

# IS- OG BESEJLINGSFORHOLDENE I DE DANSKE FARVANDE

I VINTEREN 1995-96

ICE AND NAVIGATIONAL CONDITIONS  
IN DANISH WATERS DURING THE WINTER  
1995-96



UDGIVET AF  
SØVÆRNETS OPERATIVE KOMMANDO  
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## IS- OG BESEJLINGSFORHOLDENE I DE DANSKE FARVANDE I VINTEREN 1995-96

Oplysningerne til denne beretning om is- og besejlingsforholdene i de danske farvande i vinteren 1995-96 er indsamlet og bearbejdet som i tidligere år.

### Almindelig oversigt

Luftens middeltemperatur og antallet af frostdøgn i efterårs- og vintermånederne var for hele landet, ifølge oplysninger modtaget fra Danmarks Meteorologiske Institut, som følger:

#### November

+3°7 mod normalt +4°7 - afv. -1°0  
 ant. døgn med frost 14,2 mod normalt 7,3 (afv. +6,9)

#### December

-2°2 mod normalt +1°6 - afv. -3°8  
 ant. døgn med frost 28,0 mod normalt 15,0 (afv. +13,0)

#### Januar

-1°8 mod normalt 0°0 - afv. -1°8  
 ant. døgn med frost 25,9 mod normalt 19,0 (afv. +6,9)

#### Februar

-2°9 mod normalt 0°0 - afv. -2°9  
 ant. døgn med frost 27,0 mod normalt 19,0 (afv. +8,0)

#### Marts

0°0 mod normalt +2°1 - afv. -2°1  
 ant. døgn med frost 29,4 mod normalt 15,0 (afv. +14,4)

Overfladevandets temperatur var i begyndelsen af december sammenfaldende med normalen (gennemsnitstemperaturen gennem 35 år), men faldt hurtigt til ca. 1,5° under denne.

I begyndelsen af januar steg temperaturen til omkring normalen, for derefter sidst på måneden atter at falde til lidt under frysepunktet.

I februar var temperaturen i hele måneden omkring eller lidt under frysepunktet.

I marts holdt temperaturen sig fortsat ca. 1° under normalen.

De første ismeldinger indløb den 9/12 1995 fra Ringkøbing og Haderslev Fjord. De sidste ismeldinger indløb 9/4 1996 fra Bogense og Fåborg.

Der modtoges i alt ca. 14.000 ismeldinger i denne isperiode.

For første gang siden vinteren 1986/87 var isbryderne i aktion. GOLIATH opererede på Limfjorden vest for Aalborg, og endvidere var isbrydende slæbebåde indchartret for kortere eller længere perioder.

Iskampagnen blev indledt 30/1 1996 og afsluttet 29/3, og i alt 815 skibe blev assisteret i isen.

Første ismelding modtoges fra Sverige 20/11 1995 og fra Finland den 27/11 1995, og sidste ismeldinger modtoges fra både Sverige og Finland den 30/5 1996.

Fra Tyskland meldtes om isforekomster i samme periode som for Danmark.

Således viser:

Tabel 1: Luftens middeltemperatur og afvigelser fra normalen fra seks vidt forskellige steder i landet.

Tabel 2: Vinterens frostdøgn. Middeltallet for vinterens kuldesum er beregnet til -183,2 mod middelvinterens godt -98.

Tabel 3: Grafisk oversigt over middeltal af kuldesummer for vintrene fra 1906-07 til dato.

Tabel 4: Forholdene ved observationssteder, hvorfra isforekomster er rapporteret.

Tabel 5: Sammenligning mellem forskellige vintre.

Tabel 6: Statsisbrydernes virksomhed i de sidste 30 år

Tabel 7: Skematisk oversigt over is- og besejlingsforholdene på strækningen Skagen-Gedser henholdsvis gennem Storebælt og gennem Øresund, endvidere løbene til Fredericia, Kalundborg, og Stignæs samt Limfjorden og Esbjerg i perioden 1929/30 til 1995/96

Tabel 8: Kurver over overfladevandets gennemsnitstemperatur i gennemsejlingsfarvandene, normaltemperaturen samt lufttemperaturen.

## ICE AND NAVIGATIONAL CONDITIONS IN DANISH WATERS DURING THE WINTER 1995-96

Information for this report about ice and navigational conditions in Danish waters during the recent winter has been obtained and prepared in the same manner as in previous years.

### General Survey

According to information from the Danish Meteorological Institute the mean air temperatures and amount of days with frost for the whole country in the winter months of 1995-96 (given in centigrade) were as follows:

#### November

+3.7, normal +4.7 (div. -1.0)

Days with frost 14.2, normal 7.3 (div. +6.9)

#### December

-2.2, normal +1.6 (div. -3.8)

Days with frost 28.0, normal 15.0 (div. +13.0)

#### January

-1.8, normal 0.0 (div. -1.8)

Days with frost 25.9, normal 19.0 (div. +6.9)

#### February

-2.9, normal 0.0 (div. -2.9)

Days with frost 27.0, normal 19.0 (div. +8.0)

#### March

0.0, normal +2.1 (div. -2.1)

Days with frost 29.4, normal 15.0 (div. +14.4)

The sea surface temperature was in December about the normal (mean temperature in a 35 year period) but fell rapidly to approx. 1.5° below normal.

In the beginning of January the sea temperature rose to about the normal, but fell to just below freezing point in the end of the month.

During February, surface temperature was still near or a little below freezing point.

In March, the temperature was approx. 1° below the normal.

The first reports of ice were received 9 December 1995 from Ringkøbing and Haderslev. The last reports were received 9 April 1996 from Bogense and Faaborg.

Alltogether, 14,000 reports of ice were received in this season.

For the first time since 1986/87 the icebreakers were in action. The icebreaking tugboat GOLIATH operated on the Limfjord west of Aalborg and several icebreaking tugs were chartered during the season.

The icecampaign was initiated 30 January 1996 and terminated 29 March and altogether 815 ships were assisted in the ice.

The first ice report was received from Sweden 20 November 1995 and from Finland 27 November 1995, and the last ice report was received from both Sweden and Finland 30 May 1996.

From Germany ice formations were reported in the period as for Denmark.

The tables on the following pages contain detailed information about temperatures and ice conditions at selected ice observation stations as follows:

Table 1: Mean air temperatures and the variations from the normal from 6 widely separated places in the country.

Table 2: Days with frost during the winter. The mean amount of cold has been calculated at -183.2 against the mean amount of a normal winter of about -100.

Table 3: Graphic summary of mean amounts of cold for the winters 1906-07 to date.

Table 4: Conditions at stations from where reports of ice formations have been submitted.

Table 5: A comparison between winters.

Table 6: The activity of the government icebreakers over a period of 30 years.

Table 7: Information in tabular form of ice and navigational conditions from the Skaw to Gedser through the Great Belt and The Sound respectively, and in the approaches to Fredericia, Kalundborg, Stigsnæs and Esbjerg, and through Limfjorden in the period from 1929/30 to 1995/96.

Table 8: Graphic curves showing the average temperature of surface water in main through passages, the normal sea temperature and air temperature.

Tab. 1.

**Luftens middeltemperatur samt afvigelserne fra normalen i vinteren 1995-96**  
*Mean temperature of the air and variations from normal during the winter 1995-96*

| Måned<br>Month    | Middeltemp./afv.<br>Mean temp./var. | Fornæs | Nordby | Skagen | København | Gedser | Hammerodde* |
|-------------------|-------------------------------------|--------|--------|--------|-----------|--------|-------------|
| November . . . .  | Middeltemperatur .                  | 4,4    | 4,8    | 4,5    | 3,4       | 4,2    | 4,9         |
|                   | Afvigelse . . . . .                 | -1,3   | -0,8   | -1,0   | -2,1      | -1,4   | -0,8        |
| December . . . .  | Middeltemperatur .                  | -0,8   | -1,8   | -0,2   | -1,7      | -0,6   | 0,8         |
|                   | Afvigelse . . . . .                 | -3,7   | -4,7   | -3,2   | -4,2      | -3,1   | -2,1        |
| Januar . . . . .  | Middeltemperatur .                  | -0,9   | -1,5   | -1,2   | -1,7      | -1,9   | -0,1        |
|                   | Afvigelse . . . . .                 | -1,4   | -2,1   | -1,6   | -1,7      | -2,1   | -0,6        |
| Februar . . . . . | Middeltemperatur .                  | -2,1   | -2,5   | -2,1   | -2,9      | -3,4   | -1,5        |
|                   | Afvigelse . . . . .                 | -2,1   | -2,7   | -1,9   | -2,7      | -3,1   | -1,5        |
| Marts . . . . .   | Middeltemperatur .                  | 0,3    | 0,6    | 0,7    | -0,3      | -0,5   | 0,0         |
|                   | Afvigelse . . . . .                 | -1,3   | -1,7   | -0,7   | -2,1      | -2,3   | -1,3        |
| April . . . . .   | Middeltemperatur .                  | 5,8    | 6,7    | 5,3    | 6,4       | 4,8    | 5,6         |
|                   | Afvigelse . . . . .                 | 0,1    | 0,2    | 0,1    | 0,4       | -1,0   | 0,5         |

\*) Normaler fra Sandvig.

Tab. 2.

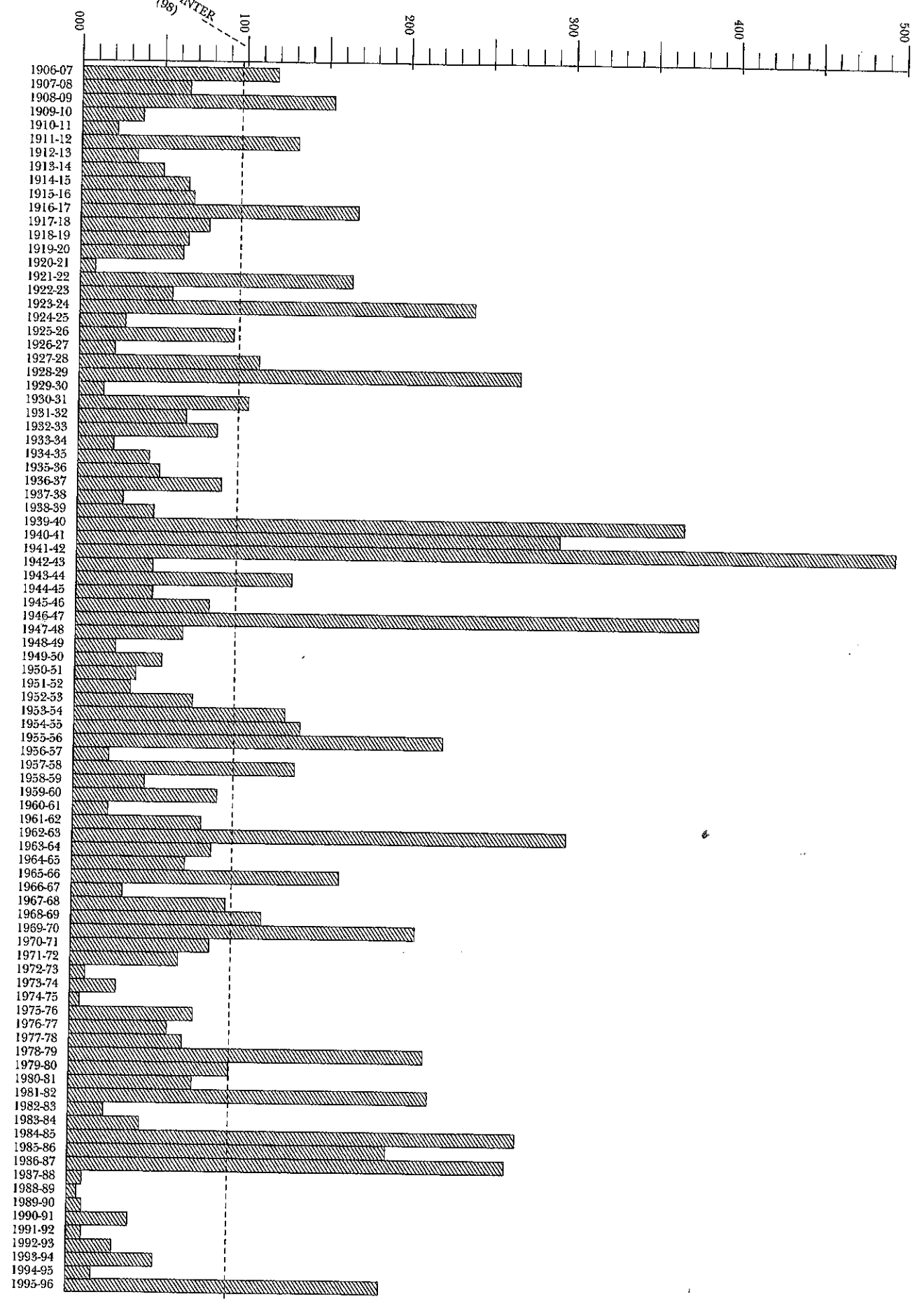
Kuldedøgn i vinteren 1995-96  
Days with frost during the winter 1995-96

| Skagen                            |        |        | Fornæs                            |        |       | Nordby                            |        |       | Gedser Odde                       |        |       | København                         |        |       | Hammer Odde                       |        |       |
|-----------------------------------|--------|--------|-----------------------------------|--------|-------|-----------------------------------|--------|-------|-----------------------------------|--------|-------|-----------------------------------|--------|-------|-----------------------------------|--------|-------|
| a                                 | b      | c      | a                                 | b      | c     | a                                 | b      | c     | a                                 | b      | c     | a                                 | b      | c     | a                                 | b      | c     |
| 17/11                             | 1      | -1,2   | 17/11                             | 1      | -0,2  | 04/11                             | 1      | -0,1  | 17/11                             | 1      | -0,1  | 07/11                             | 1      | -0,5  | 20/12                             | 1      | -0,4  |
| 21/12-06/01                       | 17     | -56,3  | 09/12                             | 1      | -1,2  | 17/11                             | 1      | -0,4  | 30/11                             | 1      | -0,1  | 17/11                             | 1      | -1,6  | 24-31/12                          | 8      | -20,5 |
| 20/01-14/02                       | 26     | -77,7  | 14/12                             | 1      | -0,1  | 02/12                             | 1      | -0,4  | 06-07/12                          | 2      | -3,3  | 04-05/12                          | 2      | -0,4  | 09-04/01                          | 2      | -4,9  |
| 17-22/02                          | 6      | -24,4  | 16/12-05/01                       | 21     | -65,6 | 05/12                             | 1      | -0,4  | 16-17/12                          | 2      | -1,9  | 07/12                             | 1      | -0,2  | 15-16/01                          | 2      | -0,4  |
| 24/02                             | 1      | -1,4   | 15/01-18/01                       | 4      | -1,8  | 07-09/12                          | 3      | -6,4  | 20-22/12                          | 3      | -3,2  | 14/12-06/01                       | 24     | -86,9 | 29-28/01                          | 7      | -16,3 |
| 02/03                             | 1      | -0,1   | 20/01-14/02                       | 26     | -61,3 | 14-17/12                          | 4      | -9,3  | 24/12-07/01                       | 15     | -55,7 | 15-18/01                          | 4      | -3,8  | 31/01-07/02                       | 8      | -20,1 |
| 07-08/03                          | 2      | -2,0   | 17-24/02                          | 8      | -27,0 | 20/12-07/01                       | 19     | -80,1 | 14-18/01                          | 5      | -3,9  | 20/01-12/02                       | 24     | -83,4 | 10-11/02                          | 2      | -9,3  |
| 10/03                             | 1      | -0,3   | 28/02                             | 1      | -0,5  | 16/01-11/02                       | 27     | -86,4 | 20/01-15/02                       | 27     | -97,2 | 14/02                             | 1      | -3,8  | 14-15/02                          | 2      | -1,1  |
| 12/03                             | 1      | -0,5   | 02-03/03                          | 2      | -0,3  | 13-14/02                          | 2      | -3,9  | 18-24/02                          | 7      | -26,3 | 17-25/02                          | 9      | -33,2 | 17-24/02                          | 8      | -18,0 |
| 19/03                             | 1      | -0,2   | 07-08/03                          | 2      | -0,3  | 18-24/02                          | 7      | -23,0 | 27-29/02                          | 3      | -5,4  | 27-29/02                          | 3      | -2,5  | 28-29/02                          | 2      | -2,0  |
|                                   |        |        | 11-14/03                          | 4      | -2,3  | 28/02                             | 1      | -2,8  | 02-21/03                          | 20     | -20,4 | 02-15/03                          | 14     | -17,3 | 02-04/03                          | 3      | -2,7  |
|                                   |        |        | 18-19/03                          | 2      | -0,4  | 03-04/03                          | 2      | -1,6  | 25-26/03                          | 2      | -0,3  | 17-18/03                          | 2      | -0,8  | 06/03                             | 1      | -0,5  |
|                                   |        |        |                                   |        |       | 09/03                             | 1      | -0,6  | 01/04                             | 1      | -0,4  | 25/03                             | 1      | -0,2  | 08/03                             | 1      | -0,3  |
|                                   |        |        |                                   |        |       | 11-14/03                          | 4      | -3,6  |                                   |        |       | 31/03-01/04                       | 2      | -1,0  | 10-14/03                          | 5      | -4,2  |
| Samlet kuldesum<br>Amount of cold | -164,1 |        | Samlet kuldesum<br>Amount of cold | -161,0 |       | Samlet kuldesum<br>Amount of cold | -219,0 |       | Samlet kuldesum<br>Amount of cold | -218,2 |       | Samlet kuldesum<br>Amount of cold | -235,6 |       | Samlet kuldesum<br>Amount of cold | -101,2 |       |
| Middeltal<br>Mean amount          |        | -183,2 |                                   |        |       |                                   |        |       |                                   |        |       |                                   |        |       |                                   |        |       |

NB: a = frostperioder = perioder med daglig middeltemperatur under 0°  
 b = antal dage i perioden  
 c = kuldesum = summen af frostperiodens daglige middeltemperatur under 0°  
 amount of cold = sum of daily mean temperature in the period with frost

Tab. 3.

Grafisk oversigt over middeltal af kuldesummer for vintrene 1906-07 til 1995-96  
Graphic summary of mean amounts of cold for the winters 1906-07 to 1995-96







Forholdene ved observationsstederne i vinteren 1995-96 i henhold til Østersøkode  
Conditions at observation posts during the winter 1995-96, according to the Baltic Sea Ice Code

| Sted<br>Place                      | Antal dage - Number of days |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     |       |       |       | Skibs-<br>fart<br>pav. | K: Besejlingsforhold | Ismedling |
|------------------------------------|-----------------------------|----|----|----|----|----|----|----|----|----|----|----|----|------------------|----|----|----|----|----|----|----|----|-----|-------|-------|-------|------------------------|----------------------|-----------|
|                                    | A: Koncentration            |    |    |    |    |    |    |    |    |    |    |    |    | S: Isykkelse/Art |    |    |    |    |    |    |    |    |     |       |       |       |                        |                      |           |
|                                    | 0                           | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | X  | 0  | 1  | 2                | 3  | 4  | 5  | 6  | 7  | 8  | 9  | X  |     |       |       |       |                        |                      |           |
| Nyborg Havn                        | 17                          | 2  | 9  | 1  | 5  | 3  | 3  | 5  | 2  | 9  | 5  | 11 | 18 | 8                | 2  | 4  | 6  | 3  | 2  | 20 | 28 | 5  | 4   | 8     | 17    | 06/02 | 31/03                  |                      |           |
| Nyborg Bugt                        | 19                          | 2  | 8  | 4  | 5  | 3  | 5  | 2  | 12 | 7  | 9  | 19 | 8  | 5                | 4  | 8  | 3  |    | 21 | 29 | 8  | 4  | 8   | 20    | 30/01 | 31/03 |                        |                      |           |
| Korsør Havn                        | 9                           | 15 | 9  | 2  | 2  | 3  | 1  |    | 13 | 2  | 12 | 5  | 9  | 30               | 1  | 1  |    |    | 9  | 34 | 6  | 1  |     | 7     | 24/01 | 05/03 |                        |                      |           |
| Korsør Havn, adgangen til          | 6                           | 17 | 5  | 1  | 3  |    |    |    | 12 | 2  | 8  | 4  | 6  | 26               |    |    |    |    | 6  | 27 | 4  |    |     | 4     | 28/01 | 29/02 |                        |                      |           |
| Storebælt, overfarten østlige del  | 12                          | 13 | 4  | 3  | 1  | 1  |    |    | 14 | 2  | 7  |    | 11 | 19               | 1  | 1  |    | 1  | 11 | 29 | 3  | 2  |     | 5     | 26/01 | 29/02 |                        |                      |           |
| Storebælt, overfarten vestlige del | 21                          | 7  | 6  | 5  | 12 | 4  | 4  | 1  | 7  | 2  | 8  | 18 | 4  | 21               | 27 | 2  | 1  | 6  | 2  | 21 | 35 | 4  | 9   | 8     | 25    | 29/01 | 29/03                  |                      |           |
| Omø Fyr, farvandet mod vest        | 9                           | 10 | 10 | 12 | 4  |    |    |    | 11 | 14 | 10 |    | 10 | 33               | 3  |    |    |    | 9  | 33 | 10 | 2  |     | 12    | 27/01 | 12/03 |                        |                      |           |
| Spodsbjerg Fyr                     | 2                           | 8  | 12 | 9  | 16 | 18 |    |    | 11 | 11 | 19 | 22 |    | 2                | 18 | 11 | 10 | 2  | 22 |    |    |    |     | 51    | 04/01 | 27/03 |                        |                      |           |
| Albuca, farvandet mod vest         | 17                          | 9  | 13 | 3  | 10 | 4  |    |    | 2  | 4  | 18 | 8  | 11 | 19               | 13 |    | 8  |    | 19 | 18 | 13 |    |     | 29    | 06/01 | 04/03 |                        |                      |           |
| Nakskov Yderfjord                  | 21                          | 4  | 27 | 10 | 11 | 7  |    |    | 13 | 18 | 11 | 21 | 3  | 15               | 28 | 28 | 1  | 8  |    | 15 | 27 | 28 | 21  | 4     | 53    | 02/01 | 22/03                  |                      |           |
| Nakskov Havn                       | 13                          | 8  | 27 | 20 | 10 |    |    |    | 6  | 22 | 22 | 32 |    | 15               | 15 | 16 | 3  | 4  | 12 | 17 |    |    |     | 71    | 15/12 | 08/03 |                        |                      |           |
| Nakskov Inderfjord                 | 4                           | 11 | 21 | 11 |    |    |    |    | 42 | 23 | 19 | 22 | 30 |                  | 26 | 10 | 20 | 9  | 1  | 14 | 15 |    |     | 79    | 15/02 | 29/03 |                        |                      |           |
| Keldsnoer, farvandet mod øst       | 1                           | 7  | 18 | 2  | 15 | 3  | 8  |    | 7  | 12 | 17 | 6  | 4  | 8                | 20 | 19 | 4  | 5  | 6  |    |    |    |     | 49    | 04/01 | 26/03 |                        |                      |           |
| Lillebælt                          |                             |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     |       |       |       |                        |                      |           |
| Æbelø Fyr                          |                             |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     |       |       |       |                        |                      |           |
| Bogensø Havn                       | 21                          |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     |       | 6     | 05/02 | 11/02                  |                      |           |
| Bogensø, farvandet udfor           | 57                          | 4  | 1  | 5  | 5  | 10 | 13 | 1  |    |    |    |    |    | 21               | 5  | 32 |    |    |    |    |    |    |     | 37    | 30/12 | 26/02 |                        |                      |           |
| Vejle Fjord, adgangen til          | 2                           | 9  | 18 | 9  | 20 |    |    |    | 13 |    |    |    |    | 6                | 15 | 1  | 19 | 2  |    |    |    |    |     | 35    | 04/01 | 11/04 |                        |                      |           |
| Vejle Havn/inderfjorden            |                             |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     | 53    | 26/01 | 06/04 |                        |                      |           |
| Fredericia Havn                    |                             |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     | 79    | 29/12 | 16/03 |                        |                      |           |
| Fredericia, bæltet                 |                             |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     | 33    | 29/01 | 01/03 |                        |                      |           |
| Middelfart Havn                    | 1                           | 6  | 5  | 6  | 5  | 1  | 5  | 15 |    |    |    |    |    | 8                | 26 | 6  | 3  |    |    |    |    |    | 33  | 29/01 | 01/03 |       |                        |                      |           |
| Middelfart, bæltet                 | 9                           | 15 | 13 | 4  |    |    |    |    |    |    |    |    |    | 1                | 4  | 4  | 19 |    |    |    |    |    | 5   | 28/01 | 13/03 |       |                        |                      |           |
| Kolding Yderfjord                  | 1                           |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     | 37    | 28/01 | 13/03 |                        |                      |           |
| Kolding Havn og inderfjord         | 13                          | 1  | 4  | 12 | 3  | 48 |    |    |    |    |    |    |    | 3                | 40 | 3  | 1  |    |    |    |    |    | 1   | 29/12 | 29/12 |       |                        |                      |           |
| Haderslev Fjord                    | 1                           | 6  | 8  | 4  | 11 | 6  | 1  | 9  | 69 |    |    |    |    | 8                | 14 | 80 | 35 | 14 | 2  | 10 | 2  |    | 82  | 21/12 | 09/04 |       |                        |                      |           |
| Årøsund                            | 15                          | 11 | 4  | 15 | 15 | 3  | 17 | 4  | 3  | 1  |    |    |    | 30               | 2  | 2  | 5  |    |    |    |    |    | 102 | 08/12 | 03/04 |       |                        |                      |           |
| Assens Havn                        | 5                           | 3  |    |    |    |    |    |    |    |    |    |    |    | 6                | 9  |    |    |    |    |    |    |    | 58  | 01/01 | 29/03 |       |                        |                      |           |
| Assens, bæltet                     | 3                           | 1  | 2  | 1  | 1  | 2  |    |    |    |    |    |    |    | 3                | 3  | 1  |    |    |    |    |    |    | 9   | 01/02 | 07/03 |       |                        |                      |           |
| Fyrrenden                          | 2                           | 3  | 1  | 1  | 7  |    |    |    |    |    |    |    |    | 8                | 3  | 4  | 1  | 7  |    |    |    |    | 7   | 01/02 | 07/03 |       |                        |                      |           |
|                                    |                             |    |    |    |    |    |    |    |    |    |    |    |    |                  |    |    |    |    |    |    |    |    |     | 12    | 01/02 | 07/03 |                        |                      |           |

Tab. 4. (fortsat)

Forholdene ved observationsstederne i vinteren 1995-96 i henhold til Østersøkode  
Conditions at observation posts during the winter 1995-96, according to the Baltic Sea Ice Code

| Sted<br>Place                     | Antal dage - Number of days |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       | Skibs-<br>fart<br>pav. | K: Besejlingsforhold | Ismedling |
|-----------------------------------|-----------------------------|----|----|----|----|----|----|----|---|---|---|---|---|------------------|----|----|----|----|----|----|----|---|--|----|-------|-------|------------------------|----------------------|-----------|
|                                   | A: Koncentration            |    |    |    |    |    |    |    |   |   |   |   |   | S: Isykkelse/Art |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
|                                   | 0                           | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8 | 9 | X | 0 | 1 | 2                | 3  | 4  | 5  | 6  | 7  | 8  | 9  | X |  |    |       |       |                        |                      |           |
| Helnes Fyr                        | 4                           | 13 | 8  | 4  | 16 | 10 |    |    |   |   |   |   |   | 2                | 6  | 7  | 23 | 13 |    |    |    |   |  | 41 | 06/01 | 01/04 |                        |                      |           |
| Åbenrå Havn/Fjord                 |                             |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Skjoldnes Fyr, farvandet mod vest |                             |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Kegnes Fyr, farvandet mod øst     | 4                           | 7  | 22 | 6  | 5  | 13 | 1  |    |   |   |   |   |   | 3                | 2  | 4  | 8  | 10 | 5  | 19 | 4  |   |  |    |       |       |                        |                      |           |
| Kegnes Fyr, farvandet mod syd     | 1                           | 5  | 10 | 4  | 4  | 20 | 18 | 1  |   |   |   |   |   | 3                | 1  | 5  | 5  | 9  | 5  | 12 | 19 |   |  |    |       |       |                        |                      |           |
| Alsund                            | 2                           | 14 | 12 | 14 | 6  | 20 | 3  |    |   |   |   |   |   | 4                | 3  | 86 | 24 |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Sønderborg, farvandet mod syd     | 3                           | 2  | 4  | 4  | 11 | 7  | 35 |    |   |   |   |   |   | 7                | 3  | 17 | 25 |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Egernsund                         | 31                          | 1  |    |    |    |    |    |    |   |   |   |   |   | 48               | 19 |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Egernsund, fjorden mod syd        | 29                          | 3  |    |    |    |    |    |    |   |   |   |   |   | 48               | 19 |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Gråsten                           | 3                           | 8  | 22 |    |    |    |    |    |   |   |   |   |   | 3                | 29 | 53 |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Farvandet syd for Fyn             |                             |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Adgangen til Fåborg Fjord         | 15                          | 85 | 1  | 18 | 1  | 1  | 9  | 8  |   |   |   |   |   | 17               | 23 | 37 | 11 |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Fåborg Havn                       | 8                           | 8  |    |    |    |    |    |    |   |   |   |   |   | 8                | 14 | 47 |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Fåborg Fjord                      | 16                          | 10 | 1  | 35 |    |    |    |    |   |   |   |   |   | 8                | 8  | 14 | 47 |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Skjoldnes Fyr, farvandet mod nord |                             |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Ærøskøbing Havn                   | 6                           | 14 | 7  | 11 | 4  | 6  | 33 |    |   |   |   |   |   | 3                | 4  | 13 | 61 |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Ærøskøbing mod Drejø              | 2                           | 6  | 15 | 18 | 1  |    |    |    |   |   |   |   |   | 4                | 4  | 15 | 19 |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Marstal Havn                      | 10                          | 5  | 6  | 12 | 17 | 15 | 28 |    |   |   |   |   |   | 3                | 11 | 10 | 49 | 26 |    |    |    |   |  |    |       |       |                        |                      |           |
| Marstal, bredningen               | 6                           | 1  | 7  | 13 | 7  | 3  | 9  |    |   |   |   |   |   | 2                | 48 | 7  | 7  | 58 | 26 |    |    |   |  |    |       |       |                        |                      |           |
| Rudkøbing Havn                    | 6                           | 18 | 5  | 4  | 16 |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Rudkøbing, nordløbet              | 2                           | 17 | 2  |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Lohals, farvandet udfor           | 23                          | 8  | 4  | 7  | 22 | 7  | 1  |    |   |   |   |   |   | 13               | 14 | 21 |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Hov Fyr, farvandet udfor          | 4                           | 6  | 7  | 4  | 4  | 5  | 17 | 3  | 1 | 1 | 5 | 8 | 2 | 4                | 1  |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
| Svendborg, østlige adgang         | 7                           | 18 | 12 | 7  | 9  | 5  | 23 | 13 |   |   |   |   |   | 7                | 32 | 4  | 20 | 8  |    |    |    |   |  |    |       |       |                        |                      |           |
| Svendborg Havn                    | 2                           | 25 | 21 | 15 | 22 | 4  | 5  |    |   |   |   |   |   | 11               | 30 | 9  | 27 | 17 |    |    |    |   |  |    |       |       |                        |                      |           |
| Svendborg, vestlige adgang        | 7                           | 18 | 11 | 8  | 2  | 12 | 20 | 16 |   |   |   |   |   | 7                | 32 | 4  | 20 | 8  |    |    |    |   |  |    |       |       |                        |                      |           |
| Lundeberg, farvandet udfor        | 13                          | 4  | 1  | 4  | 11 | 18 | 1  |    |   |   |   |   |   | 2                | 16 | 7  | 15 | 12 |    |    |    |   |  |    |       |       |                        |                      |           |
|                                   |                             |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |
|                                   |                             |    |    |    |    |    |    |    |   |   |   |   |   |                  |    |    |    |    |    |    |    |   |  |    |       |       |                        |                      |           |







Sammenligning mellem de forskellige vintre  
Comparison between the various winters

Tab. 5.

| Gennemsnitlige antal dage med is for:<br>Average number of days with ice in:          | 1906<br>-07 | 1907<br>-08 | 1908<br>-09 | 1909<br>-10 | 1910<br>-11 | 1911<br>-12 | 1912<br>-13 | 1913<br>-14 | 1914<br>-15 | 1915<br>-16 | 1916<br>-17 | 1917<br>-18 | 1918<br>-19 | 1919<br>-20 | 1920<br>-21 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Åbne farvande<br>Open waters  | 6.6         | 0.2         | 18.6        | 0.1         | 0.0         | 17.7        | 0.3         | 0.1         | 0.0         | 0.1         | 21.4        | 1.2         | 0.7         | 0.0         | 0.0         |
| Havne ved åbent farvand<br>Harbours at open waters                                    | 17.4        | 2.9         | 28.4        | 2.2         | 0.5         | 20.4        | 3.2         | 2.1         | 0.5         | 2.7         | 33.5        | 6.1         | 4.4         | 2.7         | 0.0         |
| Tildels lukkede farvande<br>Partly closed waters                                      | 24.2        | 6.7         | 41.0        | 2.1         | 0.2         | 35.1        | 6.2         | 4.6         | 2.7         | 3.7         | 50.7        | 9.1         | 8.5         | 6.9         | 0.1         |
| Havne ved lukkede farvande<br>Harbours in closed waters                               | 52.8        | 25.5        | 69.2        | 14.2        | 9.6         | 49.1        | 18.4        | 15.0        | 16.9        | 18.1        | 71.6        | 34.3        | 28.6        | 24.8        | 1.5         |
| Lukkede farvande<br>Closed waters   | 57.9        | 32.2        | 66.3        | 20.7        | 5.6         | 52.9        | 19.1        | 16.6        | 19.3        | 22.1        | 78.5        | 48.1        | 31.1        | 41.0        | 4.1         |
| Alle stationer<br>All stations  | 30.3        | 10.1        | 38.8        | 5.7         | 2.4         | 31.5        | 7.4         | 6.0         | 6.1         | 7.3         | 44.9        | 15.3        | 11.6        | 11.9        | 0.9         |
| Middeltal af kuldesum for stat. i tab.2<br>Mean amount of cold for stations in tab. 2 | 121.1       | 65.8        | 151.6       | 37.9        | 23.9        | 128.6       | 31.9        | 49.2        | 66.3        | 68.2        | 169.5       | 79.4        | 65.2        | 64.3        | 11.3        |

| 1921<br>-22 | 1922<br>-23 | 1923<br>-24 | 1924<br>-25 | 1925<br>-26 | 1926<br>-27 | 1927<br>-28 | 1928<br>-29 | 1929<br>-30 | 1930<br>-31 | 1931<br>-32 | 1932<br>-33 | 1933<br>-34 | 1934<br>-35 | 1935<br>-36 | 1936<br>-37 | 1937<br>-38 | 1938<br>-39 | 1939<br>-40 | 1940<br>-41 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 30.6        | 2.5         | 40.3        | 0.0         | 0.4         | 0.0         | 7.0         | 48.4        | 0.2         | 1.0         | 0.3         | 1.3         | 0.0         | 0.0         | 0.5         | 8.5         | 0.0         | 0.3         | 56.5        | 47.1        |
| 34.4        | 10.1        | 51.2        | 0.2         | 5.8         | 0.0         | 17.8        | 49.3        | 0.0         | 4.1         | 1.3         | 5.1         | 0.3         | 0.0         | 2.7         | 17.7        | 0.0         | 1.3         | 61.6        | 58.2        |
| 37.5        | 8.2         | 71.3        | 0.0         | 10.7        | 0.3         | 19.9        | 61.2        | 0.7         | 8.3         | 2.1         | 7.6         | 0.7         | 0.8         | 3.0         | 21.2        | 0.7         | 3.2         | 74.7        | 60.5        |
| 52.7        | 20.5        | 97.6        | 1.3         | 36.9        | 6.3         | 47.6        | 79.5        | 7.0         | 27.1        | 12.7        | 21.5        | 6.5         | 7.9         | 15.5        | 33.4        | 7.0         | 14.2        | 84.1        | 74.3        |
| 52.9        | 23.8        | 111.3       | 2.0         | 53.2        | 4.3         | 57.5        | 87.1        | 8.5         | 37.1        | 15.2        | 26.8        | 9.5         | 11.0        | 22.6        | 43.9        | 9.4         | 20.1        | 97.3        | 84.7        |
| 39.4        | 11.0        | 68.0        | 0.5         | 16.9        | 1.7         | 25.4        | 62.3        | 2.9         | 12.9        | 6.3         | 12.2        | 3.4         | 4.0         | 9.6         | 26.4        | 3.8         | 8.6         | 78.5        | 67.3        |
| 165.4       | 57.5        | 238.8       | 27.9        | 94.4        | 21.8        | 110.3       | 266.7       | 16.6        | 101.8       | 67.1        | 84.0        | 23.2        | 44.6        | 49.7        | 86.3        | 28.7        | 47.5        | 368.5       | 290.7       |

| 1941<br>-42 | 1942<br>-43 | 1943<br>-44 | 1944<br>-45 | 1945<br>-46 | 1946<br>-47 | 1947<br>-48 | 1948<br>-49 | 1949<br>-50 | 1950<br>-51 | 1951<br>-52 | 1952<br>-53 | 1953<br>-54 | 1954<br>-55 | 1955<br>-56 | 1956<br>-57 | 1957<br>-58 | 1958<br>-59 | 1959<br>-60 | 1960<br>-61 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 71.1        | 0.0         | 0.0         | 1.0         | 0.3         | 65.0        | 0.6         | 0.0         | 0.2         | 0.0         | 0.1         | 1.9         | 13.6        | 9.0         | 29.6        | 0.1         | 5.5         | 0.2         | 1.8         | 0.0         |
| 72.5        | 3.3         | 0.0         | 2.0         | 2.2         | 70.0        | 0.8         | 0.0         | 2.9         | 1.3         | 0.5         | 4.3         | 25.1        | 13.4        | 29.8        | 0.2         | 9.5         | 0.3         | 5.0         | 1.4         |
| 82.4        | 2.1         | 0.0         | 3.4         | 1.4         | 78.0        | 2.8         | 0.0         | 2.8         | 1.9         | 0.6         | 4.6         | 32.0        | 18.6        | 37.7        | 0.2         | 7.2         | 1.3         | 7.7         | 1.3         |
| 85.7        | 11.9        | 1.3         | 16.7        | 15.3        | 85.6        | 15.1        | 0.5         | 11.7        | 11.0        | 4.7         | 16.3        | 45.5        | 42.3        | 48.0        | 2.2         | 28.8        | 9.2         | 24.1        | 7.4         |
| 93.6        | 14.6        | 1.5         | 20.7        | 17.8        | 97.3        | 20.4        | 1.5         | 15.2        | 16.3        | 6.1         | 21.5        | 32.0        | 51.8        | 56.8        | 3.5         | 44.9        | 12.5        | 36.2        | 11.3        |
| 83.6        | 7.1         | 0.7         | 9.8         | 8.2         | 82.0        | 9.1         | 0.5         | 7.2         | 7.0         | 2.7         | 10.7        | 35.7        | 30.2        | 42.7        | 1.4         | 21.1        | 5.6         | 17.2        | 4.9         |
| 497.5       | 49.4        | 131.1       | 49.5        | 82.5        | 378.0       | 67.0        | (23.8)      | 53.7        | 38.4        | 34.4        | 72.9        | 129.3       | 139.2       | 226.0       | 22.4        | 135.1       | 43.9        | 87.6        | 23.9        |

Sammenligning mellem de forskellige vintre  
Comparison between the various winters

Tab. 5. (fortsat)

| 1961<br>-62 | 1962<br>-63 | 1963<br>-64 | 1964<br>-65 | 1965<br>-66 | 1966<br>-67 | 1967<br>-68 | 1968<br>-69 | 1969<br>-70 | 1970<br>-71 | 1971<br>-72 | 1972<br>-73 | 1973<br>-74 | 1974<br>-75 | 1975<br>-76 | 1976<br>-77 | 1977<br>-78 | 1978<br>-79 | 1979<br>-80 | 1980<br>-81 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 0.0         | 60.0        | 0.0         | 1.8         | 16.9        | 0.0         | 1.0         | 4.8         | 29.4        | 1.6         | 5.8         | 0.0         | 0.0         | 0.0         | 0.8         | 1.4         | 2.1         | 36.5        | 4.4         | 0.7         |
| 0.4         | 63.6        | 1.2         | 3.2         | 24.3        | 0.0         | 2.3         | 13.8        | 42.1        | 4.2         | 12.3        | 0.0         | 0.0         | 0.0         | 0.5         | 2.8         | 3.8         | 49.7        | 6.6         | 0.8         |
| 2.1         | 79.8        | 2.9         | 6.4         | 23.6        | 0.3         | 4.2         | 9.6         | 53.7        | 5.0         | 16.7        | 0.2         | 0.2         | 0.0         | 3.6         | 6.8         | 7.2         | 62.8        | 12.3        | 2.0         |
| 13.6        | 85.7        | 21.0        | 16.1        | 41.9        | 3.6         | 17.7        | 39.1        | 76.3        | 17.3        | 32.0        | 3.0         | 2.0         | 0.8         | 13.8        | 18.9        | 15.6        | 74.6        | 33.0        | 9.5         |
| 21.1        | 98.6        | 27.4        | 21.0        | 53.5        | 5.7         | 23.5        | 53.3        | 95.3        | 22.3        | 38.7        | 3.8         | 3.2         | 1.0         | 17.3        | 26.0        | 18.0        | 83.3        | 42.9        | 10.7        |
| 8.7         | 81.7        | 12.4        | 11.3        | 34.4        | 1.9         | 11.7        | 26.9        | 65.2        | 11.7        | 24.0        | 1.7         | 1.3         | 3.4         | 7.8         | 12.0        | 10.0        | 61.4        | 21.3        | 5.2         |
| 78.9        | 300.3       | 82.9        | 67.9        | 163.0       | 31.5        | 94.1        | 116.2       | 208.4       | 83.9        | 66.6        | 10.6        | 27.8        | 7.2         | 75.0        | 62.4        | 70.3        | 215.2       | 97.7        | 75.6        |

| 1981<br>-82 | 1982<br>-83 | 1983<br>-84 | 1984<br>-85 | 1985<br>-86 | 1986<br>-87 | 1987<br>-88 | 1988<br>-89 | 1989<br>-90 | 1990<br>-91 | 1991<br>-92 | 1992<br>-93 | 1993<br>-94 | 1994<br>-95 | 1995<br>-96 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 26.1        | 0.3         | 0.3         | 47.0        | 31.6        | 49.3        | 0.0         | 0.0         | 0.0         | 0.7         | 0.0         | 0.1         | 1.3         | 0.4         | 33.5        |
| 31.7        | 0.0         | 0.0         | 46.1        | 27.3        | 50.7        | 0.2         | 0.0         | 0.0         | 1.4         | 0.0         | 0.4         | 3.3         | 0.0         | 36.4        |
| 45.5        | 0.7         | 1.0         | 65.6        | 42.3        | 64.7        | 0.0         | 0.0         | 0.0         | 3.3         | 0.3         | 1.1         | 5.4         | 0.5         | 45.0        |
| 67.6        | 5.0         | 7.3         | 71.3        | 52.9        | 72.7        | 0.3         | 0.0         | 0.2         | 12.5        | 2.5         | 5.8         | 13.7        | 2.4         | 71.4        |
| 77.3        | 4.0         | 7.0         | 79.7        | 59.3        | 79.8        | 0.0         | 0.2         | 0.3         | 12.4        | 2.3         | 4.7         | 14.4        | 1.6         | 80.8        |
| 53.5        | 2.3         | 3.5         | 64.8        | 45.4        | 65.6        | 0.1         | 0.0         | 0.1         | 6.8         | 1.2         | 2.8         | 8.4         | 1.1         | 57.3        |
| 218.7       | 23.9        | 48.8        | 273.4       | 193.3       | 266.3       | 11.0        | 8.0         | 10.2        | 37.9        | 12.7        | 32.7        | 51.4        | 16.2        | 183.2       |

Tab. 6.

Statsisbrydernes virksomhed  
Activity of the government icebreakers

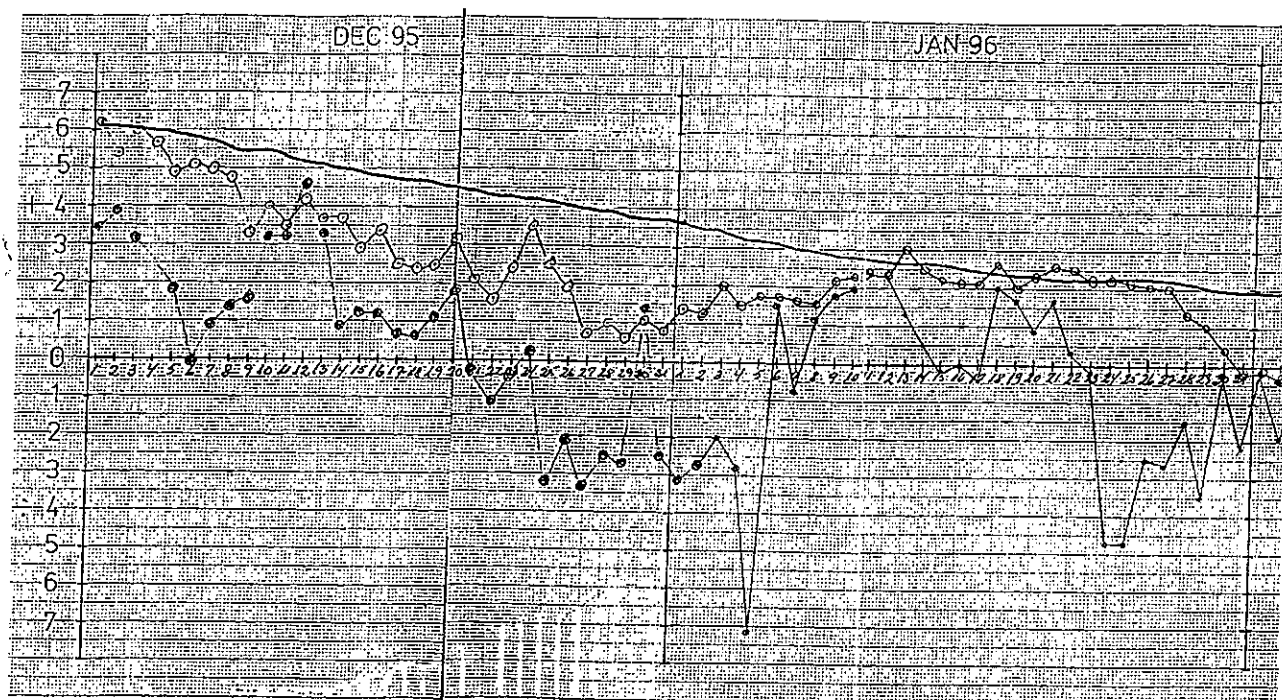
| År<br>Year | Lillebjørn<br>bygget<br>built<br>1926 | Storebjørn<br>bygget<br>built<br>1931 | Elbjørn<br>bygget<br>built<br>1953 | Danbjørn<br>bygget<br>built<br>1965 | Isbjørn<br>bygget<br>built<br>1966 | I alt dage<br>No. of<br>days | Benyttelse af fremmed hjælp<br>Chartered-in vessel                  |
|------------|---------------------------------------|---------------------------------------|------------------------------------|-------------------------------------|------------------------------------|------------------------------|---|
| 1966-67    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            | Goliath 1 dag   |
| 1967-68    | udgået                                | —                                     | 13/1-27/1                          | —                                   | —                                  | 15                           | Goliath 38 og Ymer 43 dage  |
| 1968-69    | —                                     | 1/3-9/3                               | 20/2-11/3                          | —                                   | —                                  | 29                           | Goliath, Ymer og Frigga i alt 122 dage                              |
| 1969-70    | —                                     | 31/1-17/3                             | 26/1-24/3                          | 17/2-21/3                           | 9/2-10/3                           | 167                          | Goliath 115 dage og Ymer 4 dage                                     |
| 1970-71    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1971-72    | —                                     | —                                     | 2/2-17/2                           | —                                   | —                                  | 16                           | Goliath 21 dage   |
| 1972-73    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1973-74    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1974-75    | udgået                                | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1975-76    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1976-77    | —                                     | Thorbjørn<br>bygget<br>built<br>1980  | —                                  | —                                   | —                                  | 0                            |   |
| 1977-78    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1978-79    | —                                     | —                                     | 20/2-3/4                           | 26/1-27/3                           | 4/1-28/3                           | 188                          | Goliath 40 dage   |
| 1979-80    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            | Goliath 18 dage   |
| 1980-81    | —                                     | 2/3-9/3<br>Ångerm. Elv                | —                                  | —                                   | —                                  | 0                            |   |
| 1981-82    | —                                     | 28/12-8/3                             | 22/1-18/2                          | 9/1-7/2                             | 19/1-10/2                          | 152                          | Goliath 49 dage   |
| 1982-83    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1983-84    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            | Goliath 8 dage  |
| 1984-85    | —                                     | 9/1-31/3                              | 13/1-15/3                          | 21/1-6/3                            | 15/1-21/1<br>14/2-23/3             | 231                          | Goliath 58, Svitzer 3 og andre 6 dage                               |
| 1985-86    | —                                     | 15/2-13/3                             | 19/2-18/3                          | —                                   | 21/2-20/3                          | 83                           | Goliath 49, Svitzer 3 og andre 3 dage                               |
| 1986-87    | —                                     | 12/1-29/3                             | 15/1-16/2<br>10/3-2/4              | 13/1-16/2                           | 13/1-26/3                          | 237                          | Goliath 47, Svitzer 7 og andre 16 dage<br>Farvandsvæsenet 5 dage    |
| 1987-88    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1988-89    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1989-90    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1990-91    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            | Goliath 1 dag   |
| 1991-92    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1992-93    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1993-94    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            | Goliath 7 dage  |
| 1994-95    | —                                     | —                                     | —                                  | —                                   | —                                  | 0                            |   |
| 1995-96    | —                                     | 31/1-27/3                             | 9/2-12/2                           | 9/2-1/3                             | 6/2-22/3                           | 129                          | Goliath 93, Rauni som erstatning for<br>Elbjørn 16 og andre 38 dage |

Tab. 7.

Is- og besejlingsforholdene i hovedfarvandene i vintrene 1929/30 til 1995/96  
Ice and navigational conditions in the main waters during the winters 1929/30 to 1995/96

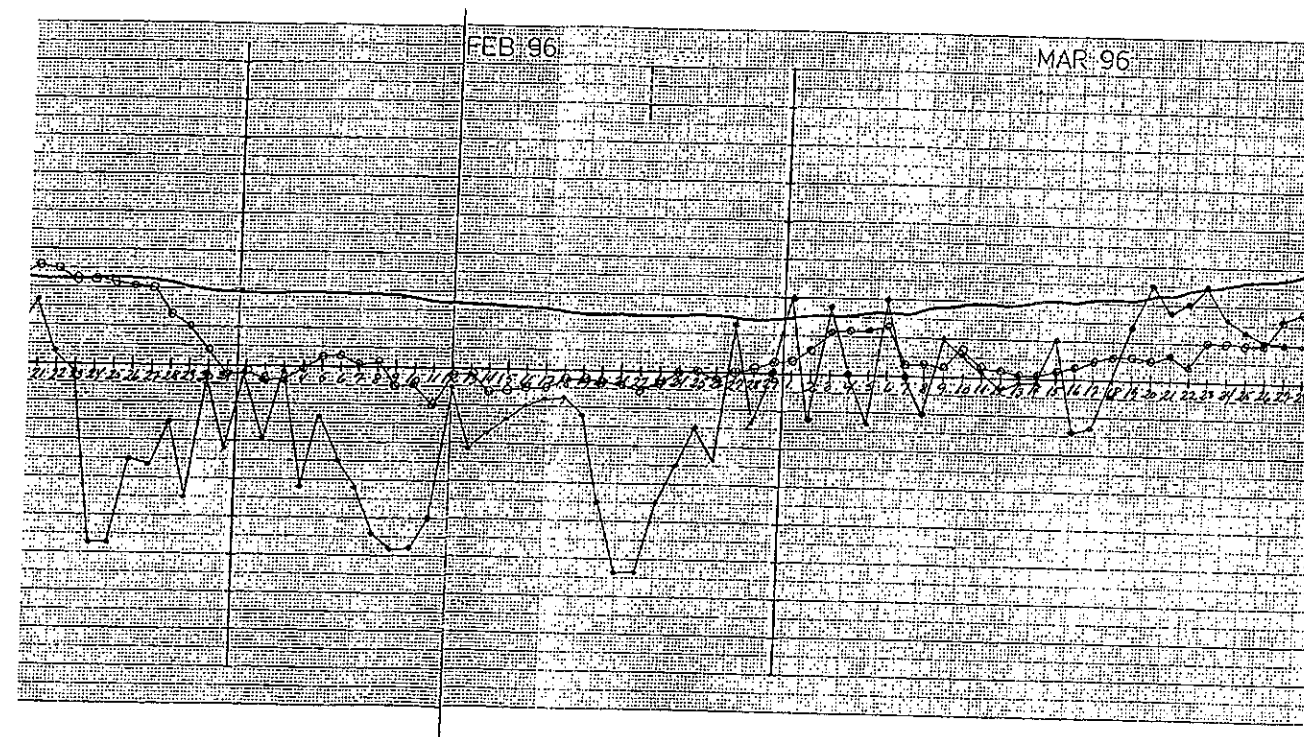
| Fra Skagen til Gedser gennem Øresund eller Storebælt, endvidere løbene til Fredericia, Kalundborg og Stigsnæs samt Limfjorden og Esbjerg.<br><br>From the Skaw to Gedser through The Sound or Great belt, and approaches to Fredericia, Kalundborg and Stigsnæs, furthermore the Limfjorden and Esbjerg. | Antal vintre observeret<br>No. of winters observed | Antal af vintre med is<br>No. of winters with ice | Forholdene under vintre med is<br>Conditions during icewinters                          |   |  | Besejlingsforhold<br>Navigational conditions                                    |   |                                | Sejladis indstillet<br>Navigation closed |  |
|--|--|---|---|---|--|---|---|--------------------------------|--|--|
|  |  |   | Tidligste dato for tilfrysningens begyndelse<br>Earliest date of beginning of formation | Seneste dato for isperiodens slutning<br>Latest date of end of ice period | Højeste antal dage med is<br>Max. No. of days with ice | Højeste antal dage skibsfarten påvirker<br>Max. No. of days navigation affected | Højeste antal dage isbryderhjælp nødvendig<br>Max. No. of days icebreaker assistance required | Antal vintre<br>No. of winters | I alt dage<br>Total No. of days          |  |
| Skagen Fyr, farvandet mod S  | 67   | 25  | 3-1   | 30-3  | 62   | 57  | 13  | 3                              | 69                                       |  |
| Læssø, Østerby, farvandet mod Ø  | 67   | 24  | 29-12   | 4-4   | 72   | 68  | 20  | 4                              | 88                                       |  |
| Anholt Fyr, farvandet mod Ø  | 65   | 23  | 4-1   | 6-4   | 72   | 67  | 31  | 2                              | 12                                       |  |
| Fornæs Fyr, farvandet udfor  | 67   | 21  | 3-1   | 6-4   | 63   | 54  | 4   | 5                              | 104                                      |  |
| Sejrø Fyr, farvandet mod V og SV   | 66   | 17  | 9-1   | 9-4   | 80   | 65  | 27  | 5                              | 81                                       |  |
| Bållens, farvandet udfor   | 56   | 15  | 4-1   | 4-4   | 85   | 76  | 19  | 6                              | 120                                      |  |
| Røsnæs Fyr, farvandet mod V  | 58   | 18  | 8-1   | 13-4  | 81   | 66  | 21  | 4                              | 73                                       |  |
| Romsø Fyr, farvandet mod Ø   | 64   | 17  | 8-1   | 8-4   | 79   | 69  | 18  | 4                              | 106                                      |  |
| Sprogø, Østerrenden  | 67   | 28  | 24-12   | 21-4  | 92   | 77  | 13  | 2                              | 69                                       |  |
| Sprogø, Vesterrenden   | 67   | 23  | 24-12   | 21-4  | 87   | 75  | 13  | 2                              | 82                                       |  |
| Omø Fyr, farvandet mod V   | 67   | 25  | 1-1   | 17-4  | 89   | 80  | 15  | 4                              | 158                                      |  |
| Spødsbjerg, farvandet udfor  | 67   | 23  | 4-1   | 22-4  | 93   | 83  | 13  | 2                              | 84                                       |  |
| Albuen, farvandet mod V  | 67   | 34  | 23-12   | 20-4  | 98   | 77  | 20  | 3                              | 72                                       |  |
| Keldsnor Fyr, Langlandsbælt  | 67   | 20  | 4-1   | 22-4  | 93   | 80  | 22  | 3                              | 86                                       |  |
| Keldsnor Fyr, farvandet mod SØ   | 67   | 18  | 5-1   | 22-4  | 93   | 81  | 27  | 3                              | 78                                       |  |
| Gedser Fyr, farvandet V for revet  | 66   | 32  | 22-12   | 4-5   | 104  | 91  | 15  | 2                              | 44                                       |  |
| Gedser Fyr, farvandet Ø for revet  | 66   | 31  | 22-12   | 5-5   | 105  | 103   | 14  | 2                              | 44                                       |  |
| <i>Til Fredericia:</i>   |  |   |   |   |  |   |   |                                |  |  |
| Vesborg Fyr, farvandet mod S   | 66   | 17  | 6-1   | 6-4   | 75   | 63  | 14  | 2                              | 25                                       |  |
| Æbelø Fyr, farvandet   | 67   | 16  | 2-1   | 10-4  | 79   | 77  | 26  | 4                              | 202                                      |  |
| Fredericia, Bæltet udfor   | 66   | 18  | 2-1   | 8-4   | 68   | 54  | 10  | 4                              | 98                                       |  |
| <i>Til Kalundborg:</i>   |  |   |   |   |  |   |   |                                |  |  |
| Kalundborg Yderfjord   | 66   | 20  | 5-1   | 12-4  | 81   | 66  | 3   | 4                              | 72                                       |  |
| Kalundborg Inderfjord  | 67   | 20  | 5-1   | 12-4  | 87   | 69  | 20  | 3                              | 59                                       |  |
| <i>Til Stigsnæs:</i>   |  |   |   |   |  |   |   |                                |  |  |
| Aggersøund   | 61   | 39  | 16-12   | 17-4  | 95   | 83  | 32  | 5                              | 220                                      |  |
| <i>Øresund:</i>  |  |   |   |   |  |   |   |                                |  |  |
| Nakkehoved Fyr, farvandet udfor  | 66   | 23  | 4-1   | 29-4  | 76   | 60  | 38  | 1                              | 2  |  |
| Helsingør, farvandet udfor   | 67   | 31  | 4-1   | 3-5   | 94   | 84  | 15  | 3                              | 43                                       |  |
| København, Sundet udfor  | 66   | 31  | 27-12   | 4-5   | 100  | 79  | 66  | 0                              | 0  |  |
| Kastrup, farvandet udfor   | 56   | 30  | 24-12   | 4-5   | 112  | 110   | 30  | 4                              | 145                                      |  |
| Drogden Fyr, Drogden   | 66   | 30  | 22-11   | 2-5   | 114  | 96  | 42  | 3                              | 87                                       |  |
| Drogden Fyr, Køge Bugt N-del   | 67   | 33  | 27-12   | 5-5   | 105  | 100   | 14  | 2                              | 60                                       |  |
| Flinterenden   | 67   | 29  | 2-1   | 4-5   | 97   | 89  | 20  | 2                              | 39                                       |  |
| Stevns Fyr, farvandet udfor  | 67   | 27  | 2-1   | 5-5   | 105  | 103   | 54  | 2                              | 46                                       |  |
| <i>Limfjorden:</i>   |  |   |   |   |  |   |   |                                |  |  |
| Hals Barre, farvandet  | 66   | 33  | 27-12   | 6-4   | 68   | 57  | 31  | 7                              | 161                                      |  |
| Hals, indløb over barren   | 67   | 40  | 1-12  | 13-4  | 90   | 84  | 33  | 6                              | 178                                      |  |
| Aalborg-Hals   | 67   | 49  | 30-11   | 15-4  | 100  | 95  | 42  | 5                              | 166                                      |  |
| Aalborg, fjorden ud for byen   | 67   | 53  | 30-11   | 15-4  | 84   | 82  | 17  | 5                              | 153                                      |  |
| Aalborg, fjorden mod V   | 66   | 53  | 30-11   | 15-4  | 103  | 103   | 69  | 8                              | 342                                      |  |
| Draget   | 33   | 24  | 28-11   | 8-4   | 106  | 104   | 56  | 4                              | 63                                       |  |
| Aggersund  | 66   | 61  | 22-11   | 23-4  | 134  | 95  | 62  | 11                             | 421                                      |  |
| Løgstør, farvandet mod Ø   | 67   | 55  | 17-11   | 12-4  | 109  | 103   | 73  | 8                              | 329                                      |  |
| Løgstør, farvandet mod V   | 67   | 55  | 12-12   | 22-4  | 112  | 102   | 66  | 7                              | 343                                      |  |
| Løgstør Bredning   | 65   | 47  | 11-12   | 20-4  | 118  | 117   | 109   | 6                              | 332                                      |  |
| Livø Bredning  | 65   | 46  | 11-12   | 18-4  | 116  | 113   | 105   | 6                              | 329                                      |  |
| Skive, Havnen  | 67   | 60  | 4-11  | 14-4  | 106  | 103   | 83  | 8                              | 391                                      |  |
| Skive, fjorden til Lundøhage   | 67   | 60  | 4-11  | 15-4  | 139  | 125   | 97  | 8                              | 393                                      |  |
| Feggesund  | 67   | 50  | 10-12   | 20-4  | 122  | 122   | 109   | 5                              | 267                                      |  |
| Thisted Bredning   | 67   | 44  | 10-12   | 19-4  | 114  | 112   | 72  | 8                              | 388                                      |  |
| Thisted, havnen  | 67   | 49  | 10-12   | 14-4  | 96   | 91  | 23  | 8                              | 340                                      |  |
| Nyløbing Mors, havnen  | 67   | 56  | 22-11   | 14-4  | 101  | 90  | 74  | 6                              | 219                                      |  |
| Sallingsund  | 67   | 46  | 11-12   | 16-4  | 100  | 89  | 68  | 7                              | 281                                      |  |
| Struer, Venø Sund  | 67   | 43  | 1-12  | 13-4  | 102  | 102   | 88  | 7                              | 260                                      |  |
| Struer, havnen   | 67   | 55  | 30-11   | 9-4   | 113  | 111   | 93  | 7                              | 265                                      |  |
| Oddesund   | 67   | 42  | 11-12   | 15-4  | 107  | 102   | 60  | 4                              | 156                                      |  |
| Nissum Bredning  | 67   | 31  | 22-12   | 12-4  | 96   | 86  | 43  | 4                              | 262                                      |  |
| Lemvig Havn og Lem Vig   | 67   | 52  | 28-11   | 8-4   | 106  | 104   | 69  | 6                              | 280                                      |  |
| Thyborøn, Sælhundeholmløb  | 43   | 18  | 22-12   | 29-3  | 72   | 30  | 22  | 0                              | 0  |  |
| Thyborøn, havnen   | 43   | 17  | 17-12   | 26-3  | 70   | 17  | 0   | 0                              | 0  |  |
| Thyborøn, kanalen  | 67   | 23  | 21-12   | 12-4  | 56   | 29  | 3   | 1                              | 2  |  |
| Esbjerg, havnen  | 67   | 41  | 16-12   | 4-4   | 84   | 35  | 0   | 0                              | 0  |  |

Overfladevandets gennemsnitstemperatur i gennemsejlingsfarvandene  
Average temperature of surface water in main through passages



- Overfladevandets gennemsnitstemperatur gennem 35 år  
Average temperature of sea surface water through 35 years
- ○ — Overfladevandets gennemsnitstemperatur målt forskellige steder i danske gennemsejlingsfarvande  
Average temperature of sea surface water measured at different places in Danish main waters
- ● — Luftens temperatur målt kl. 08 ved Drogden Fyr  
Air temperature measured at 8 am at Drogden Lighthouse

Overfladevandets gennemsnitstemperatur i gennemsejlingsfarvandene  
Average temperature of surface water in main through passages



## ØSTERSØKODEN

(ASTK)

## Første tal i koden:

|    |  |
|----|--|
| A: | Koncentration af is  |
| 0  | Isfrit   |
| 1  | Åbent vand - mindre end 1/10   |
| 2  | Spredt drivis - 1/10 til mindre end 4/10                                       |
| 3  | Åben drivis - 4/10 til 6/10  |
| 4  | Tæt drivis - 7/10 til 8/10   |
| 5  | Meget tæt drivis - 9/10 til 9*/10*   |
| 6  | Kompakt drivis, inklusive sammenfrosset drivis - koncentrationen 10/10         |
| 7  | Fastis med drivis udenfor  |
| 8  | Fastis   |
| 9  | Åben rende i meget tæt eller kompakt drivis eller rende langs den faste iskant |
| X  | Ukendt   |

\*) 9\*/10 betyder 10/10 iskoncentration med åbninger

## Tredie tal i koden:

|    |   |
|----|---|
| T: | Isens udscende, flagestørrelse eller topografi                        |
| 0  | Tallerkenis, isskosse, isskive, kvadderis - mindre end 20 m i tværmål |
| 1  | Isflager 20 til 100 m i tværmål - små isflager                        |
| 2  | Isflager 100 til 500 m i tværmål - mellemstore isflager               |
| 3  | Isflager 500 til 2000 m i tværmål - store isflager                    |
| 4  | Kæmpe isflager - mere end 2000 m i tværmål - eller jævn is            |
| 5  | Overlappende is (pakis)   |
| 6  | Kompakt sneisjap eller isklumper, eller kompakt kvadderis             |
| 7  | Skrueis eller skrueisvolde  |
| 8  | Smeltevandshuller (våger) eller mange smeltevandspytter på overfladen |
| 9  | Rådden is   |
| X  | Ukendt  |

## Andet tal i koden:

|    |   |
|----|---|
| S: | Istykkelse og art   |
| 0  | Is mindre end 5 cm tyk - nylis eller mørk tyndis                  |
| 1  | Is 5 til 10 cm tyk - lys tyndis eller isskorpe                    |
| 2  | Is 10 til 15 cm tyk   |
| 3  | Is 15 til 30 cm tyk   |
| 4  | Is 30 til 50 cm tyk   |
| 5  | Is 50 til 70 cm tyk   |
| 6  | Is 70 til 120 cm tyk  |
| 7  | Is overvejende tyndere end 15 cm med forekomst af tykkere is      |
| 8  | Is overvejende 15-30 cm tyk med forekomst af is tykkere end 30 cm |
| 9  | Is overvejende tykkere end 30 cm med forekomst af tyndere is      |
| X  | Ukendt  |

## Fjerde tal i koden:

|    |   |
|----|---|
| K: | Besejlingsforhold   |
| 0  | Skibsfart uhindret  |
| 1  | Sejladsvanskelig eller farlig for træskibe uden isforhudning  |
| 2  | Sejladsvanskelig for stålskibe, der er svagt bygget eller har ringe maskinkraft. Sejladsvanskelig selv med isforhudning ikke tilrådelig |
| 3  | Sejladsvanskelig uden isbryderhjælp er kun mulig for stærkt byggede skibe egnede for sejladsvanskeligt is og med god maskinkraft        |
| 4  | Sejladsvanskelig foregår i rende uden isbryderhjælp   |
| 5  | Isbryderhjælp gives kun til skibe egnede for sejladsvanskeligt is og af speciel størrelse   |
| 6  | Isbryderhjælp gives kun til skibe af særlig isklasse og speciel størrelse *)  |
| 7  | Isbryderhjælp gives kun til skibe efter særlig aftale   |
| 8  | Sejladsvanskeligt indstillet indtil videre  |
| 9  | Sejladsvanskeligt ophørt  |
| X  | Ukendt  |

\*) Særlig isklasse er i Østersøområdet defineret som den gældende svensk - finske isklasse

## THE BALTIC SEA ICE CODE

(ASTK)

## First digit:

|    |   |
|----|---|
| A: | Amount and arrangement of sea ice   |
| 0  | Ice free  |
| 1  | Open water - concentration less than 1/10                                 |
| 2  | Very open drift ice - concentration 1/10 to less than 4/10                |
| 3  | Open drift ice - concentration 4/10 to 6/10                               |
| 4  | Close drift ice - concentration 7/10 to 8/10                              |
| 5  | Very close drift ice - concentration 9/10 to 9*/10*                       |
| 6  | Compact drift ice, including consolidated drift ice - concentration 10/10 |
| 7  | Fast ice with drift ice outside   |
| 8  | Fast ice  |
| 9  | Lead in very close or compact drift ice or along the fast ice edge        |
| X  | Unable to report  |

\*) 9\*/10 means 10/10 ice concentration with openings

## Third digit:

|    |  |
|----|--|
| T: | Topography or form of ice  |
| 0  | Pancake ice, ice cakes, brash ice - less than 20 m across        |
| 1  | Small ice floes - 20-100 m across                                |
| 2  | Medium ice floes - 100-500 m across                              |
| 3  | Big ice floes - 500-2000 m across                                |
| 4  | Vast or giant ice floes - more than 2000 m across - or level ice |
| 5  | Rafted ice   |
| 6  | Compacted slush or shuga, or compacted brash ice                 |
| 7  | Hummocked or ridged ice  |
| 8  | Thaw holes or many puddles on the ice                            |
| 9  | Rotten ice   |
| X  | No information or unable to report                               |

## Second digit:

|    |   |
|----|---|
| S: | Stage of ice development  |
| 0  | New ice or dark nilas (less than 5 cm thick)                      |
| 1  | Light nilas (5-10 cm thick) or ice rind                           |
| 2  | 10-15 cm thick ice  |
| 3  | 15-30 cm thick ice  |
| 4  | 30-50 cm thick ice  |
| 5  | 50-70 cm thick ice  |
| 6  | 70-120 cm thick ice   |
| 7  | Ice predominantly thinner than 15 cm with some thicker ice        |
| 8  | Ice predominantly 15-30 cm thick with some ice thicker than 30 cm |
| 9  | Ice predominantly thicker than 30 cm with some thinner ice        |
| X  | No information or unable to report                                |

## Fourth digit:

|    |   |
|----|---|
| K: | Navigation conditions in ice  |
| 0  | Navigation unobstructed   |
| 1  | Navigation difficult or dangerous for wooden vessels without ice sheating   |
| 2  | Navigation difficult for unstrengthened or low-powered vessels built of iron or steel. Navigation for wooden vessels even with ice sheating not advisable |
| 3  | Navigation without icebreaker assistance possible only for high-powered vessels of strong construction and suitable for navigation in ice                 |
| 4  | Navigation proceeds in lead or broken ice-channel without the assistance of an icebreaker   |
| 5  | Icebreaker assistance can only be given to vessels suitable for navigation in ice and of special size   |
| 6  | Icebreaker assistance can only be given to vessels of special ice class and special size*)  |
| 7  | Icebreaker assistance can only be given to vessels after special permission   |
| 8  | Navigation temporarily closed   |
| 9  | Navigation has ceased   |
| X  | Unknown   |

\*) Swedish-Finnish ice class