

## ICE GLOSSARY

## Contents

## 6.26

This glossary defines descriptive terms in general use for the various kinds of ice likely to be encountered by the Mariner. It includes terms given in *WMO Sea-Ice Nomenclature* published by the World Meteorological Organization in 1970 (with its subsequent amendments).

## Glossary

## 6.27

**ablation.** All processes by which snow, ice or water in any form are lost from a glacier, floating ice or snow cover. These include melting, evaporation, calving, wind erosion and avalanches. Also used to express the quantities lost by these processes.

**accumulation.** All processes by which snow, ice or water in any form are added to a glacier, floating ice or snow cover. These include direct precipitation of snow, ice or rain, condensation of ice from vapour, and transport of snow and ice to a glacier. Also used to express the quantities added by these processes.

**aged ridge.** A ridge which has undergone considerable weathering. These ridges are best described as undulations.

**anchor ice.** Submerged ice attached or anchored to the bottom, irrespective of the nature of its formation.

**area of weakness.** A satellite-observed area in which either ice concentration or ice thickness is significantly less than that in the surrounding areas. Because the condition is satellite observed, a precise quantitative analysis is not always possible, but navigation conditions are significantly easier than in surrounding areas.

**bare ice.** Ice without snow cover.

**belt.** A large feature of drift ice arrangement; longer than it is wide; from 1 km to more than 100 km in width.

**bergy bit.** A large piece of floating glacier ice, generally showing less than 5 m above sea level but more than 1 m and normally about 100–300 sq m in areas (Photographs 1, 17, 19, and 21).

**bergy water.** An area of freely navigable water in which ice of land origin is present in concentrations less than 1/10. There may be sea ice present, although the total concentration of all ice shall not exceed 1/10.

**beset.** Situation of a vessel surrounded by ice and unable to move.

**big floe.** A floe 500–2000 m across.

**bight.** An extensive crescent-shaped indentation in the ice edge, formed by either wind or current.

**brash ice.** Accumulations of floating ice made up of fragments not more than 2 m across; the wreckage of other forms of ice. (Photograph 2).

**bummock.** From the point of view of the submariner, a downward projection from the underside of the ice canopy; the counterpart of a hummock.

**calving.** The breaking away of a mass of ice from an ice wall, ice front or iceberg.

**close ice.** Floating ice in which the concentration is 7/10 to 8/10, composed of floes mostly in contact. (Photograph 10)

**compacted ice edge.** Close, clear-cut ice edge compacted by wind or current usually on the windward side of an area of drift ice.

**compacting.** Pieces of floating ice are said to be compacting when they are subjected to a converging motion, which increases ice concentration and/or produces stresses which may result in ice deformation.

**compact ice.** Floating ice in which the concentration is 10/10 and no water is visible.

**concentration.** The ratio in tenths describing the amount of the sea surface covered by ice as a fraction of the whole area being considered. Total concentration includes all stages of development that are present, partial concentration may refer to the amount of a particular stage or of a particular form of ice and represents only a part of the total.

**concentration boundary.** A line approximating to the transition between two areas of drift ice with distinctly different concentrations.

**consolidated ice.** Floating ice in which the concentration is 10/10 and the floes are frozen together. (Photograph 12)

**consolidated ridge.** A ridge in which the base has frozen together.

**crack.** Any fracture of fast ice, consolidated ice or a single floe which may have been followed by separation ranging from a few centimetres to 1 m.

**dark nilas.** Nilas which is under 5 centimetres in thickness and is very dark in colour.

**deformed ice.** A general term for ice which has been squeezed together and in places forced upwards (and downwards). Sub-divisions are rafted ice, ridged ice and hummocked ice.

**difficult area.** A general qualitative expression to indicate, in a relative manner, that the severity of ice conditions prevailing in an area is such that navigation in it is difficult.

**diffused ice edge.** Poorly defined ice edge limiting an area of dispersed ice; usually on the leeward side of an area of drift ice.

**diverging.** Ice fields or floes in an area are subjected to diverging or dispersive motion, thus reducing ice concentration and/or relieving stresses in the ice.

**dried ice.** Sea ice from the surface of which melt-water has disappeared after the formation of cracks and thaw holes. During the period of drying, the surface whitens.

**drift ice.** Term used in a wide sense to include any area of sea ice, other than fast ice, no matter what form it takes or how it is disposed. When concentrations are high, ie. 7/10 or more drift ice may be replaced by the term pack ice.

**easy area.** A general qualitative expression to indicate, in a relative manner, that ice conditions prevailing in an area are such that navigation in it is not difficult.

**fast ice.** Sea ice which forms and remains fast along the coast, where it is attached to the shore, to an ice wall, to

an ice front, between shoals or grounded icebergs. Vertical fluctuations may be observed during changes of sea level. Fast ice may be formed *in situ* from sea water or by freezing of floating ice of any age to the shore, and it may extend a few metres or several hundred kilometres from the coast. Fast ice may be more than one year old and may then be prefixed with the appropriate age category (old, second-year, or multi-year). If it is thicker than about 2 m above sea level it is called an ice shelf. (Photograph 3)

**fast-ice boundary.** The ice boundary at any given time between fast ice and drift ice.

**fast-ice edge.** The demarcation at any given time between fast ice and open water.

**finger rafted ice.** Type of rafted ice in which floes thrust “fingers” alternately over and under the other (Photograph 26).

**finger rafting.** Type of rafting whereby interlocking thrusts are formed, each floe thrusting “fingers” alternately over and under the other. Common in nilas and grey ice.

**firn.** Old snow which has crystallised into a dense material. Unlike ordinary snow, the particles are to some extent joined together; but, unlike ice, the air spaces in it still connect with each other.

**first-year ice.** Sea ice of not more than one winter’s growth, developing from young ice; thickness 30 centimetres to 2 m. May be sub-divided into thin first-year ice/white ice medium first-year ice and thick first-year ice.

**flaw.** A narrow separation zone between drift ice and fast ice, where the pieces of ice are in a chaotic state; it forms when drift ice shears under the effect of a strong wind or current along the fast-ice boundary. cf. **shearing.**

**flaw lead.** A passage-way between drift ice and fast ice which is navigable by surface vessels.

**flaw polynya.** A polynya between drift ice and fast ice.

**floating ice.** Any form of ice found floating in water. The principal kinds of floating ice are lake ice, river ice, and sea ice, which form by the freezing of water at the surface, and glacier ice (ice of land origin) formed on land or in an ice shelf. The concept includes ice that is stranded or grounded.

**floe.** Any relatively flat piece of sea ice 20 m or more across. Floes are sub-divided according to horizontal extent as follows:

Giant	Over 10 km across.
Vast	2–10 km across.
Big	500–2000 m across.
Medium	100–500 m across.
Small	20–100 m across.

(Photographs 99, 1010, 1414, & 1919)

**floeberg.** A massive piece of sea ice composed of a hummock or a group of hummocks, frozen together and separated from any ice surroundings. It may protrude up to 5 m above sea level.

**floebit.** A relatively small piece of sea ice, normally not more than 10 m across composed of hummock(s) or part of ridge(s) frozen together and separated from any surroundings. It typically protrudes 2 m above sea-level.

**flooded ice.** Sea ice which has been flooded by melt-water or river water and is heavily loaded by water and wet snow.

**fracture.** Any break or rupture through very close ice, compact pack ice, consolidated ice, fast ice, or a single floe resulting from deformation processes. Fractures may contain brash ice and/or be covered with nilas and/or young ice. Length may vary from a few metres to many kilometres:

Large Fracture	More than 500 m wide,
Medium Fracture	200–500 m wide,
Small Fracture	50–200 m wide,
Very small Fracture	1–50 m wide,
Crack	0–1 m wide.

**fracture zone.** An area which has a great number of fractures.

**fracturing.** Pressure process whereby ice is permanently deformed, and ruptures occur. Most commonly used to describe breaking across very close pack ice, compact pack ice and consolidated pack ice.

**frazil ice.** Fine spicules or plates of ice, suspended in water.

**friendly ice.** From the point of view of the submariner, an ice canopy containing many large skylights or other features which permit a submarine to surface. There must be more than ten such features per 30 nautical miles along the submarine’s track.

**frost smoke.** Fog-like cloud due to contact of cold air with relatively warm water, which can appear over openings in the ice, or to leeward of the ice edge, and which may persist while ice is forming. It often occurs at dawn and dissipates as the sun rises in the sky (Photograph 4).

**giant floe.** A floe over 10 km across.

**glacier.** A mass of snow and ice continuously moving from higher to lower ground or, if afloat, continuously spreading. The principal forms of glacier are: inland ice sheets, ice shelves, ice streams, ice caps, ice piedmonts, cirque glaciers and various types of mountain (valley) glaciers.

**glacier berg.** An irregularly shaped iceberg.

**glacier ice.** Ice in, or originating from a glacier, whether on land or floating on the sea as icebergs, bergy bits or growlers.

**glacier tongue.** Projecting seaward extension of a glacier, usually afloat. In the Antarctic glacier tongues may extend over many tens of kilometres.

**grease ice.** A later stage of freezing than frazil ice when the crystals have coagulated to form a soupy layer on the surface. Grease ice reflects little light, giving the sea a matt appearance. (Photographs 5 and 6)

**grey ice.** Young ice 10–15 centimetres thick. Less elastic than nilas and breaks on swell. Usually rafts under pressure.

**grey-white ice.** Young ice 15–30 centimetres thick. Under pressure more likely to ridge than to raft.

**grounded hummock.** Hummocked grounded ice formation. There are single grounded hummocks and lines (or chains) of grounded hummocks.

**grounded ice.** Floating ice which is aground in shoal water. cf. **stranded ice.**

**growler.** Rounded pieces of glacier ice smaller than a bergy bit or floeberg, often transparent but appearing green or almost black in colour, extending less than 1 m above the sea surface and normally occupying an area of about 20 square metres (Photographs 6 and 17).

**hoarfrost.** A deposit of ice having a crystalline appearance, generally assuming the form of scales, needles, feathers or fans; produced in a manner similar to dew (ie. by condensation of water vapour from the air), but at a temperature below 0°C. (Photograph 15).

**hostile ice.** From the point of view of the submariner, an ice canopy containing no large skylights or other features which permit a submarine to surface.

**hummock.** A hillock of broken ice which has been forced upwards by pressure. May be fresh or weathered. The submerged volume of broken ice under the hummock, forced downwards by pressure is termed a bummock.

**hummocked ice.** Sea ice piled haphazardly one piece over another to form an uneven surface. When weathered, has the appearance of smooth hillocks.

**hummocking.** The pressure process by which sea ice is forced into hummocks. When the floes rotate in the process it is termed screwing.

**iceberg.** A massive piece of glacier ice of greatly varying shape, protruding more than 5 m above sea level, which has broken away from a glacier, and which may be afloat or aground. Icebergs may be described as tabular, dome-shaped, capsized, sloping, pinnacled, weathered or glacier bergs. (Photographs 7 and 8). See also 6.19.

**iceberg tongue.** A major accumulation of icebergs projecting from the coast, held in place by grounding and joined together by fast ice.

**ice blink.** A whitish glare on low clouds above an accumulation of distant ice. (Photograph 18)

**ice-bound.** A harbour, inlet, or similar expanse of water is said to be ice-bound when navigation by ships is prevented on account of ice, except possibly with the assistance of an ice-breaker.

**ice boundary.** The demarcation at any given time between fast ice and drift ice or between areas of drift ice of different concentrations.

**ice breccia.** Ice pieces of different stages of development frozen together.

**ice cake.** Any relatively flat piece of sea ice less than 20 m across. (Photograph 19)

**ice canopy.** Drift ice from the point of view of the submariner.

**ice cover.** The ratio of an area of ice of any concentration to the total area of sea surface within some large geographical locale; this locale may be global,

hemispheric, or prescribed by a specific oceanographic entity such as Baffin Bay or the Barents Sea.

**ice edge.** The demarcation at any given time between the open sea and sea ice of any kind, whether fast or drifting. It may be termed compacted or diffuse. cf. **ice boundary.** (Photograph 20)

**ice field.** Area of floating ice consisting of any size of floes, which is greater than 10 km across. cf. **ice patch**

**icefoot.** A narrow fringe of ice attached to the coast, unmoved by tides and remaining after the fast ice has moved away.

**ice-free.** No ice present. If ice of any kind is present this term should not be used.

**ice front.** The vertical cliff forming the seaward face of an ice shelf or other floating glacier varying in height from 2–50 m or more above sea level. cf. **ice wall.** (Photograph 21)

**ice island.** A large piece of floating ice protruding about 5 m above sea level, which has broken away from an Arctic ice shelf, having a thickness of 30–50 m and an area of from a few thousand square metres to 500 sq km or more, and usually characterized by a regularly undulating surface which gives it a ribbed appearance from the air. (Photograph 22)

**ice isthmus.** A narrow connection between two ice areas of very close or compact ice. It may be difficult to pass, whilst sometimes being part of a recommended route.

**ice jam.** An accumulation of broken river ice or sea ice caught in a narrow channel.

**ice keel.** From the point of view of the submariner, a downward-projecting ridge on the underside of the ice canopy; the counterpart of a ridge. Ice keels may extend as much as 50 m below sea level.

**ice limit.** Climatological term referring to the extreme minimum or extreme maximum extent of the ice edge in any given month or period based on observations over a number of years. Terms should be preceded by minimum or maximum. cf. **mean ice edge.**

**ice massif.** A variable accumulation of close or very close ice covering hundreds of square kilometres which is found in the same region every summer.

**ice of land origin.** Ice formed on land or from an ice shelf, found floating in water. The concept includes ice that is stranded or grounded.

**ice patch.** An area of floating ice less than 10 km across.

**ice piedmont.** Ice covering a coastal strip of low-lying land backed by mountains. The surface of an ice piedmont slopes gently seaward and may be anything from about ¼ cable to 30 miles wide, fringing long stretches of coastline with ice cliffs known as ice walls. Ice piedmonts frequently merge into ice shelves.

**ice port.** An embayment in an ice front, often of a temporary nature, where ships can moor alongside and unload directly onto the ice shelf. (Photograph 23)

**ice rind.** A brittle shiny crust of ice formed on a quiet surface by direct freezing or from grease ice, usually in water of low salinity. Thickness to about 5 centimetres. Easily broken by wind or swell, commonly breaking in rectangular pieces. (Photograph 15)

**ice shelf.** A floating ice sheet of considerable thickness showing 2–50 m or more above sea level, attached to the coast. Usually of great horizontal extent and with a level or gently undulating surface. Nourished by annual snow accumulation and often also by the seaward extension of land glaciers. Limited areas may be aground. The seaward edge is termed an ice front. (Photograph 3)

**ice stream.** Part of an inland ice sheet in which the ice flows more rapidly and not necessarily in the same direction as the surrounding ice. The margins are sometimes clearly marked by a change in direction of the surface slope but may be indistinct.

**ice under pressure.** Ice in which deformation processes are actively occurring and hence a potential impediment or danger to shipping.

**ice wall.** An ice cliff forming the seaward margin of a glacier which is not afloat. An ice wall is aground, the rock basement being at or below sea level. (Photograph 24)

**jammed brash barrier.** A strip or narrow belt of new, young or brash ice (usually 100–5000 m wide) formed at the edge of either drift or fast ice or at the shore. It is heavily compacted mostly due to wind action and may extend 2–20 m below the surface but does not normally have appreciable topography. Jammed brash barrier may disperse with changing winds but can only consolidate to form a strip of unusually thick ice in comparison with the surrounding drift ice.

**lake ice.** Ice formed on a lake, regardless of observed location.

**large fracture.** More than 500 m wide.

**large ice field.** An ice field over 20 km across.

**lead.** Any fracture or passage-way through sea ice which is navigable by surface vessels. (Photograph 25)

**level ice.** Sea ice which has not been affected by deformation.

**light nilas.** Nilas which is more than 5 centimetres in thickness and rather lighter in colour than dark nilas. (Photograph 26)

**mean ice edge.** Average position of the ice edge in any given month or period based on observations over a number of years. Other terms which may be used are mean maximum ice edge and mean minimum ice edge, cf. **ice limit**.

**medium first-year ice.** First-year ice 70–120 centimetres thick.

**medium floe.** A floe 100–500 m across.

**medium fracture.** A fracture 200–500 m wide.

**medium ice field.** An ice field 15–20 km across.

**moraine.** Ridges or deposits of rock debris transported by a glacier. Common forms are: ground moraine, formed under a glacier; lateral moraine, along the sides; medial moraine, down the centre; and end moraine, deposited at the foot. Moraines are left after a glacier has receded, providing evidence of its former extent.

**multi-year ice.** Old ice up to 3 m or more thick which has survived at least two summers' melt. Hummocks even smoother than in second-year ice, and the ice is almost salt free. Colour, where bare, is usually blue. Melt pattern consists of large interconnecting irregular puddles and a well-developed drainage system.

**new ice.** A general term for recently formed ice which includes frazil ice, grease ice, slush and shuga. These types of ice are composed of ice crystals which are only weakly frozen together (if at all) and have a definite form only while they are afloat.

**new ridge.** Ridge newly formed with sharp peaks and slope of sides usually 40°. Fragments are visible from the air at low altitude.

**nilas.** A thin elastic crust of ice, easily bending on waves and swell and under pressure, thrusting in a pattern of interlocking "fingers" (finger rafting). Has a matt surface and is up to 10 centimetres in thickness. May be sub-divided into dark nilas and light nilas. (Photograph 26)

**nip.** Ice is said to nip when it forcibly presses against a ship. A vessel so caught, though undamaged, is said to have been nipped.

**nunatak.** A rocky crag or small mountain projecting from and surrounded by a glacier or ice sheet.

**old ice.** Sea ice which has survived at least one summer's melt; typical thickness up to 3 m or more. Most topographic features are smoother than on first-year ice. May be sub-divided into second-year ice and multi-year ice. (Photograph 27)

**open ice.** Floating ice in which the ice concentration is 4/10–6/10, with many leads and polynyas, and the floes are generally not in contact with one another. (Photograph 9)

**open water.** A large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present.

**pack ice.** See **drift ice**. The term was formerly for all ranges of concentration.

**pancake ice.** Predominantly circular pieces of ice from 30 centimetres to 3 m in diameter, and up to about 10 centimetres in thickness, with raised rims due to the pieces striking against one another. It may be formed on a slight swell from grease ice, shuga or slush or as a result of the breaking of ice rind, nilas or, under severe conditions of swell or waves, of grey ice. It also sometimes forms at some depth, at an interface between water bodies of different physical characteristics, from where it floats to the surface; its appearance may rapidly cover wide areas of water. (Photograph 13)

**pingo.** A mound formed by the upheaval of subterranean ice in an area where the subsoil remains permanently frozen.

Pingos are also found in Arctic waters, rising about 30 m from an otherwise even seabed, with bases about 40 m in diameter and surrounded by a shallow moat; they are then termed submarine pingos.

Oceanographically, a more or less conical mound of fine unconsolidated material characteristically containing an ice core.

- polynya.** Any non-linear shaped opening enclosed in drift ice. Polynyas may contain brash ice and/or be covered with new ice, nilas or young ice.
- puddle.** An accumulation on ice of melt-water, mainly due to melting snow, but in the more advanced stages also due to the melting of ice. Initial stage consists of patches of melted snow on an ice floe.
- rafted ice.** Type of deformed ice formed by one piece of ice overriding another, cf. **finger rafting**.
- rafting.** Pressure processes whereby one piece of ice overrides another. Most common in new and young ice, cf. **finger rafting**.
- ram.** An underwater ice projection from an ice wall, ice front, iceberg or floe. Its formation is usually due to a more intense melting and erosion of the unsubmerged part. (Photograph 14)
- recurring polynya.** A polynya which recurs in the same position every year.
- ridge.** A line or wall of broken ice forced up by pressure. May be fresh or weathered. The submerged volume of broken ice under a ridge, forced downwards by pressure is termed an ice keel.
- ridged ice.** Ice piled haphazardly one piece over another in the form of ridges or walls. Usually found in first-year ice, cf. **ridging**.
- ridged ice zone.** An area in which much ridged ice with similar characteristics has formed.
- ridging.** The pressure process by which sea ice is forced into ridges.
- rime.** A deposit of ice composed of grains more or less separated by trapped air, some adorned with crystalline branches, produced by the rapid freezing of super-cooled and very small water droplets.
- river ice.** Ice formed on a river, regardless of observed location.
- rotten ice.** Sea ice which has become honey-combed and which is in an advanced state of disintegration.
- rubble field.** An area of extremely deformed sea ice of unusual thickness formed during the winter by the motion of drift ice against, or around a protruding rock, islet, or other obstruction.
- sastrugi.** Sharp, irregular ridges formed on a snowy surface by wind erosion and deposition. On drift ice the ridges are parallel to the direction of the prevailing wind at the time they were formed. (Photograph 16)
- screwing.** See **Hummocking**.
- sea ice.** Any form of ice found at sea which has originated from the freezing of sea water, as opposed to ice of land origin.
- second-year ice.** Old ice which has survived only one summer's melt; typical thickness up to 2.5 m and sometimes more. Because it is thicker than first-year ice, it stands higher out of the water. In contrast to multi-year ice, summer melting produces a regular pattern of numerous small puddles. Bare patches and puddles are usually greenish-blue.
- shearing.** An area of drift ice is subject to shear when the ice motion varies significantly in the direction normal to the motion, subjecting the ice to rotational forces. These forces may result in phenomena similar to a flaw (qv).
- shear ridge.** An ice ridge formation which develops when one ice feature is grinding past another. The type of ridge is more linear than those caused by pressure alone.
- shear ridge field.** Many shear ridges side by side.
- shore lead.** A lead between drift ice and the shore or between drift ice and an ice front.
- shore ice ride-up.** A process by which ice is pushed ashore as a slab.
- shore polynya.** A polynya between drift ice and the coast or between drift ice and an ice front.
- shore melt.** Open water between the shore and the fast ice, formed by melting and/or as a result of river discharge.
- shuga.** An accumulation of spongy white ice lumps, a few centimetres across; they are formed from grease ice or slush and sometimes from anchor ice rising to the surface. (Photographs 6 and 17)
- skylight.** From the point of view of the submarine, thin places in the ice canopy, usually less than 1 m thick and appearing from below as relatively light, translucent patches in dark surroundings. The undersurface of a skylight is normally flat. Skylights are called large if big enough for a submarine to attempt to surface through them (120 m) or small if not.
- slush.** Snow which is saturated and mixed with water on land or ice surfaces, or as a viscous floating mass in water after a heavy snowfall.
- small floe.** A floe 20–100 m across.
- small fracture.** A fracture 50–200 m wide.
- small ice cake.** An ice cake less than 2 m across.
- small ice field.** An ice field 10–15 km across.
- snow barchan.** See snowdrift.
- snowdrift.** An accumulation of wind-blown snow deposited in the lee of obstructions or heaped by wind eddies. A crescent-shaped snowdrift, with ends pointing downwind, is known as a snow barchan.
- standing floe.** A separate floe standing vertically or inclined and enclosed by rather smooth ice.
- stranded ice.** Ice which has been floating and has been deposited on the shore by retreating high water.
- strip.** Long narrow area of floating ice, about 1 km or less in width, usually composed of small fragments detached from the main mass of ice, and run together under the influence of wind, swell or current.
- submarine pingo.** See **pingo**.
- tabular berg.** A flat-topped iceberg. Most tabular bergs form by calving from an ice shelf and show horizontal banding, cf. **ice island**. (Photograph 22)
- thaw holes.** Vertical holes in sea ice formed when surface puddles melt through to the underlying water.
- thick first-year ice.** First-year ice over 120 centimetres thick.

**thick first-year ice/white ice.** First-year ice 30–70 centimetres thick.

**thin first-year ice/white ice first stage,** 30–50 centimetres thick

**thin first-year ice/white ice second stage,** 50–70 centimetres thick

**tide crack.** Crack at the line of junction between an immovable ice foot or ice wall and fast ice, the latter subject to rise and fall of the tide.

**tongue.** A projection of the ice edge up to several kilometres in length, caused by wind or current.

**vast floe.** A floe 2–10 km across.

**very close ice.** Floating ice in which the concentration is 9/10 to less than 10/10 (Photograph 11).

**very open ice.** Floating ice in which the concentration is 1/10 to 3/10 and water preponderates over ice. (Photograph 14)

**very small fracture.** A fracture 1–50 m wide.

**very weathered ridge.** Ridge with tops very rounded, slope of sides usually 20°–30°.

**water sky.** Dark streaks on the underside of low clouds, indicating the presence of water features in the vicinity of sea ice.

**weathered ridge.** Ridge with peaks slightly rounded and slope of sides usually 30°–40°. Individual fragments are not discernible.

**weathering.** Processes of ablation and accumulation which gradually eliminate irregularities in an ice surface.

**white ice.** See **thin first-year ice.**

**young coastal ice.** The initial stage of fast ice formation consisting of nilas or young ice, its width varying from a few metres up to 100–200 m from the shoreline.

**young ice.** Ice in the transition stage between nilas and first-year ice, 10–30 centimetres in thickness. May be sub-divided into grey ice and grey-white ice.

## Ice Terms arranged by subject

### 6.28

#### Floating ice:

The principal kinds are: Sea ice, Lake ice, River ice and Ice of land origin.

#### Development:

New ice: includes Frazil ice, Grease ice (Photographs 5 and 6), Slush and Shuga (Photographs 6 and 17);

Nilas: may be sub-divided into Dark and Light Nilas (Photograph 26) and Ice Rind (Photograph 15);

Pancake ice (Photograph 13);

Young ice: Grey or Grey-white ice;

First-year ice: may be designed Thin/White, Medium or Thick;

Old ice: may be sub-divided into Second-year ice or Multi-year ice.

#### Forms of Fast ice:

Fast ice (Photograph 3): called Young Coastal ice in its initial stage;

Icefoot;

Anchor ice;

Grounded ice: includes Stranded ice and Grounded hummock.

#### Drift ice:

Ice cover;

Concentration: may be designated Compact, Consolidated (Photograph 12),

Very Close (Photograph 11),

Close (Photograph 10),

Open (Photograph 9), or

Very Open ice (Photograph 14),

Open water, Bergy water or Ice-free.

Forms of Floating ice: include

Pancake ice (Photograph 13),

Floe (Photograph 19),

Ice cake (Photograph 19),

Floeberg, Floebit, Ice Breccia, Brash ice (Photograph 2),

Iceberg (Photographs 7 and 8),

Glacier berg, Tabular berg (Photograph 7),

Ice Island (Photograph 22),

Bergy bit (Photograph 1) and

Growler (Photograph 6);

Arrangement: see Ice Field, Ice Isthmus, Ice Massif,

Belt, Tongue, Strip, Bight, Rubble Field, Shear

Ridge Field, Ice Jam, Ice Edge (Photograph 20),

Ice Boundary, Iceberg Tongue.

#### Drift Ice motion processes:

Diverging;

Compacting;

Shearing

#### Deformation processes:

Fracturing;

Hummocking;

Ridging;

Rafting;

Shore ice ride-up;

Weathering.

#### Openings in the ice:

Fracture: see also Crack, Tide Crack and Flaw;

Fracture zone;

Lead (Photograph 25);

Polynya; includes Shore polynya, Flaw polynya and

Recurring polynya.

#### Ice-surface features:

Level ice;

Deformed ice: sub-divisions include: Rafted ice Ridge and Hummock;

Standing floe;

Ram (Photograph 14);

Bare ice;

Snow-covered ice: includes Sastrugi (Photograph 16) and Snowdrift.

#### Stages of melting:

Puddle;

Thaw holes;

Dried ice;

Rotten ice;

Flooded ice;

Shore melt.

#### Ice of land origin:

Firn;

Glacier ice: (see also Glacier), Ice Wall (Photograph 24), Ice Stream and Glacier Tongue;

Ice shelf: the seaward edge is termed an Ice Front (Photograph 21);

Calved ice: see Iceberg, Ice Island, Bergy bit and Growler.

**Sky and air indications:**

Water sky;

Ice blink (Photograph 18);

Frost smoke (Photograph 4).

**Terms relating to surface shipping:**

Area of weakness;

Beset;

Ice bound;

Nip;

Ice under pressure;

Difficult area;

Easy area;

Iceport.

**Terms relating to submarine navigation:**

Ice canopy;

Friendly ice;

Hostile ice;

Bummock;

Ice keel;

Skylight.

