

Please provide the following details on the origin of this report

Contracting Party	NORWAY
<i>National Focal Point</i>	
Full name of the institution:	The Royal Norwegian Ministry of Environment
Name and title of contact officer:	Ove Hokstad, Senior Adviser
Mailing address:	Postbox 8013 Dep N - 0030 Oslo Norway
Telephone:	+47-22-24-58-34
Fax:	+47-22-24-27-56
E-mail:	<u>oho@md.dep.no</u>
<i>Contact officer for national report (if different)</i>	
Full name of the institution	Directorate for Nature Management
Name and title of contact officer:	Heidi Hansen, Senior Adviser
Mailing address:	Directorate for Nature Management Tungasletta 2 N-7485 Trondheim Norway
Telephone:	+47-73-58-05-00
Fax:	+47-73-58-05-01
E-mail:	<u>Heidi.Hansen@dirnat.no</u>
<i>Submission</i>	
Signature of officer responsible for submitting national report:	
Date of submission:	23 October 2000

Please provide summary information on the process by which this report has been prepared, including information on the types of stakeholders who have been actively involved in its preparation and on material which was used as a basis for the report

The Ministry of Environment, the focal point of CBD in Norway, summoned a meeting where all relevant sector ministries were invited to participate. Each ministry appointed a contact-person, who was to report to the Directorate for Nature Management on their activities regarding Article 8h. The Directorate for Nature Management have, on behalf of The Ministry of Environment, made a joint report on behalf of all these ministries.

The Ministry of Agriculture, being responsible for agriculture, forestry and veterinary matters, and the Ministry of Defence, have both given their complementary reports on their activities (Attachment 1 and 2).

However, the Ministry of Social and Health Affairs has their own routines for monitoring and preventing the expansion of different organisms leading to human disease (for instance systematic information campaigns and initiatives preventing the expansion of the HIV/aids virus).

Previous findings reported to other conventions that Norway already has ratified, have also been included in this report. There has been a certain focus on activities related to The Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention).

Article 8h Alien species

1. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High		b) Medium	X	c) Low	
2. To what extent are the resources available adequate for meeting the obligations and recommendations made?					
a) Good		b) Adequate		c) Limiting	X
				d) Severely limiting	

3. Has your country identified alien species introduced?	
a) no	
b) only major species of concern	X
c) a comprehensive system tracks introductions	
4. Has your country developed national policies for addressing issues related to alien invasive species?	
a) no	X
b) yes – as part of a national biodiversity strategy (please give details below)	
c) yes – as a separate strategy (please give details below)	X
5. Has your country assessed the risks posed to ecosystems, habitats or species by the introduction of these alien species?	
a) no	
b) only some alien species of concern have been assessed	X
c) most alien species have been assessed	
6. Has your country undertaken measures to prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species?	
a) no measures	
b) some measures in place	X
c) potential measures under review	
d) comprehensive measures in place	X

Decision IV/1 Report and recommendations of the third meeting of SBSTTA

7. Is your country collaborating in the development of projects at national, regional, sub-regional and international levels to address the issue of alien species?	
a) little or no action	
b) discussion on potential projects under way	X
c) active development of new projects	X

8. Does your national strategy and action plan address the issue of alien species?	
a) no	
b) yes – limited extent	X
c) yes – significant extent	X

Case-studies

9. Has your country submitted case-studies on the prevention of introduction, control, and eradication of alien species that threaten ecosystems, habitats or species, in response to the call by the fourth meeting of SBSTTA?	
a) no – please indicate below whether this is due to a lack of available case-studies or for other reasons	X
b) yes – please give below any views you may have on the usefulness of the preparation of case-studies for developing a better biological understanding of the problem and/or better management responses.	
10. How many case-studies are available that could be used to gain a better understanding of the issues surrounding alien species in your country?	
a) none	
b) 1-2 – limited understanding	
c) >2 – significant information available	X

Transboundary issues

11. Are known alien invasive species in your country also a problem in neighbouring or biogeographically-similar countries?	
a) not known	
b) none	
c) a few – but in general alien invasive species problems are specific	
d) more than a few - in general we share common problems with other countries	X
12. Is your country collaborating in the development of policies and programmes at regional, sub-regional or international levels to harmonise measures for prevention and control of alien invasive species?	
a) little or no action	
b) discussion on potential collaboration underway	
c) development of collaborative approaches for a limited number of species	X
d) consistent approach and strategy used for all common problems	

Further comments

Comments to specific questions

Comment to question 3:

Most alien species in Norwegian nature (except micro-organisms) are identified, but only a few species of major concern are monitored or undergoes treatments like eradication. See also attachment 2.

Comment to question 4c:

See details in attachment 2 on this question.

Comment to question 6:

(See also comments on the different laws dealing with alien species below)

In a new action plan on biodiversity (to be released in spring 2001) there will be a special focus on gaps in knowledge and gaps in legislation on alien species.

6d: Comprehensive measures are undertaken for those alien species that are threatening important crops, husbandry or other economic or environmentally important indigenous organisms. For those there are legal basis for prevention, control, and eradication. Other organisms fall outside the responsibility of the Ministry of Agriculture, but some have been included, like the admission and control of groups of invertebrates (butterflies), worms, soils, etc., on behalf of other Ministries.

Comment to question 8:

The Ministry of Agriculture has legal basis for actions against the introduction of harmful alien species. The Ministry of Environment is responsible for the national strategy and action plan for most other alien species.

Comment to question 9:

In general: Case studies are made and will be made available via the Nordic Council on behalf of the Nordic countries.

9a: No information available from Ministry of Agriculture. Probably no reporting complying to the request from SBSTTA.

Comment to question 10:

There is only one case study enclosed (attachment 3). Norway, Sweden, Denmark, Finland and Iceland have made a joint report named "Introduced Species in the Nordic area". The report has been produced by an ad hoc working group established under the Nordic Council of Ministers. In this report 17 different case studies have been made, all dealing with alien invasive species that the Nordic countries have in common. These examples include marine, terrestrial and limnic environments and will be available to the Clearing-House Mechanism as soon as the report is available by November 2000. The Ministry of Agriculture reports that more than 10 examples could have been reported, according to research institutes (Dutch Elm Disease, Pine Wilt Nematode, etc.)

Comment to question 12:

The Ministry of Agriculture has extensive collaboration between Nordic countries on harmful organisms.

General comments

The Ministry of Agriculture (agriculture, forestry and veterinary authorities), the Ministry of Defence and the Ministry of Health and Social affairs all have routines for how they handle possible invasive species/organisms. Please see the enclosed comments from the Ministry of Agriculture and the Ministry of Defence (attachment 1 and 2). Their main purpose is to consider possible damaging effect these species/organisms may have on crops and the health of both people and domestic animals. They do not consider the possible damaging effects these species/organisms can have on the natural ecological systems.

The Ministry of the Environment is responsible for enforcing The Wildlife Act of 28 May 1981, The Act of 15 May 1992 relating to Salmonids and Freshwater Fish etc and the Product Control Act. The Department of the Environment can control the introduction and dispersal of alien species only by enforcing these three laws.

The legal framework in Norway is insufficient when it comes to the handling of matters related to terrestrial plants and terrestrial invertebrates. There are, however, ongoing processes in order to develop a appropriate legal framework.

As for the introduction of species to the marine environment, Norway is about to produce an overview of actual and potential effects (ecological as well as economical) of marine alien species. In the same project, we will make a database for all marine introductions in Norway. Norway also take part in the work of the International Maritime Organization (IMO) in order to establish routines and technological solutions that could reduce the risk of dispersal of alien species through ballast water.

In order to follow up the CBD, the Norwegian Government is now preparing a White Paper dealing with the conservation of biological diversity. Parts of this report will focus particularly on the problems and challenges related to the introduction of alien species. All sectors have been asked to contribute to this report by producing their own sectorial environmental action plan. Each sector have been asked to describe which challenges they will meet regarding the introduction of alien species and what actions they wish to take in order to prevent or limit the introduction and dispersal of these species.

Comments on the different laws dealing with alien species.

The Ministry of Agriculture is responsible for A Degree of 20 November 1976, adopted for the implementation of the 1974 Act on Protected Animals belonging to all non-native species of animals, reptiles and amphibians. A special permit may be applied for in regard to animals obtained prior to the entry into force of the decree. Otherwise such animals must be destroyed. With regard to marine species, the Act of 14 June 1985 on the Breeding of Fish and Shellfish totally forbids any importation of live marine organisms and the eggs of such organisms (Article 15). At the moment there is no mentioning of possible exceptions to this prohibition. According to the revised EEA-agreement, Norway is given one exception until year 2003. From 2003 onwards it will be possible to allow the import of such organisms for breeding in Norway. The Ministry of Fisheries is responsible for enforcing the Act on the Breeding of Fish and Shellfish.

The Wildlife Act of 29 May 1981 prohibits the unauthorised introduction to Norway or release of a wild animal species or sub species not previously occurring in the area (Article 47). Article 26(9) of the same Act empowers the government to make regulations laying down, inter alia, specific roles concerning the importation of live and dead animals and their eggs. No such regulations have yet been issued.

The scope of the Wildlife Act is restricted to terrestrial mammals, birds, reptiles and amphibians being able to reproduce and survive in the Norwegian climate. These provisions therefore do not apply to other animal species (e.g. terrestrial invertebrates) or to plants.

The Act of 15 May 1992 relating to Salmonids and Freshwater Fish establishes a permit requirement for the importation of live anadromous salmonids, freshwater fish, eggs or fry of such fish or animals eaten by such fish. This role also applies to crayfish.

Any release of anadromous salmonids or freshwater fish and their eggs or fry into inland waters, fjords or the sea is also prohibited except under permit. In certain cases general permits may be granted by regulations (Article 9).

Lastly, any restocking of salmonids or freshwater fish with a view to enhancing existing stocks is also subject to a permit (Article 10).

The Product Control Act generally alms at securing the public right to a safe environment and

health. The Act was not primarily established to meet the problem with introductions and invasive species, however, the scope of the act is so wide that legally it probably can be used in this context. Since the problem of introductions has become more focused, we also need to control import of species of live invertebrates not already covered by other regulations. The Ministry of the Environment thus delegated the authority to use this act to the Directorate for Nature Management as of 2nd October 1995. This delegation includes authority on the use of the act concerning import of live invertebrate species. As a consequence of this the Directorate for Nature Management wishes to start a process to establish a new set of regulations on imports and introductions of invertebrates not already covered by existing regulations. It is at the moment not possible to foresee with certainty when such a new regulation may be in place.

In practice the current import of any kind of live invertebrates is handled on a bilateral basis through an understanding between the Plant Health Authorities (under the Ministry of the Agriculture) and the Directorate for Nature Management. This is mainly because the Plant Health Authorities traditionally has been controlling the import of live insects and some other groups of invertebrates, ref. Act on Plant Diseases (dated 14th March 1964) and regulation on import of plants, etc.(dated 12th Sept. 1983). According to section 3 of this regulation it is prohibited to import a) Any stages of live nematodes, insects and mites, cultures of virus, bacteria, fungi and other potential harmful species. Point b) to h) quotes other species of particular concern for the agriculture.

Other Comments

The legislation on fauna applies to any introduction, whether originating from abroad or from another region in Norway. It covers not only species but also subspecies. As a result, sub-species found only in one part of the country may not be introduced into another part without a permit. The Act, however, applies only to certain vertebrate groups.

The regulations issued under the Protection of Animals Act are severe in regard to the species to which they apply as they rule out in a radical way any risk of accidental introduction of non-native mammals, amphibians and reptiles. The same can be said for the prohibition from importing live marine organisms.

With the exception of the legislation on freshwater fisheries, the texts in force do not specifically mention re-introductions or restocking. Re-introductions, however, are largely covered by the prohibition to introduce without a permit any species of mammal, bird, reptile or amphibian not native to the area concerned. The permit requirement for the introduction of any subspecies of these animals not native to the area makes it possible to control at least some restricting operations.

The legislation on fisheries is comprehensive. It is also developed precautionary measures to prevent escapes from fish farming, but accidental introductions from fish-farming establishments still pose a risk to wild fish stocks.

Attachment 1

Comments from The Ministry of Defence

Established routines for preventing the establishment of alien species

The directive for training from the Chief of Defence, chapter 5, from The Royal Norwegian Ministry of Defence describes counter-measures against establishment of alien species regarding foreign participation in military training and exercise in Norway. Below is an extract of the relevant aspects regarding counter-measures against import of alien species from this directive. Additionally, there exist routines to prevent dispersal of alien species when bringing back military equipment from Norwegian military training/operations in foreign countries. Equipment brought back is thoroughly cleaned and disinfected before again entering Norway.

Extract from the directive for training from the Chief of Defence, chapter 5

Regulations on import of animals and disease-carrying objects generally prohibits, -with certain exceptions, import of animals and disease-carrying objects. The Royal Norwegian Ministry of Agriculture (RNMA) may give dispense from these rules. The Domestic Animals Act also allows the RNMA to demand disinfection upon the entry of all persons and equipment having passed through areas that have been contaminated by contagious animal disease. Disinfection will have to be carried out according the regulations in force.

The Veterinary Inspector at HQ Defence Command Norway is responsible for the enforcement of civilian veterinary regulations in the Armed Forces in peacetime. All participants in military training and exercise in Norway are under civilian veterinarian jurisdiction. The civilian veterinary regulations in Norway implement EU directives. Within armed forces in Norway the Land Command Veterinarian is responsible for the necessary control in accordance with civil regulations. Armed Forces from outside the EU will be handled according to regulations for third party nations in accordance with the EU directives.

Personnel

Foreign personnel must avoid contact with Norwegian domestic and wild animals. Personnel from countries where Mouth and Foot disease and other highly contagious animal diseases have occurred during the last 6 months must not get in contact with Norwegian livestock. This ban is lifted after a proper isolation period of at least 48 hours and a total disinfection of all clothes and equipment.

Equipment

Equipment imported to Norway must be thoroughly cleaned prior to deployment. It is important to remove soil and plant material from equipment prior to landing in Norway. Additional disinfection of vehicles may be demanded if it is imported from an area with high-risk animal health conditions. Each import will be considered by the Land Command Veterinarian, who will issue necessary directives.

Food products

Food products of animal origin may be imported to Norway as far as trade documents are issued according to EU regulations. This means that trade documents need an official veterinary certification from the exporting EU-nation or official authorisation numbers of the manufacturer printed on packages and documents.

A special condition for the import of meat products to Norway from countries other than Sweden and Finland is a document confirming the absence of Salmonella bacteria in the products.

Animal products from nations outside the EU may not be imported without import license issued by the Norwegian Food Control Authority.

Import regulations specify the condition that the importer has to notify the import control authority at least 24 hours prior to landing of the goods.

Animals

It is forbidden to bring animals into Norway without a formal permission from the civilian veterinary authorities in Norway. Regarding dogs, import is prohibited without the approval of civil veterinary authority. Request for import licence must be forwarded to the civilian veterinary authority in Norway at least 5 weeks before actual import is to take place. Requirements are secure identification of each dog, certification of anti-parasitic treatment and a specified vaccination program and health certificate from the official veterinary authority in the exporting country. Dogs from outside EU have to stay in isolation/quarantine for 4 months after importation to Norway.

Plant protection regulations

Imports of plants and parts of plants for cultivation purposes are prohibited without an approval by the Norwegian State Plant Inspection. Any such import must have a certificate of health issued by the relevant official authority in the nation of origin.

Import of food of plant origin

Import of food plants and food made of plant tissue is allowed under the condition that the importer has notified the import control authority 24 hour prior to handling of the goods.

Attachment 2

Additional comments from the Ministry of Agriculture

These answers relate to the field of responsibility of the Ministry of Agriculture, which covers mostly organisms harmful to important crops, domestic animals, or other important groups of species.

Question 3b.

Mostly injurious organisms are identified. For such there have been comprehensive systems for tracking their occurrence.

Question 4c.

Norway has national strategies for those alien species that cause injury or disease, covering both plants and animals (The Plant Health Act of 26 June 2000 and The Domestic Animals Act of 8 June 1962 with appurtenant Regulations). Revised Regulations relating to Pesticides pursuant to the Pesticides Act of 5 April 1963, enter into force on 1 January 2001. These Regulations also require authorisation for biological control agents marketed for use on plants. An important aspect in the risk assessment is whether the biological control agent may cause any harm to natural ecosystems). Indifferent species (non-injurious) are outside the scope of these systems.

Question 5b.

Risk analyses and risk assessments are performed under the regimes explained above, i.e. for pests and disease organisms, etc. (The Norwegian Crop Research Institute, The Norwegian Forest Research Programme).

Question 7c.

Within the area of responsibility the Ministry of Agriculture there are a number of ongoing international activities, also joint projects. These are related to e.g. the European and Mediterranean Plant Protection Organisation (EPPO) and it is covering Convention on phytosanitary issues of 18 April 1951, the international Plant Protection Convention of 6 December 1951 under The UN Food and Agriculture Organisation (FAO), the EU-Norway co-operation, and the Nordic network in the field of plant and animal health issues.

Attachment 3

Case-studies on alien species -*Gyrodactylus salaris*

1. Description of the problem

G. salaris is found naturally in parts of the distribution area of the Baltic salmon, including the rivers draining into the Onega lake, the Ladoga lake and the Neva river which flows out of the Ladoga lake. It is not clear whether or not *G. salaris* is distributed naturally in Finnish and Swedish rivers draining into the Baltic.

G. salaris does not occur in the distribution area of the eastern Atlantic salmon population. It has been introduced in later years to rivers in Norway, to rivers on the Swedish west coast, and to one Russian river draining into the White Sea.

Regional investigations of salmon parr from a large number of rivers show that *G. salaris* is not distributed naturally in Norway. The occurrence of the salmon parasite was demonstrated in Norway in 1975 following imports of smolt from Sweden. After the introduction, the parasite spread further within Norway mainly through fish from infected hatcheries. The occurrence of *G. salaris* in Norwegian rivers is strictly connected to stocks from infected hatcheries. *G. salaris* has spread from infected rivers to neighbouring rivers via fish migrating in brackish water in the fjord. The parasite can not survive in seawater. *G. salaris* has been registered in 40 watercourses and 37 fish farms in Norway.

G. salaris is one of the most serious threats to the Atlantic salmon in Norway today. The density of salmon parr in infected rivers has been catastrophically reduced. Stocks are highly threatened (endangered) or wiped out wherever the parasite has been registered. The worst-case scenario has the parasite contaminating each and every Norwegian salmon stock. Based on current experiences and knowledge about this parasite and its impact on salmon, such a development will have grave consequences for Norwegian salmon and salmon fishing.

2. Options considered to address the problem

In an attempt to contain the damage caused by *G. salaris* the Norwegian authorities (Ministry of Environment and Ministry of Agriculture) have drawn up an action plan to combat the parasite. The main features of this plan include monitoring, preventive measures, remedial measures, research and international co-operation.

Monitoring:

During the 1978 - 1998 period approximately 72,000 young salmon from 482 different watercourses have been examined for *G. salaris*. The objective of the monitoring programme is to:

- provide an overview of the occurrence of *G. salaris* in Norwegian watercourses and fish-farming facilities
- discover parasite attacks at an early stage
- provide a good basis for remedial measures against the parasite.

A monitoring programme that will sound the alert on new finds of the parasite is necessary so that measures to contain the damage can be effected. Monitoring will be concentrated in watercourses that are vulnerable to spreading of the infection. Important criteria for selecting the watercourses to be monitored include location in relation to possible sources of infection, the danger of further spreading of the infection once it occurs, and size and importance as a salmon-carrying watercourse. Any finding of *G. salaris* will lead to a number of measures being implemented, depending on the nature of the watercourse. One possible immediate measure is to close any salmon ladders to prevent upriver infection. Rapid remedies such as chemical treatment of the watercourse may be considered if there is a great risk of contamination of new watercourses. In small rivers chemical treatment can be carried out without a major planning operation. However, in large rivers chemical treatment can only be effected after a comprehensive planning process, which will take one to two years.

Preventive measures:

The most effective measure for reducing the risk of infection through fishing and outdoor activities is to inform the general public about the parasite, the laws and regulations in force, the status of the risk of infection, the risk of contamination and procedures for disinfecting gear. Information posters, leaflets and video films are being made. *G. salaris* problems are, moreover, often featured in the media, particularly in local and national newspapers.

Establishing facilities for disinfecting fishing gear and equipment used in infected rivers will be a requirement for permission to operate organized outdoor activities such as fishing and canoeing.

The presence of unregistered fish-farming facilities that move fish from one place to another represent a considerable risk of infection. Getting an overview of the unregistered fish-farming facilities is thus a priority task. When infection has been discovered in a fish-farming facility it will be sanitized. This means that it will be emptied of fish, disinfected and not used for a period of time before new fish stocks can be brought in.

As a general rule, stocking of infected rivers with salmon should be stopped. Placing salmon

or other species that are vulnerable to *G. salaris* in infected rivers contributes to maintaining a high level of infection in the river, thus increasing the risk of spreading the infection.

3. Implementation of measures

Obstruction of fish migration:

The principle behind obstruction of fish migration is to prevent the salmon from entering the river to spawn. After five to seven years the river above the obstruction will be devoid of salmon, thus also devoid of parasites, as these die rapidly without a host. The young salmon will then either be dead due to the parasitic infection or have migrated as smolt. Thus the existence of the parasite will have been contained to the areas below the obstruction, simplifying the work to combat the parasite.

Rivers can be closed in various ways depending on the size, topography and any technical constructions already in place in the river. In rivers where fish ladders already extend the distance the salmon may travel upriver, closing the ladders will prevent the salmon from swimming further upriver. All salmon ladders in *G. salaris*-infected rivers have been closed. The Figga river has been infected by *G. salaris*. There is a large lake in a section where salmon is found. One condition for exterminating the parasite from this watercourse was to prevent the salmon from swimming up into the lake. Therefore, in 1988 a fish obstruction facility was built fairly low down in the river. The location of the obstruction was essential. It had to be fairly close to the mouth of the river, preferably where there was a natural waterfall. This fish obstruction facility has a length of 38 m. The river water is filtered through a 4 m wide iron grating with 5 cm openings. This obstruction has functioned satisfactorily.

Chemical treatment of watercourses

No specific chemicals have been developed that will only eradicate the parasite. Currently, the only alternative method of eradicating *G. salaris* is to remove its hosts from the watercourse for a short period of time. We know of course that the parasite can only live in those sections of a watercourse where fish species that are susceptible to the parasite are present. The parasite, moreover, gives birth to live offspring, meaning that there are no eggs or other resting stages (cysts) where it can survive without the host fish. The product used to remove fish from lakes and rivers is rotenon.

Rotenon treatment has been implemented in a total of 25 of the 40 infected watercourses in Norway. In 16 of the treated watercourses the parasite has been eradicated. Three rivers are still being monitored. In six rivers the parasite has been registered again after rotenon treatment. Bearing in mind that six rotenon treatments have failed to give the desired result, considerable efforts have been put into improving the methods used. Better planning, equipment and methods of application will increase the probability of successfully eradicating

the parasite in the future.

All infected fish-farming facilities are sanitized. This means that it will be emptied of fish, disinfected and not used for a period of time before new fish stocks can be brought in.

4. Lessons learned from the operation

Seeing as how *G. salaris* has spread to the entire far north area (Norway, Sweden, Finland and Russia), it is essential to bolster international co-operation with the aim of preventing the spread of the infection and combating the parasite in infected rivers and fish-farming facilities. Co-operation between the Russian, Finnish and Norwegian authorities was established in 1995. Representatives of research communities and administrative authorities from each of these countries meet on a regular basis. So far these efforts have not had any formal status. The core activity has been exchanging information about on-going activities and the known infection status in each country. The aim of future efforts must be to draw up a joint strategy for monitoring and containment measures. Sweden will also be joining this co-operation project.

The effort to prevent further spreading of the parasite and the introduction of remedial measures in rivers where this is feasible present major challenges. In our opinion important topics to be discussed by the international co-operation partners include the following:

- Better flow of information across national frontiers.
- The establishment of a workable scheme for disinfecting fishing gear and similar equipment.
- Better data about the spread of *G. salaris* in the northern regions.
- Better data about the migration possibilities for fish which could spread *G. salaris*.
- Avoid stocking fish species that are susceptible to *G. salaris* in regions where such species do not naturally belong.
- Introduce inspection of facilities and all fish stock put into the watercourses.
- Implement preventive measures in areas where the parasite is prevalent.

The costs of the fight against the salmon parasite are high. Until today more than NOK 90 mill are used for carrying out the action plan. Considerable more money are required in the future. A cost benefit analysis indicates that the fight against *G. salaris* is very profitable for the society. For instance the cost of the project rotenone treatment of the Steinkjer watercourses is calculated to NOK 4.5 mill. From an economic point of view, the rotenon treatment has two different effects: Secure the salmon stock in the Steinkjer watercourses, and secure the other watercourses around Trondheimsfjorden against infection of *G. salaris*. Results from the calculations indicate the present value of total positive effects of the rotenone treatment project isolated for the Steinkjer watercourses to be between NOK 17.4 -44.1 mill. Present value of total positive effects is between NOK 500 - 1500 mill.