



**MoodyMarine**  
certification for the marine environment

## **Lake Hjälmaren pikeperch fish-trap and gillnet fisheries**

### **Surveillance Audit: Stage 2**

Certificate Number: MML-F-012 / MML-F-013

**Moody Marine Ltd.**  
September 2008

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## 1. GENERAL INFORMATION

**Scope against which the surveillance is undertaken:** MSC Principles and Criteria for Sustainable Fishing as applied to the Lake Hjälmmaren pikeperch fish trap and gillnet fisheries.

**Species:** Pikeperch (*Sander lucioperca*)

**Area:** Lake Hjälmmaren, Sweden

**Method of capture:** Fish trap and gillnet

<b>Date of Surveillance Visit:</b>	<b>Date:</b> 3 <sup>rd</sup> September 2008			
<b>Initial Certification</b>	<b>Date:</b> 7 August 2006		<b>Certificate Ref:</b> MML-F-012 / MML-F-013	
<b>Surveillance stage</b>	1st	2nd	3rd	4th
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## 2. INTRODUCTION

The Lake Hjälmmaren pikeperch fish trap and gillnet fisheries were the first freshwater fisheries to gain certification under the Marine Stewardship Councils' (MSC) certification scheme.

Certification was achieved in August 2006 with five conditions which were identical between the two fisheries (fish trap and gill-net). These two fisheries are therefore considered together in this report. Should differences arise in scoring, then the fisheries would be considered separately, but this is not currently the case.

The first surveillance audit was carried out during August 2007. This following report details the findings of the second surveillance audit carried out on 2<sup>nd</sup> and 3<sup>rd</sup> September 2008. The main purpose of the surveillance audit was to identify any major changes which may have occurred within the fishery and/or the management structure, and to identify the compliance of the fishery with the five conditions of certification.

Due to staff changes the assessment was carried out by Seran Davies (UK) and Andrew Hough (UK). Andrew Hough was a member of the original assessment team. Seran Davies has 8 years direct experience of marine environmental management and assessment, including fishery evaluations and EIA of developments in marine and freshwater environments.

This second audit was completed following meetings with the fishery manager, Per Nyberg and the pike-perch fishermen and following a review of information collated by the Swedish National Board of Fisheries (NBF). Findings regarding the progress towards the five conditions are set out in Section 3. This progress has been evaluated by the Moody Marine assessment team against the commitments made in the Action Plan. This evaluation includes a re-evaluation of the scoring allocated to the relevant Performance Indicators in the original MSC assessment. Where the requirements of a condition are met, the Performance Indicators are re-scored and if the score is 80 or more, then the condition is closed.

In the future, as conditions are closed out and actions are completed, the assessment focus will concentrate more and more on the overall ongoing operation of the fishery in relation to the MSC Principles and Criteria.

### 3. Results and Conclusions

Item	Comments
<b>1</b>	<p><b>Condition of Certification 1: Reference levels and Decision rules</b></p> <p><b>Original Statement of Condition</b></p> <p><b>Action required:</b> There is an ongoing, implicit, analysis of stock status relative to historical information which allows forecasts to be made for the pikeperch stock and management actions to be taken. However, there are no formalised reference/action points or a documented, agreed, action plan (decision rules) to be put in place as and when stock levels reach such reference levels.</p> <p>This is potentially problematic if additional licensed gears, not currently used, were to be activated, thereby increasing total effort.</p> <p>Management agencies shall formalise appropriate reference level(s) and corresponding actions. Agencies may wish to consider an approach based upon precautionary and limit reference levels.</p> <p><b>Timescale:</b> Current data on future recruitment indicates an ongoing healthy pikeperch population for at least 2-3 years. Draft reference levels and corresponding action plans should be prepared within <b>18 months</b> of certification. These should then be agreed and formalised within <b>9 months</b> of preparation. Reference levels and corresponding action plans should therefore be available within <b>27 months</b> of certification, allowing development during a period of healthy stock status.</p>
<b>Relevant Performance indicators</b>	1.1.3.2, 1.1.3.3, 1.1.3.5, 3A.3.1, 3A.3.2, 3A.6.2
<b>Action Plan</b>	<p>Seven fishermen have counted the catch of 3-summer old pikeperch in fish-traps all over the lake during August since 1993, except for 1996. This gives a recruitment index with small confidence limits. The year class that hatched in 2001 was the richest year class among the year classes 1991-2003. From this index it is possible to forecast the commercial catch 3-5 years later. This index shows no correlation with the spawning stock, as indicated by the commercial catch the year prior to spawning. Until the year class in 2001, there was a positive correlation with water temperature during summer and autumn. The reason why no correlation was found for the year classes 2002 and 2003 probably depends on the fact that the year class 2001 was so rich that cannibalism occurred in the population. This will reduce recruitment. If the recruitment index is below a certain value during a number of years, it is possible to restrict the fishery. The best way of doing so is probably not to replace fishermen who retire. This may take some time, but as the warning signal will appear 3-5 years before the year of catch, a number of fishermen may retire during that period.</p> <p>During the next 12 months we will discuss at what value of the recruitment index and after how many years of low recruitment the fishery should be restricted. The number of licensed gears currently not in use will also be restricted so as to prevent an increased effort if the population decreases. An upper limit for the maximum length of gill-nets in the whole lake will also be set. These measures will be decided in co-operation with CAB, which distributes licenses for all kinds of fishing gear to fishermen who have received their fishing licenses from SBF.</p> <p>After another two years of monitoring three summer old pikeperch caught in fish-traps, an even better recruitment index and a better correlation with the commercial catch and spawning stock (as indicated by the catch the year prior to spawning) will have been obtained. After that period, decisions of the reference level and corresponding action plans may be taken. This will be done within 18 months of certification. It seems unlikely however that the spawning stock could be reduced by the fishery to such a degree that the recruitment and year class strength will be affected. The minimum allowable size (45cm) and the fact that pikeperch caught in gill-nets have a length of at least 50 cm, means that most females have had the possibility to spawn twice before they may be caught.</p>

<b>Observations from Surveillance Audit (2)</b>	Pike-perch recruitment index and CPUE research continued during 2007/08 and the data was presented at the 2008 audit. Management solutions to fishery populations are also in place. These included references to CPUE data (collected from the commercial fishery) and recruitment index results with solutions such as decreasing the number of licences issued prior to low recruitment years entering the fishery 3-5 years later.  Draft reference levels were in place at the time of audit (18 month time period from certification date) and the condition allowed a time period of up to November 2008 (27 months after certification) for these to be fully tested and implemented.
<b>Conclusion</b>	The results from the audit conclude that this condition is currently being met on target. It is recommended that the six relevant performance indicators are rescored at the next surveillance audit (2009) after the 27 month time period has passed. The fishery monitoring programme is continuing and will also be appraised at the time of the next audit.

Item	Comments
<b>2</b>	<b>Condition of Certification 2: Sex ratio and size at age</b>
<b>Original Statement of Condition</b>	<p><b>Action required:</b> Age structure of pikeperch is suitably well established but there is no monitoring of sex structure in catches nor of size at age. To determine any shifts in population structure that could affect reproductive capacity, sex composition and size (both weight and length) at age should be established in catches. Size at age is also a good indicator of changes in feeding conditions (ecosystem conditions).</p> <p><b>Timescale:</b> Data collection should be initiated during the <b>first fishing season</b> post certification and thereafter an ongoing monitoring programme put in place. It may be most appropriate to monitor sex ratios in the gill-net fishery and size at age in the fish-trap fishery.</p>
<b>Relevant Performance indicators</b>	1.3.1.1, 1.3.1.2, 2.1.4.5
<b>Action Plan</b>	<p>The sex ratio will be easily monitored by the fishermen in the gill-net fishery during wintertime. Some fishermen clean the pikeperch and make fillets. At that time of the year shortly before spawning it is also very easy to distinguish between males and females.</p> <p>Otoliths for ageing have been sampled and analysed earlier, but not on a regular basis. Normally, size at a certain age will not change very rapidly. Variations in climate (temperature) will, however, affect growth rate, so it may be of interest to measure the length of pikeperch and take samples on a regular and annual basis. It will probably be better to take samples for length, weight and age from pikeperch caught in gill-nets as this fishery catches individuals in the autumn-winter that have finished their annual growth. In addition, samples will be taken from fish caught in gill-nets in the test fishing that will start in August 2006 (see Condition 3 below). These samples will also include young individuals.</p> <p>A large scale tagging experiment performed in 1990 gave no indications of an existence of sub-populations in the lake. Recaptured individuals showed regular seasonal migrations and individuals from different parts of the lake aggregated in the deepest areas during wintertime.</p>
<b>Observations from Surveillance Audit (2)</b>	A 3 year research period began in 2007 with otoliths being collected from filleted pike-perch (200 samples have so far been collected to provide age related data). In addition, a genetic study of the Lake's pike-perch populations is currently underway (undertaken by the Swedish research council independently of the fishery) and this research is also studying otolith samples. This data will further enhance the fisheries data sets.
<b>Conclusion</b>	<p>The audit has shown that the actions required to meet this condition are being completed and that an ongoing monitoring programme is in place. In this case it is possible to rescore performance indicators 1.3.1.1 and 1.3.1.2 (see Appendix 1). The remaining PI (2.1.4.5) is also affected by Condition 3 and will be re-scored when that condition is closed.</p> <p>The increased information provided from the monitoring program for this condition has allowed a rescore of 80 for the relevant performance indicators. This condition can be closed now that an ongoing monitoring program has been successfully implemented.</p>

Item	Comments
<b>3</b> <b>Original Statement of Condition</b>	<p><b>Condition of Certification 3: Ecosystem objectives</b></p> <p><b>Action required:</b> As for the pikeperch stock, there is an ongoing analysis of commercial species stock status relative to historical data which would allow management actions to be taken as appropriate to modify fishing pressure. However, management objectives are not explicitly stated.</p> <p>It is not obvious that ecosystem shifts would arise from current fishing activity. However, as a number of species are taken in the fishery, and pikeperch (the main target species) is a top predator in the system, this is possible. Monitoring of target and by-catch species in catches, and scientific monitoring of key prey species such as smelt and roach, should therefore be undertaken. A plan of possible scenarios and corresponding responses should then be developed.</p> <p>This work should integrate with any other wider ecosystem monitoring (e.g. water quality, plankton) undertaken in the lake, as appropriate.</p> <p><b>Timescale:</b> Data collection of catches should be initiated during the first fishing season post certification and thereafter an ongoing monitoring programme put in place. A plan for additional scientific monitoring should be in place within <b>18 months</b> of certification and implemented within <b>1 year</b> afterwards (i.e. within <b>30 months</b> of certification). Development of scenarios and corresponding actions should be in place within the term of the current certification (i.e. within 5 years of certification) by which time an appropriate dataset should be available.</p>
<b>Relevant performance indicators</b>	2.1.4.5, 3.A.3.1, 3.A.3.2
<b>Action Plan</b>	<p>A test fishing program according to the European standard with multi mesh gill-nets will start in August 2006 in a part of Lake Hjälmmaren (Mellanfjärden), which probably is the most important nursery area for pikeperch in the lake. This test fishing will also yield good data concerning the whole fish community and additional data concerning the recruitment of pikeperch. The gill-net catch will give a measure of the recruitment of pikeperch at least one year before the same year class will be caught in the fish-traps (see Condition 1 above). Otoliths for ageing will be sampled from the pikeperch.</p> <p>During August two persons will accompany four fishermen distributed over the lake and record all species of fish caught, count all specimens and measure the length of all fish caught in the fish-traps. As these fish-traps have fairly small mesh size, a number of other fish species will be caught. This will, in the long run, give results concerning the status of the populations of most species in the lake. Species not caught in these gears are mainly smelt (<i>Osmerus eperlanus</i>), ruffe (<i>Acerina cernua</i>) and rudd (<i>Scardinius erythrophthalmus</i>). Smelt and ruffe will, however, be caught in the test fishing gill-nets. Rudd occur very close to shore, mostly among reeds, and is unimportant as a prey species.</p> <p>The water management organisation of the lake is monitoring water quality, phytoplankton, zooplankton and benthic invertebrates and it is easy to integrate these data. Water quality data, in particular nitrogen and phosphorus, are important as indicators of lake productivity.</p>
<b>Observations from Surveillance Audit (2)</b>	<p>The test fishing programmes are continuing during the month of August 2008 with data being obtained for the lakes fish populations. This data is used to create an annual report which displays length-frequency distribution charts for the different species. The 2007 report was observed during the surveillance audit. It was also confirmed that the August 2008 data test fishing programme had been completed but the results were as yet unavailable due to the proximity of the surveillance audit to the field work.</p> <p>A 3 year research period began in 2007 with otoliths being collected from filleted pike-perch and a further genetic study of the Lake's pike-perch populations is currently being investigated</p>

	<p>by the Swedish research council.</p> <p>The Water Management organisation of the lake continues to monitor water quality, plankton and benthic invertebrates as a measure of lake productivity. Results of such monitoring are collated and integrated with the current work relating to the fishery.</p>
<b>Conclusion</b>	<p>A review of the current monitoring results was completed during the 2008 surveillance audit. Future surveillance audits will continue to review the results of this ongoing monitoring programme. The development of possible scenarios and corresponding responses in response to monitoring results will also be reviewed.</p> <p>The audit team are satisfied that an appropriate data set is being collated. The requirements of this condition are being met on target.</p>

Item	Comments
<b>4</b>	<b>Condition of Certification 4: Recording of any bird by-catch</b>
<b>Original Statement of Condition</b>	<p><b>Action required:</b> There is some incidental catch of piscivorous birds in fish traps and possibly also in gill-nets under open water conditions. Numbers of birds caught should be recorded and this data evaluated by relevant organisations in terms of its significance for affected populations. If significant, appropriate mitigation measured should be put in place.</p> <p><b>Timescale:</b> Data collection of catches should be initiated during the first fishing season post certification and thereafter an ongoing monitoring programme put in place. Presentation of data to the appropriate organisation should take place within <b>12</b> months of certification and annually thereafter if necessary. Any mitigation actions should be implemented as soon as practically possible thereafter.</p>
<b>Relevant performance indicators</b>	2.2.1.2
<b>Action Plan</b>	<p>As most of the gill-net fishery takes place during ice covered conditions, by-catches of birds are of minor importance in this fishery. Catch of birds in gill-nets are recorded by fishermen during late autumn and after ice break.</p> <p>Results so far show that birds are caught in fish-traps only rarely. It will be very simple to count birds caught in the trap-nets belonging to the four fishermen mentioned above during August. In this month the number of birds in the lake will probably be at a maximum as all yearlings are ready to fly and no birds have yet left the lake at that time of the year.</p>
<b>Observations from Surveillance Audit (2)</b>	<p>The numbers of bird by-catch are being recorded as required by the condition. Results from 2008 sampling locations throughout the lake showed only one incidence of bird by-catch. This was a single cormorant from a trap-net which was found to still be alive upon hauling of the net.</p> <p>The cormorant population of Lake Hjalmaren is still considered as being too large with an established breeding population of approximately 3000 birds. There are an average number of 1.5 young birds per nest and as a result of this, in order to keep the population stable at its present level; there is an annual cull of 2000 of these birds.</p>
<b>Conclusion</b>	<p>The annual requirement of this condition is considered as being met with the numbers of birds caught in the traps and gill nets of the fishery being recorded on an annual basis, with results made generally available. There were no dead birds recorded during this year and due to the large number of cormorants on the Lake, the fishery is in no way considered as being a threat to the local bird populations.</p> <p>It is clear that an ongoing monitoring programme is successfully in place and the results from this programme indicate that bird by-catch is not a matter of concern for the fishery. The audit team is therefore satisfied that this condition can be rescored (See Appendix 1) and has achieved a new score of 80 therefore allowing this condition to be closed.</p>

Item	Comments
<b>5</b>	<b>Condition of Certification 5: External review</b>
<b>Original Statement of Condition</b>	<p><b>Action required:</b> An external review programme (independent of the current management authorities, contractors etc) of the management system should be implemented. This should be conducted on a periodic basis appropriate to the fishery. This could be undertaken, for example, by the Swedish Fishery Secretariat (Fiskesekretariatet).</p> <p><b>Timescale:</b> A plan for the content and timing of a review programme should be developed within 12 months of certification. The first external review should be undertaken within 2 years of certification.</p>
<b>Relevant Performance indicators</b>	3.A.1.4
<b>Action Plan</b>	The Swedish Fishery Secretariat has very close relations with the client and may therefore be regarded as less suitable as an external reviewer. Instead we suggest that Dr Peter Karås at the Institute of Coastal Research (SBF) should be appointed external reviewer. Dr Karås has a long experience of coastal fisheries and has worked extensively with freshwater fish species, including pikeperch. Another possibility is to look for a reviewer at a County Board outside Lake Hjälmaren.
<b>Observations from Surveillance Audit (2)</b>	At the time of this surveillance audit the external review had not taken place. However, Dr Peter Karås at the Institute of Coastal Research (SBF) had been contacted to act as the external reviewer for the fishery. In addition, all data was prepared and a plan for the review content and timing were in place. It was anticipated that the review would be completed within the months following imminently following this audit with timing being mostly dependent upon the availability of Dr Karås.
<b>Conclusion</b>	Although this condition is behind the 24 month target, the audit team was confident that all data was ready for the review and that efforts were underway to implement this external review within the next few months (27 months after certification). It is predicted that this condition will be met shortly and will be able to be closed out at the next surveillance audit in 2009.

Item	Comments
<b>6</b>	<p><b>Recommendations</b></p> <p>In addition to the above Conditions, two recommendations were made. Action of these is optional, but they are suggested as means of improving management of the fishery.</p> <p>The first recommendation was to aid in understanding of predator/prey relations within lake Hjälmmaren. It was recommended that gut content analysis of pikeperch and other key species at different life stages should be considered. Particularly important would be young life stages of pikeperch to understand possible limiting factors for year class strength. This would also assist with the development of Condition 3.</p>
<b>Observations from Surveillance Audit (2)</b>	From the 2007 audit it was concluded that the client regarded the effort needed to produce sound results on this recommendation would simply be too high. Trophic relations will vary with season, size and area within each species, and gut content analysis is costly and time-consuming. During summer 2008 some stomach analysis has been completed for 5 year class pike-perch. This provided a short overview of diet but it was found to vary greatly between days and months.
	The second recommendation was for a formal statistical analysis of past data on recruitment year class strength and subsequent catches (including CPUE) in the fishery, to strengthen future predictions based on this information.
<b>Observations from Surveillance Audit (2)</b>	Reports were available during the audit which had been completed in August 2008 and detailed the statistical analysis of past data (approx 1996-2007) for both the gill-net and trap net fisheries. The audit team is pleased to confirm that this recommendation has been completed.

7	<b>Any complaints against the certified operation; recorded, reviewed and actioned</b>
<b>Observations from Surveillance Audit (2)</b>	The audit confirmed there to have been no complaints received against the certified fishery (either the fishermen or the management bodies) during 2007/08.

8	<b>Any relevant changes to legislation or management regime.</b>
<b>Observations from Surveillance Audit (2)</b>	Following discussions with the fishermen and fishery managers it was evident that there have been no significant changes in personnel or management of the fishery during 2007/08 which would alter certification status.

9	<b>Overall conclusions from Surveillance Audit (2)</b>
	The client and fishery managers have taken appropriate measures to address the conditions of certification raised during the MSC certification assessment. These can be summarised as follows:
	<ol style="list-style-type: none"> <li>1. Ongoing monitoring requirements are necessary before all of the conditions can be closed, however the requirements of Conditions 2 and 4 have been met and can now be closed (although full re-scoring of some PI's will require closure of other conditions).</li> <li>2. Condition number 1 will be reviewed and rescored at the next surveillance audit but is considered as being on target.</li> <li>3. Condition 3 is also considered as being on target.</li> <li>4. Condition 5 is currently behind target; however the surveillance audit revealed that plans were in place for this condition to be met imminently.</li> </ol> <p>The management of both fisheries continues in a manner consistent with the requirements of the MSC standard and no significant changes, other than those considered above, have taken place.</p> <p>MSC Certification for both fisheries should therefore continue, subject to satisfactory compliance with outstanding</p>

conditions, and surveillance audits should continue to the same schedule.

## 4. Information Sources

Information for the Surveillance audit was collated from the following sources:

### **Meetings and Interviews**

1. Per Nyberg September 2nd and 3rd 2008.
2. Local fishermen September 3<sup>rd</sup> 2008: Hans Johansson, Sten Pettersson, Peter Molin & Joakin Holmrist.

### **Reports**

Nyberg, P. 2006. Bottengarnsregistrering i Hjälmmaren augusti 2006 (Registrations from gill-net fishery in lake Hjälmmaren August 2006). Working report (in swedish).

Degerman, E., Nyberg, P. Sandstrom, A. & Beier, U. Hojt minimimatt pa gos ger okad avkastning I fisket. 2008-08-06. Fiskeriverkets Sotvattenslaboratorium.

Nyberg, P. 2008. Fangst I bottengarnsfisket I Hjälmmaren.

### **Standards and Guidelines used:**

1. MSC Principles and Criteria for Sustainable Fishing
2. MSC Fishery Certification Methodology Version 6. September 2006
3. TAB Directives - all

## Appendix 1: Rescoring of Performance Indicators

### Condition of Certification 2: Sex ratio and size at age

Rescoring of this condition has altered the overall of MSC Criterion 3 (1.3) from 77 to 80.

					Rescore
1.3 (MSC Criterion 3)		<b>Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.</b>	33.3	77	<b>80</b>
1.3.1		<b>Fishing activity maintains the age, genetic structure or sex composition of the stock to a degree that does not impair reproductive capacity.</b>	100	-	
Weighting Commentary		The indicators at this level of the hierarchy are considered to be of equal significance.			
1.3.1.1		Is there adequate information on the population sex and age structure and the existence of possible sub-populations?	33.3	75	<b>80</b>
60	There is some information available on the sex and age structure and the presence of sub-populations within the stock, and the relationship of these to reproductive capacity.	The age structure of the population is suitably well established but size at age is not monitored.  There is no monitoring of the sex structure in catches. It is justifiably assumed that females, growing faster than males, are caught more efficiently, but the increased minimum size means that all individuals will have the opportunity to reproduce prior to removal.	I1, R3		
80	Estimates are available of the sex and age structure and the presence of sub-populations within the stock, and the relationship of these to reproductive capacity.	There is no indication of sub-populations, or conditions which would favour sub-populations, within the lake. It is considered that there is a single population in the lake. This appears reasonable from a management perspective but has not been formally established. The tagging experiment showed that individual fish can appear in all regions of the lake.			
100	There is comprehensive and reliable information on the sex and age structure and the presence of sub-populations within the stock, and the relationship of these to reproductive capacity as well as evaluations of the implications of shifts in these parameters on productivity and management quantities.	<b>Surveillance audit 2 update: Monitoring of sex structure in catches is now underway and the monitoring programme provides information on the sex and age structure of the population.</b>			

<b>1.3.1.2</b>		Is the age and sex structure and status of sub-populations of the stock monitored so as to detect any impairment of reproductive capacity?		33.3	75	<b>80</b>
60	Population structure is based on some sampling and verification. Some information on sub-populations is available as necessary.	Age structure is monitored and verified annually through analysis of catches in fish traps. Sex structure is not monitored.  No sub-populations are reasonable expected to be present.	I1, R3			
80	Population structure is based on adequate sampling and verification for this stock. Genetic or sub-population studies have been carried out as appropriate.	<b>Surveillance audit 2 update: Age structure monitoring continues and a genetic study of the fish population is underway.</b>				
100	Population structure is well estimated with only insignificant errors. Genetic or sub-population studies have been conducted at appropriate time intervals.					

#### Condition of Certification 4: Recording of any bird by-catch

The rescore of indicator 2.2.1.2 has led to an increase in score for MSC Criterion 2 (2.2) to 86

<b>2.2 (MSC Criterion 2)</b>	<b>The fishery is conducted in a manner that does not threaten biological diversity (at the genetic, species or population levels and avoids or minimises mortality of, or injuries to endangered, threatened or protected species).</b>	33.3	83	<b>83</b>
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Scoring Indicators		Comments	Audit Ref Trace	Weight	Score	Rescore
<b>2.2.1.2</b>		Are interactions of the fishery with such species adequately determined?		33.3	75	<b>80</b>
60	The main interactions directly related to the fishery are known.	There are no direct interactions of raptors with the fishery	I1, I3, R11			
80	Estimates are made of the effects of interactions directly related to the fishery. There is a requirement to record and report all incidental mortalities.	During seasonal migrations, when present on lake in relatively high numbers, mergansers and cormorants may be caught in fish trap fishery. Numbers are not systematically recorded but ornithologists consider this as a very small problem and a representative of NBF who frequently visits the fishermen reports never seeing a caught bird.				
100	Reliable quantitative estimates are made of the interactions of all populations directly related to the fishery, and qualitative information is available on indirect impacts.  Incidental mortalities are recorded and reported.	Among the Swedish Red Listed fish species, only one (besides eel) occurs in the lake and that is asp (classified as vulnerable). This species is occasionally caught in traps but released alive.  <b>Surveillance audit 2 update: Bird by-catch is now recorded as part of the on-going certification monitoring program implemented by NBF. Results have shown there to be no impact upon the bird populations of the Lake.</b>				