NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

[redacted]
Marine Licencing Officer,
Marine Scotland – Marine Planning & Policy

22 March 2022

By email

Our ref: A3687244

Dear [redacted],

2022 Seal Licence Consultation – Applications for a licence authorising the killing or taking of seals to conserve seals or other wild animals (including birds) or wild plants in Scotland

Thank you for consulting us on this year's seal licensing applications (Table 1). These constitute the second year of applications following the amendment to the Marine (Scotland) Act 2010, and the first following Marine Scotland's updated guidance.

Overarching considerations

The number of Atlantic salmon returning to Scottish coastal waters have declined since the 1970s[1], and the estimated number of spawning salmon has declined from 2010[1]. There are a number of potential factors driving the decline throughout the lifecycle, *i.e.* within the river system and the open seas. These factors include; climate change (especially water temperature), marine development, water quality, in-stream barriers to movement, overfishing, exploitation, and predation. Predators include otter, piscivorous birds, other fish, cetaceans, as well as both seal species (harbour and grey).

River Status- Salmon Grade

Scottish Government assess the conservation status of salmon on a river-by-river basis[2] annually. Conservation status is defined by the probability of stock meeting its egg deposition target over a five-year period. The assessment result in a grading award of 1, 2 or 3 to each river.

[1] https://www.gov.scot/publications/scottish-wild-salmon-strategy/
https://www.gov.scot/publications/salmon-fishery-statistics-2020/

[2] https://www.gov.scot/publications/salmon-fishing-proposed-river-gradings-for-2022-season/

Table 1 - Seal Licence applications for 2022

Seal Management Areas	Applicant	River Grading	MPA consent	Licence recommendation	Page
Southwest Scotland	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
West Scotland	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Western Isles	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Orkney & North Coast	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Moray Firth	MF01 – River Carron	1	N/A	Reject[1]	12
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	MF01 – River Oykel SAC	1	Yes	Reject[1]	14
	MF01 – River Shin	1	Yes	Reject[1]	15
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
East Scotland	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[1]*reject on the grounds of Grade 1 conservation status*
[2]*reject on the grounds that the case for salmon conservation has not been made due to seal presence being 'rare' or 'on occasion'*
[3]*reject for harbour seals, but possible permit for grey seals*
[4]*please see our concerns due to the proximity to the Ythan designated seal haul out*
[5]*Possible permit for both harbour and grey seals*

- **Grade 1** – reflects the probability of at least 80% of stock meeting its egg deposition target over a five-year period - suggests exploitation is sustainable – **Good conservation status**,
- **Grade 2** – reflects the probability of between 60- 80% of stock meeting its egg deposition target over a five-year period - suggesting management action is needed to reduce exploitation - **Moderate conservative status**, and,

- **Grade 3** – reflects the probability at less than 60% of stock meeting its egg deposition target over a five-year period suggesting that exploitation is unsustainable – **Poor conservation status**.

NatureScot Overarching Advice

For the purposes of seal licencing, we remain of the view that although these gradings relate to sustainable exploitation, a grade 1 suggests the salmon stock in that river/area is in good health. The assessment is based on the salmon stock numbers, and therefore exploitation is related to both anthropogenic and natural removal.

Our advice therefore is that there is no case for lethal removal of seals in Grade 1 Rivers.

In any consideration of lethal removal of seals for the purposes of salmon conservation, we also feel it is relevant to highlight emerging evidence[3] that the catching of salmon causes stress and damage to the individual, potentially affecting fitness, and suggest that further restrictions on catch and release may therefore merit consideration. Notwithstanding this, for Grades 2 and 3, our consideration is whether the lethal removal requested will make a material difference to the conservation status of the salmon and/or the conservation status of either seal species.

The numbers of seal take requested are considered with regard to the regional Potential Biological Removal (PBR) values (Table 2) for the Seal Management Area (SMA) concerned. PBR values are calculated annually by the Sea Mammal Research Unit, and reflect a calculation as to how many animals may be removed from a population. **Our view is that, under this licensable purpose, it is not enough for the requested take to be below the seal PBR, the evidence needs to show that lethal removal is necessary for salmon conservation.**

Consistent with advice provided by NatureScot last year, we recommend that all licences for Grade 1 Rivers should be rejected because the stock is classed as being at a good conservation status, and therefore the lethal removal of seals is not necessary for the conservation of salmon.

We also remain of the view that licences for the lethal removal of harbour seals in the East coast and Orkney and north coast management areas are rejected due to the continued population decline of this species in these areas.

Where licensing is deemed appropriate by MSLOT, we recommend that each method statement should specifically detail the non-lethal methods deployed including methods, duration and

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[3] Lennox, R.J., Cooke, S.J., Diserud, O.H., Havn, T.B., Johansen, M.R., Thorstad, E.B., Whoriskey, F.G., Uglem, I., 2016. Use of simulation approaches to evaluate the consequences of catch-and-release angling on the migration behaviour of adult Atlantic salmon (*Salmo salar*). *Ecol. Model.,* 333, 43–50. http://dx.doi.org/10.1016/j.ecolmodel.2016.04.010

Lennox, R.J., Uglem, I., Cooke, S.J., Naesje, T.R., Whoriskey, F.G., Havn, T.B., Ulvan, E.M., Solem, O., Thorstad, E.B., 2015. Does catch-and-release angling alter the behavior and fate of adult Atlantic salmon during upriver migration? *Transactions of the American Fisheries Society*, **144**, 400–409. https://doi.org/10.1080/00028487.2014.1001041

Travis E. Van Leeuwen, J. Brian Dempson, Chantelle M. Burke, Nicholas I. Kelly, Martha J. Robertson, Robert J. Lennox, Torgeir B. Havn, Martin Svenning, Ross Hinks, Matthew M. Guzzo, Eva B. Thorstad, Craig F. Purchase, and Amanda E. Bates. Mortality of Atlantic salmon after catch and release angling: assessment of a recreational Atlantic salmon fishery in a changing climate. *Canadian Journal of Fisheries and Aquatic Sciences*. **77**(9): 1518-1528. https://doi.org/10.1139/cjfas-2019-0400)

recording of methods used, it should also provide details of any Acoustic Deterrent Device (ADD) use.

Table 2 - Seal Licence applications for 2022, together with the regional Potential Biological Removal (PBR) figures

Seal Management Areas	Regional PBR for 2021[4] (draft 2022)[5]		Applicant	Requested take	
	Harbour seal	Grey seal		Harbour seal	Grey seal
Southwest Scotland	71 (71)	116 (119)	[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
West Scotland	936 (936)	933 (966)	[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
Western Isles	105(105)	1291 (1336)	[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
Orkney & North Coast			[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
Moray Firth	6 (6)	370 (383)	MF01 – River Carron	1	2
			[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
			MF01 – River Oykel SAC	1	4
			MF01 – River Shin	1	2
			[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
East Scotland	2 (2)	823 (852)	[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]	[redacted]

Where MS LOT determine a licence could be granted for grey seals and not harbour seals (e.g. Moray Firth) correct species identification will be of the utmost importance.

Where lethal removal is licenced, we suggest that recent evidence[6] of the physiological and other impacts associated with the catch and release of Atlantic salmon should be reviewed, and

[4] https://www.gov.scot/publications/marine-licensing-map-of-seal-management-areas-and-provisional-pbr/
[5] Draft SCOS 2021 (unpublished)
[6] Travis E. Van Leeuwen, J. Brian Dempson, Chantelle M. Burke, Nicholas I. Kelly, Martha J. Robertson, Robert J. Lennox, Torgeir B. Havn, Martin Svenning, Ross Hinks, Matthew M. Guzzo, Eva B. Thorstad, Craig F. Purchase, and Amanda E. Bates. 2020. Mortality of Atlantic salmon after catch and release angling: assessment of a recreational Atlantic salmon fishery in a changing climate. *Canadian Journal of Fisheries and Aquatic Sciences*. **77**(9): 1518-1528. https://doi.org/10.1139/cjfas-2019-0400

consideration given to the need for further measures or regulation on the catching of salmon in those rivers. The potential impacts associated with catch and release of salmon are not mentioned in any of the applications and perhaps should be, as the aim here is the conservation of Atlantic salmon.

We consider that the assessment of seal predation in rivers should be based on the number of seals that can be clearly identified as taking salmon, and not on the number of seals observed in the area, because not all seals present in the river are 'salmon/river specialists'. In addition, whilst some seals may have a direct impact on salmon through feeding, fisheries also include the indirect impact on their fishery by affecting the rod activity. Our view is that seal shooting should only be used as a last resort where all appropriate non-destructive alternatives have been exhausted. **We wish to see greater demonstration that there is no satisfactory alternative way to mitigate seal predation/damage on salmon.**

Both harbour and grey seals are protected species. We have therefore considered each location's connectivity to Seal SACs, together with any overlap with Seal Designated haul-outs. Where a licence location is within 20km of a grey seal SAC, or 50km of a harbour seal SAC, we offer advice on HRA.

The lethal removal of individual seals has obvious welfare issues for the seal. The licence requires that the shooting is undertaken by a suitably qualified named person. Although the retrieval of the carcass is not often done, we strongly recommend that there should be greater effort to comply with this recommendation should licences be approved.

The shot seal should be retrieved and either taken to Scottish Marine Animal Stranding Scheme (SMASS)[7], or retrieved by SMASS so that a necropsy can be undertaken. We would welcome further discussion regarding compliance monitoring with yourselves in connection with species identification and numbers of seals actually shot.

In the annex to this letter we provide advice for all applications, and a consent response under section116 (2) of the Marine (Scotland) Act 2010, for those applications where shooting is proposed within a protected area.

General comments on quality of licence applications

Whilst the quality of applications is much improved from last year, the evidence supplied to support the lethal removal on the conservation of salmon is still weak. The argument put forward by the applicants is that any seal seen in the area will be predating on salmon, and any adult salmon removed from the population, or damaged will have an impact on the number of eggs laid. Whilst we agree with this in general terms, it is difficult to evidence how the removal of seals will

Magdalene Papatheodoulou, Libor Závorka, Barbara Koeck, Neil B. Metcalfe, and Shaun S. Killen. 2021. Simulated pre-spawning catch and release of wild Atlantic salmon (*Salmo salar*) results in faster fungal spread and opposing effects on female and male proxies of fecundity. *Canadian Journal of Fisheries and Aquatic Sciences*. **79**(2): 267-276. https://doi.org/10.1139/cjfas-2021-0089

[7] https://strandings.org/

result in a significant benefit to salmon numbers, in the context of all other variables relating to in river salmon stock and therefore improve conservation status.

Covid was highlighted as a reason why there was a lack of recorded observations of seals in the rivers applied for. However, there was also mention of an app. under development by the Scottish Fisheries Coordination Centre that should provide more formal data in the future.

The locational detail supplied this year was very useful for our considerations.

Non-lethal methods sections were completed in all cases. Our view on these methods identified is as follows.

- *Barriers*

Some applicants misunderstood this section and detailed what barriers were or were not within the particular stretch of river, rather than implementing a barrier to restrict seals from key locations. Most put forward the argument that the introduction of barriers in order to keep seals out of the area would be counterproductive, in that they would hinder passage of the fish, and that they would catch river debris and further impede flow. We agree with this general assessment.

- *Harassment*

All applicants stated that general harassment methods would be tried before shooting of a seal occurred. Methods suggested included, human presence, shouting, clapping of hands, paint ball guns and shooting in the air. Many put forward the view that these do not work well because seals in the area generally habituate to such methods. We tend to agree, but maintain all methods should still be tried, and that applicants should also consider new suggestions arising in the future.

- *Translocation*

All stated that capture and translocation of seals does not work. They highlighted the difficulty in capturing the seal - specifically, that they did not have trained personnel to enable capture, and that most translocated seals generally come back to the area once released. We agree that translocation is currently not practical and can add stress to individual animals.

- *ADDs*

Many highlighted that the efficacy of ADDs is equivocal. Many said the river substrate meant that the noise would not propagate effectively. Some noted that ADDs could not be used as there was not mains power available at the stretch of river under consideration. This is incorrect; ADDs can be operated on a battery. It was unclear in many instances the level of understanding there is of the practical implementation of ADD. We would not advise on the continuous operating of ADD, instead, an ADD should be used to target particular times of greatest risk. Many made the point that the greater risk of seal predation is when the water level is low, therefore it is possible that an ADD could be targeted at the greater risk period when a seal is present in the area. ADD development is ongoing and so this option should not be automatically discounted.

Some note the potential for disturbance to non-target species, e.g. cetaceans. Whilst this is true in many circumstances, there is a low likelihood in the river environment under consideration here. In the event that disturbance was the case, we would balance the risk of temporary disturbance of protected cetaceans, against the lethal removal of protected seals.

We trust these comments are useful, but please contact [redacted] if you wish to discuss our comments further.

Yours sincerely

[redacted]

[redacted]
Head of Sustainable Coasts & Seas

ANNEX: Advice - by seal management unit and applicant

SOUTHWEST SCOTLAND

- [redacted]

[redacted]

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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

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[redacted] [redacted] [redacted] [redacted] [redacted]

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[8] Thompson D., Duck C.D., Morris C.D., Russell D.J.F. (2018). The status of harbour seals (*Phoca vitulina)* in the UK. *Aquatic Conservation Marine Freshwater Ecosystems,* **29**(1), 40-60.
[9] Arso Civil, M., Smout, S.C., Duck, C., Morris, C., Cummings, C., Langley, I., Law, A., Morton, C., Brownlow, A., Davison, N., Doeschate, M., Lacaze, J-P., McConnell, B., Hall, A.J. (2018). *Harbour Seal Decline – vital rates and drivers.* Report to Scottish Government HSD2. https://marine.gov.scot/sma/content/harbour-seal-decline-vital-rates-and-drivers-report-scottish-government-hsd2

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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
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<u>MORAY FIRTH</u>

Total lethal removal requested for this seal management unit is **8 harbour seals and 30 grey seals**. The PBR (Table 2) for this area for harbour seals is 6.

The population of harbour seals in the Moray Firth declined at a rate of 5.6% p.a. between 1994 and 2000, followed by a step change with a drop of ~ 28% occurring between 2000 and 2003, with

no significant trend thereafter[10]. There is no evidence of a continued decline, but neither is there any sign of recovery[11]. The Moray Firth SMA is also a harbour seal Conservation Area, as designated under the Marine (Scotland) Act 2010. The majority of harbour seals are observed between Culbin and Findhorn. The harbour seal population in the Dornoch Firth and Morrich More SAC are currently classed as declining. All applications, bar the River Spey and the River Deveron are within the 50km connectivity buffer for the Dornoch Firth and Morrich More SAC. Any permitted shooting would therefore trigger Likely Significant Effect, and an appropriate assessment would need to be undertaken.

The grey seal population on the east coast in Scottish waters is still increasing, but at a much smaller rate than those populations on the east coast in English waters.

We therefore recommend that licences for the lethal removal of harbour seals in the East Coast Management Area are rejected due to the continued population decline of this species in these areas.

- **MF01 – River Carron**

NatureScot Consent assessment

River Carron does not overlap with any protected sites, however the downstream location is next to the boundary with the Dornoch Firth and Morrich More SAC for harbour seals.

Licence recommendation

The River Carron is a grade 1 river and therefore our advice is that this application **should be rejected because the stock is classed as being at a good conservation status, and therefore the lethal removal of a few individual seals is not necessary for the conservation of salmon.**

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[redacted]

[10] Thompson D., Duck C.D., Morris C.D., Russell D.J.F. (2018). The status of harbour seals (*Phoca vitulina)* in the UK. *Aquatic Conservation Marine Freshwater Ecosystems,* **29**(1), 40-60.
[11] http://www.smru.st-andrews.ac.uk/scos/scos-reports/

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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
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- **MF01 – River Oykel (SAC)**

NatureScot Consent assessment

The River Oykel overlaps with the following MPAs (Table 8). We confirm that the lethal removal of **one harbour seal and four grey seals** would not have any adverse impact on the conservation objectives for the sites listed in Table 8.

Table 8 - River Oykel overlapping protected sites

MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
River Oykel SAC	Atlantic Salmon; freshwater pearl mussel	No
Kyle of Sutherland Marshes SSSI	Flood-plain fen; vascular plant assemblage	No

Licence recommendation

River Oykel is a grade 1 river and therefore our advice is that this application **should be rejected because the stock is classed as being at a good conservation status, and therefore the lethal removal of a few individual seals is not necessary for the conservation of salmon.**

- **MF01 – River Shin**

NatureScot Consent assessment

The River Shin overlaps with the following MPAs (Table 9). We confirm that the lethal removal of **one harbour seal and two grey seals** would not have any adverse impact on the conservation objectives for the sites listed in Table 9.

Table 9 – River Shin overlapping protected sites

MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
River Oykel SAC	Atlantic Salmon; freshwater pearl mussel	No
Kyle of Sutherland Marshes SSSI	Flood-plain fen; vascular plant assemblage	No

Licence recommendation

River Shin is a grade 1 river and therefore our advice is that this application **should be rejected because the stock is classed as being at a good conservation status, and therefore the lethal removal of a few individual seals is not necessary for the conservation of salmon.**

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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
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MPA	Protected feature	Does the lethal removal of seals by shooting have any negative impact on these sites' conservation objectives
[redacted]	[redacted]	[redacted]

[12] Thompson D., Duck C.D., Morris C.D., Russell D.J.F. (2018). The status of harbour seals (*Phoca vitulina)* in the UK. *Aquatic Conservation Marine Freshwater Ecosystems,* **29**(1), 40-60.

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MPA	Protected Features	Does the lethal removal of seals by shooting have any negative impact on these sites conservation objectives
[redacted]	[redacted]	[redacted]

Licence recommendation

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