

Statutory Order on environmental approval of fast ferry routes^(*1)

Pursuant to section 33(2) and (3), section 48 and section 61 of the Act on the Protection of the Marine Environment No 476 of 30 June 1993, as amended by Act No 435 of 10 June 1997, the following is laid down:

Scope

Section 1. This Executive Order lays down provisions for environmental approval of ferry routes with at least one Danish port of call, which are navigated, or shall be navigated, by fast ferries and the rules for processing approval cases.

Definitions

Section 2. For the purposes of this Executive Order, the following definitions shall apply:

- 1) "Fast ferry": a vessel that fulfils, at all times, the applicable International Code of Safety for High-Speed Craft adopted by the International Maritime Organisation (IMO).
- 2) "Fast ferry route": a route between two or more ports, of which at least one port of call is Danish, and which is navigated by a fast ferry according to a public shipping timetable, irrespective of the number of departures and whether sailing takes place all year round or only during some of the year.
- 3) "Existing fast ferry route": a fast ferry route that is navigated by one or more fast ferries before the entry into force of this Executive Order.
- 4) "New fast ferry route": a fast ferry route where one or more fast ferries have been used for a regular service on or after the entry into force of this Executive Order.
- 5) "Ferry operator": the owner of the vessel, or any organisation or person such as, e.g. the operator or bareboat charterer, who has taken over responsibility for the operation of the vessel from the owner and who, by taking over such a responsibility has agreed to take over all duties and responsibilities prescribed in this Executive Order.

Environmental approval of a new fast ferry route and environmental approval of changes to an existing or approved fast ferry route

Section 3. New fast ferry routes may not be established before approval of each route is granted.

(2) Placing into service of new fast ferries, replacing fast ferries, significantly increasing sailing frequency or making significant changes to routes may not be undertaken on existing fast ferry routes, or fast ferry routes that have been approved according to the rules in this Executive Order before approval of these changes is granted. Replacing a fast ferry with a sister ship does not, however, require approval.

(3) The Danish Environmental Protection Agency (Danish EPA) and the Danish Forest and Nature Agency will make a joint decision as to whether increases in sailing frequency or changes to routes require approval. These decisions may not be appealed to any other administrative authority.

Environmental approval of existing fast ferry routes

Section 4. Existing fast ferry routes shall submit applications for approval pursuant to this Executive Order before 15 October 1998.

Content of application, environmental impact assessment, etc.

Section 5. Applications for approval shall be made in Danish and in writing. Applications should be submitted to the Danish Maritime Authority, which then forwards them to the Danish EPA and the Danish Forest and Nature Agency.

(2) The application shall include all information necessary to process the application, including:

- 1) information on the type of ship, propulsion system, wave generation and wave height;
- 2) route and sailing descriptions, including indication of the expected ground speed and water depth for the different parts of the route;
- 3) information on sailing frequency; and
- 4) information on the fast ferry's noise impact on the noise-sensitive parts of the route in accordance with the annex to this Executive Order.

(3) The information referred to in subsection (2), no 1 on wave generation and wave height shall be given based on the results of experiments with models, full-scale measurements or numerical simulation. The documentation shall be prepared by recognised institutions, including institutions in other EU Member States and countries covered by the EEA Agreement and which give suitable and satisfactory technical, professional and independent guarantees. Documentation may, however, be based on other information which shall represent at least the same degree of accuracy.

(4) If the planned route passes through waters designated as conservation areas according to the EC Bird Protection Directive and the Ramsar Convention or the EC Habitats Directive, or if the planned route passes through areas listed under the Danish Nature Protection Act or assigned as a nature reserve pursuant to the Danish Act on Hunting and Game Management, the application shall be accompanied by a report containing a special assessment of the fast ferry route's effect on nature, the environment, cultural monuments or outdoor activities within the protected area. The report shall be in Danish and shall include an assessment of:

- 1) the short and long-term consequences of sailing in relation to the designated areas and the interests which have led to the areas being designated as protected, including
 - a) the effects on protected species and natural habitats as a consequence of the sailings, including how waves break on the shore;
 - b) effects of any particle mixing as a consequence of the sailings;
 - c) effects on benthic fauna and flora as a consequence of the sailings;
 - d) effects on any cultural monuments on the seabed as a consequence of the sailings; and
 - e) effects on existing or planned outdoor activities as a consequence of the sailings;
- 2) an overview of the most significant alternatives that have been researched;
- 3) a description of prevention methods for avoiding, reducing and, if possible, neutralising any damaging effects on nature, the environment, cultural monuments or outdoor activities;
- 4) a non-technical summary on the basis of the information mentioned above; and
- 5) any omissions in the information and impact assessments.

(5) The Danish Forest and Nature Agency may decide whether further material for assessing effects on the external environment shall be procured and may, pursuant to section 6, decide whether the assessment shall be expanded to also include areas of the route other than the protected areas covered by subsection (4). The Danish Forest and Nature Agency may also demand that the research undertaken on the basis of the assessment referred to in subsection (4) and which accompanies this document is in Danish or contains a summary in Danish.

(6) The Danish EPA and the Danish Forest and Nature Agency may also demand further information to the extent that this is deemed necessary for the processing of the case. The Danish EPA and the Danish Forest and Nature Agency may set a deadline for the submission of further information as well as acknowledge that the application shall be considered as withdrawn if the information is not received within the deadline.

Section 6. Irrespective of whether the planned route passes through the protected areas specified in section 5(4), if any part of the planned ferry route passes through waters on which there is a reasonable assumption that fast ferry sailings would have a significant impact, the Danish Nature and Forest Agency may decide within six weeks of receipt of the application whether the application shall be accompanied by a report corresponding to the one specified in section 5(4) and containing an assessment of the effect of the fast ferry on nature, the environment, cultural monuments and outdoor activities. The Danish Forest and Nature Agency shall take the general scientific value of the waters into account when making this assessment. This includes the type of seabed, the topography of the seabed, hydrography, the natural habitats in the area and its significance as a spawning and reproduction area for fish, habitat for marine mammals and a resting and foraging area for birds. The culturally historic value of the area and the significance for outdoor activities shall also be included. In its decision, the Danish Forest and Nature Agency shall specify in detail which of the points listed in section 5(4) it would like assessed.

(2) The Danish Nature and Forest Agency may decide that further material for the assessment of effects on the external environment shall be procured.

(3) The report shall be in Danish, and the Danish Forest and Nature Agency may demand that the research carried out as the basis for the assessment, and which accompanies the report, is also in Danish, or contains a summary in Danish.

(4) The Danish Forest and Nature Agency may consult the authorities and organisations in the question on whether, and to what extent an application shall be accompanied by the report mentioned in subsection (1).

(5) The Danish Forest and Nature's decisions under subsection (1) may only be appealed in connection with an appeal against the final decision on approval or refusal of approval, cf. section 8.

Consultation

Section 7. In those cases where the assessment referred to in section 5(4) or section 6(1) is carried out, the Danish Forest and Nature Agency sends the application and assessment to the relevant authorities and organisations. Information on the application and assessment, as well as information on where these may be obtained, is published in one or more of the daily newspapers with the broadest coverage of the areas affected by the fast ferry route.

(2) The deadline for submitting comments on the application material is eight weeks from the date of publication of the application material. The comments, which shall be in writing, are sent to the Danish Forest and Nature Agency.

(3) The Danish Forest and Nature Agency may decide that a public meeting will be held as a part of processing the application, under conditions set by the Agency.

Environmental approval content etc.

Section 8. The decision on environmental approval is made jointly by the Danish EPA and the Danish Forest and Nature Agency.

(2) The decision in an approval case shall contain a report and assessment of the information that emerges from the case, as well as the decision itself, indicating the main considerations that led to the decision. If it is discovered that the ferry route can be navigated under certain operating conditions without any significant consequences for the external environment, then approval will be granted with operating conditions for the ferry route, including route, ground speed, noise, sailing frequency, internal inspections, the establishment of monitoring programmes, etc.

(3) For sailings through waters specified in section 5(4), approval may only be granted if it can be ensured that sailings are compatible with the interests that led to the area being designated as protected when the conditions for approval are set.

(4) The approval may be time-limited.

Section 9. The decision is sent to the Danish Maritime Authority, which forwards it to the applicant and to the authorities and organisations entitled to appeal the decision. Publication of information on the case decision is arranged by the Danish EPA in one or more of the daily newspapers with the broadest coverage of the areas affected by the fast ferry route.

Appeals

Section 10. Decisions made under section 8 of this Executive Order may be appealed to the Danish Environmental Appeal Board according to the rules in Part 15 of the Danish Act on the Marine Environment.

Supervision etc.

Section 11. The Danish EPA and the Danish Forest and Nature Agency shall supervise compliance with the provisions of this Executive Order and the conditions for approval issued pursuant to the same.

Section 12. The ferry operator shall provide the Danish EPA and the Danish Forest and Nature Agency with all the information necessary for them to check compliance with the provisions of this Executive Order and the conditions laid down pursuant to the same. The Danish EPA and the Danish Forest and Nature Agency may, to the extent that it is necessary for carrying out supervision, instruct the ferry operator to hand over their assessments as well as financial and technical information.

Section 13. The Danish EPA and the Danish Forest and Nature Agency may at any time amend or revoke an approval notified in accordance with this Executive Order, if the Executive Order, or any conditions pursuant to it are not complied with, if any misrepresentative or misleading information is given in the application for approval or if there is a significant change in circumstances.

Penalties and entry into force

Section 14. Unless a higher penalty is prescribed under other legislation, a fine shall be imposed on anyone who:

- 1) establishes a new fast ferry route without approval pursuant to section 8;
- 2) places into service, or replaces a fast ferry on an existing route, significantly increases sailing frequency or undertakes significant changes to a route without approval pursuant to section 8;
- 3) fails to hand over information that DEPA and the Danish Forest and Nature Agency have requested pursuant to section 12;
- 4) disregards conditions linked to an approval granted pursuant to section 8; or
- 5) fails to comply with decisions made pursuant to section 13.

(2) The penalty may be increased to detention or a prison sentence of up to two years should the infringement be committed intentionally or through gross negligence and if the infringement has:

- 1) caused damage to the environment or resulted in the risk thereof, or
- 2) achieved, or was intended to achieve, financial gain for the person concerned or for others, including as a result of savings made.

Section 15. Criminal liability may be imposed on companies etc. (legal persons) under the rules of Part 5 of the Danish Penal Code.

Section 16. The Danish Ministry of the Environment's Executive Order No 643 of 28 June 1996 on low frequency noise from high speed vessels is repealed for the fast ferry routes that have been granted environmental approval pursuant to this Executive Order.

(2) Executive Order No 643 of 28 June 1996 on low frequency noise from high speed vessels shall be repealed in its entirety from 31 December 1999.

Section 17. This Executive Order shall enter into force on 6 November 1997.

The Danish Ministry of the Environment, 23 October 1997

Svend Auken

/Leo Larsen

Annex 1

Annex to the Executive Order on environmental approval of fast ferry routes

Recommended noise requirements for fast ferries

1. Scope of the Annex

This Annex contains recommended noise limit values that shall be used to set noise limits for fast ferries in specific approval cases for fast ferry routes.

A fast ferry is considered to be sailing a route from the moment that all moorings are released in port.¹

2. General

This Annex has been prepared as a set of guidelines for ferry operators wishing to obtain approval according to the Executive Order on environmental approval of fast ferry routes. The Annex lays down the recommended noise requirements for a fast ferry sailing *a route*. Noise requirements depend on which noise-sensitive areas the fast ferry passes on its route including areas bordering the ports used, and therefore manoeuvred in, by the fast ferry. This Annex also indicates which documentation is required for certain situations.

3. The recommended limit values for noise impact from a fast ferry sailing a route

3.1 Background to the recommended noise limits

Noise from a fast ferry is included as one of the parameters in connection with the environmental approval of fast ferry routes, and the Danish Environmental Protection Agency (Danish EPA) wishes to lay down recommended limit values for this parameter. If no research is carried out to determine local residents' reactions to ferry noise, the recommended noise limits are set on the basis of the current limit values for noise from other types of transport, particularly aircraft, supplemented with examples of the estimated noise impact from a large number of ferry routes.

There are three sets of recommended noise limits for fast ferries:

* Low frequency noise, where the limit values apply to the maximum A-weighted sound pressure level indoors (frequency range 10-160 Hz), averaged over a period of two minutes (LpA, LF)

* The day-evening-night noise level (LDEN) is the equivalent level of the A-weighted noise signal (frequency range 50-10 kHz) from all ferry crossings over a 24-hour period, in that the noise level for the events during the evening (7.00-10.00 pm) is increased by 5 dB and the level for night events (10.00 pm – 7.00 am) is increased by 10 dB.

* The maximum level (LAFmax) is the highest momentary noise level during a ferry crossing.

The day-evening-night level and the maximum level correspond to the noise measurement which is already used to assess aircraft flight noise. The noise measurement for low frequency noise is in accordance with the instructions in Danish EPA Information No 9/1997.

3.2 Recommended noise limits, low frequency noise

The recommended noise limit for low frequency noise is formulated as the A-weighted level of noise within a limited frequency range indoors. The *calculated* noise level is used for both documentation and any inspections, see section 3.4.

¹ Any nuisance from fast ferries in port is treated in accordance with the Danish Environmental Protection Act, with orders issued according to section 42(1) and (2), cf. Danish EPA Guideline No 5/1984: External noise from enterprises and Information No 9 Low frequency noise, infrasound and vibration in the environment. A fast ferry is in port when the ferry is moored to the quayside in the port.

The recommended limit values for the impact of low frequency noise indoors, in a dwelling or in other similar noise-sensitive areas on the route are shown in table 1.

Table 1.

Recommended limits for low frequency noise (dB re 20 m Pa) from fast ferries on routes. Noise limits apply for the maximum indoor level, averaged over a period of two minutes where the noise is loudest.

Use	A-weighted sound pressure level (10-160 Hz), dB	
Living areas, including childcare centres etc.	evening/night (6.00 pm – 7.00 am)	25
	Day (7.00 am – 6.00 pm)	30
Offices, classrooms and other similar noise-sensitive rooms		35
Other rooms in enterprises		40

3.3 Recommended noise limits, general noise

There is no set, single, recommended limit value for use everywhere, but a number of limit values depending on the general use and noise sensitivity of the areas in which noise is produced have been laid down. A fast ferry route shall not only comply with the noise requirements applicable in the ports in which the ferry docks, but also those applicable along the whole route. With this in mind, you should be aware that fast ferries, in many cases, produce more noise at operating speed than while manoeuvring in port. Noise impact could therefore be high across large areas of the sailing route.

Noise requirements for a fast ferry are dependent on the noise sensitivity of the areas which the fast ferry passes when sailing the route. To obtain approval for a fast ferry route, the ferry operator shall therefore obtain a list of the different types of noise-sensitive areas along the route in accordance with table 2.

If such a list is not available from the Danish EPA, the ferry operator must obtain the list from the municipalities that the fast ferry passes when sailing the route, including manoeuvring in port.

The recommended noise requirements – for the total noise impact and the maximum noise level for fast ferries when sailing a route, measured outdoors in the different types of noise sensitive area, are shown in table 2.

Table 2.

Land use:	LDEN	LAFmax
Residential areas and noise-sensitive buildings for public use (schools, hospitals, nursing homes, etc.)	55 dB	70 dB
Scattered developments in open countryside	55 dB	70 dB

Independent businesses (hotels, offices etc.)	60 dB	75 dB
Recreational areas with accommodation (summer houses, allotments, campsites, etc.)	50 dB	65 dB
Other recreational areas without accommodation	55 dB	70 dB

3.4 Documentation of noise impact

Noise impact from a fast ferry route shall be determined by calculation, both in connection with documentation of noise impact in order to apply for environmental approval and for any later inspections. The calculations are based on the ferry's source level measurements during the relevant operating conditions. In most cases the ferry's source level can be used to calculate the low frequency noise and the general noise is determined from the same measurements.

The ferry's source level is measured in accordance with the principles in section 7.3 of Danish EPA Guideline No 5/1993. Low frequency noise is discussed in more detail in Annex 2.

The distance from the ferry route to each noise sensitive area or development is determined and used as the basis for calculating the outdoor noise levels according to the instructions in section 5 of Danish EPA Guideline No 5/1993. The LAFmax can be determined from this. The ferry's sailing schedule shall also be known in order to calculate LDEN, in that both the number of sailings per day and the times for each crossing are significant. The level of low frequency noise is basically calculated in the same way as the LAFmax, although the noise level is adjusted to give the indoor level averaged over a two minute period according to the guidelines in Annex 2.

Measurements and calculations shall be carried out by a laboratory approved by the Danish EPA for "Environmental measurements – external noise" or that is accredited. The laboratory shall be accredited by DANAK or by one of the accreditation bodies recognized by DANAK.

4. Supervision and checks

The Danish EPA may, to the extent that it is necessary to carry out its supervision, pursuant to section 12 of this Executive Order, instruct the ferry operator to take measurements of the noise impact caused by a fast ferry route. These measurements shall be carried out according to the instructions in section 3.4.

In addition, the Danish EPA may make it a condition of environmental approval of individual fast ferry routes that noise level measurements shall be carried out at the ferry operator's expense in the manner described in these guidelines. It may thus be stipulated that noise level measurements must be taken within three months of the fast ferry being placed on the route, and whenever general circumstances dictate, although a maximum of once a year.

It must be specifically stated that there is significant noise pollution if the measured value for low frequency noise exceeds the applicable limit level.

Slightly exceeding the noise requirements for low frequency noise must be seen as more significant than a correspondingly small transgression of the requirements for general noise.

Annex 2

Calculation

1. Source level measurement

The source level measurement for the ferry is measured according to the method specified in section 7.3 of Danish EPA Guideline No 5/1993, on sailing past at reasonably short distances. The method assumes that the noise source emits noise equally in all directions, which is generally the case for ferries with freely placed exhaust ports, but not for catamaran ferries where the exhaust ports are located between the hulls.

The measurements may be taken on a breakwater or a boat anchored close to the sailing route. The microphone is placed 3-5 m above the water in such a way that the recording is not affected by noise reflected from the boat or any other object. The distance from the ferry can be determined by photo-recording or with calibrated radar. The ferry's speed can be determined by measuring the time it takes it to pass two buoys, or could be communicated by the ship's captain.

A narrow-band analysis of the noise is carried out as the ferry sails past.

The analysis is averaged over a suitable time period, where the noise is strongest. The A-weighted contribution is determined for the following frequency bands: 11-22 Hz (16 Hz octave band), 22-45 Hz (31.5 Hz octave band) 45-90 Hz (63 Hz octave band) and 90-180 Hz (125 Hz octave band). The background noise level is also determined for the applicable frequency bands.

For ferries that do not emit noise equally in all directions, taking measurements is more complicated. The noise is recorded in the same way as for the easier method, but the recording shall be long enough that the noise is measured from the front of the ferry (for example, direction 01-40I in relation to the direction of sailing) and the noise from the back of the ferry (for example 140I-180I). The direction and distance from the ferry are determined for the whole crossing. For longer recordings, a number of uninterrupted periods of around one minute each are selected, which represent the relevant direction intervals for analysis. For each measurement period the A-weighted source level is determined for the relevant direction LWA per octave expressed as: $LWA = LA_{eq} - \Delta L_d - \Delta L_g$,

where LA_{eq} is the A-weighted energy equivalent sound pressure level measured over one minute and adjusted for background noise,

$$\Delta L_d = -10 \log 4 \pi R^2$$

R is the average distance from the ferry in metres, for the applicable recording period

ΔL_g is the terrain correction calculated for the distance, R, according to the method specified in section 5.3.7 of Danish EPA Guideline No 5/1993.

2. Calculation of noise-level $L_{pA,LF}$ outdoors

Ferry noise is calculated according to the method specified in section 5 of Danish EPA Guideline No 5/1993.

Sailing routes close to calculation points are divided into partial distances as described in section 7.3 of the Guideline, in which consideration is given to the directivity of the source level. For each partial distance, the contribution is calculated as $L_{pA,LF}$

The calculation is carried out for each 1/1 octave band between 16-125 Hz, in that the same values for noise reduction during distribution are used for 16 Hz and 31.5 Hz as for 63 Hz.

The mean energy value (for each 1/1 octave band) of the noise contributions from a number of partial distances is calculated, so that it covers a total sailing time of two minutes around the period in which the calculation point for the noise contributions was strongest. If there is any doubt, the partial distances which together over two minutes give the highest noise level must be determined in experiments. If necessary, the contributions are adjusted for the difference in the duration of the noise from the individual partial distances.

The calculated noise level outside, in open spaces, is used as a starting point for the subsequent calculation of the noise level indoors.

3. Calculation of noise level LpA,LF indoors

The sound pressure level for low frequency noise indoors is calculated on the basis of the figures in table 3 for the calculated outdoor noise level.

Finally, the A-weighted contributions to the sound pressure level indoors from each of the four octave bands are then summarised.

Table 3. Differences between the sound pressure level outside in open spaces and indoors.

Octave band, Hz	16	31.5	63	125
Adjustment out/in, dB	3	3	12	18

Official notes

(*1) This Executive Order has been notified in accordance with Directive 83/189/EEC as subsequently amended.

This Executive Order provides for the implementation of Council Directive 79/409/EEC of 2 April 1979 as subsequently amended (the EC Bird Protection Directive), Council Directive 92/43/EEC of 21 May 1992 (the EC Habitats Directive) and the Ramsar Convention of 2 February 1971 on wetlands of international importance, especially as waterfowl habitat, cf. the Danish Ministry of Foreign Affairs' Executive Order No 26 of 24 April 1978.