

## The Ghillies Seminar

Friday 24<sup>th</sup> April 2015

### **Mr Crispian Cook (North & West District Salmon Fishery Board) - Seals and salmon, reporting the damage**

A reminder was given that a licence is the only legitimate way to control seals, and that only nominated marksmen. The North West Salmon Management Group area extends from Cape Wrath down to Applecross and the North Salmon Management Group extends from Cape Wrath across to the Kyle of Tongue. An application for a licence for both is made to the Scottish Government each year explaining why such a licence is appropriate. The quota should be based on the biological recruitment. Although no surveys have been completed in recent years, one is planned for this summer.

All present were reminded that the nominated marksmen cannot be identified from the returns. You shouldn't look for seals, but deal with issues that arise. It is also important to report any signs of seals or seal damage to demonstrate that there is, or was, a problem. This is true even if no action is taken.

The current consultation on the licence to kill proposal was mentioned. It was noted that this legislation should not be a box ticking exercise, but that science was used to ensure that the fish were protected.

The Wild Fisheries Review was also discussed. It was noted that there was a lull at present because nothing was happening while the SG created its thoughts from the report. There was then likely to be a consultation on the proposed Bill. There is encouragement for DSFB's and Fisheries Trusts to work more closely ahead of the creation of new fisheries management units. This already happens in west Sutherland.

*KD asked about the DSFB thoughts on sawbill ducks.* There is a licencing opportunity but the Board has not been asked apply as yet. Previous experience from other areas would suggest that the licence is hard to get and often with a very low quota.

The meeting agreed that the numbers were increasing but that you need to make a case by counting birds as they move in and out of the area.

### **Mr Billy MacBain (Marine Scotland Compliance) Working together on joint issues**

This used to be the Fisheries Protection Agency, but has now been brought together with Science, Licencing and Marine Environment have been brought together under one department. This includes offshore windfarms, aquaculture, marine conservation, etc. They cover a range of legislations - EU, UK and Scottish. Quotas are set in Brussels in December or January.

IN KLB there are 8 boats landing regularly, worth a total of £11 million last year. This was down from £20 million in 2012, possibly due to the movement of vessels to other areas.

Next year a discard ban will come into force. This has started already for the pelagic fleet. The pelagic fleet is, however, easier to monitor than the demersal so this will be staged over a 3 – 4 year period with different species per year.

If you see gill nets, trammel nets, fixed nets, etc., then phone the KLB office. The information will then be fed to Edinburgh, who will task planes or ships to check it out if they are in the area. You can also report incidents online.

There are currently RIB patrols in this area, looking for illegal fishing. They are also willing to bring in patrols at times more suitable to the estates.

Most things are now electronic, which has some problems on the west coast with regards to mobile signals. This includes the log books, which are no longer paper. It reports the last known position of the vessel so that in the event of an incident the coastguard can focus its search and rescue.

Transponders must remain on at all times. If it stops then there is an alarm in Edinburgh, who can contact the vessel to check that they are OK. This monitors all EU and foreign fishing vessels in EU waters. It can also tell if they are fishing in restricted areas.

*KD There was 2 dredgers in the Coigach MPA. Reported to Ullapool but not interested.* The Law is still to be passed, although the consultation is finished.

*CC What are Scottish Domestic Waters?* No real definition. The EU is coastline to 200 miles. Scottish could be viewed as 3 mile.

*CC Discard ban, when they catch salmon as a bycatch how does this tie to the proposed licence to kill legislation?* There is little evidence of salmon as bycatch species.

*CC When discarded fish are landed, are they landed as a mix or separated into species?* Must be separately identified as part of the quota covers the discard, i.e. haddock, etc., to record against the separate parts of the quota. Salmon will therefore be identified, as can the capture location.

Fishermen are trying the use of bigger mesh to reduce the amount of discard. A 200 mm square mesh panel – 5 m long – has reduced the amount of small fish caught.

The Aquaculture section of MS covers coastal nets for salmon.

## **Dr Catherine Collins (Marine Scotland Science) – Modelling sea lice dispersal: approach and applications**

The project has been going for about 7 years. It is now moving to lice interactions incorporating dispersal models.

Lice have been around for a long time. There is a quote from a 1755 report from Norway, "...designed by the creator to drive fish in to be caught." Despite this, there is still a lot to learn about the sea louse.

Lice dispersal monitoring is important when you are looking at interactions between wild and farmed or farmed and farmed fish.

Marine Scotland have 2 lice dispersal projects. One is in Loch Torridon, followed by a new one in Loch Linnhe. You need to know water movements, lice behaviour and lice life cycle. These are combined into mathematical equations and then programmed.

In Torridon most lice in the model are concentrated at the mouth of the river. There is nothing in the model to allow the smolt densities and smolts as a potential starting point for the lice as the model needs an input source. However this is relevant.

The models require a range of different information.

Hydrodynamic model – data is specific to the area;

Biological model – maturation rates change with temperature, which will change the dispersal patterns. Thus, at 5°C it takes 9.6 days to reach the infective stage, but only 1.9 days at 15°C.

All lice are found in the top 5 m of the water column, although there are diurnal patterns to where they are found. As they are found in the surface layers they are heavily influenced by wind direction. You can therefore predict where they will turn up depending on the prevailing wind.

The model is dependent on the inputs used, so the Linnhe model is being used to test the Torridon inputs.

In Loch Linnhe, normalised values for gravid lice were used from the farms. This enables ranking of the farms, although actual figures were not given. Field data was then collected to compare to the model.

There was a 50% agreement between the model and field data. This is good, but there will be more work to increase it to the 70% match seen in Norway. However it should be noted that the Norwegian studies use real lice data rather than ranks so will give greater accuracy.

This can then be used for management purposes within the industry. Fisheries Management Areas are to be incorporated into the Aquaculture Act and dispersal models will help to create the best fitting areas, biologically. This will be done by considering the 'connection' of the sites.

In this way you can determine which sites are connected and the strength of these connections; will new sites be in areas of high lice accumulation?; monitoring of existing sites can happen, as can the salinity gradients around the farms. Using these things you can determine where to focus the effort if all sites in a FMA can't be treated for whatever reason.

Most infectious stages are found within 15 km of the source. This can also be used to set 'fire breaks' for the management of FMA's, siting of new farms, etc. However, although 95% of infectious stages occur within 15 km, some will move further.

From the model, it can also be seen that some sites can re-infect themselves through the connectivity with other sites.

MS have also undertaken tracking studies, to know where salmonids go. This indicates that most sea trout remain at the mouth of the river while salmon migrate out within a couple of weeks.

There are some small projects around to compare the east and the west lice populations.

Looking to the future, there is a proposed 10 year project to look at the interactions with wild salmonids and the distribution of migrating salmonids. Receivers will be placed around the west coast, and will also link into other systems already operating to track mammals. They will then try to model where the fish go. Combining this with a coastal model of lice dispersal will further improve the management of the industry.

It is also important to know the viability of the lice and this will be assessed by towing salmon through the areas.

*KD How far do sea lice move under their own steam? A few centimetres*

*KD What is the impact on dispersal of alternative hosts? While it can have implications it has not been considered in detail since they are not the main host. It is known that numbers are low and reproduction less viable on non-salmonids.*

### **Ann-Marie MacMasters (Scottish Mink Initiative) - American mink: why are they a problem and what are we doing about them?**

An invasive non-native species (INNS) is one which has a detrimental impact to the environment, economy, health or the way we live. American mink are very successful INNS.

A mink skin was shown. While they can be silvery blue the reddy brown is the more typical colour. They are typically the size of a ferret. Solitary creatures, they meet in Feb – Apr to mate. The young are born in May – Jun, with a litter size of 4 – 6 kitts, although 12 is the highest number of embryos found during a dissection. They will start being seen in Jul – Oct. The best times to trap therefore, if you can't do it all year, is Feb – Apr and Jul – Oct.

The natural distribution of the mink is America, where they prey on muskrats, fish, birds, rabbits and amphibians and have natural predators. They were imported for fur farming in the late 1930's, with some escaping from inadequate cages. They were first recorded breeding in the 1950's. Fur farming has been illegal in Britain since 2003, but the trade had stopped before this. Female mink territories are no higher than 300 m, although males will roam far and wide.

In Britain, the diet is very similar. The difference is that there are no natural predators, only man. Mink are good predators and will try anything they think they can get, including cygnets and gannets. One has been photographed with a 1 m long eel.

The effect of mink predation on water voles is well documented. A 92 – 95% reduction in water voles has been recorded, although changing land use is also a problem. The effect of mink on fish are, however, harder to prove.

Similarly, the effect on bird populations is also well documented. Sea bird monitoring revealed notably fewer birds on an island, with large numbers of carcasses found after one night. They were dead but not eaten, and mink were the cause of death. Classically the mink will go for the back of the head/neck on birds, and the puncture marks will also identify the animal. The distance between mink canines is 6 mm.

The development of the project was explained. Started in 2004 in Aberdeenshire and managed by the University of Aberdeen, it expanded to the Cairngorms in 2006. SWT took over the lead in 2009, when it expanded a bit further, with the first phase of SMI coming into being in 2011. This was a project officer approach, starting to build the current network and volunteers, before the start of SMI Phase 2 in 2013. The project expansion is slow, making sure that it is sustainable and logical, always heading out from the current area and not creating isolated patches.

The objectives of the project are the removal of breeding mink from the north of Scotland. The project needs to be long term, sustainable and transferable. Caithness is currently mink free, so there are no plans to expand the project that way. However the next phase will take in an area south of Wester Ross. However achievability remains important so the spread will be slow. Mink can travel vast distances when dispersing and therefore we need a multi-catchment approach.

Volunteers are asked to submit their data on Minkapp if possible, with best results if they are submitted regularly. It is difficult to stay motivated if the results are always blanks, but no news is good news and it is important to remember this. Please record null events. We always need more volunteers, so if you can help run a trap, be a dispatcher, etc., then please get in touch. Should you get a carcass, please also keep it in the freezer and pass it on to us. There is a lot of information that we can get from a carcass and the University of Aberdeen have on-going projects.

The success of the project can be seen in the return or survival of water voles and water birds, such as the moorhen.

A study carried out by Elaine Fraser demonstrated that mink on the west coast are genetically distinct from those on the east. This suggests that the mink in the west are travelling by coast.

### **Shona Marshall (WSFT) - Wild Fisheries Review & Licence to Kill – your views needed**

The Wild Fisheries Review was introduced, concentrating on the points considered most relevant to the audience. Of the 53 points within the review, these were:

- There should be an all species approach to management
- If the management of the fishery (all species) is not sustainable, then this should become an offence.
- Government should have the power to introduce a ban on the killing of fish at either national or local level. This could include changes in equipment or the introduction of a licencing system
- Any consideration of an application to kill migrating salmon by a mixed stock fishery should take full account of current knowledge regarding the conservation status of fish populations in all destination rivers known to be involved, and where appropriate a precautionary approach should be adopted
- Citizen science should be a key theme in developing a fisheries management system in Scotland that is founded at all levels on sound science.
- Sunday fishing to be permitted, unless there is good scientific reasons to continue the ban in terms of coastal netting
- The current closed seasons should be reviewed and determined by a national unit. It should be based on sound science to optimise sustainable socio-economic value. It should be extended to all species and in certain cases should include a ban on killing but permitting catch and release during certain periods
- The protection order system should be reviewed and reformed, with the right to approve protection orders being brought under the authority of Scottish Ministers through the national unit.
- The warranting of bailiffs should be brought under democratic control through the national unit, and subject to appropriate training, qualification, CPD and complaints procedure requirements. They should be all species but employment should still be possible by any appropriate public, private or third sector employer.
- All releases of, whether hatched from local stock or otherwise, should be subject to licensed consent from the national unit, with permitted grounds being primarily that exceptional circumstances relating to population sustainability justify such an intervention.
- The development of a new and well-resourced Angling for All Programme for Scotland should be considered. Integral to this should be the introduction of a national rod licence to fund the initiative on a long term basis.

It was noted that these are recommendations. The public has had the opportunity to comment on the proposals and they are now being considered by the Scottish Government.

The proposed 'licence to kill legislation' was then discussed. The deadline for responses to the proposal was 30 April 2015, and the views of the ghillies were gathered in order to help define the Trust response. The discussion was in-depth, helpful and considered. There was wide participation at all levels. Good points were raised and all comments were considered within the Trust response.