

Consultation paper

27th October 2017

Proposal for amendments to the Regulations relating to alien
organisms

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1. Introduction

The Ministry of Climate and Environment is hereby circulating a consultative proposal for amendments to the Regulation of 19 June 2015 No. 716 relating to alien organisms.

The Regulations relating to alien organisms were enacted pursuant to the Nature Diversity Act and came into force on 1 January 2016. The purpose of the Regulations is to prevent the import, release and spread of alien organisms that have or may have adverse impacts on biological or landscape diversity. According to scientific risk assessments, because of the danger of competition and hybridisation with our natural domestic species of European lobster (*Homarus gammarus*), the American lobster (*Homarus americanus*) represents a high ecological risk. A prohibition against the import, release and placing on the market of live American lobsters was therefore included in the Regulations, but with scope for the granting of exemptions. The risk assessments also show a danger of the spread of disease and parasites. Disease was not of decisive significance in the decision by the Norwegian Biodiversity Information Centre to categorise American lobster as a very high ecological risk.

The amendment proposal entails firstly that the current prohibition against imports of live American lobsters should be replaced by the general requirement in the Regulations for a permit. A permit of this kind may be granted subject to strict conditions. The prohibitions in the Regulations against the placing on the market and release of live American lobsters will remain in place.

The Ministry also proposes an amendment to the exemption provision in Section 31, which largely entails that only one of the two preconditions for exemption must be fulfilled in order for an exemption to be granted, rather than both, as is the case at present.

The amendments are proposed against the background of the Ministry's experience in an exemption case involving imports of live American lobster. This case is discussed in further detail below.

The Ministry also proposes that Section 15 third paragraph of the Regulations, which specifies the issues to be considered in applications to import and release American lobster and the upper threshold for granting a permit, should be moved to sections 6 and 10 of the Regulations, these being the provisions that lay down the requirement that a permit must be obtained for imports and release. These amendments do not involve any substantive changes in the prevailing situation, but are proposed in order to clarify the issues for consideration in applications to import and release American lobster and the upper threshold for granting a permit pursuant to the Regulations.

2. Establishing a permit scheme for imports of American lobster

2.1. The background to the proposal

Norway's currently largest importer of live American lobster applied to the Norwegian Environment Agency in April 2016 for an exemption from the prohibition against imports of live American lobster. The application was refused, because in the assessment of the Environment Agency, the important considerations of the public interest required under the exemption provision had not been met. At the same time, the Environment Agency stressed

that imports in this particular case involved very little risk, because the company in question has put in place strict measures to prevent the release of live American lobsters into the Norwegian environment. Amongst other measures that have been put in place, the facilities of the company have been made escape-proof and all live American lobsters are boiled to ensure that the lobsters are dead before they are dispatched from the premises of the company.

The company appealed the decision to the Ministry of Climate and Environment, and the appeal was decided with final and binding effect by that Ministry in December 2016. The Ministry allowed the appeal and granted a permit subject to strict conditions. In doing so, the Ministry attached weight to the fact that the appellant has put in place measures which ensure that there is very little risk associated with such imports. In this situation there were no technical grounds for refusing an exemption and, moreover, in this case, the public interest consideration requirements had been met.

The majority of imports of American lobster to Norway are from Canada and the Canadian authorities have also questioned the foundations for the prohibition that is currently in force.

This appeal case demonstrates that live American lobster may in certain instances be imported at a low ecological risk provided that strict measures are put in place.

Since a restriction should not extend beyond what is necessary for technical reasons and since in cases such as this there is no need for a prohibition against imports, the Ministry proposes that the prohibition against imports combined with a very restricted scope for exemption should be replaced by a less onerous provision.

The release of live American lobsters into Norwegian waters poses a very serious ecological risk to the European lobster, see Chapter 2.2 below. The Ministry therefore wishes to stress that a less onerous measure than a prohibition against imports must be equally effective in preventing unintentional or deliberate releases and escapes of live American lobsters as the current regulation.

2.2. Further details of the ecological risk associated with American lobster

2.2.1 About the American lobster and the biodiversity affected by American lobster

The American lobster occurs naturally along the north-western Atlantic coast, from North Carolina to Newfoundland in Canada.¹ American lobsters have been found off the coasts of, *inter alia*, Great Britain, Ireland, Denmark, Sweden and Norway. A number of these lobsters have been found to bear marks from rubber bands on their claws and have been larger than the maximum size that may be lawfully sold in Canada, suggesting that the lobsters were released by humans and had survived over time. Unlike the European lobster, which is generally found in shallower waters, the American lobster is found in both shallow and deep waters from the shoreline down to depths of approximately 40 m. In winter, they roam deeper than the European lobster and have been found at depths of as great as 700 m. An American lobster can weigh up to 20 kg and have a body size of approximately 50 cm. However, individuals of this size are rarely found in fisheries today. The temperature in its natural

¹ Norwegian Biodiversity Information Centre <http://databank.artsdatabanken.no/FremmedArt2012/N14309> (accessed on 15.08.2017)

habitat is usually between 5 and 20°C, but it is able to survive in temperatures of between -1 and 30.5° C. The species is also able to survive low levels of salinity for shorter periods of time. It is found in a wide range of habitats, from mud and sand substrates and eelgrass beds to gravel, rock and bed-rock substrates. In terms of diet, the American lobster is omnivorous and eats a wide range of prey, including shells, mussels, polychaetes, sea urchins and carrion, including fish.² In this way it competes for food with other bottom-dwelling opportunists/carrion-eaters.

American lobster can have an impact on commercially important species that share a similar habitat, for example the edible crab (*Cancer pagarus*) and the Norway lobster (*Nephrops norvegicus*), but also species living at greater depths.³ At the time of writing (2016), 5068 tonnes of Norway lobster are landed from Skagerrak/Kattegat and the north-eastern North Sea (the Norwegian Deep), of which Norway fishes approximately 184 tonnes.⁴ Moreover, the American lobster is a potential vector for the introduction of other invasive species (accompanying organisms) such as copepods, barnacles, nematodes and foraminifera.⁵

However, the chief challenge associated with the American lobster is its impact on the European lobster, see chapters 2.2.2 and 2.2.3.

2.2.2 The condition of the European lobster and negative impact factors

The European lobster is found along the Norwegian coast from Hvaler in the south east as far north as Tysfjord in Nordland county. The European lobster can grow to a length of almost 50 cm (measured from the tip of the rostrum to the tail fan), weigh around 8 kg and live to an age of at least 60 years. The colour can vary widely.⁶ It is found in areas in which the sea temperature ranges from 5°C⁷ to 20°C and lives largely on rocky substrates, using rock piles, clefts or cavities under large rocks for shelter. In the absence of a rocky substrate the lobster borrows into tightly packed sand and clay substrates. The lobster is generally at rest during the day, in hiding, and is active at night. A study conducted in Sweden found that hermit crabs, the common whelk, polychaetes and mussels are important components of its diet, but the European lobster also eats whatever might be available in the way of carrion. The lobster is generally inactive during the winter when sea temperatures are low.⁸

Stocks of European lobster along the Norwegian coast have *declined significantly* when compared with the period leading up to the 1950s. After 1930 and until 1961, the Norwegian catch accounted for between 20 and 50% of total annual catch of European lobster in Europe. Lobster fishing generated substantial and important revenues for many commercial fishermen along the coast and annual catches were in the region of between 60 and 1,000 tonnes.⁹ Since

² Institute of Marine Research. Item on the American lobster (accessed on 15.08.2017):

https://www.imr.no/temasider/skalldyr/hummer/amerikansk_hummer/nb-no

³ Risk assessment of American lobster (*Homarus americanus*), Swedish Agency for Marine and Water Management Report 2016:4

⁴ Figures from the Institute of Marine Research as at 08.2017

⁵ Ibid.: 3

⁶ Agnalt, A-L, Farestveit, E. and Dahle, G. (2016). Amerikansk hummer i norsk farvann gir grunn til bekymring, Kyst – Havforskningsrapporten s. 47-49.

⁷ Pers. communication Agnalt, A-L, researcher at the Institute of Marine Research, 14.08.2017

⁸ Ibid.: 6

⁹ The Institute of Marine Research. Item on the American lobster (accessed on 15.08.2017):

https://www.imr.no/temasider/skalldyr/hummer/europeisk_hummer/europeisk_hummer/nb-no

about 1987, however, catches have ranged from 30 to 60 tonnes a year.¹⁰ In 1996, Norwegian catches accounted for just 1% of the total catch in Europe. Lobster stocks are now at an historically-low level and the Norwegian lobster fishery has been described as eradicated in economic terms.¹¹ Recreational fishing now dominates and appears to be increasing steadily. This can probably be attributed to a combination of heavy fishing pressure and possible changes in environmental conditions that may have impacted negatively on recruitment.¹²

According to the 2010 Norwegian Red List for Species, lobster was assessed as being “near threatened” based on a time series for total catches (number of lobster landed) and an index for population based on the number of lobster caught per 24-hour trap day (“catch per unit effort”). Documentation has been presented in recent years showing that landing statistics from sales organisations cannot be used as an index of developments in population, since there are large unreported landings, both commercially and in the recreational fishery. There are indications that the proportion of unreported landings has increased steadily since the 1960s. As a consequence, the 2015 Norwegian Red List for Species, in which the status of the species was assessed as “viable”, based assessments exclusively on the index for catches per 24-hour trap day. The index series indicate a current catch rate that is on a par with the 1970s. However, the index does not take account of the use nowadays of more modern traps, which are expected to be more efficient than traps used in the past¹³, which probably means that the index overestimates the size of the population. One of the criteria for Red-listing is population reduction. If the reduction is 15% or more within a period of three generations, but at least 10 years, the species is assessed as being “near threatened”. The generation time of lobster is 10 years. An assessment of this nature compares the population situation in 2013 with 1985, and since the population index does not indicate a reduction in this period, the assessment given is “viable”. This even though stocks were substantially reduced before this period.¹⁴

Regulations governing lobster fishing were introduced in 2008 to reduce pressure on stocks and increase the catch rate, and included extended close fishing seasons, protection of berried females all year round, minimum size limits and restrictions on the type of catch equipment and number of traps used.¹⁵ In 2017, on the basis of proposals put forward by the Institute of Marine Research, further requirements were introduced, including that anyone intending to fish for lobster must register before the start of the fishery, as well as a maximum permitted size of 32 cm (overall length) along the entire Skagerrak coast.¹⁶ In addition, a number of marine protected areas for European lobster have been established in Southern Norway. Moreover, special preservation zones for European lobster have been established in a number of municipalities and more are being established.¹⁷

¹⁰ Ibid.

¹¹ Kleiven, A.R. m.fl. 2017. Evaluering av effekten av forvaltningstiltak på hummer og forslag til tiltak. Rapport fra Havforskningen NR. 15-2017, Institute of Marine Research. ISSN 1893-4536 (online)

¹² <https://www.miljolare.no/tema/planterogdyr/artikler/marint/hummer.php>

¹³ Norwegian Biodiversity Information Centre <http://artsdatabanken.no/Rodliste2015/rodliste2015/Norge/16523>

¹⁴ Pers. communication Snorre Henriksen, Norwegian Biodiversity Information Centre, 03.08.2017.

¹⁵ Ibid.: 12.

¹⁶ Ibid.: 16.

¹⁷ Norwegian Directorate of Fisheries. Strenge regler for hummerfiske (downloaded 15.08.2017): <http://www.fiskeridir.no/Fritidsfiske/Noen-utvalgte-arter/Hummer>

The Institute of Marine Research recently reviewed the population situation in light of these regulatory measures. Measures such as protecting berried lobsters, increasing the permitted minimum size and the introduction of escape openings have worked as intended. For example, the proportion of lobsters in the catch of less than the permitted minimum size has been reduced substantially. Nevertheless, despite almost 10 years of new regulatory measures there are no signs that stocks have increased. A substantial increase in fishing pressure was registered between 2008 and 2013. This may have counteracted any positive effects from the measures in 2008. The historical time series based on catch per unit of input house, as noted above, not taken account of developments in technology. Accordingly, it can be argued that lobster stocks are continuing to decline.¹⁸

The historically low levels of stocks of European lobster, taken in conjunction with the other impact factors, suggest that European lobster in Norway should insofar as this is possible not be exposed to further negative factors.

2.2.3 The impact of the American lobster on the European lobster

General comments on alien invasive species

Alien species are recognised internationally as an ever-increasing problem and are viewed both globally and nationally as one of the greatest threats to biological and landscape diversity. Preventing the importation, placing on the market and release of alien species, as well as counteracting those that have nevertheless established themselves in Norway is an obligation under the Convention on Biological Diversity and a specific target under the UN Sustainable Development goals.

If alien invasive species are able to enter, establish themselves or spread in Norway the adverse effects can be extensive and irreversible. Removing such species once they have established themselves is very costly, and eradicating invasive species in the sea is usually not possible. The economic consequences can therefore be far-reaching. In 2015, Vista Analyse working in collaboration with the Norwegian Institute for Nature Research published a report that estimated that the total economic cost to society of alien species in Norway could be of the order of NOK 1.4 to 3.9 billion per annum.¹⁹ In the European Union, the economic costs of alien species were estimated to be in the region of EUR 12 billion per year.²⁰ One example of the species with major economic costs is the salmon parasite *Gyrodactylus salaris* which has spread to a number of our salmon waterways. The goal is to eradicate this species and the measures aimed at doing so cost the country something in the region of NOK 250 to 300 million per year. One estimate suggests that Norway has sustained costs of the order of NOK 3 to 4 billion since this species was introduced to the country approximately 40 years ago.²¹ One example of marine species that it will be nigh on impossible to eradicate is the Pacific oyster, which is spreading along the coast of Norway extensively and rapidly. In addition to the ecological risk posed by alien species, the major

¹⁸ Alf Ring Kleiven m.fl. 2017. Evaluering av effekten av forvaltningstiltak på hummer og forslag til tiltak. Rapport fra Havforskningen NR. 15-2017, Institute of Marine Research. ISSN 1893-4536 (online)

¹⁹ Vista Analyse and Norwegian Institute for Nature Research, Rapport 2014:52 - Samfunnsøkonomiske kostnader ved fremmede arter i Norge: Metodeutvikling og noen foreløpige tall.

²⁰ The impacts of invasive alien species in Europe. EEA Technical Report No 16/2012.

<https://www.eea.europa.eu/publications/impacts-of-invasive-alien-species>

²¹ Ibid.: 23.

challenges involved in fighting alien species that have established a foothold, as well as our international commitments, the major economic costs involved for society are the reason that Norway has introduced a high level of protection against harmful alien organisms in the Nature Diversity Act and the Regulations on alien organisms.

Risk assessments of the American lobster

Risk assessments have been conducted of the American lobster in recent years by amongst other organisations the Institute of Marine Research²², the Nordic Council of Ministers²³, the Norwegian Biodiversity Information Centre²⁴ and the Swedish Agency for Marine and Water Management²⁵. The risk assessment performed by the Norwegian Biodiversity Information Centre concludes that the American lobster represents a very high ecological risk, while the risk assessment performed by the Swedish Agency for Marine and Water Management concludes that the species represents a high ecological risk. These are the highest categories in the assessment methodologies applied by the Norwegian Biodiversity Information Centre and the Swedish Agency for Marine and Water Management. The conclusion reached by the Norwegian Biodiversity Information Centre that the American lobster represents a very high ecological risk, particularly to our indigenous species of European lobster, is based on their assessment that the American lobster has a highly developed ability to disperse and a very negative impact on the Norwegian natural environment. The conclusion of the Swedish Agency for Marine and Water Management is based on their assessment that the escape and deliberate release of live American lobster and the establishment of a population of American lobster is very likely and that there is a medium risk of future dispersal (but likely that it will spread along the coast of Europe if measures relating to the sales chain are not introduced) and that live American lobster can have a seriously negative impact on the European lobster. The working groups responsible for the reports by the Institute of Marine Research, the Nordic Council of Ministers and the Swedish Agency for Marine and Water Management are all of the view that it is necessary for a prohibition against imports of live American lobster to be introduced.

Both of these risk assessments found that the most important potential harmful effects of the American lobster are competition with or the displacement of the native European lobster and other native species, hybridisation (cross-breeding) with the European lobster and the danger of the spread of diseases and parasites. This is discussed in further detail in the sections on “Hybridisation with the European lobster”, “Competition with the European lobster” and “The spread of diseases to the European lobster”.

As regards the harmful effects associated with the spread of diseases and parasites it should be noted that Section 32 of the Nature Diversity Act and Section 3 of the Regulations on alien

²² Risikovurdering av marine arter som benyttes i forskning, økotoksikologiske analyser, undervisning og akvakultur, og som omsettes til akvarister og som levende sjømat i Norge, Fisken og havet nr. 9/2011, Anders Jelmert, Institute of Marine Research.

²³ Forebyggelse av ny hummerart i nordiske farvande, Sluttrapport 15. september 2004, Et nordisk prosjekt-samarbeid, J.nr. i DFU: 2003-431-0003, For Arbeidsgruppen for nordisk miljø- og fiskerisamarbeid, Nordic Council of Ministers 2004, Gro I. van der Meeren et al.

²⁴ Fremmede arter i Norge, Norwegian Biodiversity Information Centre (<http://databank.artsdatabanken.no/FremmedArt2012/N14309>)

²⁵ Risk assessment of American lobster (*Homarus americanus*), Swedish Agency for Marine and Water Management Report 2016:4

organisms provide that assessments pursuant to the Act and the Regulations, respectively, shall not include considerations relating to plant, animal and human life and health that are safeguarded by the Communicable Diseases Control Act and the Food Act. Issues relating to disease associated with the importation of lobsters are regulated by the Food Act and its regulations, which implement European Union law in this area, including Directive 2006/887/EC, which is incorporated in the EEA Agreement.

The harmful effects related to the spread of diseases and parasites were not, however, decisive to the conclusion reached by the Norwegian Biodiversity Information Centre that the American lobster represents a very high ecological risk. In light of this, it is the potential harmful effects relating to competition with or the outcompeting of the native European lobster and other native species and hybridisation with the European lobster, rather than the hazards associated with the spread of diseases and parasites, to which most weight has been ascribed in the assessments underpinning this present proposal.

The Swedish Agency for Marine and Water Management's risk assessment was carried out in conjunction with Sweden's proposal that the European Union should introduce a total prohibition against live American lobster under a recently adopted EU Regulation on invasive alien species. The risk assessment is of direct relevance to Norway, amongst other reasons because Norway and Sweden have comparable eco-climatic conditions, because until the point at which Norway introduced the ban, both countries imported American lobster as live food and the spread to the wild is in all probability proceeding through similar channels of dispersal, and because European lobster stocks are at an historically low level in both countries. It is noted in this context that the Swedish risk assessment establishes that "the results and conclusions are relevant for the European Atlantic coast with similar eco-climatic conditions".²⁶

The Swedish Agency for Marine and Water Management's risk assessment followed the method recently adopted by the EU as the standard for risk assessments, and Sweden's risk assessment was also approved by the EU's Scientific Forum.²⁷ The Norwegian Biodiversity Information Centre's risk assessment was performed using a method for quantitative and objective assessment of the ecological risk of the species. The method is based on documented, testable data on the species' dispersal, reproduction, growth rate, population density, population size, distribution and effect, and these values are processed in a standardised way. The Norwegian Biodiversity Information Centre's method was amongst the methods that received the highest assessment in an EU report in 2013, which assessed existing methods of risk assessment of aliens species.²⁸

Findings of American lobster outside its natural habitats

In Norway, it has been unlawful for over 27 years to *release* organisms, including American lobster, into Norwegian fjord and sea areas. This prohibition is currently provided for in

²⁶ Risk assessment of American lobster (*Homarus americanus*), Swedish Agency for Marine and Water Management Report 2016:4, s. 6.

²⁷ *Ibid.*: 7.

²⁸ Roy, H., et al. (2013) Invasive alien species – framework for the identification of invasive alien species of EU concern (ENV.B.2/ETU/2013/0026).

http://ec.europa.eu/environment/nature/invasivealien/docs/Final%20report_12092014.pdf.

Accessed 17.08.2017.

Section 19 a of the Marine Resources Act. Negligent or intentional breaches of this prohibition are punishable by fines or imprisonment for up to one year. However, findings of 34 verified specimens of American lobster between the years 2000 and 2017 show that the prohibition against release has not prevented the release and survival of American lobster in Norway.

The pathways by which alien species spread to marine ecosystems in Europe have been thoroughly investigated, but we cannot say with any certainty in which link of the supply chain from importer to consumer imported American lobster arrived in the wild in Norway. There is no way in which American lobster could have roamed to Norwegian waters without human assistance. Specimens of live American lobster caught in Norway have had rubber bands on their claws or have borne marks from rubber bands. This shows that these individuals must have originated in captivity and were either deliberately released or escaped as a consequence of human failure, from one or more stages in the supply chain. In Norway, the species has been found in the inner Oslo Fjord and at several locations on the stretch of coast between the counties of Vestfold and Møre. Most findings have been in the vicinity of towns and cities or population concentrations. The American lobster found in Norway have been larger than the minimum permitted size for commercial catches in the United States and Canada, suggesting that these individuals may have survived over longer periods in Norwegian waters.

It is difficult to distinguish American lobsters from European lobsters visually, and definite identification of American lobster is accordingly possible only with the aid of DNA analysis. All 34 American lobster specimens found in Norway have accordingly undergone DNA testing. In addition to the specimens found in Norway, a number of findings of live American lobster have been reported in other European countries in which it does not occur naturally.²⁹ In Sweden, findings of 36 specimens of American lobster were reported between 2008 and 2016.³⁰

To date, there have been no observations of the establishment of a breeding population of American lobster in Norway. Successful reproduction and completion of a life-cycle in the wild is precisely what we are seeking to avoid by introducing a prohibition against imports of American lobster. However, it is not possible to be certain that the species has not already established a breeding population in Norway.

There are a variety of reasons why we have not yet observed a breeding population in Norway. One reason might be the way in which the species spreads and establishes itself. Alien species may often live in small numbers over several decades before their population size suddenly explodes. The lag phase has been observed in other decapod crustaceans in Europe, such as in the case of the Chinese mitten crab (*Eriocheir sinensis*), where several decades passed between the initial introduction of the crab and the subsequent explosive

²⁹ Risk assessment of American lobster (*Homarus americanus*), Swedish Agency for Marine and Water Management Report 2016:4, table 1 and table 2.

³⁰ Pers. communication Sofia Brockmark of Swedish Agency for Marine and Water Management, e-mail 3 April 2017.

growth in population.³¹ The Institute of Marine Research has observed a similar development in the cases of the snow crab (*Chionoecetes opilio*) and the red king crab (*Paralithodes camtschaticus*) in the Barents Sea. As noted above, the Pacific oyster is spreading rapidly and widely along the Norwegian coast. Juvenile specimens of the species were imported to Norway from Great Britain in 1979 with a view to establishing oyster farming operations. In around 1980, oysters living in the wild were observed at Tysnes and Kragerø, both of these observations being linked to local oyster farming operations. However, it was only in 2007 that the species was found at several locations in the Oslo Fjord and subsequently elsewhere on the coast of Southern Norway. The same development has been observed in the Netherlands, where, having being imported for oyster farming purposes in 1964, the species was first observed 10 years later in the wild. Since that time its growth has been explosive and it has spread along the entire Dutch coast and northwards into the Wadden Sea to Denmark, and subsequently to Sweden.³²

American lobster in Norway could undergo the same lag period as these species. Because of the territoriality of the species, however, it is not expected that any establishment would occur in the same densities as in the examples discussed above.

The potential for dispersal of American lobster and hybrids is considerable and in all probability American lobster and hybrid individuals could spread throughout the entire area in which the European lobster is found and possibly also even further north. Regulation/measures to remove American lobster³³ and hybrid individuals after they have established a presence will be very difficult, and in practice it is often impossible to eradicate such species once they are established. This demonstrates the importance of preventing American lobster from establishing a foothold in Norway. Since Norwegian lobster stocks are probably at an *historically low level*, there will be numerous vacant territories, which will increase the possibility that the American lobster will be able to establish a presence, if this has not already happened.

The effectiveness of lobster fisheries in revealing the occurrence of the American lobster is not known. No systematic search for American lobster has ever been conducted in Norway. Since in many cases it will be difficult to see the difference between the two species there is also a risk that catches of American lobster are mistaken for the native species and are therefore not reported. The difficulty in distinguishing between American and European lobsters visually and the limited number of organised searches for American lobster suggested there has been and continues to be a large population of American lobster along the Norwegian coast that has not been registered. In all probability, the hidden figures are

³¹ Gilbey, V., M.J. Attrill & R.A. Coleman. 2008. Juvenile Chinese mitten crabs (*Eriocheir sinensis*) in the Thames estuary: distribution, movement and possible interactions with the native crab *Carcinus moenas*. Biol. Invasions 10:67-77.

³² Norwegian Biodiversity Information Centre, Risikovurdering av stillehavsosters. Accessed on 11.08.2017 <http://databank.artsdatabanken.no/FremmedArt2012/N84141>

³³ van der Meeren, G., Støttrup, J., Ulmestrand, M., Øresland, V., Knutsen, J.A. and Agnalt, A.-L. (2010): NOBANIS – Invasive Alien Species Fact Sheet – *Homarus americanus*. – From: Online Database of the European Network on Invasive Alien Species - NOBANIS www.nobanis.org, Date of access 12/4/2016; Swedish Agency for Marine and Water Management. (2015). Risk assessment of the American lobster (*Homarus americanus*).

extensive, and it cannot be ruled out that the species has already established a breeding population in Norway. Factors such as restrictions on lobster fishing also impose limitations on the documentation can be collected through the lobster fishery. According to the regulations, the openings in lobster pots must not exceed 60 mm in diameter, which serves to exclude juveniles from catches, and thereby the possibility of observing any early stages of what might be an existing established breeding population in Norwegian waters. It should be noted in this context that the risk assessment performed in Sweden concluded that the number of American lobster observed on the Swedish West Coast is probably just the “tip of the iceberg”.³⁴

Hybridisation with the European lobster

Where a new species is introduced into an area by humans the new species will be able to mate with some of the species that occur in that area naturally, thereby producing what are termed *hybrids*. The native species are genetically adapted to the areas in which they live and hybridisation results in genetic changes and changes to the characteristics of the naturally-occurring species. Experience has shown that this in turn can lead to a reduction in viability and a downturn in the population, as has been documented in the case of, for example, populations of wild salmon in Norway.³⁵ In practice, hybridisation means that the species are changed as a result of human influence, and not as a result of evolutionary processes, as would be natural. Since experience has shown that hybridisation can have widespread negative effects on natural native species, it (hybridisation) is regarded as genetic pollution and it is a general objective that the genes of alien species should not be mixed in with unique species.

Hybridisation with American lobster is a threat to the European lobster population. On the question of the likelihood of hybridisation, seven out of the 34 registered findings of American lobster in Norway were berried with eggs, four of these with hybrid eggs. Of the 36 registered finds of American lobster in Sweden since 2008, two of the females, the last in 2016, were berried with hybrid eggs.³⁶ All Norwegian findings have been DNA verified by the Institute of Marine Research, which also performed DNA verification on 31 of the Swedish finds. This method distinguishes between the two species with 100% certainty.³⁷

The American lobster females with DNA-verified hybrid eggs found in Norway and Sweden provide direct proof that American lobsters and European lobsters can mate successfully in the wild, and that hybridisation between the two species occurs repeatedly. Based on the proportion of findings of American lobster with hybrid eggs, hybridisation between American lobster and European lobster must, in the assessment of the Ministry, be regarded as relatively common. Moreover, the challenges associated with distinguishing visually between the two species and the fact that no systematic searches for American lobster have been conducted indicates that it is not possible to rule out that the number of American lobsters

³⁴ Ibid.: 25.

³⁵ Bolstad, G.H., Hindar, K., Robertsen, G., Jonsson, B., Sægrov, H., Diserud, O.H., Fiske, P., Jensen, A.J., Urdal, K., Næsje, T.F., Barlaup, B.T., Florø-Larsen, B., Lo, H., Niemelä, E., & Karlsson, S. 2017. Gene flow from domesticated escapes alters the life history of wild Atlantic salmon. *Nature Ecology & Evolution*, 1: 0124.

³⁶ Pers. communication Sofia Brockmark of Swedish Agency for Marine and Water Management, e-mail 3 April 2017.

³⁷ Studies in connection with EU-funded project “Genetic diversity in the European lobster (*Homarus gammarus*): population structure and impacts of stock enhancement (GEL)” from 1998-2001, supported by EC FAIR programme (CT98 4266).

with hybrid eggs along the Norwegian coast is greater than has hitherto been registered. That the population may be larger than has been registered must also be assumed to be the case for any European females that have mated with American males. European females may be berried with hybrid eggs that are not visually ascertained and registered. Accordingly, the hidden numbers of hybridisations may also be extensive.

The first American lobster with hybrid eggs found in Norway has been kept by the Institute of Marine Research. In 2010, this female hatched 10,700 hybrid larvae, and the viability of the offspring has since been studied. Previous studies conducted in the United States found that hybrid offsprings were able to produce eggs³⁸, whereas hybrid males have been sterile.³⁹ The male larvae from the American lobster found in Norway were studied at the Institute of Marine Research and some of them proved to have a few sperm cells that can be characterised as normal. The studies will be followed up in 2017 using simulations of summer, since temperature can be a decisive factor for reproduction.

One of the other American females berried with hybrid eggs found in Norwegian waters was sent to Kristineberg in Sweden in May of 2016. Competition tests were performed between newly hatched hybrid larvae and European larvae in what are termed “common-garden” experiments. This experiment was repeated in 2017 with the offspring of a different American female with hybrid eggs found in Sweden in 2016. Thus far, the main conclusion is that the survivability of hybrid larvae is as good as the survivability of European lobsters given the same temperature, salinity and dietary conditions, and in competition with European larvae. It is therefore not possible to rule out the possibility that hybrid larvae can survive and that individual specimens can establish breeding populations in Norway and hybridise with European lobsters, thereby spreading genes from the American lobster to the European lobster population.

Competition with the European lobster

Field and experimental studies have shown that American and European lobsters have the same circadian rhythm, diet and to some degree choose the same habitat.⁴⁰ Some studies have shown that the European lobster appears to be the most aggressive, while other studies have found the opposite to be the case. American lobsters have a greater growth potential and can grow to a significantly greater size in terms of body length and, in particular, claw size.⁴¹ As regards mating, one would expect the American lobster to have an advantage over the European lobster in the competition for females. This could lead to the displacement of European lobster in the longer term. However, it has not proved possible to verify behavioural advantages in mating experimentally. Moreover, according to the Institute of Marine Research, uncertainty attaches to the question of what competitive advantages hybrids of the two species might have, but, as was noted above, experiments suggest that the viability

³⁸ Hedgecock D, K Nelson & RA Shleser. 1976. Growth differences among families of the lobster, *Homarus americanus*. Proc. World Maric Soc. 7: 347-361

³⁹ Talbot P, D Hedgecock, W Borgeson, P Wilson & C Thaler. 1983. Examination of spermatophore production by laboratory-maintained lobsters (*Homarus*). J. World Maricul. Soc. 14: 271-278

⁴⁰ van der Meeren, G.I., Støttrup, J., Ulmestrand, M. and Knutsen, J.A. (2004). Forebyggelse av ny hummerart i nordiske farvande – sluttrapport 15 september 2004. A Nordic collaboration project, Nordic Council of Ministers.

⁴¹ Ibid.

of hybrid larvae is equal to that of European lobsters given the same temperature, salinity and diet.

Since Norwegian lobster populations are likely to be at an historically low level, the species will probably be especially vulnerable in competition with an introduced species such as the American lobster, where the new species will have extensive access to vacant territories. With low numbers of European lobster, even the introduction of a limited number of American lobster could have very detrimental effects.⁴²

The spread of diseases to the European lobster

It has been documented that American lobster may carry pathogenic organisms. The introduction of new diseases could have serious consequences and experience has shown that a precautionary approach should be adopted. The development of enhanced resistance to a new disease can at best take several generations, and a high mortality rate, leading to reductions in the population, could quickly be a consequence in the shorter term.

American lobsters may be carriers of the contagious bacterial disease gaffkaemia, which if passed on to European lobster results in a mortality rate of 100%.⁴³ The disease has been found in European lobster and there are many indications that it was introduced to Europe through imports of live American lobster.⁴⁴ The first outbreaks were ascertained in Western Norway as far back as in the 1970s and further cases have been registered at regular intervals since then.⁴⁵ American lobsters may be carriers of the bacteria without displaying symptoms.⁴⁶ Moreover, the disease may increase the potential for American lobster to establish a population because it has a certain degree of resistance to the disease. Gaffkaemia was found to have been introduced into Great Britain with American lobster and outbreaks of the disease are often associated with the storage of live lobster.⁴⁷ According to the Institute of Marine Research, it is unlikely at present that wild European lobster along the Norwegian coast carry the disease.

American lobster may also be carriers of what is known as shell disease. At least four different types of shell disease have been described⁴⁸, and some of these have also been found in European lobster. Of these, Epizootic Shell Disease (ESD) is the most serious and is

⁴² van der Meeren, G.I., Ekeli, K.O., Jørstad, K.E. and Tveite, S. (2000). Americans on the wrong side – The lobster *Homarus americanus* in Norwegian waters. ICES CM 2000

⁴³ Wiik, R., Torsvik, V. and Egidius, E. (1986). Phenotypic and genotypic comparisons among strains of the lobster pathogen *Aerococcus viridans* and other marine *Aerococcus viridans*-like cocci. *International Journal of Systematic Bacteriology* – 36.

⁴⁴ Strohmeier, T., Strand, Ø, Jørstad, Ø.E., Mortensen, S. and Agnalt, A-L. (2002). Potensielle miljøkonsekvenser ved havbeite – kamskjell og hummer. Institute of Marine Research, Department of Aquaculture Research.

⁴⁵ Håstein, T., Roald, S.O., Kjos-Hansen, B. and Staveland, K. 1977. Occurrence of Gaffkemia in lobsters in Norway. *Acta Vet. Scand.* – 18.

⁴⁶ Ibid. :50

⁴⁷ Stebbing PD, MJ Pond, E Peeler, HJ Small, SJ Greenwood & D Verner-Jeffreys. 2012. Limited prevalence of gaffkaemia (*Aerococcus viridans* va. I) isolated from wild-caught European lobsters *Homarus gammarus* in England and Wales. *Dis. Aquat. Org.* 100: 159-167

⁴⁸ Cobb, J.S. and Castro, K.M. (2006). Shell disease in lobsters: a synthesis: Prepared for the New England Lobster Research Initiative.

found in American lobster. ESD is often described as a syndrome where the fundamental cause is unknown.

In 2009 and 2010, the Institute of Marine Research received several American lobsters caught in Norway, which had very apparent lesions on their shells, these lesions being similar to a type of shell disease (Epizootic Shell Disease (ESD)) found on American lobsters in the United States and Canada and not previously observed in Norway.⁴⁹ It is not known whether this shell disease can also spread to European lobster. Bacteria appear to be important in the development of the disease. Shell disease has created major problems in the lobster population in the south of New England, USA, where the disease spread rapidly and caused mortality at the end of the 1990s.⁵⁰ Several of the bacterial species typically found in lesions on American lobster in the United States have also been found in lesions on American lobster caught in Norway.⁵¹

As at 2016, a total of six American lobster bearing the characteristics of Epizootic Shell Disease (ESD) have been found in Norway, a figure that corresponds to approximately 18% of all registered findings of American lobster.

In theory, this would be a sufficient number of infected lobsters and outbreaks of the disease for there to be a risk of an extensive spread of the disease.

2.2.4 Summary

Several risk assessments of American lobster have been performed in recent years, and there is extensive scientific knowledge on ascertained and possible adverse effects of American lobster on European lobster. The Ministry is of the view that this knowledge fulfils the knowledge base requirement provided for in Section 8 of the Nature Diversity Act. The risk assessment performed by the Norwegian Biodiversity Information Centre concludes that the American lobster represents a very high ecological risk, while the risk assessment performed by the Swedish Agency for Marine and Water Management concludes that the species represents a high ecological risk. These are the highest categories in the methods of assessment applied by the Norwegian Biodiversity Information Centre and the Swedish Agency for Marine and Water Management. The most serious potential harmful effects of American lobster are competition with or displacement of native European lobster and other native species, hybridisation with European lobster and the danger of the spread of diseases and parasites. Disease has not had a decisive effect in the categorisation of the American lobster as a very high ecological risk by the Norwegian Biodiversity Information Centre.

As result of a number of environmental pressures, such as heavy fishing pressure and stock management strategies together with possible changes in environmental conditions, stocks of European lobster along the Norwegian coast are substantially lower than in the period leading up to the 1950s. Official catch figures over the last 50 years suggest that the population is at an historically low level. The American lobster represents yet one more risk for the population of European lobster in Norway and therefore serves to increase the cumulative

⁴⁹ Sandlund, N, Karlsbakk, E., Farestveit, E., Einen, A.C.B. and Agnalt, A-L. (2011). Havforskningsnytt – 7.

⁵⁰ Ibid.

⁵¹ Ibid.

effect on the species, cf. the principle concerning cumulative environmental effects in Section 10 of the Nature Diversity Act. Since Norwegian lobster stocks are at an historically low level, the species will probably be especially vulnerable to the impact of an introduced species such as the American lobster, where the new species will have excellent access to vacant territories. With a low population of European lobster even the introduction of a small number of American lobster can have far-reaching negative effects. The significantly lowered population suggests that European lobster in Norway should not, insofar as this is possible, be exposed to further adverse influences.

Despite a long-standing prohibition against the release of live American lobster and the absence of systematic searches for the species, 34 DNA verified American lobster have been found in Norwegian waters. Release may have been deliberate or unintended from one or more stages of the supply chain between importer and consumer. The potential for the dispersal of American lobster and hybrid specimens is considerable and in all likelihood American lobster and hybrid specimens could spread over the entire area in which the European lobster is found and possibly also even further north. The establishment of a breeding population of American lobster or hybrids in Norway has, however, not as yet been observed and this is precisely what the Norwegian authorities are seeking to avoid. As a number of examples have shown, it is very costly, and sometimes not possible, to remove a species once a presence has been established. Preventing alien species from gaining a foothold is therefore a very important measure and preventing the importation, placing on the market and release of alien species is also an obligation under the Convention on Biological Diversity and a specific target under the UN Sustainable Development goals.

The possibility that American lobster and/or hybrids have already established a population in Norwegian waters cannot be ruled out. There might be a number of reasons why no population has as yet been observed, including a lag time before the population is able to increase substantially. Since the establishment of a population is likely and the consequences of the establishment of a population could be far-reaching, the precautionary principle provided for in Section 9 of the Nature Diversity Act indicates that in assessing necessary measures it should be assumed that live American lobster could establish breeding populations in Norway.

2.3. Assessment of various solutions and the Ministry's proposals

The Ministry's assessment of various potential solutions takes as its point of departure the view that a restriction should extend no further than is necessary in order to achieve an appropriate level of protection, account being taken of what is possible in technical and economic terms. That being said, any change that might be introduced must not serve to undermine the level of protection afforded to the European lobster. In this context it should be noted that the level of protection against alien species in Norway, including live American lobster, is high.

The background to the high level of protection against alien species in general is that alien species are regarded both nationally and globally as one of the greatest threats to biological and landscape diversity. If alien species are able to enter, spread and establish a presence in Norway, native species and ecosystems might be harmed as a result of competition for, *inter alia*, food and habitats, hybridisation and the spread of diseases. The detrimental

consequences could be far-reaching. Once an alien species has entered the country, it may be difficult to prevent it from spreading, and if it does spread it may be difficult to prevent it from establishing a population. Once an alien species has established a population it will often be very difficult to remove it, and the ensuing economic costs could be considerable.

As well as the current prohibition against the importation, release and placing on the market of live American lobster, provisions have been enacted governing the fishing of European lobster aimed at reducing pressure on stocks and increasing the catch rate, and a number of marine protected areas and special conservation zones have been created. The population of European lobster in Norway has undergone a substantial reduction compared to the period leading up to the 1950s, and is at an historically low level and therefore especially vulnerable to the impact of an introduced species such as the American lobster. It has been documented that live American lobster escape into Norwegian waters and scientific risk assessments show that this represents a high ecological risk, primarily to the European lobster, because of the danger associated with competition for food, habitats etc., hybridisation with European lobster and the danger of the spread of diseases and parasites to European lobsters. This is the background to Norway's high level of protection against live American lobster.

As noted above, until the Regulations on alien organisms entered into force there was a prohibition against the *release* of organisms, including American lobster, into Norwegian fjord and sea areas. The discovery of 34 proven specimens of American lobster between 2000 and 2017 has shown, however, that the prohibition has not prevented the release and survival of American lobster in Norwegian waters. At present, live American lobster are regulated by means of a prohibition against importation, placing on the market and release, with a limited scope for exemption.

Because of the high ecological risk associated with the escape of live American lobster into the wild in Norway, it is the view of the Ministry that it is not appropriate to amend the prohibition against release.

The prohibition against release has not of itself proved sufficient to prevent live American lobster from escaping into Norwegian waters, cf. Chapter 2.2.2. Placing on the market and imports must also be regulated in order to prevent dispersal into the wild in Norway.

The Ministry will first assess whether the placing on the market of live American lobster should be permitted. In this regard it is important to bear in mind that the risk that live American lobster will be released into Norwegian waters will in all likelihood increase as the number of people with dealings with American lobster rises. For this reason, it is important that the circle of people dealing with live American lobster should be limited and that those who handle live American lobster are professional operators with procedures in place for minimising the risk of human failure.

Likely candidates in this respect might be operators in the wholesale and/or retail links of the supply chain. For example, specialist seafood stores or restaurants with high levels of expertise. The Ministry has considered whether the amendment to the Regulations should take account of the interests of operators of this type by permitting resales to them, but has concluded that this would not be advisable. Even if these operators are in possession of a high degree of professionalism and expertise, resales by the importer would entail that the live

American lobster would have to be moved from one location to another within Norway, without any possibility for, for example, storing the lobster in an escape-proof location at all times. The circle of people dealing with the lobster would also be substantially greater than if imports of live American lobster are restricted to importers, since the operations of a shop and/or a restaurant involve a large number of people. By way of comparison, the company that at present is the only major importer of American lobster brought in approximately 3.1 tonnes of live American lobster a week in 2016 and, as at April 2016, only five persons in this business were involved in handling and producing the various lobster products. Transportation and a larger circle of people would both in all likelihood increase the risk of escape and of human failure resulting in deliberate or accidental release.

Adequately supervising a solution of this nature would also pose a challenge. The supervision of the Regulations governing alien species is to great extent based on random samples and tipoffs from the general public. Adequate supervision would be both resource-intensive, both for the administration and for wholesalers/retailers who would have to shoulder the disadvantages of supervision of this nature. However, even if the supervision were to be increased or, if applicable, combined with the Norwegian Food Safety Authority's supervision of businesses operating in the HoReCa sector (hotel, restaurant and cafe sector) to ensure that they produce, process and sell food and drink that is safe in health terms and in accordance with the hygiene regulations, this would not in our assessment be sufficient to prevent the risk of dispersal from the wholesaler and/or retailer links in the supply chain. The Food Safety Authority's supervision of the hygiene regulations show that breaches of the applicable regulations occur notwithstanding extensive supervisory activity.⁵²

Against this backdrop, the Ministry is of the view that no changes should be made to the prohibition against placing live American lobster on the market in Norway and that the prohibition should remain in place.

In this context, the Ministry mentions that the firm that currently is Norway's largest importer of live American lobster, has informed the Ministry that boiled and "blanched" (lightly boiled) lobster has made up the biggest part of the market (70 % in 2014). Furthermore, they provided information that the market has seen boiled and "blanched" American lobster as a viable alternative to selling live American lobster, and that the selling of live American lobster therefore is unnecessary.

As regards the prohibition against imports, the Ministry, as was described in Chapter 1, has found no grounds for continuing the prohibition against imports of live American lobster, since under certain conditions imports may take place without posing a risk to European lobster.

Because of the high ecological risk associated with the escape of live American lobster into Norwegian waters there are, however, insufficient grounds for going so far as to exempt live American lobster from the requirement that they obtain an import permit. An import permit requirement will enable the authorities to maintain control over imports and the conditions under which imports may be permitted.

⁵² See the overview of inspection results on the Norwegian Food Safety Authority's website: https://www.mattilsynet.no/mat_og_vann/matservering/restaurant_kafe_hotell/#tilsynssaker

In further defining the requirements applicable to permits, account must be taken of the fact that a permit to import pursuant to the Regulations on alien organisms cannot be granted if there are grounds for assuming that importation will entail serious adverse consequences for biological diversity, cf. sections 6 and 15 third paragraph of the Regulations. In the case of live American lobster this will mean that imports will be permitted only if measures are put in place to prevent escape, unintended release and deliberate release of live American lobster into the wild in Norway.

Under the proposal, a precondition for obtaining an import permit will be that the importer is able to document procedures that in a secure manner prevent the escape and deliberate and unintended release of live American lobster into the wild in Norway. In performing this assessment, it will be relevant to consider both the circumstances prevailing at the importer and the substantive procedures that have or can be put in place.

As noted earlier, in our assessment, live American lobster should be handled only by large and professional operators with procedures for minimising the risk of technical and human failure, and that the number of people dealing with live American lobster should be limited. In light of this, clear and extensive requirements will be imposed as to the expertise of the applicants in handling live American lobster and their awareness of the ecological risk it poses to the European lobster.

With regard to these procedures, it is the view of the Ministry that a permit may only be granted if the applicant is able to document procedures to ensure that all live American lobster are boiled or treated in some other way that ensures that the lobster is dead before it leaves the premises of the business. Moreover, the applicant must ensure that no unauthorised third parties have access to the lobster during any temporary storage or shipment, that the number/quantity of live American lobster is registered in such a way that any disappearance of live lobster at any stage will be discovered, that live American lobster are stored in escape-proof facilities after arrival at the premises of the business, that no unauthorised third parties have access to the facility and that the live American lobster are kept in discrete tanks/pools separate from live European lobster and other live species. Procedures should form part of the internal control regulations of the business, with for example flowcharts, process descriptions and hazard analyses. Procedures for the training of personnel will also be of importance.

In view of the high ecological risk associated with live American lobster, the requirements governing imports of live American lobster must be both stricter and more specific than those that generally apply in the case of permits pursuant to Section 6. The Ministry is therefore of the view that the most important requirements for obtaining a permit should be provided for in the Regulations, more specifically in the form of a comment in Appendix 1. However, the list is not exhaustive. There will also be scope for attaching weight to other circumstances of significance with regard to whether “there is reason to believe that the release will have substantial adverse impacts on biological diversity”, cf. sections 6 and 15 of the Regulations. This will depend on a substantive assessment in the individual case.

For enterprises that fulfil these requirements and are granted a permit to import, the main factors should also be specified as conditions in the permit.

There are no restrictions on who may operate as an “importer”. Actors who in other contexts are regarded as wholesalers or retailers may operate as importers of live American lobster.

Even so, the Ministry is of the view that for wholesalers and retailers, fulfilling the requirements discussed above will be onerous. The amendment to the Regulations will accordingly not initially allow direct imports of live American lobster by, for example, restaurants and stores.

When the requirements for the granting of an import permit have been fulfilled, the matter of whether or not a permit should be granted will depend on a discretionary assessment, cf. the “may” stipulation in Section 6 of the Regulations. Given the stringency of the requirements, the scope for discretion will be limited and there will generally be sound grounds for granting a permit if the requirements have been met.

The proposal allows for the granting of permits for multiple imports or for a specified period of time. This will reduce the disadvantages for importers and improve the efficiency of the work of the public administration.

Against this background, the Ministry proposes a new comment on American lobster in Appendix 1 to read as follows:

The prohibition does not apply to the importation of live American lobster. Importation requires a permit pursuant to Section 6. A permit may be granted to an importer able to document procedures for preventing the intentional and unintentional release of live American lobster into the wild in Norway. Conditions concerning such procedures may be imposed pursuant to the permit, including that all live American lobster shall be boiled or processed by some other means to ensure that the lobster is dead before it leaves the premises of the enterprise, that no unauthorised third party shall have access to the lobster during any temporary storage or transportation, that the number/quantity of live American lobster shall be registered such that any disappearance of live lobster can be discovered at any stage, that live American lobster shall be held in escape-proof facilities after arrival at the premises of the enterprise, that no unauthorised third party shall have access to the facility, that live American lobster shall be kept in discrete tanks separate from live European lobster and other live species and that personnel handling live American lobster shall have undergone adequate training. A permit may be granted for multiple imports or for a specified time period.

2.4. Relationship to international obligations

In Chapter 14.2 of NOU 2004:28 (Norwegian Official Report 2004:28) on the Nature Diversity Act, the regulation of alien species was assessed in light of our international commitments, including the Convention on Biological Diversity, the Agreement on the European Economic Area (EEA Agreement) and the World Trade Organization Agreements (WTO Agreements). Similar assessments were performed in connection with the drafting of the Regulations on alien species, which, *inter alia*, laid down the prohibition against the importation, placing on the market and release of live American lobster. The assessments are reproduced in section 8.3 of the consultation letter, which can be found on the website of the Norwegian Environment Agency.

The proposal to amend the prohibition to a permit requirement subject to certain conditions, as discussed above, has also been considered in light of these international commitments.

The high degree of protection provided for in the Nature Diversity Act and the Regulations aimed at preventing the importation, release and dispersal of alien species that have or may have adverse impacts on biological diversity, and that this amendment proposal continues, is consistent with our duty as a party to the Convention on Biological Diversity Article 8 (h) to “prevent” the introduction of, control or eradicate those alien species that threaten ecosystems, habitats or species. Decision VI/23⁵³ of the meeting of the Conference of the Parties lays down guiding principles for handling risks associated with alien species. It determines that in addition to the adoption of a precautionary approach, priority should be given to preventing introduction, since this is generally more cost-effective and environmentally desirable than seeking to control or eradicate invasive alien species after their introduction and establishment. In addition, Aichi Target 9⁵⁴ specifies, *inter alia*, that by 2020 measures shall be in place to manage pathways to prevent the introduction and establishment of invasive alien species.

EU Regulation 1143/2014 on invasive alien species is not incorporated in the EEA Agreement. The regulation of alien species that have or may have adverse impacts on biological or landscape diversity is accordingly not harmonised in the European Economic Area. It follows from Article 13 of the EEA Agreement and the case law of the EFTA Court and the European Court of Justice pursuant to the corresponding Article 36 of the Treaty on the Functioning of the European Union that prohibitions or restrictions on, *inter alia*, imports are permitted if justified on grounds of the protection of, *inter alia*, the life and health of plants or animals and the environment, and proportional in relation to the purpose of protection and do not constitute a means of arbitrary discrimination or a disguised restriction on trade. In accordance with the European Union’s own regulations and the risk assessment of the American lobster performed by the Swedish Agency for Marine and Water Management, the States of the European Union are now considering restrictions in relation to live American lobsters.

Relevant WTO agreements are the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the 1994 General Agreement on Tariffs and Trade (GATT 1994). The SPS Agreement applies to all veterinary and phytosanitary measures that might impact upon trade directly or indirectly. The general rule under the SPS Agreement is that Norwegian authorities may adopt measures to, *inter alia*, protect the health of animals or plants, so long as this is done in a manner that is not more restrictive of trade than is necessary to attain an appropriate level of protection, is based on a scientific risk assessment and in other respects is in accordance with the requirements of the SPS Agreement. As discussed in Chapter 2.2.3 above, several risk assessments have been performed and have concluded that the American lobster represents a serious ecological risk to the European lobster. Measures that are in accordance with relevant provisions of the SPS Agreement shall as a general rule be viewed as in accordance with the provisions of GATT 1994 which relate to SPS measures, in particular the exception provision in GATT Article XX(b) concerning human, animal or plant life or health.

Moreover, GATT Article XX(g) permits prohibitions and restrictions on trade in goods relating to the conservation of exhaustible natural resources if such measures are made

⁵³ <https://www.cbd.int/decision/cop/default.shtml?id=7197>

⁵⁴ <https://www.cbd.int/sp/targets/>

effective in conjunction with restrictions on domestic production or consumption. Such measures must also meet the other conditions in the introductory paragraph of the article. These conditions mean that a measure must not be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade. As noted above, there is broad international agreement on the need to prevent the introduction of, control or eradicate those alien species that threaten ecosystems, habitats or species, cf. the Convention on Biological Diversity.

The free trade agreement between Canada and the European Free Trade Area (EFTA), of which Norway is a member, refers to the WTO agreements and the relevant provisions thereof. This agreement is accordingly not discussed in further detail.

2.5. Consequences of the proposal

The proposal to amend the existing prohibition against the importation of live American lobster to the requirement that a permit must be obtained subject to strict conditions, will in the opinion of the Ministry entail the introduction of a restriction that is no more extensive than is necessary to achieve the sought-after level of protection, account being taken of what is possible in technical and economic terms.

The proposal involves a limited change in the situation of exporters and importers of live American lobster, since under the existing exemption provisions they already have a limited possibility to export and import live American lobster to Norway. Canada has stated that exports of American lobster to Norway have a value of approximately 3.3 million dollars per annum.

As noted above, the Ministry is of the opinion that the proposal will not involve any increase in ecological risk when compared with the current prohibition against imports with scope for exemption. The imposition of strict requirements on importers, and a continuation of the prohibition against the placing of live American lobster on the market, will mean that the proposal will not to any noticeable degree change the situation for operators that fail to fulfil the requirements for the granting of an import permit. However, the Ministry is of the opinion that the proposal will contribute to make the Regulations more orderly and less discretionary for the import of live American lobster.

The Ministry's proposal will involve some additional administrative work for the Norwegian Environment Agency because the Environment Agency will probably receive more applications for import permits than under the current exemption provision. However, by including the strict requirements pertaining to permits in the Regulations, the Ministry is seeking to prevent a situation in which the Environment Agency receives excessive numbers of unqualified applications. The achievement of this will require the Environment Agency to inform potential operators of the change in the regulations and the conditions for obtaining a permit. The scope for granting permits for multiple imports or for a specified time period will reduce the workload of the Environment Agency.

3. Amendment of the exemption provision in Section 31 of the Regulations

3.1. The background to the proposal

Section 31 of the Regulations on alien organisms allows the Norwegian Environment Agency to grant exemptions from the provisions of the Regulations. This will primarily involve exemptions from the prohibition against the importation, release and placing on the market of organisms. The legislative history of the provision establishes that the threshold for granting an exemption is high.

It follows from the provision that “the Norwegian Environment Agency may, if important considerations of the public interest so require, make exemptions from the provisions of these regulations, provided that this does not contrary to the purpose of the regulations”. The purpose of the Regulations is stated in Section 1, being “to prevent the import, release and spread of alien organisms that have or may have adverse impacts on biological or landscape diversity”.

For an exemption to be granted, the condition concerning important considerations of the public interest and the condition that the exemption must not conflict with the purpose of the Regulations must both be fulfilled.

As noted in Chapter 2.1 above, in December 2016 the Ministry granted Norway’s only major importer of live American lobster an exemption from the prohibition in the Regulations against importing live American lobster. The background to the granting of this exemption was that the company had put in place strict mitigatory measures to prevent this activity from leading to the escape of live American lobster into the wild in Norway, including the boiling of all live American lobster to ensure that they are dead before they leave the premises of the company. The Ministry attached weight to the fact that the company is a large and professional operator and accounts for a large part of all imports of live American lobster to Norway, has sound procedures and facilities and, accordingly, is in a position to implement strict risk-mitigating measures such that imports can proceed with a very low ecological risk. With this, the Ministry was of the view that the exemption to import in this instance would not have adverse impacts on biological or landscape diversity and accordingly would not contravene the purpose of the Regulations.

The Ministry found that the condition concerning important considerations of the public interest had also been fulfilled, concluding that in this case imports would involve a very low risk and that it was accordingly neither necessary to refuse an exemption and nor did technical reasons so indicate. Against this background, the Ministry was of the view that it is an important consideration of the public interest that prohibitions should not extend beyond what is necessary and that the exercise by the public administration of its powers should be based on scientificness and objectivity, and that the condition concerning important considerations of the public interest had accordingly been met.

In its decision, the Ministry also gave notice that against the background of its experience in, *inter alia*, this particular case, the Ministry would consider revising the exemption provision in the Regulations in such a way that there would no longer be a requirement concerning “important considerations of the public interest” if the risk of adverse consequences for

biodiversity is very low or absent. The Minister of Climate and Energy also stated in the news item about the final decision of the Ministry that *“it is important to ensure that alien species do not cause harm to the natural environment in Norway. At the same time, it is important that the regulations should be proportionate and that they should not be applied with excessive stringency. I will therefore consider whether certain adjustments should be made to the exemption provision in order to make this clear.”*

The Ministry notes that even though in this consultation letter it is proposing the replacement of the prohibition against imports of live American lobster with a permit scheme governed by strict conditions, it will remain unlawful to import, place on the market and release a number of other species (see Appendix 1 to the Regulations) and the placing on the market and release of live American lobster will continue to be prohibited. Thus, exemption cases may occur in the future, especially in the case of other alien organisms, and the weaknesses in the current exemption provision should therefore, be rectified.

3.2. Assessment of various solutions and the Ministry’s proposal

As has been noted, its experience of the exemption case has led the Ministry to conclude that the current exemption provision should be subject to some amendments in order for it not to be disproportionate and unreasonably strict.

In its further assessments the Ministry will assume that exemption from the provisions of the Regulations will first and foremost be applicable in the case of the prohibition against the importation, placing on the market and release of the species in Appendix I to the Regulations. In the case of imports and releases of most organisms, the permit requirements of the Regulations will apply, and in such cases an application for a permit rather than for an exemption will be required. Moreover, the Ministry assumes that there will be no need for exemptions from the notification requirement in the Regulations in the case of the importation and release of certain individual species, cf. sections 8 and 12, and that it is not likely that exemptions will be granted from the due care provisions of the Regulations, although this can by no means be ruled out.

The Ministry is of the view that it should be sufficient for one of the two conditions to be fulfilled in order for an exemption to be granted, rather than both, as is the case at present. Experience of the exemption case has shown that in those instances in which exemption does not pose a risk to biological or landscape diversity it will not also be necessary, and accordingly nor will it be desirable, for important considerations of the public interest to require that an exemption should be granted. The Ministry believes that in such cases, an exemption should be granted irrespective of whether important considerations of the public interest so require. And where important considerations of the public interest do require an exemption to be made, there should not be the additional requirement that an exemption must not have or potentially have adverse impacts on biological or landscape diversity.

The Ministry also notes that a corresponding solution has been chosen for the exemption provision in Section 48 of the Nature Diversity Act, which applies to exemptions from a protection decision.

In light of the exemption provision in Section 48 of the Nature Diversity Act, experience garnered in the exemption case and the proposal that fulfilment of just one of the two

conditions should be required, the Ministry has concluded that the contents of the conditions in Section 31 should also be amended.

"Important considerations of the public interest"

It follows from Section 31 that “important considerations of the public interest” must be present. The requirement that the considerations must be “of the public interest” means that they must extend beyond those pertaining to individual persons or businesses. The applicant’s own interests, be they personal or commercial and be they of an economic nature or of some other nature, are not regarded as “public interest”. The requirement that the considerations must also be “important” entails that not all considerations of the public interest will be relevant.

The legislative history of the Regulations gives “research activities, protected green space and plantations of important cultural and historical value” as examples of important considerations of the public interest. In the view of the Ministry, these examples indicate that the threshold for regarding the condition as having being fulfilled will not be equally high in every situation, and that there is scope for interpreting the condition somewhat less strictly than the wording of the Regulations viewed in isolation might otherwise suggest. Nevertheless, the legislative history also specifies that the bar for granting an exemption is set high.

In proposing that only one of the conditions in Section 31 must be fulfilled in order for an exemption to be granted, rather than both as at present, the Ministry believes that the threshold for the considerations of the public interest that are to be encompassed by Section 31 should be raised somewhat. The change from cumulative to alternative conditions will mean that exemptions may be granted from, *inter alia*, the prohibition against imports, the placing on the market and release of an alien organism, even if such imports, placings on the market and releases may have serious adverse impacts on biological or landscape diversity. At the same time, it is not desirable to expose biological or landscape diversity to risk of too great an order. Against this background, the Ministry proposes that the wording of the provision should be altered from “important” considerations of the public interest to “significant” considerations of the public interest. The amendment to the wording will represent an increase in the stringency of the condition when compared with the law as it stands at present.

With this, research activities, protected green space and plantations of important cultural and historical value will not unconditionally be regarded as “important considerations of the public interest”. A substantive assessment will need to be performed of whether the condition has been fulfilled.

Local considerations of the public interest will in very few cases be regarded as “significant”. In most cases there will be a requirement that the considerations must as a minimum be regional, but preferably national or international.

Section 48 of the Nature Diversity Act imposes a requirement as to necessity. The necessity criterion will not have been fulfilled if it is possible to safeguard the public interest by some other means. In the opinion of the Ministry, a similar criterion should also be incorporated in Section 31. The necessity criterion mean that where significant considerations of the public interest are present, for example through research activity, an exemption may be granted if

an exemption is necessary for this research activity to take place. For example, this may be the case where the research is carried out on a specific prohibited alien species, which has to be imported. In this case, it is not possible to safeguard the significant consideration of the public interest, the research activity, in any other way than by granting an exemption from the prohibition against the import for the relevant species. The necessity criterion would be thus fulfilled. In the opposite case, an exemption may not be granted even if significant consideration of the public interest is present as provided by the research activity, if the research is not dependent on research on the specific species, but might as well be done on another species with lower ecological risk and which is not prohibited. The significant consideration of the public interest may then be safeguarded in another way and the necessity criterion is not fulfilled.

"Not in conflict with the purpose of the Regulations"

As was noted above, it follows from Section 31 of the Regulations that an exemption cannot be granted if doing so would conflict with the purpose of the Regulations. The primary issue for assessment will therefore be whether the exemption in the individual case has, or may have, adverse impacts on biological or landscape diversity, cf. Section 1. The legislative history does not provide any further description of this condition.

In the opinion of the Ministry, the present wording of the condition should remain in place. Nevertheless, the Ministry recognises that, here too, there may be a need to clarify what the condition involves.

The Ministry is of the view that the threshold for determining that the condition has been met should remain high. The condition should only be considered to have been fulfilled if the risk of adverse impacts on biological or landscape diversity is very low or absent.

Since it will first and foremost be the prohibited species for which exemptions might be granted, the consequences of granting an exemption will in most instances be serious should the alien organism in question escape into the wild in Norway. A key factor in the assessment will therefore be the professionalism of the applicant in question and the quality of the procedures and facilities that the applicant has put in place, both of which will be decisive to the ability of the applicant to implement strict risk-mitigating measures.

Furthermore, the Ministry proposes that the purpose of the Regulations, as defined in Section 1, should be incorporated in Section 31. This to show with greater clarity the issue for assessment, as follows: “[...] *if an exemption in the case in question does not or could not have adverse impacts on biological or landscape diversity, cf. Section 1, or (...).*” The proposal does not involve any substantive change.

"May"

According to Section 31, the Norwegian Environment Agency “may” make exemptions if the conditions have been fulfilled. It follows from the wording “may” that an exemption will not necessarily be made, even if the conditions for doing so have been met. No one has a right to an exemption, and it follows from the legislative history of the provision that if the conditions for exemption have been fulfilled, then the question of whether or not an exemption is to be granted in the individual case will depend on an overall assessment of the matter.

In cases in which “significant considerations of the public interest” provide grounds for an exemption, the purpose of the Regulations should, in the view of the Ministry, form a central

strand in this overall assessment. If in the individual case the exemption poses, or may pose, a risk of extensive adverse impacts on biological or landscape diversity, there will generally be less of a reason to grant an exemption than if the risk of adverse impacts has been reduced, for example because the applicant has put in place risk-mitigating measures. Relevant factors in this assessment will not only be the exemption sought in the individual case, but also the extent to which others applicants might seek exemptions on the same grounds and the extent of the overall adverse impacts that might follow from this.

In those applications in which an exemption in the case in question *does not or could not have adverse impacts on biological or landscape diversity*, there will in the view of the Ministry generally be reasonable grounds for granting an exemption. The scope of the overall assessment of whether an exemption should be granted in such cases will accordingly be limited.

Furthermore, the Ministry is of the view that there may be situations in which an exemption will entail a risk of such extensive adverse impacts for biological or landscape diversity that an exemption should be precluded, even though significant considerations of the public interest are present. In this context, the Ministry refers to Section 15 third paragraph of the Regulations, as well as to Section 29 third paragraph and Section 30 third paragraph of the Nature Diversity Act, which provide that a permit cannot be granted if there is reason to believe that the import or release will have substantial adverse impacts on biological diversity. In the view of the Ministry, the same assessment should apply in the case of exemptions. The Ministry refers in this context to the fact that alien species, both globally and nationally are regarded as one of the greatest threats to biological and landscape diversity and that preventing the import, placing on the market and release of alien species, as well as counteracting those that have nevertheless established themselves in Norway is an obligation under the Convention on Biological Diversity and a specific target under the UN Sustainable Development goals. If harmful alien species are able to enter, establish themselves or spread in Norway, the harmful effects can be extensive. Removing such species once they have established themselves is very difficult and costly. The economic costs to society can be considerable. Against this background, the Ministry proposes that this absolute barrier to the exercise of discretion by the public administration should also be incorporated in the exemption provision in Section 31.

In those cases in which an exemption is granted, the responsible authority will be at liberty to determine whether the exemption should be limited, for example in terms of time and scope. The responsible authority may also, subject to the limitations that follow from the general doctrine on the setting of conditions in Norwegian administrative law, grant exemptions on specified conditions.

Against this background, the Ministry proposes that the new Section 31 should read as follows:

The Norwegian Environment Agency may make exemptions from the provisions of the Regulations *if an exemption in the case in question does not or could not have adverse impacts on biological or landscape diversity, cf. Section 1, or if significant considerations of the public interest so require. Exemptions cannot be made if there are grounds for assuming*

that the import, release or placing on the market will have significant adverse impacts on biological diversity.

3.3. Consequences of the proposal

The proposal entails that where there are important considerations of the public interest, an exemption may be made, even if an exemption has or may have adverse impacts on biological or landscape diversity. This has the effect of extending the scope for granting exemptions. The proposal therefore has beneficial effects for the important considerations of the public interest that justify the exemption, and for the stakeholders with an interest in the considerations in question.

The proposal that a necessity condition should be provided for will both tighten up and limit the scope for granting exemptions on the grounds of “important considerations of the public interest”. It will do so without having consequences for these considerations and the stakeholders in the considerations, since the consideration can be safeguarded by other means if the necessity condition has been fulfilled.

The absence of a requirement that the exemption does not or could not have adverse impacts on biological or landscape diversity if important considerations of the public interest are present may mean that in certain individual cases an exemption could result in some increase in adverse impacts on biological or landscape diversity. At the same time, the Ministry notes that the bar for granting exemptions, and also for regarding an issue as being an “important consideration of the public interest” is high and that, as noted above, the adverse impacts of the measure form part of the overall assessment of whether or not an exemption should be granted. Against this background, the Ministry believes that the potential adverse impacts on biological or landscape diversity that follow from the proposal will be limited.

That there is no requirement that the exemption must safeguard important considerations of the public interest if the exemption does not or could not have adverse impacts on biological or landscape diversity will simplify the processing of cases by the responsible authority, that is to say the Norwegian Environment Agency, or, in the case of appeals, the Ministry of Climate and Environment. The existing condition for granting exemptions poses certain legal/technical challenges, as the experience of the exemption case discussed above made clear. The Ministry is therefore of the opinion that the proposal could have beneficial administrative effects in the form of simplifying and improving the efficiency of case management. The proposal may also save applicants a certain amount of work.

4. Clarification of the issues to be considered in applications for exemptions

The Ministry proposes that the issue to be considered in applications pursuant to the Regulations should be moved from Section 15 third paragraph to new second paragraphs in sections 6 and 10, which provide that permits are required for imports of organisms and the release of alien organisms, respectively.

Section 15 concerns the processing of applications, and according to the first sentence of the third paragraph, when an application is considered, particular importance shall be attached to

whether the organism to which the application applies and any accompanying organisms may entail a risk of adverse impacts on biological diversity. The second sentence of the third paragraph provides that a permit may not be granted if there is reason to believe that the release will have substantial adverse impacts on biological diversity.

The Ministry is of the view that this issue, which plays a central part in assessments of applications for permits to import and release, should be given greater emphasis in the Regulations. The Ministry believes that a natural and more prominent positioning would be in the provision in which the requirement as to a permit for imports and release is laid down. The Ministry therefore proposes that Section 15 third paragraph should be moved to both a new second paragraph in Section 6 and a new second paragraph in Section 10.

This amendment will not involve any substantive changes and the Ministry will accordingly not discuss the proposal for an amendment in any further detail.

Appendix I – proposal for amendment regulation

Proposal for amendments to the Regulations of 19 June 2015 No. 716 relating to alien organisms

(Adopted by Royal Decree of xx.xx.xxxx under Section 29 fourth paragraph of the Act of 19 June 2009 No. 100 Relating to the Management of Biological, Geological and Landscape Diversity (Nature Diversity Act). Submitted by the Ministry of Climate and Environment.)

I

The following amendments are made to the Regulations of 19 June 2015 No. 716 relating to alien organisms:

In Appendix I the following comment is added concerning the species American lobster:

The prohibition does not apply to the importation of live American lobster. Importation requires a permit pursuant to Section 6. A permit may be granted to an importer able to document procedures for preventing the intentional and unintentional release of live American lobster into the wild in Norway. Conditions concerning such procedures may be imposed pursuant to the permit, including that all live American lobster shall be boiled or processed by some other means to ensure that the lobster is dead before it leaves the premises of the enterprise, that no unauthorised third party shall have access to the lobster during any temporary storage or transportation, that the number/quantity of live American lobster shall be registered such that any disappearance of live lobster can be discovered at any stage, that live American lobster shall be held in escape-proof facilities after arrival at the premises of the enterprise, that no unauthorised third party shall have access to the facility, that live American lobster shall be kept in discrete tanks separate from live European lobster and other live species and that personnel handling live American lobster shall have undergone adequate training. A permit may be granted for multiple imports or for a specified time period.

Section 6 new second paragraph shall read as follows:

When an application is considered, particular importance shall be attached to whether the organism to which the application applies and any accompanying organisms may entail a risk of adverse impacts on biological diversity. A permit may not be granted if there is reason to believe that the release will have substantial adverse impacts on biological diversity.

Section 10 new second paragraph shall read as follows:

When an application is considered, particular importance shall be attached to whether the organism to which the application applies and any accompanying organisms may entail a

risk of adverse impacts on biological diversity. A permit may not be granted if there is reason to believe that the release will have substantial adverse impacts on biological diversity.

The current second paragraph of Section 10 becomes the new third paragraph.

Section 15 third paragraph shall be deleted, and the current fourth paragraph becomes the third paragraph, and the current fifth paragraph becomes the fourth paragraph.

Section 31 shall read:

The Norwegian Environment Agency may make exemptions from the provisions of the Regulations if an exemption in the case in question does not or could not have adverse impacts on biological or landscape diversity, cf. Section 1, or if significant considerations of the public interest so require. Exemptions cannot be made if there are grounds for assuming that the import, release or placing on the market will have significant adverse impacts on biological diversity.

II

The Regulations shall enter into force with immediate effect.

Appendix II – List of consultative bodies

Embassy of Canada to Norway, PO Box 4076 AMB, 0244 Oslo
European Cruise Services, Skoltegrunnskaie 1, 5009 BERGEN
Norwegian Seafood Federation, PO Box 5471 Majorstua, 0305 Oslo
Hurtigruten, Fredrik Langes Gate 14. 9291 Tromsø
Laks- & Vildtcentralen AS, Stanseveien 33, 0976 Oslo
Mat og Drikke AS, Stranden 3, Aker Brygge, 0250 OSLO
FoodDrinkNorway, PO Box 5469 Majorstuen, 0305 Oslo
The Norwegian Fisherman's Association, PO Box 12333 Torgard, 7462 Trondheim
Friends of the Earth Norway, PO Box 342 Sentrum, 0101 Oslo
Norske Hotell- og Restaurantforbund, Karl Johans Gate 21 0159 Oslo 1, 159 Oslo
Norwegian Seafood Association, PO Box 639 Sentrum, 7406 Trondheim
Oslo Sjømatgrossisters forening, PO Box 1369 Vika, 0114 OSLO
Ph. Thorstensen AS, Fiskehallen Vippetangen, 0150 Oslo
SABIMA, Pb. 6784 St. Olavs plass, 0130 Oslo
Solsiden restaurant, Akershusstranda 13 Skur 34
WWF Norway, PO Box 6784 St. Olavs plass, 0130 Oslo

Ministry of Finance, PO Box 8008 Dep, 0030OSLO
Ministry of Health and Care Services, PO Box 8011 Dep, 0030 Oslo
Ministry of Justice and Public Security, PO Box 8005 Dep 0030 Oslo
Ministry of Education and Research, PO Box 8119 Dep, 0032 OSLO
Ministry of Agriculture and Food, PO Box 8007 Dep, 0030 OSLO
Ministry of Trade, Industry and Fisheries, PO Box 8090 Dep 0030 OSLO
Ministry of Foreign Affairs, PO Box 8114 Dep, 0032 OSLO
Directorate of Fisheries, PO Box 185 Sentrum, 5804 Bergen
The Norwegian Environment Agency, Postboks 5672 Torgarden, 7485 Trondheim
Norwegian Coastal Administration, PO Box 1502, 6025 Ålesund
Norwegian Agriculture Agency Oslo Division, PO Box 8140 dep, 0033 Oslo
Norwegian Food Safety Authority Head Office, PO Box 383, 2381 Brumunddal
Norwegian Polar Institute, Framsenteret 9296 Tromsø
Norwegian Maritime Authority, PO Box 2222, 5509 Haugesund
The County Governors
The Governor of Svalbard PO Box 633, 9171 Longyearbyen
Directorate of Norwegian Customs, PO Box 8122 Dep. 0032 Oslo
National Criminal Investigation Service Norway, PO Box 8193 Dep. 0034 Oslo

Norwegian Biodiversity Information Centre, 7491 Trondheim
The Institute of Marine Research, PO Box 1870 Nordnes, 5817 Bergen
The Norwegian Institute for Nature Research (NINA), PO Box 5685 Sluppen, 7485 Trondheim
The Norwegian Institute for Water Research (NIVA), Gaustadalleen 21, 0349 Oslo
Norwegian Scientific Committee for Food Safety (VKM), PO Box 4404 Nydalen, 0403 Oslo