

## **Proposal on Adding an Appendix for Enumeration Codes and Definitions List in S-124**

Submitted by China

### **SUMMARY**

Executive Summary: This proposal outlines some issues or difficulties encountered by China in the application of the S-124 product specification regarding the identification of attribute enumerations, and suggests the addition of an appendix for enumeration definitions in the S-124 product specification.

Action to be taken: Paragraph 3

Related Documents: S-124\_Navigational\_Warnings\_Ed\_1.0.0

Related Projects: IHO S-124PT

## **1. Introduction / Background**

In May 2023, IHO approved and released S-124 1.0.0.

Based on this version, China has initiated production and application of the product. Through research and practical production experience, China has identified some difficulties and issues regarding the identification of attribute enumerations. A summary of potential improvements to the current S-124 specification has been made, namely the addition of an appendix for attribute enumeration explanations, which can serve as a reference for the S-124 2.0.0 version.

## **2. Analysis / Discussion**

### **Situation Analysis**

In S-124 1.0.0, there are 6 attributes containing enumerations. These attributes are `navwarnTypeGeneral`, `warningType`, `restriction`, `referenceCategory`, `textjustification`, and `navwarnTypeDetails`, each containing 20, 12, 41, 3, 3, and 299 enumerations, respectively, totaling 378 enumerations. These enumerations serve as the basis for classifying or labeling navigational warnings and some of their attributes.

In order to express S-124 data concisely, the names of these enumerations are extremely succinct, striving to summarize the content of the enumeration with as few words as possible. This naming approach is commendable. However, some difficulties or issues have been identified in the use of the product specification.

## **Problem Analysis**

Currently, the definitions for enumerations can only be found in the S-124\_GML\_Schemas\_1.0.0.xsd file. This method of inquiry is within the capabilities of developers, but it is relatively difficult for users of the S-124 product specification and researchers other than developers. Users and researchers other than developers are likely not to notice the definitions of enumerations in the S-124\_GML\_Schemas\_1.0.0.xsd file, and may try to understand the meaning of some enumerations from the literal meaning of the enumeration names, leading to deviations and doubts in their understanding, and difficulties in identifying similar-named enumerations, especially for non-native English speakers. For example:

(1) The distinction between "Buoy Damaged" and "Buoy Destroyed" may be difficult to discern from the names alone, but according to the detailed definitions, we can understand that "Buoy Damaged" refers to "The buoy has been damaged due to external factors", while "Buoy Destroyed" indicates a more severe degree of damage, meaning the buoy is extensively damaged and unusable.

(2) The distinction between "Pipe Laying Operation" and "Pipe Operations" might lead one to think that "Pipe Laying Operation" could be included in "Pipe Operations" based on the names alone, but according to the detailed definitions, we can understand that "Pipe Laying Operation" refers to activity comprised of one or more vessels engaged in the laying of pipe on or beneath the sea floor, with the focus on "laying" and "vessel activities"; while "Pipe Operations" refers to underwater operations undertaken to maintain or repair a submarine pipe, with the emphasis on "maintain or repair" and "underwater operations".

(3) The distinction between "Buoy Adrift", "Buoy Missing", "Buoy Move", and "Buoy off Position" can be understood from the detailed definitions, where "Buoy Adrift" refers to "The buoy is no longer secured to its moorings and is adrift" (current position can be found); "Buoy Missing" means "No buoy at its advertised/charted position or in the vicinity" (current position cannot be found); "Buoy Move" indicates that the buoy has been or will be moved intentionally (subjective and active); "Buoy off Position" indicates that the buoy has been dragged off its advertised position due to wind or current affecting the mooring system (objective and passive).

There are many such examples that illustrate the importance of enumeration definitions. If the definitions of enumerations can be easily consulted, it will better help users of the S-124 product specification to clarify what each enumeration or type of navigational warning specifically refers to, and to distinguish between similar enumeration names or types of navigational warnings, thereby standardizing the textual and data expression of navigational warnings and the conversion between the two.

Therefore, we have extracted all the definitions and codes of the enumerations from the S-124\_GML\_Schemas\_1.0.0.xsd file, divided them into 6 tables according to the attributes to which the enumerations belong, listed the definitions of each enumeration in numerical order

of the codes, and formed a list of definitions and codes of enumerations, and presented it in the form of an appendix to the product specification, as shown in the annex to this proposal.

### **3. Recommendations**

It is recommended to add an appendix to the S-124 product specification and to incorporate the Appendix J - Enumeration Codes and Definitions List from the annex of this proposal. This appendix should mainly list the definitions of the enumerations in S-124 data model. It is suggested that the appendix include detailed definitions of the enumerations of following attributes : navwarnTypeGeneral, warningType, restriction, referenceCategory, textjustification, and navwarnTypeDetails.

### **4. Action required of WWNWS and S-124PT**

The WWNWS and S-124PT is requested to:

Note this proposal, pay attention to the work done by China in improving the S-124 product specification.

Pay attention to the recommendations of this document and take any other actions, as appropriate.

# Annex

## Appendix J – Enumeration Codes and Definitions List

The Enumeration Codes and Definitions List in Appendix J provides the coding and detailed explanations/definitions for each enumeration in the S-124 product specification. In this way, users of the S-124 product specification can easily query the meaning of each enumeration, thus providing a more accurate navigational warning service. The detailed explanations/definitions are excerpted from *S-124\_GML\_Schemas\_1.0.0.xsd*.

Table 1

Navwarn Type General		
Enumeration	Code	Definition
Aids to Navigation Changes	1	Any casualties to lights, fog signals, buoys and other aids to navigation affecting shipping; establishment of major new aids to navigation or significant changes to existing ones, when such establishment or change might be misleading to shipping.
Aquaculture and Fishing Installations	2	New or established aquaculture and fishing installations.
Drifting Hazards	3	Drifting hazards, including derelict ships, containers, other large items, etc.
ECDIS Operating Anomalies including Official Data Issues	4	Operating anomalies identified within ECDIS, including issues with official data.
Other Hazards	5	Hazards likely to constitute a danger to navigation
Health Advisories	6	Health advisories or information.
Ice Information	7	Newly discovered icebergs, changes to ice conditions and ice related information likely to impact navigation.
In-Force Bulletin	8	A list of serial numbers of warnings which are in-force.
Dangerous Natural Phenomena	9	Natural phenomena adversely affecting the marine environment.
Newly Discovered Dangers	10	Newly discovered rocks, shoals, reefs and wrecks likely to constitute a danger to navigation and, if relevant, their markings.

Offshore Infrastructure	11	New or established complex structures situated at sea, including rigs, drilling platforms, offshore wind turbines, cables and pipelines.
Piracy or Robbery	12	Acts of piracy and armed robbery against ships.
Communication or Broadcast Service Change	13	Any failure or return to service of terrestrial or satellite radio services used to determine the position of an object.
Routeing Change	14	Changes to the established navigational routes or specific procedures related to them.
Scientific Instruments Change	15	Deployment or removal of scientific instruments on the surface, subsurface or on the sea floor.
Security Requirement Change	16	Changes to the maritime security levels in a country, a specific region or port. Or, changes to maritime security regulations.
Special Operations	17	Events which might affect the safety of shipping, sometimes over wide areas, e.g. naval exercises, missile firings, space missions, nuclear tests, ordnance dumping zones, etc.
Towing Operations	18	Objects being towed which are impacting navigation of vessels in its vicinity.
Works	19	Works at sea or onshore which might affect navigation.
Rig List	20	An update on the position, movement or status of rigs or drill ships within a defined area.

Table 2

warningType		
Enumeration	Code	Definition
local navigational Warning	1	<p>Message containing urgent information relevant to safe navigation broadcast to ships in a local area, in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.(Adopted from S-53, 2.2.23)</p> <p>Local warning means a navigational warning which covers inshore waters, often within the limits of jurisdiction of a harbour or port authority. (Adopted from S-53, 2.2.10)</p>
Coastal Navigational Warning	2	<p>Message containing urgent information relevant to safe navigation broadcast to ships in a coastal area, in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.</p> <p>Coastal warning means a navigational warning promulgated as part of a numbered series by a National Coordinator.</p>
Sub-Area Navigational Warning	3	<p>Message containing urgent information relevant to safe navigation broadcast to ships in a sub-area, in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.</p> <p>Sub-area warning means a navigational warning or in-force bulletin promulgated as part of a numbered series by a Sub-area Coordinator.</p>
NAVAREA Navigational Warning	4	<p>Message containing urgent information relevant to safe navigation broadcast to ships in a NAVAREA, in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.</p> <p>NAVAREA warning means a navigational warning promulgated as part of a numbered series by a NAVAREA Coordinator.</p>
NAVAREA No Warning	5	<p>A message that indicates that there are no navigational warnings to be disseminated in the NAVAREA.</p>

Sub-Area No Warning	6	A message that indicates that there are no navigational warnings to be disseminated in the sub-area.
Coastal No Warning	7	A message that indicates that there are no navigational warnings to be disseminated in the coastal area.
Local No Warning	8	A message that indicates that there are no navigational warnings to be disseminated in the local area.
NAVAREA In-Force Bulletin	9	A list of serial numbers of NAVAREA warnings which are in- force.
Sub-Area In-Force Bulletin	10	A list of serial numbers of sub-area warnings which are in-force.
Coastal In-Force Bulletin	11	A list of serial numbers of coastal warnings which are in-force.
Local In-Force Bulletin	12	A list of serial numbers of local warnings which are in-force.

Table 3

restriction		
Enumeration	Code	Definition
Anchoring Prohibited	1	An area within which anchoring is not permitted.
Anchoring Restricted	2	A specified area designated by appropriate authority, within which anchoring is restricted in accordance with certain specified conditions.
Fishing Prohibited	3	An area within which fishing is not permitted.
Fishing Restricted	4	A specified area designated by appropriate authority, within which fishing is restricted in accordance with certain specified conditions.
Trawling Prohibited	5	An area within which trawling is not permitted.
Trawling Restricted	6	A specified area designated by appropriate authority, within which trawling is restricted in accordance with certain specified conditions.
Entry Prohibited	7	An area within which navigation and/or anchoring is prohibited.
Entry Restricted	8	A specified area designated by appropriate authority, within which navigation is restricted in accordance with certain specified conditions.
Dredging Prohibited	9	An area within which dredging is not permitted.
Dredging Restricted	10	A specified area designated by appropriate authority, within which dredging is restricted in accordance with certain specified conditions.
Diving Prohibited	11	An area within which diving is not permitted.



Diving Restricted	12	A specified area designated by appropriate authority, within which diving is restricted in accordance with certain specified conditions.
No Wake	13	Mariners must adjust the speed of their vessels to reduce the wave or wash which may cause erosion or disturb moored vessels.
Area To Be Avoided	14	An IMO declared routeing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ships.
Construction Prohibited	15	The erection of permanent or temporary fixed structures or artificial islands is prohibited.
Discharging Prohibited	16	An area within which discharging or dumping is prohibited.
Discharging Restricted	17	A specified area designated by an appropriate authority, within which discharging or dumping is restricted in accordance with specified conditions.
Industrial or Mineral Exploration/Development Prohibited	18	An area within which industrial or mineral exploration and development are prohibited.
Industrial or Mineral Exploration/Development Restricted	19	A specified area designated by an appropriate authority, within which industrial or mineral exploration and development is restricted in accordance with certain specified conditions.
Drilling Prohibited	20	An area within which excavating a hole on the sea-bottom with a drill is prohibited.
Drilling Restricted	21	A specified area designated by an appropriate authority, within which excavating a hole on the sea-bottom with a drill is restricted in accordance with certain specified conditions.

Removal of Historical Artefacts Prohibited	22	An area within which the removal of historical artefacts is prohibited.
Cargo Transshipment (Lightening) Prohibited	23	An area in which cargo transshipment (lightening) is prohibited.
Dragging Prohibited	24	An area in which the dragging of anything along the bottom, e.g. bottom trawling, is prohibited.
Stopping Prohibited	25	An area in which a vessel is prohibited from stopping.
Landing Prohibited	26	An area in which landing is prohibited.
Speed Restricted	27	An area within which speed is restricted.
Overtaking Prohibited	28	A specified area designated by appropriate authority, within which overtaking is generally prohibited.
Overtaking of Convoys by Convoys Prohibited	29	A specified area designated by appropriate authority, within which overtaking between convoys is prohibited.
Passing or Overtaking Prohibited	30	A specified area designated by appropriate authority, within which passing or overtaking is generally prohibited.
Berthing Prohibited	31	A specified area designated by appropriate authority, within which vessels, assemblies of floating material or floating establishments may not berth.
Berthing Restricted	32	A specified area designated by appropriate authority, within which berthing is restricted.
Making Fast Prohibited	33	A specified area designated by appropriate authority, within which vessels, assemblies of floating material or floating establishments may not make fast to the bank.
Making Fast Restricted	34	A specified area designated by appropriate authority, within which making fast to the bank is restricted.
Turning Prohibited	35	A specified area designated by appropriate authority, within which all turning is generally prohibited.
Restricted Fairway Depth	36	An area within which the fairway depth is restricted.
Restricted Fairway Width	37	An area within which the fairway width is restricted.

Use of Spuds Prohibited	38	The use of anchoring spuds (telescopic piles) is prohibited.
Swimming Prohibited	39	An area in which swimming is prohibited.
SOx Emission Restricted	40	An area within which the emission of SOx is restricted.
NOx Emission Restricted	41	An area within which the emission of NOx is restricted.

Table 4

Reference Category		
Enumeration	Code	Definition
Warning Cancellation	1	Cancellation of warning which is no longer valid.
Warning Reference	2	Reference to relevant warning.
In-Force	3	Reference to warnings or notices that are considered in-force.

Table 5

textjustification		
Enumeration	Code	Definition
Left	1	Of, relating to, or located on or near the side of a person or thing that is turned toward the west when the subject is facing north (opposed to right).
Centred	2	Equidistant from all bordering or adjacent areas; situated in the centre.
Right	3	Of, relating to, or located on or near the side of a person or thing that is turned toward the east when the subject is facing north (opposed to left).

Table 6

navwarnTypeDetails		
Enumeration	Code	Definition
Acoustic Recorder	1	The temporary or permanent installation of an acoustical instrument in the marine environment for the purpose of tracking the behavior of marine mammals or to monitor their ecosystems.
AIS Temporary Establishment	2	A new AIS has been or will be established for a limited period of time.
AIS Transmitter Establishment	3	A new AIS site has been or will be established.
AIS Transmitter Operating Properly	4	The terrestrial AIS transmitter is operating as advertised.
AIS Transmitter Out Of Service	5	The terrestrial AIS transmitter is inoperative due to a technical issue.
AIS Transmitter Removal	6	AIS transmitter has been or will be permanently removed from service.
AIS Transmitter Temporary Removal	7	AIS transmitter has been or will be temporarily removed from service.
AIS Transmitter Unreliable	8	The terrestrial AIS transmitter is unreliable due to a technical issue or maintenance.
All Aids To Navigation Unreliable	9	All aids to navigation on a structure or in an area are unreliable due to environmental impact, equipment failure, etc.
Anti Pollution Exercise	10	A large scale activity where multiple vessels, surveillance aircraft, and shore-based personnel practice a response to the discharge of a pollutant from a ship (or shore) into the marine environment, in order to evaluate the effectiveness of response capability.
Anti Pollution Operation	11	A real time response by vessels, surveillance aircraft, and shore-based personnel to resolve the discharge of a pollutant from a ship (or shore) into the marine environment.
Aquaculture Site	12	The installation of infrastructure at a new location where the farming of fish, shellfish and aquatic plants in fresh or salt water is undertaken; and, failures at these locations where the infrastructure is reported damaged and may be adrift.
AtoN Operating Properly	13	The outage/failure has been corrected and the aids to navigation has resumed normal operation.

Audible Signal Change	14	The characteristics of the audible signal (device activated by e.g. sea state or wind, irrespective of visibility) have been or will be changed.
Audible Signal Establishment	15	A new audible signal (device activated by e.g. sea state or wind, irrespective of visibility) has been or will be established.
Audible Signal Operating Properly	16	The audible signal (device activated by e.g. sea state or wind, irrespective of visibility) is operating as advertised.
Audible Signal Out Of Service	17	The audible signal (device activated by e.g. sea state or wind, irrespective of visibility) is inoperative.
Audible Signal Removal	18	Audible signal (device activated by e.g. sea state or wind, irrespective of visibility) has been or will be permanently removed from service.
Audible Signal Temporary Change	19	The characteristics of the audible signal (device activated by e.g. sea state or wind, irrespective of visibility) have been or will be temporarily changed.
Audible Signal Temporary Establishment	20	A new audible signal has been or will be established for a limited period of time.
Audible Signal Temporary Removal	21	Audible signal (device activated by e.g. sea state or wind, irrespective of visibility) has been or will be temporarily removed from service.
Authorized Ice Routeing Information	22	Ice routeing information provided by a recognized authority.
Beacon Change	23	The characteristics of the beacon have been or will be changed.
Beacon Damaged	24	The beacon has sustained damage due to external factors (wind, sea state, collision with a vessel).
Beacon Daymark Unreliable	25	Colour of the beacon daymark is not visible due to damage or fading of colours (out of tolerance with colour recommendations).
Beacon Establishment	26	A new beacon has been or will be established.
Beacon Missing	27	No beacon at the advertised position.
Beacon Removal	28	Beacon has been or will be permanently removed from service.
Beacon Restored To Normal	29	The beacon has been restored to normal condition.
Beacon Temporary Change	30	The characteristics of the beacon have been or will be temporarily changed.
Beacon Temporary Establishment	31	A new beacon has been or will be established for a limited period of time.

Beacon Temporary Removal	32	Beacon has been or will be temporarily removed from service.
Beacon Topmark Damaged	33	The topmark of the beacon is damaged due to external factors (wind, sea state, collision with a vessel).
Beacon Topmark Missing	34	The topmark of the beacon is missing.
Blasting Operation	35	An explosive detonation was observed at sea or blasting operation is scheduled to occur.
Breakwater Construction	36	The construction of a structure protecting a shore area, harbour, or anchorage from waves.
Bridge Horizontal Clearance Change	37	The published horizontal clearance of the fixed or opening bridge has changed.
Bridge Unable To Close	38	The functionality of an opening bridge is compromised. The bridge will remain open.
Bridge Unable To Open	39	The functionality of an opening bridge is compromised. The bridge will remain closed.
Bridge Vertical Clearance Change	40	The published vertical clearance of the fixed or opening bridge has changed.
Buoy Adrift	41	The buoy is no longer secured to its moorings and is adrift.
Buoy Change	42	The characteristics of the buoy have been or will be changed.
Buoy Commissioned for Navigation Season	43	A buoy which was in ice over the winter and has been verified undamaged and in advertised position for the navigational season.
Buoy Damaged	44	The buoy has been damaged due to external factors (wind, sea state, collision with a vessel).
Buoy Daymark Unreliable	45	Colour of the buoy daymark is not visible due to damage or fading of colours (out of tolerance with colour recommendations).
Buoy Decommissioned for Winter	46	A buoy which remains in the water over winter but which is declared unreliable (may be impacted by ice movement).
Buoy Destroyed	47	The buoy has suffered extensive damage and is not useable.
Buoy Establishment	48	A new buoy has been or will be established.
Buoy Missing	49	No buoy at its advertised/charted position or in the vicinity.
Buoy Move	50	The buoy has been or will be moved intentionally.
Buoy off Position	51	The buoy has been dragged off its advertised position due to wind or current affecting the mooring system.

Buoy Re-established	52	The re-establishment of a buoy which was previously announced either destroyed or temporarily removed.
Buoy Removal	53	Buoy has been or will be permanently removed from service.
Buoy Replaced by Winter Spar	54	A buoy which has been removed and it's location is now marked by a winter spar buoy.
Buoy Restored to Normal	55	The buoy has been restored to normal condition.
Buoy Temporary Change	56	The characteristics of the buoy have been or will be temporarily changed.
Buoy Temporary Establishment	57	A new buoy has been or will be established for a limited period of time.
Buoy Temporary Removal	58	Buoy has been or will be temporarily removed from service.
Buoy Topmark Damaged	59	The topmark of the buoy is damaged due to external factors (wind, sea state, collision with a vessel).
Buoy Topmark Missing	60	The topmark of the buoy is missing.
Buoy Will Be Withdrawn	61	The buoy has been scheduled for removal from service for a fixed term.
Buoy Withdrawn	62	The buoy has been removed from service for a fixed term.
Buoy Withdrawn for Winter	63	A buoy has been withdrawn for the winter season.
Cable Laying Operation	64	Operations being undertaken to lay wires, fibres, wire rope or chains underwater or to bury them beneath the sea floor.
Cable Operations	65	Underwater operations undertaken to maintain or repair a submarine cable.
Chayka Operating Properly	66	The Chayka station is operating as advertised.
Chayka Out Of Service	67	The Chayka station is inoperative due to a technical issue.
Chayka Station Removal	68	Chayka station has been or will be permanently removed from service.
Chayka Station Temporary Removal	69	Chayka station has been or will be temporarily removed from service.
Chayka Unreliable	70	The Chayka station is unreliable due to a technical issue or maintenance.
Cluster of Fishing Vessels	71	A large concentration of fishing vessels in a small area which may interfere with, hamper, or reduce the ability of another vessel to navigate safely.

Container Adrift	72	A cargo container which has fallen overboard and is reported adrift.
Dangerous Wreck	73	A wreck submerged at such a depth as to be considered dangerous to surface navigation.
Dead Whale Adrift	74	A deceased marine mammal, typically a whale, reported adrift.
Deadhead Adrift	75	A log which, becoming saturated with water, will start to sink at the heavier end, such that it floats vertically or nearly vertically in the water.
Derelict Vessel Adrift	76	Any vessel abandoned at sea of sufficient size as to pose a hazard to safe navigation.
DGLONASS Operating Properly	77	The DGLONASS station is operating as advertised.
DGLONASS Out Of Service	78	The DGLONASS station is inoperative due to a technical issue.
DGLONASS Station Establishment	79	A new DGLONASS station has been or will be established.
DGLONASS Unreliable	80	The DGLONASS station is unreliable due to a technical issue or maintenance.
DGPS Operating Properly	81	The DGPS station is operating as advertised.
DGPS Out Of Service	82	The DGPS station is inoperative due to a technical issue.
DGPS Station Establishment	83	A new DGPS station has been or will be established.
DGPS Station Removal	84	DGPS station has been or will be permanently removed from service.
DGPS Station Temporary Removal	85	DGPS station has been or will be temporarily removed from service.
DGPS Unreliable	86	The DGPS station is unreliable due to a technical issue or maintenance.
Diving Operation	87	A location where divers are conducting any type of activity at or below the surface of the water.
Dock Adrift	88	A structure, formerly attached along the shoreline or extending from the shore into a body of water to which vessels moor, which has broken free of its moorings and is adrift.
Dredging Operation	89	Works in order to increase depth.
Drill Rig Under Tow	90	A drill rig is under tow.



Drilling Site Operations	91	A drill rig/drill ship has commenced operations at the specified location offshore.
E-Chayka Operating Properly	92	The e-Chayka station is operating as advertised.
E-Chayka Out Of Service	93	The e-Chayka station is inoperative due to a technical issue.
E-Chayka Station Establishment	94	A new e-Chayka station has been or will be established.
E-Chayka Station Removal	95	The e-Chayka station has been or will be permanently removed from service.
E-Chayka Station Temporary Removal	96	The e-Chayka station has been or will be temporarily removed from service.
E-Chayka Unreliable	97	The e-Chayka station is unreliable due to a technical issue or maintenance.
EGC MSI Service	98	Any failure or return to operation of an EGC service offered by a recognized mobile satellite service provider.
EGNOS Operating Properly	99	The EGNOS station is operating as advertised.
EGNOS Out Of Service	100	The EGNOS station is inoperative due to a technical issue.
EGNOS Station Establishment	101	A new EGNOS station has been or will be established.
EGNOS Station Removal	102	EGNOS station has been or will be permanently removed from service.
EGNOS Station Temporary Removal	103	EGNOS station has been or will be temporarily removed from service.
EGNOS Unreliable	104	The EGNOS station is unreliable due to a technical issue or maintenance.
ELORAN Operating Properly	105	The eLORAN station is operating as advertised.
ELORAN Out Of Service	106	The eLORAN station is inoperative due to a technical issue.
ELORAN Station Establishment	107	A new eLORAN station has been or will be established.
ELORAN Station Removal	108	The eLORAN station has been or will be permanently removed from service.
ELORAN Station Temporary Removal	109	The eLORAN station has been or will be temporarily removed from service.
ELORAN Unreliable	110	The eLORAN station is unreliable due to a technical issue or maintenance.
Exclusion Zone	111	An established marine area, temporary or permanent in nature, where vessel traffic is prohibited. A geographical area, within which

		all other vessels should remain clear unless authorised.
Explosive Device	112	Unexploded explosive devices.
Fairway Marker - Light Not Synchronized	113	The light on the fairway marker is no longer synchronized with another light or group of lights.
Fairway Marker - Light Unlit	114	The light on the fairway marker is inoperative.
Fairway Marker - Light Unreliable	115	The operation of the light on the fairway marker is unreliable due to technical problems.
Fairway Marker Damaged	116	The fairway marker has been damaged due to external factors (wind, sea state, collision with a vessel).
Fairway Marker Destroyed	117	The fairway marker has suffered extensive damage and is not useable.
Fallout Hazard	118	The area of which remains hazardous to life after an explosive detonation or the fallout from a rocket launch or space debris.
Fireworks	119	Scheduled public display of pyrotechnics, usually ignited from barges located just offshore, and often accompanied by music.
Firing Exercise	120	An exercise within a defined area which includes the firing of weapon systems during training or testing that may affect safety at sea.
Fish Aggregating Device	121	A fish aggregating (or aggregation) device (FAD) is a man-made object used to attract ocean going pelagic fish such as marlin, tuna and mahi-mahi (dolphin fish). They usually consist of buoys or floats tethered to the ocean floor with concrete blocks or adrift.
Fishing Net Adrift	122	A fishing net (seine, purse, gill, trawl, bag or other), reported adrift, of sufficient size to pose a hazard to safe navigation.
Floating Debris	123	A concentration of floating objects, which by the nature of their size and material, could pose a hazard to safe navigation.
Floodlit Beacon - Unlit	124	The flood light illuminating the beacon is inoperative.
Fog Signal Change	125	The characteristics of the fog signal have been or will be changed.
Fog Signal Establishment	126	A new fog signal has been or will be established.
Fog Signal Operating Properly	127	The fog signal is operating as advertised.
Fog Signal Out Of Service	128	The fog signal is inoperative.
Fog Signal Removal	129	Fog signal has been or will be permanently removed from service.

Fog Signal Temporary Change	130	The characteristics of the fog signal have been or will be temporarily changed.
Fog Signal Temporary Establishment	131	A new fog signal has been or will be established for a limited period of time.
Fog Signal Temporary Removal	132	Fog signal has been or will be temporarily removed from service.
Front and Rear Lights out of Synchronization	133	The synchronization of the leading lights is abnormal / The synchronization of the range lights is abnormal.
Front Beacon Restored to Normal	134	The front leading beacon has been restored to normal condition. / The front range beacon has been restored to normal condition.
Front Beacon Unreliable	135	The front leading beacon is damaged, obscured or missing. / The front range beacon is damaged, obscured or missing.
Front Light is Operating Properly	136	The front leading light is operating as advertised. / The front range light is operating as advertised.
Front Light Range Reduced	137	The nominal range of the front leading light is reduced. / The nominal range of the front range light is reduced.
Front Light Unlit	138	The front leading light is extinguished. / The front range light is extinguished.
Front Light Unreliable	139	The operation of the front leading light is unreliable due to technical problems. / The operation of the front range light is unreliable due to technical problems.
Front Light Without Rhythm	140	Due to technical problems front leading light has no rhythm and is in fixed light mode. / Due to technical problems front range light has no rhythm and is in fixed light mode.
GNSS Degradation	141	The quality of service of a global navigation satellite system is poor due to an internal or external cause (e.g. jamming, space weather).
Hazardous Area	142	An area which may contain known or unknown navigational hazards which could impact the safe navigation.
HF Service	143	An outage, or return to operation, of an HF service (radiotelephone, digital selective calling or narrow band directing printing telegraphy).
High Water Level	144	High water level, potentially over a sustained period of time, such as with extreme weather or river freshet.
Horizontal Clearance Reduced	145	The reduction in the horizontal distance or navigable width of a canal, channel, lock, etc.
Hydrographic Survey Activity	146	Activity of vessels or drones/MASS, restricted in their ability to maneuver, engaged in towing of surface or subsurface scientific instruments to gather data on the measurements of subsurface features.
Ice Boom - Installation or Removal	147	A notice concerning the installation (or removal) of floating barriers, anchored to the bottom, used to deflect the path of floating ice in order to prevent the obstruction of locks, intakes, etc., and to prevent damage to bridge piers and other structures.

Ice Control Zone In-Force or Deactivated	148	Information concerning when a designated ice control zone is in force or deactivated. If in-force, mariners must follow established procedures for safe navigation.
Iceberg Outside Advertised Limits	149	An iceberg which is reported outside of the advertised limits of ice.
Jamming Exercise	150	An exercise in which the signals of radio navigation aids, radars or radio services are disrupted by an intentional cause for training purposes.
Light Buoy - Light Damaged	151	The light on the buoy is damaged due to external factors (wind, sea state, collision with a vessel).
Light Buoy - Light Not Synchronized	152	The light on the buoy is no longer synchronized with another light or group of lights.
Light Buoy - Light Unlit	153	The light on the buoy is extinguished.
Light Buoy - Light Unreliable	154	The operation of the light on the buoy is unreliable due to technical problems.
Light Change	155	The characteristics of the light have been or will be changed.
Light Daymark Unreliable	156	The light daymark is not visible due to damage or fading of colours (out of tolerance with colour recommendations).
Light Establishment	157	A new light has been or will be established.
Light Operating Properly	158	The light is operating as advertised
Light Out Of Synchronization	159	The light is no longer synchronized with another light or group of lights.
Light Range Reduced	160	The nominal range of the light is less than the advertised range.
Light Re-Establishment	161	The re-establishment of a light which was previously announced as either destroyed or temporarily removed.
Light Removal	162	Light has been or will be permanently removed from service.
Light Spar Buoy - Light Damaged	163	The light on the spar buoy is damaged due to external factors (wind, sea state, collision with a vessel).
Light Spar Buoy - Light Not Synchronized	164	The light on the spar buoy is no longer synchronized with another light or group of lights.
Light Spar Buoy - Light Unlit	165	The light on the spar buoy is extinguished.
Light Spar Buoy - Light Unreliable	166	The operation of the light on the spar buoy is unreliable due to technical problems.
Light Temporary Change	167	The characteristics of the light have been or will be temporarily changed.

Light Temporary Establishment	168	A new light has been or will be established for a limited period of time.
Light Temporary Removal	169	Light has been or will be temporarily removed from service.
Light Unlit	170	The light is extinguished.
Light Unreliable	171	The light is unreliable due to technical problems.
Light Without Rhythm	172	Due to technical problems the light has no more rhythm and is in fixed light mode.
Lighted Beacon - Light Damaged	173	The light on the beacon is damaged due to external factors (wind, sea state, collision with a vessel).
Lighted Beacon - Light Not Synchronized	174	The light on the beacon is no longer synchronized with another light or group of lights.
Lighted Beacon - Light Unlit	175	The light of the beacon is extinguished.
Lighted Beacon - Light Unreliable	176	The operation of the light on the beacon is unreliable due to technical problems.
Local Health Authority Notice	177	Notice issued by local health authorities to persons ashore or at sea.
Lock Closed	178	Lock operation is compromised. The lock is closed.
Log Adrift	179	A log is a tree, stripped of its branches and roots, which is floating horizontally and barely awash.
Log Boom Adrift	180	One or more sections of a chained log boom has broken free of its tow and is adrift.
LORAN C - Operating Properly	181	The LORAN C station is operating as advertised.
LORAN C - Out Of Service	182	The LORAN C station is inoperative due to a technical issue.
LORAN C - Unreliable	183	The LORAN C station is unreliable due to a technical issue or maintenance.
LORAN C Station Removal	184	LORAN C station has been or will be permanently removed from service.
LORAN C Station Temporary Removal	185	LORAN C station has been or will be temporarily removed from service.
Low Water Level	186	Low water level, potentially over a sustained period of time, such as with extreme weather.
Marine Aids to Navigation Unreliable	187	The position or status of Marine Aids to Navigation, over an extensive area, is unreliable due to a natural event (freshet, storm surge, flooding).

Maritime Security Level Changes	188	The raising or lowering of the national, regional or port-specific maritime security level within a country.
MF Service	189	Any outage or return to operation of a MF service (radiotelephone, digital selective calling or narrow band directing printing).
Military Exercise	190	An exercise comprised of multiple vessels and/or aircraft used to train and asses operational capacity and strategy without actual live combat.
Military Operation	191	A military response to a specific event or situation.
MSI Service	192	An outage of a maritime safety information broadcast service (satellite or terrestrial system).
National Health Authority Notice	193	Notice issued by a national health authority to persons ashore or at sea.
NAVTEX Service Change	194	Any failure or return to service of the International or National NAVTEX broadcast services.
New or Amended Regulation	195	New or updated maritime regulation which may impact navigation such as changes to navigation lanes or newly established areas to be avoided.
Numerous Fishing Vessels	196	There are many fishing vessels operating in the area.
Object Adrift	197	Object reported adrift and posing a hazard to safe navigation.
Offshore Rigs or Platform Changes	198	Changes to offshore rig/platforms, either fixed or floating, used for oil/gas production, exploration, research, observation, etc.
Opening or Closing of Harbour	199	The temporary or permanent closing or re-opening of a harbour.
Opening or Closing of Swing Bridge	200	The failure, or return to operation, of the opening or closing of swing bridges.
Opening or Closing of Waters	201	The temporary closing or re-opening of waters, e.g. waterway, bay, straits.
Pipe Laying Operation	202	Activity comprised of one or more vessels engaged in the laying of pipe on or beneath the sea floor.
Pipe Operations	203	Underwater operations undertaken to maintain or repair a submarine pipe.
Presence of Long Fishing Gear	204	There are fishing vessels using long fishing gear, such as fishing net and long fishing lines.
Presence of Marine Mammals	205	Presence of marine mammals is expected.
Presence of Naval Mines	206	Self-contained explosive device, either floating or submerged, which could be triggered by the approach or contact with a vessel or submarine.

Presence of Submerged Fishing Net	207	A fishing net (seine, purse, gill, trawl, bag or other), reported submerged, or partially submerged, of sufficient size to pose a hazard to safe navigation.
Presence of Scientific Equipment	208	Presence of a buoy or object deployed to gather scientific information.
RACON Change	209	The characteristics of the RACON have been or will be changed.
RACON Establishment	210	A new RACON has been or will be established.
RACON Operating Properly	211	The RACON is operating as advertised.
RACON Out Of Service	212	The RACON is inoperative.
RACON Removal	213	RACON has been or will be permanently removed from service.
RACON Temporary Change	214	The characteristics of the RACON have been or will be temporarily changed.
RACON Temporary Establishment	215	A new RACON has been or will be established for a limited period of time.
RACON Temporary Removal	216	RACON has been or will be temporarily removed from service.
RACON Unreliable	217	The RACON is unreliable due to a technical issue or maintenance.
Radar Surveillance System Service Change	218	Any failure or return to service of radar in an advertised radar-monitored area which may impact the ability of maritime authorities to track and monitor the movement of vessels.
RAMARK Change	219	The characteristics of the RAMARK have been or will be changed.
RAMARK Establishment	220	A new RAMARK has been or will be established.
RAMARK Operating Properly	221	The RAMARK is operating as advertised.
RAMARK Out Of Service	222	The RAMARK is inoperative.
RAMARK removal	223	RAMARK has been or will be permanently removed from service.
RAMARK Temporary Change	224	The characteristics of the RAMARK have been or will be temporarily changed.
RAMARK Temporary Establishment	225	A new RAMARK has been or will be established for a limited period of time.

RAMARK Temporary Removal	226	RAMARK has been or will be temporarily removed from service.
RAMARK Unreliable	227	The RAMARK is unreliable due to a technical issue or maintenance.
Rear Beacon Restored to Normal	228	The rear leading beacon has been restored to normal condition. / The rear range beacon has been restored to normal condition.
Rear Beacon Unreliable	229	The rear leading beacon is damaged, obscured or missing. / The rear range beacon is damaged, obscured or missing.
Rear Light is Operating Properly	230	The rear leading light is operating as advertised. / The rear range light is operating as advertised.
Rear Light Range Reduced	231	The nominal range of the rear leading light is reduced. / The nominal range of the rear range light is reduced.
Rear Light Unlit	232	The rear leading light is extinguished. / The rear range light is extinguished.
Rear Light Unreliable	233	The operation of the rear leading light is unreliable due to technical problems. / The operation of the rear range light is unreliable due to technical problems.
Rear Light Without Rhythm	234	Due to technical problems, the rear leading light has no rhythm and is in fixed light mode. / Due to technical problems rear range light has no rhythm and is in fixed light mode.
Regatta or Race	235	A short or long race of sail, oar or power craft along a predetermined course which may approach or cross navigation lanes.
Renewable Energy Device or Farm Change	236	The installation, removal, failure or damage of renewable energy devices (Wind turbines/farms, ocean current or wave power plants) which pose a hazard to safe navigation.
Restricted Area Changes	237	A new or revised specified area, temporary or permanent in nature, designated by an appropriate authority within which navigation is restricted in accordance with certain specified conditions.
Sandspit or Sandbar Change	238	Significant changes to the limits or depth of a known sandbar/sandspit, or the discovery of a new sandbar/sandspit, which poses a hazard to safe navigation.
SAR Exercise	239	A large scale activity where multiple vessels, surveillance aircraft, and shore-based personnel practice search and rescue techniques, in order to evaluate the effectiveness of response capability.
SAR Operation	240	A real time response by vessels, surveillance aircraft, and shore-based personnel participating in an active search and rescue operation.
Scientific Buoy Adrift	241	A buoy fit for scientific purposes which has broken free of its moorings or has been left free and is adrift.



Scientific Moorings	242	A submerged platform where a scientific instrument is secured and which may or may not be secured to the sea floor by means of an anchor chain.
Scientific Survey	243	An activity where one or more vessels, restricted in their ability to manoeuvre, navigate along a pre-determine grid pattern in order to collect scientific data.
Sea Trials	244	Sea testing phase of a vessel.
Seaplane Operations	245	Activity within a defined area on the water where seaplanes are actively engaged in take-off, landing or taxiing.
Seasonal Commissioning Complete	246	The completion of the process to place summer buoys (and the removal of any winter spar buoys).
Seasonal Commissioning in Progress	247	The commencement of the process to place summer buoys (and the removal of any winter spar buoys).
Seasonal Decommissioning Complete	248	The completion of the process to remove summer buoys (and possibly replace some with winter spar buoys).
Seasonal Decommissioning in Progress	249	The commencement of the process to remove summer buoys (and possibly replace some with winter spar buoys).
Sector Light - Sector Obscured	250	The light sector has been fully or partly obscured.
Sector Light Change	251	The characteristics of the sector light have been or will be changed.
Sector Light Temporary Change	252	The characteristics of the sector light have been or will be temporarily changed.
Security Regulation Change	253	Changes to the national, regional or port-specific maritime security regulations.
Seismic Survey Operation	254	The commencement or cessation of the complex operations of a seismic survey.
Shallow Depth Confirmed	255	Confirmed significant change to the depth or position of a charted sounding/shoal, or the discovery of a new shoal, which poses a hazard to safe navigation.
Shallow Depth Reported	256	Reported significant change to the depth or position of a charted sounding/shoal, or the discovery of a new shoal, which poses a hazard to safe navigation.
Spar Buoy Adrift	257	The spar buoy is no longer secured to its moorings and has gone adrift from its advertised position.
Spar Buoy Damaged	258	The spar buoy has been damaged due to external factors (wind, sea state, collision with a vessel).

Spar Buoy Destroyed	259	The spar buoy has suffered extensive damage and is not useable.
Spar Buoy Missing	260	No spar buoy at its advertised position or in the vicinity.
Spar Buoy Move	261	The spar buoy has been or will be moved intentionally.
Spar Buoy off Position	262	The spar buoy has been dragged off its advertised position due to wind or current affecting the mooring system.
Spar Buoy Re-established	263	The re-establishment of a spar buoy which was previously announced either destroyed or temporarily removed.
Spar Buoy Restored to Normal	264	The spar buoy has been restored to normal condition.
Spar Buoy Topmark Missing	265	The topmark of the spar buoy is missing.
Spar Buoy Withdrawn	266	The spar buoy has been removed from service for a fixed term.
Storm Surge	267	A rise above normal water level on the open coast due only to the action of wind stress on the water surface. Storm surge resulting from a hurricane or other intense storm also includes the rise in level due to atmospheric pressure reduction as well as that due to wind stress. A storm surge is more severe when it occurs in conjunction with a high tide. Also called storm tide, storm wave, tidal wave.
Submarine Cable Changes	268	Change in status, location or depth of a submerged or seabed cable which poses a hazard to safe navigation, anchoring or fishing.
Submarine Pipeline Changes	269	Change in status, location or depth of a submerged or seabed pipeline which poses a hazard to safe navigation, anchoring or fishing.
Submerged Object	270	Any object under water; not showing above water.
Subsurface Mooring	271	A mooring which is under water and which may or may not be secured to the sea floor by means of an anchor chain.
Swimmers	272	A single person or groups of persons will be / are swimming in or near navigation lanes.
Temporary Buoyage	273	The establishment of a buoy or group of buoys for a limited period of time (i.e. during summer season or during marine construction projects).
Tide Gauge Change	274	The installation or removal of a tide gauge.
Traffic Congestion	275	An area is experiencing a significantly high volume of vessel traffic which could potentially impede the progress of a vessel.

Tsunami Warning	276	An alert message concerning strong waves, the widespread inundation of water, due to an earthquake, landslide or volcanic eruption, which is issued when the threat is imminent, expected or occurring.
Uncharted Rock	277	A newly located rock, submerged or partially submerged rock, which had not been previously charted.
Underwater Operations	278	Underwater work to maintain or repair subsurface structures (e.g. drill head).
Unidentified Radar Target - Possible Iceberg	279	An unidentified radar target, within the advertised limits of ice, but not yet visually confirmed as being an iceberg.
Unwieldy Tow	280	A tow, which by the nature of the size, shape or dimensions of the object being towed, is cumbersome to effectively tow regardless of the conditions of the waterway.
V-AIS Change	281	The characteristics of the V-AIS have been or will be changed.
V-AIS Establishment	282	A new V-AIS has been or will be established.
V-AIS Operating Properly	283	Virtual AIS aid to navigation is operating as advertised.
V-AIS Out Of Service	284	Virtual AIS aid to navigation is extinguished.
V-AIS Removal	285	V-AIS has been or will be permanently removed from service.
V-AIS Temporary Change	286	The characteristics of the V-AIS have been or will be temporarily changed.
V-AIS Temporary Establishment	287	A new V-AIS has been or will be established for a limited period of time.
V-AIS Temporary Removal	288	V-AIS has been or will be temporarily removed from service.
V-AIS Unreliable	289	Virtual AIS aid is unreliable due to a technical issue or maintenance.
Vertical Clearance Reduced	290	The reduction in the vertical distance between the air draft of a vessel and the lowest point on a bridge structure, cable or pipeline of which the vessel is intending to pass underneath.
Vessel Adrift	291	A vessel at sea or which has lost mechanical capability and cannot be moored or anchored.
Vessel Disabled	292	A vessel adrift at sea or safely anchored/moored, which has been damaged or has experienced some sort of mechanical or electrical failure so it can no longer sail.
VHF Service Change	293	Any outage or return to operation of any VHF service (radiotelephone or digital selective calling).

Volcano Activity	294	Volcano activity impacting safe navigation.
VTS Change	295	Change to an existing vessel traffic service zone limit, procedure and or provision of broadcast service relating to vessels operating within that zone.
Waterway Recommended or Not Recommended For Shipping	296	Temporary or permanent changes to a waterway/fairway which may render it unsafe/safe for marine traffic.
Wharf Construction	297	The commencement or cessation of wharf construction.
Works in Progress	298	An active marine project, either on the surface or under water, which may affect the navigation of vessels.
World Health Organization Notice	299	Notice issued by World Health Organization to persons ashore or at sea.