Written submission from David Ainsley, Sealife Adventures

I welcome the opportunity to submit evidence to the RACCE Committee.

I have operated a wildlife watching and diving charter boat in Argyll over 20 years, have also worked in trout farming and creel fishing and hold a degree in Marine Zoology. In the local area there are ten other wildlife boats generally employing two or three people with perhaps 24 customers per day bringing income to accommodation providers, shops, pubs and restaurants.

We are at a cliff-edge. The fin-fish farming industry is applying for consents for significant expansion, but existing environmental problems have not been resolved and farms which are currently in inappropriate locations and causing problems, such as Ardmaddy are applying for increases in biomass.

Important issues which threaten jobs in wildlife tourism and salmon fishing have been left out of what is a very limited draft Bill, and I hope that the Committee will expand the scope of this bill.

The technology already exists to allow fin-fish farming to operate in harmony with tourism and the marine environment and the environmental problems currently caused by the industry would be greatly reduced if the industry were encouraged by progressive legislation to adopt better technology.

Double netting cages with outer nets designed not to trap wildlife would make it unnecessary to shoot seals, or to use seal scarers which disturb porpoise and exclude them from sounds, threatening wildlife tourism jobs. There is scope within Chapter 2 of the proposed Bill under “equipment” to encourage the use of double nets. All new farms could be constructed with this technology.

Inappropriately sited farms could be moved well offshore to areas of lower conservation importance.

The ideal solution is for the industry to move to closed containment. In such systems the farm is separated from the sea or fresh water. The problems of disease and sea-lice transmission to and from wild fish, organic and chemical pollution, seal shooting and disturbance of porpoise by seal scarers would all be solved. Farms would make a significant saving in the use of chemicals. There is an economic benefit in that waste material would be used as fertiliser.

Seabed Pollution

44% of seabed monitoring reports of organic pollution provided by fish-farmers to SEPA between 2009 and 2011 were classified as “unsatisfactory” and a further 21% were graded “borderline”.(ref 1). This is consistent with my own underwater observations.

I have video taken at a farm showing extensive bacterial mat (indicating a highly polluted seabed) outside what was the “Allowable Zone of Effects” (AZE) at the time. The farm was prosecuted and the site has been remodeled, so that the polluted area now falls within the new AZE.
I also filmed the seabed at [redacted], a farm currently classified as “satisfactory”. The video shows a very degraded seabed with bacterial mat over a large area. The SEPA monitoring report 22/4/10, when the biomass was 660 tonnes, states that “the survey does not satisfy the CAR license requirements” and that “two stations failed for abundances of enrichment polychaetes”. Despite these concerning observations the farm was graded as “satisfactory” and was perhaps fortunate not to be graded as “borderline” or “unsatisfactory”. This farm is in the process of applying for a CAR license to increase from 750 to 1500 tonnes. The computer model predicts that this more than doubling of biomass will not be beyond the assimilative capacity of the local environment. One has to question the reliability of the prediction given that the seabed is stressed at 660 tonnes.

There is a rocky reef near the small farm at [redacted] within the [redacted]. This reef had consistently hosted a population of the very rare UK BAP seafan anemone *Amphianthus dhornii* since 1983 and it was a regular dive site for us because of this.

I carried out a video survey of the reef in October 2001 just before the farm was first stocked and filmed 23 seafan anemones on one dive. I continued to survey exactly the same area on a regular basis, recording impacts to the reef - which was well outside the ‘Allowable Zone of Effects’. The required Appropriate Assessment (which should have been produced before the discharge consent was granted in 2001) was eventually published in 2005. It states “SEPA concludes that the presence of the cage group would not affect the integrity of the site, in particular the nearby reef features” A group of us returned to exactly the same survey site 11 years to the day after the pre-impact survey. The site had been fallowed for some time and many species appeared healthy, but in 8 dives we could find no sea-fan anemones. Would consent have been given for a nearby pollution source if the protected species was on land?

Scallop dredging was banned in the Firth of Lorn SAC in 2007. A computer model of sediment raised by dredgers predicted that the sediment would not affect the reefs (ref 2). The jewel anemone *Corynactis viridis* is an indicator species of very clear water. An underwater study (ref 3), found this anemone to be rare in what is now the SAC in 1982. I have filmed the same part of one particular reef within the SAC most years between 2001 and 2012 and it is clear from a comparison of the videos taken that the abundance of jewel anemones has very significantly increased on this and a number of other reefs within the SAC since 2007 when dredging stopped. We have not observed increases in jewel anemones outside the SAC. Thus observations on the reefs raise questions about the prediction of the computer model. The problem with computer models is that the sea is a highly complex place and any model is only as good as the assumptions it is based on. Computer models need to be validated by observations on the seabed.

However SEPA relies on computer modeling to license sites, even in situations of complex tides and rocky seabeds (such as the recently granted CAR license at Ardmaddy) when it is known that the model used gives unreliable results in these circumstances.
Moving the goalposts

There used to be a recommendation that farms should be sited no closer than 8 Km to each other. Now we have much larger farms less than 2 km apart.

Until 2005 the AZE was 25 meters from the cage edge. Then Site Specific Modeling was brought in allowing larger areas to be polluted.

A layperson might reasonably assume that the ‘Allowable Zone of Effects” around a fish farm would be an imaginary ‘line in the sand’ on one side of which some pollution effects would be tolerated but on the other side the seabed would be pristine. However it seems that this is now not the case at all. The Modeling report for (CAR/L/1000800 sept 2012) models the Infaunal Trophic Index (ITI) at the AZE at 30. The ITI relies on the assessment of benthic organisms in polluted areas. ITI 60 to 100 equates to a normal community: 30 to 60 is a ‘changed’ community and less than 30 is a ‘degraded ‘ community. Thus the AZE now represents the borderline between ‘degraded’ and ‘changed’.

In Chile salmon farms expanded greatly with poor environmental controls, then suffered a major outbreak of ISA disease with social and economic consequences. Is it wise for Scotland to be relaxing the environmental controls now?

Are existing environmental safeguards being effectively applied in the consenting process?

*The Scottish Government has committed itself to “using sound science responsibly.....ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty (through the Precautionary principle)” (ref 4)*

There are a number of new applications for consent currently being considered and there are concerns that the principles above are not always applied to the process. If the Committee wishes to consider a case-study an independent analysis of the Appropriate Assessment and Planning Process at Ardmaddy South would be a worthwhile exercise.

Sea-lice

The transmission of sea-lice, other parasites and disease from farms to wild fish needs to be properly legislated.

Seal shooting, the impact of seal scarers on cetaceans and double nets

It is unnecessary for salmon farmers to shoot seals. Salmon farming and wildlife tourism operate in the same areas and while the numbers shot may be a small percentage of the overall population, shooting can severely deplete the local populations of seals which boats take people to see. There is a need for independent monitoring of the number of seals shot, even SNH do not know how many seals are shot at each site.
Because the single tensioned nets used by 87% of Scottish salmon farms are not fully effective at keeping seals and salmon separated, the industry shoots seals and uses devices called seal scarers or Acoustic Deterrent Devices (ADD’s) which emit loud underwater noises in order to keep seals away from the farms. ADD’s also disturb echo-locating porpoise and dolphins from a large area and so can exclude cetaceans and seals from inshore sea lochs and sounds (ref 5) which are important to cetaceans and to wildlife tourism operators like ourselves. Farms which use single nets, ADD’s and shoot seals are not complying with the requirement of the guidelines to the Marine (Scotland) Act 2010 that seals should be shot only as a “last resort”.

The ideal solution to this and other issues is to move or convert farms to closed containment. Another solution which fully meets the requirement that seals should be shot only “as a last resort” is for farms to fit an extra net completely surrounding the cage with a mesh size which does not trap wildlife. This double net keeps the seals and salmon separated so that there is no need to shoot seals or disturb porpoise. The farms benefit by selling “seal friendly salmon” and by reducing the risk of escaped stock. Double nets are already fitted to some Marine Harvest farms in Canada.

All Cetaceans have full legal protection under the Habitats Directive. The Nature Conservation (Scotland) Act makes it an offence to disturb deliberately or recklessly or to harass any cetaceans. The use of ADD’s in areas important to porpoise could well be illegal given that there are alternatives.

The wildlife on which our businesses rely is threatened by the unnecessary shooting of seals and by the disturbance of seals and cetaceans by ADD’s. We have lost sheltered dive sites which are important for winter bookings. Wild salmonids are in serious decline locally and there is scientific uncertainty as to the level of damage to ecosystems caused by chemical and organic pollutants.

The technology exists for fin-fish farms to prosper and expand with minimal impact on wildlife and tourism. The scope of this Bill could be expanded to encourage the industry to adopt this technology.

I would be happy to present and explain underwater videos and to take the committee members out on our boat to see the situation for themselves.

Ref 1 Salmon and Trout Association report August 2012
Ref 2 Dale & Sherwin (2011) SNH Commissioned Report 414
Ref 3 Picton, Howsen et al. Sublittoral survey of Scarba, Lunga and Garvellachs NCC report 1982
Ref 5 Variation in Habitat Preference and Distribution of Harbour Porpoises West of Scotland. Cormac G. Booth PhD University of St.Andrews 2010