in this Dispersion Modelling report, when it uses a different system to SEPA's NewDepomod system under its default settings?</p> <p>How can SEPA compare the resulting impacts on the quality of seabed ecology when the DF hydrodynamic modelling doesn't predict benthic impact at all. One of key aims of this Dispersion Modelling report is said to be to assess 'to what extent are the SSSIs and PMFs situated in proximity to the proposed sites impacted by the discharges.' It has not attempted to do this seriously.</p> <p>Some of the language used in this report makes no sense, for instance what on earth does this mean? 'It was decided that the decision to run in-combination discharge models (i.e. Greater Cumbrae + Isle of Little Cumbrae + South Bute) would be based on the results of the individual discharges.'</p> <p>And this? 'Bath treatments – Neap and Spring tide model runs</p> <p>The model results for the chemical dispersion model runs are presented below. In all models the maximum concentration of approximately 0.0000001 kg/m3 (0.0001 ppm). These densities are generally evident in the initial releases (7th June 2020 12:30 (Neaps) and 2nd June 2020 0800 (Springs)) and were chemicals are shown to accumulate at the coastline.'</p> <p>Why have DF assumed the same starting concentrations for all three chemicals? That seems unrealistic and must be justified.</p> <p>Why have DF not modelled sea lice dispersion while they were at it?</p> <p>The modelling submitted is not fit for purpose and should be redone and published for public comment before any decision is made on these licences.</p> <p>NewDepomod modelling must also be provided to the public for comment before this proposal is assessed by SEPA.</p>				

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44	<p>1. Release of untreated fish farm waste (faeces & waste food) and the toxic chemicals used as sea lice treatments will smother seabed habitats and affect water quality for marine life and all users of the area.</p> <p>2. For this proposed farm alone, the untreated fish waste that will be discharged is equivalent to the sewage produced by a town of over 10,000 people. Such a discharge would not be allowed for any other food production industry and should not be acceptable practice in the sea.</p> <p>3. The overall environmental health of the Clyde region is not good as is shown in the 2017 Clyde Marine Region Assessment. Historic dumping of sewage sludge in the Clyde seriously impacted water quality, the effects of which are only recently being reversed. The siting of this and two other open cage fish farms in close proximity to each other will again lead to dumping of huge volumes of untreated waste into the sea with consequent negative impacts.</p> <p>4. The modelling of the impacts of discharges from the farm is inadequate and does not meet current standards. The old AutoDEPOMOD model that has been used in the modelling has been shown to be flawed in terms of describing sediment transport and deposition, meaning that the results of the waste modelling presented for this application are therefore unacceptable and cannot be relied upon. It is not acceptable that this outdated and discredited modelling approach is considered adequate to assess the likely impacts of this proposed farm, or the other two farms proposed by Dawnfresh in the nearby locality. Issuing a CAR licence on the basis of this outdated modelling methodology is unacceptable and contrary to current modelling and regulatory requirements.</p> <p>5. We can see that additional hydrodynamic modelling (Delft-3D) has been presented by Dawnfresh. Was the modelling approach approved by SEPA? How does the modelling of particulate waste dispersal by this different system compare to the NewDepomod approach accepted by SEPA? How do the model outputs presented in the documents compare to assessment of seabed quality using IQI standards? Only limited current data has been applied to the model. We cannot see that the hydrodynamic modelling enables a realistic prediction of benthic impacts. All this further highlights the flaws in the modelling and questions the validity of the model outputs to assess impacts on seabed ecology and biodiversity.</p> <p>6. Where are the reports of benthic seabed surveys? It is impossible to see how</p>	<p>1. Benthic marine species and benthic Priority Marine Features – impact from waste and chemicals. There is insufficient information provided with the consultation documents to enable a more detailed comment on this point. The seabed survey data for the area needs to be made publicly available and be available for public scrutiny and comment alongside the other application documents.</p> <p>2. Wild salmonids. Salmon and sea trout are Priority Marine Features and are protected under national and international legislation (Atlantic Salmon are listed in: Annex III of the Bern Convention and Annex II of the EC Habitats Directive; the UK Biodiversity Action Plan (BAP), the Scottish Biodiversity List and the IUCN Red List of threatened species. Sea trout are also listed as a BAP species.)</p> <p>Migrating wild salmon will be impacted by this proposed farm when leaving/returning to their spawning grounds and will pass through the areas of the proposed fish farm and sea lice plumes resulting from the fish farm (alone and in combination with sea lice from other fish farms). There are many important salmon rivers within the Clyde catchment that all risk being affected by this proposed farm and the others nearby being proposed concurrently by Dawnfresh.</p> <p>Wild salmon that are a feature of the Endrick Water Special Area of Conservation (SAC) are at risk of being adversely affected by this proposed farm. As part of the CAR licencing process (a plan/project), a Habitats Regulations Appraisal (HRA) should be prepared by SEPA that assesses the impact of sea lice and other impacts of the proposed farm (alone and in combination) on the Endrick Water SAC. The HRA should be made publicly available as part of the documentation for this application. The purpose of the HRA is to show beyond reasonable scientific doubt that the plan or project that is being assessed will not adversely affect the integrity of the SAC. Processing the CAR application should not proceed without the HRA being completed and available for public comment.</p> <p>3. Otters (A European Protected Species) - present in the coastal area. Feed in the coastal waters and will be affected by impacts of waste and toxic chemicals directly and indirectly.</p> <p>4. Commercially important shellfish, e.g. lobster, crab. Significant risk from effects of toxic chemicals and impact of waste on</p>	<p>1. The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin and deltamethrin.</p> <p>2. The faecal waste and waste from uneaten fish food that will be discharged, untreated, into the sea.</p>	<p>1. There are a wide range of people who will be impacted by this proposed fish farm as a result of the release of waste and toxic chemicals, and the disturbance due to the presence of the fish farm – noise and physical presence of the structure. There are both direct and indirect impacts on the quality of people’s enjoyment, health and livelihoods.</p> <p>Impact on marine life impacts people’s wellbeing but also directly affects any businesses (tourism, fishing, snorkelling, diving) that rely on a healthy marine environment.</p> <p>The following interests/businesses operate within the area/vicinity of the farm and will be negatively impacted by this proposed farm:</p> <ul style="list-style-type: none"> - Swimmers & beach users - Wildlife watching businesses - Kayakers/sailers/paddboarders - Fishermen – locally based and Clyde fishermen’s Association members. Loss of ground and impact of chemicals and waste on target species (crustaceans) - Scuba divers / snorkellers <p>The dispersion modelling for this application and the two other Dawnfresh farm applications nearby shows that there will be toxic chemicals washing up in areas of the coast, particularly Millport Bay and the western shore and the waterfront of Largs.</p>	See comments above	<p>1. The three bath treatment chemicals that have been mentioned in the CAR application – azamethiphos, cypermethrin and deltamethrin.</p> <p>2. The faecal waste and waste from uneaten fish food that will be discharged, untreated, into the sea.</p>

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<p>assessment of impact on benthic marine communities and any Priority Marine Feature benthic habitat and species has not been addressed as this information has not been made publicly available as part of the consultation documents. The seabed survey reports need to be part of the consultation documents so that everyone can see, and assess, the adequacy of the information that is being used. The modelling report is dated 2018. Has any more recent survey data been collected and, if it has, how has it been incorporated into the assessment of impacts?</p> <p>7. The applicant proposes to use chemicals that are all highly toxic to the aquatic environment (azamethiphos, cypermethrin, deltamethrin). These chemicals will affect other marine life (in particular crustaceans) in the area and pose a health risk to sea users. The assessment of chemical dispersion from the farms is fundamentally flawed. The modelling report acknowledges that the method cannot accurately predict what happens near the coast where, it could be argued, understanding the fate of the chemicals is most critical in terms of impact on many sea users. The report seeks to undermine the significance of coastal chemical concentrations by saying that the model outputs reflect a worst case scenario. For any sea users in the area, whether they are swimmers, kayakers, fishermen or scuba divers, understanding the full implications of the discharge of these toxic chemicals and levels of contamination along the shore and inshore areas is paramount for their safety and livelihoods. The information presented does not enable an accurate assessment of potential risk and therefore should not be accepted as a justification for licencing these applications.</p> <p>The modelling assumes the same starting concentrations for all chemicals considered. Why is this? What are the real concentrations at the point of discharge and how are these worked out? How do the chemical concentration over time relate to the SEPA EQS thresholds? This should be clearly shown on the information presented.</p> <p>8. There are three farms proposed in close proximity to each other but there is no assessment of cumulative effects of the discharges from these farms in combination. The dispersion modelling predicts that there will be some interaction between discharges from the farms but does not investigate this further. A proper cumulative assessment is required.</p> <p>9. There appears to be no consideration of the likely overlapping of Disease Management Areas (DMAs). The National Marine Plan states that new aquaculture</p>	<p>seabed habitats and ecology.</p> <p>5. Oysters – native oysters recently introduced to Largs Yacht Marine and Fairlie Quay Marina</p> <p>6. Humans – impact of toxic chemicals and waste on wellbeing and livelihoods of existing businesses that rely on a healthy, productive and attractive marine environment.</p>				

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	<p>sites should not bridge DMAs, so how is this requirement being addressed?</p> <p>10. There is a significant and high likelihood of adverse impact on wild salmonids as a result of this proposal alone and in combination with the other two Dawnfresh open cage fish farm proposals that are being consulted on. This is due to the thousands of farmed fish that would be present in the cages acting as hosts for sea lice, creating a significant source for sea lice that are dispersed into the surrounding area and on to infect wild salmon and trout within the water body. The total sea lice load arising from a marine fish farm is a function of the number of lice per farmed fish, and the total number of fish maintained in the cages. Maximum biomass consented via the CAR licensing system directly influences the number of larval sea lice released into the environment. There is a cumulative impact from farms within the same water body – this is not just the three Dawnfresh proposals but also the overall sea lice burden arising from other open cage fish farms within the Clyde Region. This cumulative impact needs to be assessed. I refer you to this animation of modelled sea lice burden which indicates the very significant risk from this proposed farm and in combination with other open cage fish farms: https://vimeo.com/496948354</p>					

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45	<ul style="list-style-type: none"> Individually, all 3 fish farm proposals are likely to have 'significant environmental effect' Faecal and food waste deposited from the fish farm cages will adversely increase organic and nutrient enrichment of the Clyde estuary reducing its water quality. There are increased concerns over extensive areas of <i>Beggiaota</i> spp. smothering sub littoral sediments in Fairlie Roads, Hunterston and Largs Channels. This species is an indicator of polluted marine environments and sign of environmental degradation which will be exacerbated by organic enrichment from the farm sites. The area around fish farm sites are a known hotspot for invasive species and pose significant risk to Scotland biodiversity. The carpet sea squirt (<i>Didemnum vexillum</i>) is a high priority INNS species and further spread likely lead to a failure to meet water quality standards. The fish farms and attendant vessels will provide attachment surface and act as transmission vector for this species. Hydrodynamic models developed by Strathclyde University (FVCOM Models) indicates that waste and chemical pollutants are unlikely to be dispersed into open sea from this area of the Clyde estuary. The hydrodynamic parameters and environment in Clyde estuary are in a constant state of flux, and seasonally changes occur depending on wind direction, influx of fresh water and thermal stratification. The Dawnfresh models fail to properly attend to dynamic changes. Nutrient enrichment will increase occurrence and severity of deleterious algal blooms. This significant issue in some Clyde sea lochs (Loch Fyne, Striven & Loch Long) and of increasing concern in the outer estuary during periods of thermal stratification and reduce mixing. 	<ul style="list-style-type: none"> The Cumbraes Marine Consultation Area is noted for its diverse benthic communities and assemblages of macroalgae. Two farms are located within this designation but effluent from all three will severely impact biota located there. Southannan SSSI is noted for its diversity of infauna species and substantial areas of dwarf eelgrass (<i>Zostera noltii</i>). It is also home to biogenic reefs listed as OSPAR Priority Marine features including native oyster and mussel biotopes. Any additional nutrient enrichment and chemical pollution pose a substantial threat to these internationally and highly protected habitats. Kames Bay SSSI is in the direct path of the effluent plumes modelled from Little Cumbrae. The chemical effluents will have deleterious impact on crustacea and molluscs studied there and impact is usefulness and purpose of notification as a SSSI. Intelligent decision making about how best to manage SSSIs, and coasts in general, in a sensitive and sustainable way in order to conserve biodiversity, requires basic science at the heart of an integrated Coastal Zone Management policy (Moore 2020). The Dawnfresh applications offend basic concepts enshrined within ecosystem approach to marine spatial planning. Ballochmartin Bay SSSI will be impacted and home to diverse range of macrofauna and denuded native oyster population which will be impacted from proposed fish farm effluents. Loch Goil MPA is distant to the proposed fish farm locations but widely known and accepted that prevailing winds force litter and effluents towards the heads of Loch Long and Goil and consequences for protected features located there. Endrick Water SAC. The fish farms are located on migratory pathway for Endrick Water SAC. European Protected Species <ul style="list-style-type: none"> Otters are protected species. All 3 fish farms are located within the home range and prime foraging locations of known otter populations. Otters will be displaced from natural foraging grounds, bioaccumulate toxins and resultant predator management issues. Harbour Porpoise are year round residents and utilise the areas where fish farms will be located. Passive Acoustic Monitoring survey data indicates that these areas are persistent hotspots for this species. Scottish Marine Animal Stranding's toxicological data indicate that harbour porpoise populations are accumulating biotoxins and susceptible to chemicals listed in the CAR applications. A resident common dolphin has a home 	<ul style="list-style-type: none"> The applicant plans to use azamethiphos, cypermethrin, deltamethrin are recognised to have high levels of toxicity and harmful to most forms of marine life. The chemical dispersion modelling is inadequate and likely to be much wider and more persistent than that reported in CAR application. Faeces and waste food will exacerbate eutrophication on Clyde estuary water body. Sea lice can be considered a biogenic effluent and poses a significant and unacceptable risk to migratory and wild salmonids. The application proposes to deposit 25kg/square metre per annum of food and faeces below the farm cages. This is wholly unacceptable within Cumbraes MCA are which is designated for assortment of benthic biota, PMFs and algae communities. Fishfarm companies (MOWI) have stated in recent applications that Cypermethrin and Deltamethrin are no longer effective and that only Azamethiphos works. This raises a legitimate question as to why Dawnfresh should be given permission by SEOA to introduce these chemicals into the environment. 	<ul style="list-style-type: none"> Commercial and hobby fishers will be impacted both directly and indirectly. The fish farm locations are heavily utilised by static gear fisherman who will be displaced from these areas and result in further conflict with other water users and mobile sector. The toxic chemical listed in application are known to have deleterious impact on crustacea shell formation with resultant economic impact to fishers. The dispersion modelling for the three farms indicates that the North Coast area, particularly Millport Bay and the waterfront of Largs will be exposed to toxic chemicals. This exposure is unacceptable to all water users and children who visit these areas. All three farm sites present a significant obstruction to vessels, the safe passage of sailing vessels and present an unnecessary risk to navigation. There is currently no knowledge of the possible effects of the toxic bath treatments on humans, so again the precautionary principle should be applied. 	<ul style="list-style-type: none"> Wild Oyster Project – The projects areas of interest and proposed sites for biogenic reef and native oyster restoration will be impacted by effluents from proposed fish farm sites. Considerable investment has been made to identify potential sites and fish farms locations present an unacceptable risk to further development and investment in the area. Environmental Education – The coastal sites around Cumbrae and Hawks Nebb are heavily utilised by eco tourism businesses and used for environmental education purposes which will be economically impacted and substantially reduce quality of eco-tourism offering. All of the proposed fish farm sites are high recreational use areas and will impact quality of experience and pose significant health risk to coastal swimmers, kayakers, anglers and non-commercial water users. The children from our communities will be exposed to carcinogenic and toxic chemicals. 	<ul style="list-style-type: none"> The fish farm application does not address any cumulative impacts between the farms. It is our understanding that the AutoDepomod modelling presented in the application has been superseded by NewDepomod which should have been used in the application and impossible to properly predict discharge impacts without it. The report plays 'lip-service' to combined effects from the various farms and dismisses importance of modelling cumulative impacts. The farm sites are in close spatial proximity to each other but hydrodynamic modelling fails to indicate pollution source interactions across the sites. The modelling reports state that the method used produces artefacts close to the shore and exactly where concentrations of pollutants are of most concern and highest risk to human receptors. Our communities endure nuclear contamination from Hunterston effluent outflows and irresponsible not to acknowledge cumulative impacts to receptors. The meteorological data used in modelling is not fit for purpose and resolution does not properly describe meteorological situation at the fish farm sites. Some of the surrounding communities have experienced an increase in population (Fairlie +25%) but waste water infrastructure has not been updated with more effluent and increasing frequency of storm overflow discharge events. The environment is under considerable pressure from eutrophication yet no mention of eutrophication baseline and/or assessment of cumulative impacts from fish farms. The waters around these sites are heavily utilised by water users who will become exposed to azamethiphos. Calls have been made for independent assessment of the impacts of these chemicals on people immersed in the sea. SEPA is required to take responsible for this assessment. The proposed farm sites will bridge the Loch Striven and Arran Disease Management Areas but no indication in license applications on increases in pollutants that will be required to control disease events spreading across management areas. The hydrodynamic modelling makes no reference to planned coastal flood defence works in Millport Bay which will greatly modify the currents and pollutant exposure from fish farm sites. Newton Beach in Kames Bay is North Ayrshire only award winning beach and will be heavily and directly impacted by organic and chemical pollution plumes from the

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		<p>range within meters of the Cumbrae fish farm site. This animal will be impacted by chemical toxins from fish farms and effluent from attendant vessels.</p> <ul style="list-style-type: none"> o Basking Sharks are known to utilise the currents at the Wee Cumbrae and Hawks Nebb sites and likely to assimilate chemicals pollution from the farm sites. • Common and grey Seals haul-out sites and foraging areas are located near and within the modelled effluent streams. . • Non Native Species - Rainbow trout and species proposed for fish farm sites are non-native species and derived from hatcheries in Denmark and South Africa. Escaped fish, either diploid or triploid, present an unacceptable risk to native and wild stocks. Dawnfresh have very poor track record and cannot guarantee fish will not escape and interact with wild population and in natural habitat including Endrick Water SAC and other important river fisheries that are confluent to the Clyde estuary. • Salmon and Sea Trout are Priority Marine Features <ul style="list-style-type: none"> o All three farm sites are located on migratory pathway for Salmon entering the Lomond and Endrick Waters SAC. o The biomass and stocking density pose an unacceptable risk to salmonid and smolt PMFs. SEPA should assess the impact of consenting almost 7500t of additional biomass to migrating pathway and smolt corridor. 				<p>Little Cumbrae fish farm proposals. The criteria for awarding this status hinges on the demonstration of outstanding beach management and environmental practices. Community wealth building on Cumbrae depends on this type of recognition which has been designed in partnership and to complement the work undertaken by SEPA. This good work will be undone if these CAR licenses are granted approval.</p> <ul style="list-style-type: none"> o It is clear from the license submissions that Dawnfresh fail to comprehend the complex hydrodynamic environment of Hunterston and Largs Channel with no mention of any expected impacts to Fairlie Beach or impact to increasing amount of visitors that utilise it for recreational purposes. <p>This response has been forwarded to following elected representatives:</p> <ul style="list-style-type: none"> o Mairi McAllan MSP - Environment Minister, o Mairi Gougeon MSP - Rural Economy Minister, o Kenneth Gibson MSP Cunningham North MSP o Ross Greer MSP – West Region o Katy Clark MSP – West Region o Jamie Greene MSP – West Region o All North Ayrshire Council Councillors and Officers

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46	<p>The application uses AutoDepomod for its waste dispersion and benthic effect modelling, which SEPA has stated is not fit for this purpose, and the applicant should have used NewDepomod for the waste modelling under the current regulations. The Allowable Zone of Effect (AZE) referred to in the results is out of date as the regulations now state that Mixing Zone modelling is required. The model presented is not consistent with the NewDepomod system and the modelled impacts on the seabed benthic ecology are not comparable (e.g. SEPA uses IQI to measure this rather than the ITI predicted by AutoDepomod). The hydrodynamic modelling presented does not, of course, model benthic impact. All in all the modelling is inadequate, non-compliant with the current SEPA regulations and therefore not fit for purpose.</p>	<p>The absence of the submission of any benthic survey data mean that the public cannot comment in an informed manner on the quality and richness of this substrate and what damage might be done by both chemical treatments and solids discharge and deposition if there is no reference to the data from the benthic study. These survey data and interpretation needs to be made available to this consultation.</p> <p>The recently announced project to establish oyster beds at Fairlie Quay and Largs Marina would be a major source of concern that in future chemicals and organic waster release in this confined area of the Clyde Estuary from all three Dawnfresh developments would put this oyster project at considerable risk of failure.</p> <p>The proximity of all three development proposals introduces a heightened risk of spreading of disease vectors and infestation throughout the linked operations by natural transmission pathways and by contact with service vessels and personnel.</p> <p>Specifically this same proximity could result in a continuous barrier of potential infection stretching across the very important wild salmon smolt migration bottleneck from Loch Lomond and the Endrick Water SAC catchment, sea lice population growth within the sea-trout cages and widespread dispersal and concentration along current interfaces being a crucial risk and barrier.</p>	<p>It is noted that Dawnfresh's own long term model did not iterate to a compliant pass for the use of azamethiphos in the supplied modelling. As the application cannot pass SEPA's thresholds for dispersing the azamethiphos quickly enough to pass its environmental standards for the quantities being requested, the applicant concludes that 'The results of the long term model override those of the short term and therefore Azamethiphos cannot be used at the site.'</p> <p>As a result of this it is unclear how the applicant proposes to treat sea lice as no application to use emamectin benzoate as an alternative has been submitted: this needs clarification.</p> <p>Irrespective of this result I wish to state the concerns regarding azamethiphos in particular in case this chemical use is reapplied for at a lower dose.</p> <p>Azamethiphos is particularly toxic to crustaceans. These include the crabs, lobsters and prawns caught by Clyde fishermen.</p> <p>Azamethiphos in particular is also referred to in a following section which covers the effect on users of the water environment.</p> <p>The fact that SEPA has not undertaken a scientific assessment on the risk to health of in and on-water marine users of this chemical or any other chemicals which enter the water from the fish farm operations is a matter for grave concern and does not appear compliant with the Water Environment (Controlled Activities) (Scotland) Regulations 2011.</p>	<p>To be clear the azamethiphos dispersion modelling in the application fails to meet the SEPA requirements and therefore should not be licensed for this site. However, if the use of azamethiphos is considered by SEPA to be licensed from its own modelling, if undertaken, then I wish to state the following.</p> <p>The distance to shore of the cages is less than 200m and to treat all the cages with azamethiphos will take 10 days. This plume will spread along the shore and will come into contact with coastal water users as indicated in the presented dispersion modelling report.</p> <p>The published data sheets for azamethiphos, an organophosphorus pesticide, state that it should not be released into the environment, but SEPA's licences tolerate and permit a specified level of harm to marine life and the environment. There is no such tolerable level of harm permitted for humans. This chemical is toxic as it disrupts the nervous system. The data sheets require unnecessary staff to be cleared from the area when applying the chemical, operators should wear full protective clothing and it is dangerous enough to require regular blood tests.</p> <p>Numerous scientific studies have shown that poisoning can result from one large dose or repeated very small doses of organophosphates which cause acetylcholine to build up in the human body over time. Organophosphates in sheep dip and insecticides have been blamed for degenerative neurological illness in agricultural workers and it is an offence for farmers to allow organophosphates to contaminate a water-course.</p> <p>In SEPA's response to community Freedom of Information Requests asking SEPA and Marine Scotland how they assessed the safety of swimmers nearby it was stated that they hold no data or studies on safe levels of exposure for people swimming in water containing this chemical. It is also understood that SEPA have never assessed this risk before issuing CAR Licences for any other site in Scotland.</p> <p>If azamethiphos is dangerous for the users wearing protective clothing, then it is self-evidently be even more dangerous for unprotected swimmers or kayakers in the immediate vicinity of a farm or well-boat discharging azamethiphos over a 10 day period.</p> <p>This risk is not mitigated; attempting to stop the public approaching the farm is denying them their right of access to the sea and there is no law that permits an exclusion zone. Exposure to repeated low doses further from the farm is also understood to</p>	<p>The Clyde islands concerned in the three development proposals from Dawnfresh, and the mainland nearby, have for many decades and continue to be popular with day trippers and holiday visitors who take to the shores for recreation including swimming, snorkelling, diving, kayaking and boating.</p> <p>Although the north west coast of Little Cumbrae may not be as frequently visited as the Bute and Cumbrae sites it is still used by in and on-water users and the marine dispersion modelling also indicates that there is a serious risk of human contact with water contamination from this site in Millport Bay on Greater Cumbrae</p>	<p>Azamethiphos, an organophosphate, a chemical group of pesticides well known throughout on-land agriculture as carcinogens has already been covered in some detail in the section above.</p>

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				<p>be dangerous, particularly for small children with a small body mass, anyone suffering from neurodegenerative diseases and others who are susceptible to organophosphates.</p> <p>Anyone swimming along the coast will not know when the water is contaminated, so there should be no traces of harmful chemicals where humans may be swimming and it should not be forgotten that the published data sheets for this chemical treatment state that it should not be released into the environment.</p> <p>As well as individually the proposed Bute and Cumbrae farms need to have their effects assessed cumulatively along with the other existing farms in the Clyde region to ensure the health of the public is protected.</p> <p>Azamethiphos is particularly toxic to crustaceans. These include the crabs, lobsters and prawns caught by Clyde fishermen. Can SEPA to clarify whether it is certain that there will be no possible impact on commercially fished species and therefore the livelihood of local creel fishermen, despite SEPA's concerns about the cumulative impact of azamethiphos plumes at other farms in the Clyde.</p> <p>Apart from the toxic chemicals employed in intensive industrial salmon and sea trout fish farming to keep diseases and pests at bay and also the excreted wastes, mainly faeces, are released untreated into the marine environment and dispersed widely in confined areas of sea raising issues of public health for those who come into contact with this pollution. The potential impact of the waste and all chemical treatments on the public health of in water and on water users of the environment has not been assessed.</p>		
47	I grew up sailing on the Clyde when the sludge boats dumped their waste. From studies presented online this project seems to be taking us back into an age when our respect for the environment was minimal.... and we're paying the price now.					

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48	<p>Fish faecal matter will affect water quality: Fish faecal matter will affect water quality, just as the dumping of Glasgow's sewage sludge off south Bute at Garroach Head did. When this process began in 1904 dispersion might have been an accepted theory, but surely in modern times we must realise that dispersion does not equal disappearance, the problem just moves somewhere else while the creator/s of the problem take no responsibility for creating it or cleaning it up. It is only in the past few years that the water around the Cumbraes has reached 'good' quality again, so it seems absurd to allow this farm, in combination with 2 other proposed Dawnfresh sites nearby, to again put untreated faecal matter equivalent to approximately 105,000 people into the waters - you wouldn't allow even a small island population to put their untreated faecal matter into the sea, would you? And no form of land farming would be allowed to do this, would it? So it is unacceptable that fish farms are allowed to exploit a resource that belongs to all of us to do it.</p> <p>Use of highly toxic chemicals: The applicant plans to use azamethiphos, cypermethrin and deltamethrin. These are all highly toxic chemicals to the aquatic environment according to the European Chemicals Agency. Their utility in fighting lice will be harmful to other crustaceans. A lot of money is being spent to reintroduce oysters to the local area with farms at Largs Yacht Haven and Fairlie Quay Marina. These creatures will filter the water, improving the water quality overall. Why allow this fish farm that will only add faeces and toxic chemicals, to impact this much more worthwhile project.</p> <p>Lice: The Wee Cumbrae application on its own would create a lice problem that does not exist at that site at the moment, but taken in conjunction with the other two Dawnfresh proposed sites at the Cumbrae and South Bute there would be a lice cloud formed across the entire expanse of the Clyde from south Bute to the mainland. This is not my opinion but the modelling of Dr Tom Scanlon, a hydrodynamicist, university lecturer for 25 years and MD of a fluid modelling company. The video resulting from his study of the Clyde waters and how their movements would disperse lice can be seen at https://vimeo.com/496948354. Again, this would be a problem that does not naturally exist but is created directly as a result of Dawnfresh's own action of corralling tens of thousands of fish into one</p>	<p>The water quality of the general area will be impacted due to faecal and food waste.</p> <p>The toxic chemicals used will affect other species both at the site and for some distance around as your own study in Shetland in 2018 showed that dispersion can be wider than previously thought. The potential victims of such impacts would include all the fishermen currently fishing in the area, the newly installed oysters at Largs Yacht Marina and Fairlie Quay, and quite possibly the humans who wade or swim or use the waters around Cumbrae for other water sports. As well, according to the Dawnfresh dispersion modelling, Kames Bay SSSI will be impacted. Documents in the Register of Scotland describe Kames Bay as 'the classic Scottish site for the study of intertidal marine biology, having contributed more to the understanding of marine biology than any other stretch of beach in Scotland'. These documents also say that 'operations likely to damage the special interest' include '16b Changes in coastal fishing practice or fisheries management and seafood or marine life collection including the use of trap or fish cages'.</p> <p>The lice problem that will be created by this proposed site, exponentially increased by the other two proposed sites, will have a huge impact on the wild salmon and trout populations as has recently been accepted. Does SEPA not have an obligation to protect the salmon as they swim to and from the Endrick Waters SAC? How can these applications even be considered?</p>	<p>The three bath treatment chemicals that have been mentioned in the CAR application - azamethiphos, cypermethrin and deltamethrin.</p> <p>I did not see Formaldehyde or hydrogen peroxide mentioned in the papers we were allowed to see but they would also be of concern if they are mentioned in other documents.</p> <p>Faecal waste from a large number of fish over an extended period of time - after all we know what happens to a fish tank, even a goldfish bowl, if not cleaned every few days!</p> <p>I do not understand why we are being given data to look at from 2018 that has been put into outdated modelling software. I also do not understand why Dawnfresh have been allowed to create the model they have based on an insufficient amount of current gathering days if there were difficulties due to weather, an instrument being dislodged by another water user or a glitch in the equipment, then surely it is up to Dawnfresh to spend the time and money to gather the appropriate amount of data. If I as an individual am applying for planning permission to build a house I am not able to gloss over problem areas or cut corners in making the application; why should a company get to do that when there is so much at stake? I do not understand why Glasgow airport wind data and Inverkip meteorological data is used in the modelling. It may be what is available (though there was Inverkip wind data available, I checked the site they referenced in the application) but any of us living in the area know that the winds and weather we face are completely different to that in either of the other two locations mentioned. My husband has been on the tugs on the Clyde since 1974 and can definitively tell you that! After the ECCLR report chastised SEPA rather rigorously for lack of oversight and SEPA reformed its application standards, why are these applications being allowed to use old, irrelevant data input to outdated modelling systems in their submission?</p>	<p>I think it will cost some people all or a part of their livelihoods - local fishermen, the new oyster farm, local hoteliers/shopkeepers as people become aware of the toxic chemicals being used around the beaches, particularly in Millport and Largs and decide to go somewhere else for their day trip/paddle</p> <p>I think it will impact on the success of the re-introduction of oysters to the area, a project that will improve the water quality rather than degrade it as the proposed fish farms would</p> <p>The proposed fish farm sites are all in the heaviest use areas for kayaking, sailing and merchant navy activity so anyone participating in these activities would be impacted. This could have a knock on effect as sailors want to avoid the cages and their extended anchoring systems and sail to places without these, as kayakers decide to go to a less environmentally degraded area to enjoy their day paddling. Two ships broke loose from Hunterston Jetty a few months ago, holding the two vessels in place and she said they would have been sitting on or running into the fish farm if it had been there.</p> <p>As well, it is a detraction from the scenic beauty of the area so might impact the charter companies running tours of the area.</p> <p>Also, it is hard to think that the community now on Wee Cumbrae with a mission to promote healthy living will benefit from having a fish farm directly adjacent to its shoreline,</p>	as above	<p>As in question 5, part 3: The three bath treatment chemicals that have been mentioned in the CAR application - azamethiphos, cypermethrin and deltamethrin.</p> <p>I did not see Formaldehyde or hydrogen peroxide mentioned in the papers we were allowed to see but they would also be of concern if they are mentioned in other documents.</p> <p>Faecal waste from a large number of fish over an extended period of time - after all we know what happens to a fish tank, even a goldfish bowl, if not cleaned every few days!</p> <p>I do not understand why we are being given data to look at from 2018 that has been put into outdated modelling software. 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	<p>site and then putting multiple sites in close proximity to one another.</p>					
49	<p>This project will introduce pollution, discharges and possible disease into an otherwise natural environment. This area of water is also well used by recreational sailors, boaters and fishermen who have had access to it for centuries. It is a thoroughfare for these same sailors, boaters and fishermen.</p>	<p>Native fish and seal population.</p>		<p>This project will introduce pollution, discharges and possible disease into an otherwise natural environment. This area of water is also well used by recreational sailors, boaters and fishermen who access to it for centuries. It is a thoroughfare for these same sailors, boaters and fishermen. All watersports. Inshore fishermen also use this area for sustainable fishing.</p>	<p>Native seal and fish population.</p>	
50	<p>Fish excreta and uneaten food will build up on the seabed below the cages, destroying the seabed, and requiring the farm to be moved on in future years. Much capital has been spent in recent years around the Clyde on improving treatment and reducing human sewage discharge - why should we now allow unfettered fish excreta discharges on a huge scale? By-discharges of highly toxic chemicals will contaminate the water for miles around, as shown by the modelling studies. Sea lice will very likely infect wild fish.</p>	<p>All wild species, both resident, and transiting the area.</p>	<p>In particular, all the chemicals listed (azamethiphos, cypermethrin, deltamethrin), all of which are stated to be very toxic to aquatic life, and have long-lasting side effects. Also fish excreta, and uneaten food.</p>	<p>Existing commercial fishermen will lose access to the area and vicinity of the farm. Open water swimmers, kayakers and paddle boarders, which are increasingly popular activities. Swimming is surely a particular risk, as there is significant exposure to the water. Leisure sailors (larger boats) - restriction to navigation in one of the most highly transited parts of the Clyde. Tourists - fish farms aren't exactly very attractive, and wildlife tours around Wee Cumbrae are particularly popular.</p>	<p>As above - loss of existing commercial fishing grounds, plus restrictions on recreational use of the area, and tourism.</p>	<p>In particular, all the chemicals listed (azamethiphos, cypermethrin, deltamethrin), all of which are stated to be very toxic to aquatic life, and have long-lasting side effects. It seems their long term toxicology on humans has not been established.</p> <p>Fish excreta.</p>

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51	Please see COAST's response to this application. I am a resident of the Isle of Arran and agree with the technical objections put forward in their response.	Please see COAST's response to this application. I agree with the technical objections put forward in their response.	Please see COAST's response to this application. I agree with the technical objections put forward in their response.	Please see COAST's response to this application. I agree with the technical objections put forward in their response.	Please see COAST's response to this application. I agree with the technical objections put forward in their response.	Please see COAST's response to this application. I agree with the technical objections put forward in their response.
52	District Salmon Fishery Boards have a statutory responsibility to protect and improve salmon and sea trout fisheries in their district and are statutory consultees in the planning process for fish farms. Whilst Fisheries Management Scotland do not routinely respond to CAR licence applications for fish farms, we believe that the proposed location for this development is inappropriate from the perspective of migratory salmonids and the interests of other water users. There are a number of important rivers and fisheries that would be affected by the proposed farm site, including those in North Ayrshire, the Clyde and Loch Lomond (which includes the Endrick Water Special Area of Conservation - https://sitelink.nature.scot/site/8252), which are not covered by a District Salmon Fishery Board. On that basis, Fisheries Management Scotland will be fully engaged with the licensing and wider planning process. Our primary concern are impacts on wild salmonid fish and this is covered in the section below.	All three proposed Dawnfresh sites lie on an important migration pathway for Atlantic salmon which all fish arising from the inner Clyde, including the Clyde and Lomond systems, will utilise. It is also high likely that Atlantic salmon and sea trout arising from rivers in North Ayrshire will utilise this area. We would emphasise that both Atlantic salmon and sea trout are Priority Marine Features – the habitats and species of greatest conservation importance in inshore waters. We also highlight that the Endrick Water is a Special Area of Conservation (SAC) with Atlantic salmon as a qualifying interest. The Endrick Water SAC is already rated as being in an 'unfavourable' condition by NatureScot site condition categorisation. The Habitats Directive (article 6) requires that Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive. It also states: In the light of the conclusions of the [appropriate] assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public. The proposed development, taken together with the other two proposed CAR licences in this area by the same company, represent a significant additional biomass of farmed fish in an area of the inner Clyde with no history of open cage fish farming. This will represent a highly significant addition of host fish for sea lice on an important migratory pathway for wild fish. It is important to emphasise that the total lice load arising from a marine fish farm is a function of the number of lice per farmed fish, and the total number of fish maintained in the cages. Maximum biomass consented via the CAR licensing system therefore has a direct influence on the number of larval sea lice released into the environment. As set out above, we therefore consider that SEPA must take the potential impacts on wild fish, and the associated impact on interests of other users of the water environment fully into account when considering these	n/a	Scotland's wild salmon and sea trout are at crisis point with many populations below conservation limits, particularly on the West Coast within the 'Aquaculture zone'. Whilst wild salmon face a range of pressures, specific pressures from the aquaculture industry include impacts from escapes and sea lice. Salmon and sea trout fisheries are an important component of Scotland's rural economy. These fisheries and associated infrastructure rely on healthy populations of fish returning to Scotland's rivers. Scottish salmon rivers are categorised by Marine Scotland Science under the salmon conservation regulations according to the likelihood of them meeting their conservation limits. The gradings of rivers have been published for 2021. 104 rivers across Scotland are graded as Category 3, meaning there is a less than 60% probability of meeting their conservation limit. Where salmon populations are below their conservation limits, any additional pressure, including from sea lice, cannot be considered sustainable. Whilst Fisheries Management Scotland do not routinely respond to CAR licence applications for fish farms, we believe that the proposed location for this development is inappropriate based on the aforementioned impacts on the water environment, which will have a knock-on effect on other water users, including fisheries managers and anglers. As mentioned previously, the impacts of sea lice and farmed fish escapes can be detrimental to the water environment. Experience from previous escapes of rainbow trout from Dawnfresh farms, particularly in Loch Etive where at least 35,000 fish have escaped since 2015, have shown that in addition to these potential ecological impacts, the escapes create a significant nuisance to fishery owners and angling businesses. We therefore consider that SEPA must take the potential impacts on wild fish, and the associated impact on interests of other users of the water environment fully into account when considering this application.	As above, this farm, alongside the other two proposed CAR licences in this area, has the potential to impact fisheries management and angling activities in a number of important rivers and fisheries, including those in North Ayrshire, the Clyde and Loch Lomond (which includes the Endrick Water SAC), which are not covered by a District Salmon Fishery Board.	n/a

	Tell us about why you think the application will impact the water environment. - Q5 - open text box one	Tell us about why you think the application will impact the water environment. - Q5 - open text box two	Tell us about why you think the application will impact the water environment. - Q5 - open text box three	Tell us about why you think the application will impact on people who use the water environment. - Q6 - open text box one	Tell us about why you think the application will impact on people who use the water environment. - Q6 open comment box two	Tell us about why you think the application will impact on people who use the water environment. - Q6 - open text box three
		<p>applications. Of particular relevance is the close proximity of the Endrick Water SAC. Fish arising from this SAC, and many other important local rivers, inevitably must migrate directly past the proposed developments on their migration through the inner Clyde, placing those fish at risk from lethal or damaging infestation from sea lice.</p> <p>We would also highlight the potential risk of the effects of escaped farmed species on wild fish populations which is widely recognised within peer reviewed scientific literature (e.g. Glover et al. 2017). A recently recorded instance at the Mowi Scotland Ltd. Carradale North site saw 48,834 farmed salmon escape during a storm event in August 2020. A study of scale samples monitored the distribution of the escaped fish and found widespread dispersion of the farmed salmon. There were documented cases of farmed fish found within 17 rivers, the majority of which were captured within the Clyde and Loch Lomond systems and a number of rivers in Ayrshire and Argyll (Fisheries Management Scotland, 2021).</p> <p>Rainbow trout are a non-native species and have the potential to impact on native fish species through competition and predation. In addition, rainbow trout in the wild are not covered by wild fisheries legislation.</p> <p>Experience from previous escapes of rainbow trout from Dawnfresh farms, particularly in Loch Etive where at least 35,000 fish have escaped since 2015, have shown that in addition to these potential ecological impacts, the escapes create a significant nuisance to fishery owners and angling businesses. Dawnfresh have refused to recognise or compensate for these impacts. SEPA have direct responsibility for non-native species in rivers, so it is important that this potential impact is fully considered in determining this CAR licence.</p> <p>We have attached a short summary of the science which underpins our objection.</p> <p>Whilst the impacts of sea lice arising from farms may be mitigated by strategically planning farm locations, there is no current strategic plan within which this can happen.</p> <p>We are conscious that SEPA, Marine Scotland, NatureScot and local authorities are developing a strategic framework related to sea lice impacts on wild fish, but this is still in development. In the meantime, the precautionary principle should apply, and Fisheries Management Scotland strongly object to a licence being granted for each of the three proposed farms.</p> <p>References Fisheries Management Scotland (2021). Monitoring for the presence of farmed salmon in West Coast Scottish rivers</p>				

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		<p>following an escape from the Carradale North salmon farm. Half a century of genetic interaction between farmed and wild Atlantic salmon: Status of knowledge and unanswered questions. Fish and Fisheries, 18(5), 890–927. https://doi.org/10.1111/faf.12214</p>				