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Statens tilsyn for planter, fisk, dyr og næringsmidler



## RISK ASSESSMENT OF CATCH AND RELEASE – FINAL REQUEST – REVISED

Recreational retention fishing for Atlantic salmon in Norwegian rivers is a very popular pastime, and the income from fishing licences can represent large sums. When properly performed and followed by quick and efficient killing of the fish immediately after landing, such fishing is considered justifiable and acceptable from an animal welfare point of view. In contrast to the situation in many other countries, catch and release has not been commonly practised in Norway. However, as the population of Atlantic salmon is now seriously reduced in many rivers, there is an increasing demand for practicing catch and release also in our country. This practice would make it possible to keep up the income from fishing licences without putting any significant strain on the salmon population. However, animal welfare issues have been raised. On this background we hereby refer to The Norwegian Scientific Committee for Food Safety for an assessment of the welfare implications of catch and release compared with traditional angling and killing of fish.

### Background

According to The Animal Welfare Act of 1974, section 2 *“animals shall be treated well, and consideration shall be given to the instinctive behaviour and natural needs of animals, so that there is no risk of causing them unnecessary suffering”*.

In a statement issued in April 1998 by the Norwegian Council for Animal Ethics, the Council did not find the practice of catch and release ethically acceptable.

The Norwegian Food Safety Authority has upheld a statement issued by the previous governmental agency (the Norwegian Animal Health Authority) on March 24<sup>th</sup> 2002, where it is concluded that *“fishing based on catch and release involves subjecting individual fish to the stress, exhaustion and danger of injury associated with being caught purely for entertainment and outdoor recreation and involving no element of food supply”*. This is considered to be a breach of the Animal Welfare Act section 2. However, it is also stated that: *“Catch and release for selective pressure on stocks and sizes may be acceptable pursuant to the Animal Welfare Act provided that the proportion of fish released is small, and the fish not seriously damaged or exhausted”*.

The Norwegian Ministry of Fisheries and Coastal Affairs and The Norwegian environmental authorities have expressed a wish of reassessing whether catch and release as a management

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principle for salmon in rivers with low stocking density could be acceptable. According to the ministries' comments to the Animal Welfare Act Draft, referred to the Parliament 28 Nov 2008, a general ban on such practice is not considered practical. However, each incident must be acceptable from an animal welfare point of view, and specific regulations may be relevant (Ot.prp. 15 (2008-2009) 2.2.19.4).

On these grounds, a risk assessment addressing the animal welfare implications of catch and release is asked for.

### **Pain perception and suffering in fish**

Whether fish are capable of feeling and experiencing pain has been an issue of debate. According to "*Physiology and Behaviour of Animal Suffering*" by N. G. Gregory an animal can feel pain at a conscious level if:

- *it possesses receptors sensitive to noxious stimuli;*
- *its brain has structures analogous to the human cerebral cortex;*
- *nervous pathways link the receptors to the higher brain;*
- *painkillers modify the response to noxious stimuli;*
- *the animal responds to noxious stimuli by consistently avoiding them;*
- *the animal can learn to associate neutral events with noxious stimuli;*
- *it chooses a pain killer when given access to one, when pain is otherwise unavoidable.*

In recent years a tremendous amount of research has been done in this area. The published results document that the criteria mentioned above are fulfilled in fish. Most scientists agree that it is highly likely that fish can feel pain and thus suffer. In John Websters book "*Animal Welfare: Limping towards Eden*" (2005), chapter 9.8 fishing, where catch and release is discussed, the author concludes that "*the balance of evidence is therefore in favour of the premise that the response of the hooked fish is genuinely "desperate" because it experiences both fear and pain, but the intensity of fear is the greater. It follows that we must accept that angling almost certainly does cause fish some degree of suffering*".

Several journals have published studies on learned avoidance in fish, on the effect of different types of hooks, the use of live bait and various handling practices, on types of injuries and on the impact on survival and reproduction etc. These studies concern a wide variety of different fish species. Some countries where catch and release is permitted (e.g. Canada) have regulated or issued guidelines for sport fishing methods, tackle etc. The Animal Welfare Council of Canada reviewed these practices in 1998/99, and a scientific study was published in October 2006. These studies indicate that the choice of hooks, handling procedures etc. can have a dramatic impact on injury and mortality.

### **Description of the request**

Based on the data mentioned above, The Norwegian Food Safety Authority finds it reasonable to assume that fish can feel and have an awareness of pain, and can experience fear. Our main topic therefore is an assessment of how catch and release affects the welfare of the fish compared with ordinary angling where the fish are killed, and of which factors that are most important in safeguarding the welfare of the fish during such activities.

We request the assessment to include Atlantic salmon and trout (*Salmo trutta*), and relate to fishing in rivers.

All aspects, both immediate acute reactions and delayed and long-term effects, of catch and release not seen in ordinary retention fishing should be considered. Where relevant, differences between the two species and between fish of different sizes and developmental stages should be addressed. Different angling practices as to type of tackle (rods, lines), hooks (without or with one or more barbs, circle, J-style etc.) the use of bait, playing of fish and handling practices (net, hands) should be taken in to account.

The following points should be addressed:

- 1) Playing of fish for landing:  
How will playing of the fish affect the fish' welfare and survival rate after release?
- 2) Handling:  
Does handling of the fish during catch and release differ from handling during retention fishing? If so, what are the welfare implications of these differences? How will different types of handling affect the welfare: Handling with nets or with bare (dry/wet) hands, handling in water and out of water, duration of handling out of water and handling to remove hooks. Is it possible to do any of these handling procedures without removing the fish from the water? Is it possible to restrict the maximum handling time out of water to e.g. 15 seconds?
- 3) Humane killing:  
What kinds of conditions will due to welfare considerations require that fish are killed and not released?
- 4) Hook types and removal of hook:  
Are certain hooks more aversive to fish, and do any hooks cause more lesions? Will the additional use of live bait or other types of bait cause additional tissue damage? Does the removal of the hook cause any additional suffering? Will the removal of deeply embedded hooks or certain types of hooks imply higher risks of suffering?
- 5) After release:  
Which factors will affect the recovery rate, including those mentioned above and any additional factors, such as environmental variables (eg. water or air temperature)?
  - a) How long will it take for the fish to recover and resume normal physiological body functions and behavioural patterns?
  - b) Will released fish be more prone to wound infections or infectious diseases?
  - c) Will the fish be more susceptible to increased predation? If yes, how great a percentage of the fish might be expected to die due to predation?
  - d) Is the fish' reproduction affected? If so, in what way?
  - e) What is the mortality rate of released fish caused by the catch and release procedure, and how long will it take before they die? Are there types of injuries or physiological or behavioural reactions that will always be lethal to the fish?
- 6) Possibility of recapture:  
What is the risk that released fish will be repeatedly captured? Will any learned avoidance behaviour depend on certain factors, such as type of fish hook used and/or the use of different types of bait?
- 7) Possible procedures to ameliorate effects on welfare:  
Is it possible to reduce or eliminate any suffering or avoid further impairment of fish welfare after release, by using certain hooks, types of equipment or certain practices for angling and handling of the fish?

We ask for an assessment of the scientific data that the report is based on. Any lack of knowledge and need for further studies should be pointed out.

We require that the report is submitted to the Norwegian Food Safety Authority within 01 August 2009.

Yours Sincerely

Torunn Knævelsrud  
Head of Section

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