**Intergovernmental Oceanographic Commission of UNESCO**

**Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG)**

**Tsunami Service Provider Messages for the Maritime Community**

**A Proposal to the World-Wide Navigational Warning Service Sub-Committee (WWNWS-SC)**

**29 January 2019**

The following is an initial proposal for the format, content, and dissemination of messages with tsunami guidance specifically for ships on the high seas from the Tsunami Service Providers (TSPs) of the four Tsunami Warning Systems operated by the Intergovernmental Oceanographic Commission (IOC) of UNESCO. This proposal was generated in response to discussions between representatives of the International Hydrographic Organization (IHO) and the IOC to improve the accuracy and consistency of messages issued by the NAVAREA coordinators for tsunami events. This proposal incorporates feedback received from the 10th session of the WWNWS-SC held in Monaco during 27-31 August 2018.

1. Messages would be created and disseminated only for potential and confirmed tsunami occurrences when forecast amplitudes at any coast within a TSP’s service area exceed pre-defined threat threshold (typically 0.3 meters), the minimum coastal amplitude considered to be a hazard.
2. Messages would be disseminated by each TSP by email to those NAVAREA coordinators who subscribe for receiving tsunami threat information within that TSP’s service area, based on the IOC Area of Service Map. (Please refer to Annex-I for the Area of Service Map. Note that multiple TSPs cover some NAVAREAs and each TSP covers multiple NAVAREAs. In case of multiple TSPs covering same NAVAREAs, the NAVAREA coordinator may note that threat assessment could differ from one TSP to the other and hence is advised to use the “worst-case” in formulating maritime safety messages).
3. The initial TSP maritime message would be issued to NAVAREA coordinators when the TSP issues its initial quantitative coastal forecast for the Member States within its IOC System. This is usually within 30 minutes of the earthquake that generated the tsunami. Note that a TSP may issue a qualitative advisory product to Member States preceding the initial quantitative coastal forecast products.
4. An additional TSP maritime message would be issued only if the forecast significantly changes.
5. One message would be issued indicating the final handling of the event by the TSP, usually when the threat has passed everywhere in the service area. However, the hazard may continue along some coasts and that status must be determined by local authorities.
6. NAVAREA coordinators would have the responsibility for turning TSP messages into maritime safety messages issued via SafetyNet to ships at sea.

***Message Format and Content***

The format and content of the proposed TSP messages generally follows the guidance given in the Manual on Maritime Safety Information – IHO Publication 53 (January 2016 Edition) in order that the conversion by NAVAREA coordinators to a maritime safety message be as simple as possible.

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| --- | --- | --- | --- | --- |
| Message  Element | Element Description | TSP Content | Queries | Summary of Clarifications by WWNWS-SC and TTTWO |
| 1 | NAVAREA name | NAVAREA having coasts with tsunami forecast amplitude exceeding the pre-defined threat threshold (typically 0.3 meter) | Can one message apply to more than one NAVAREA? | There is no need to put the NAVAREA name or number on the message(s) provided. The NAVAREA Coordinator for the area affected by the Tsunami Warning will provide this information. If the Tsunami Warning applies to more than one NAVAREA, the NAVAREA Coordinator understands the need to forward this information to the adjacent NAVAREA(s) that may be affected. While NAVAREA Coordinators are responsible for passing information to other affected NAVAREAs, there should not be a reliance upon this to receive tsunami warnings. All NAVAREA Coordinators should be responsible for subscribing to the warning service appropriate to their AOR, in reference to the IOC AoS map in Annex-I.  For example, the coverage map clearly shows that PTWS is the warning service that provides alerts to NAVAREA XIV, so it should be the responsibility of the NAVAREA XIV Coordinator to subscribed to alerts from this service. |
| 2 | General Area | Name of the general area forecast to be affected by the tsunami | Need to identify or create a standard area naming scheme for ocean areas. | Not mandatory for TSPs to use a standard naming scheme for General Area. They can describe in general terms which broad area the bulletin applies to (eg. Indian Ocean / Western Indian Ocean/ Eastern Indian Ocean / etc.). The NAVAREA Coordinator will refer to the chart coverage for the affected area(s) by the event and will utilize the naming convention found on those applicable charts, as appropriate. |
| 3 | Locality | Not Used |  |  |
| 4 | Chart Number | Not Used |  |  |
| 5 | Key Subject | Type of Tsunami Message (Confirmed Threat/Cancellation/etc.), issuing centre and issuing time.  A likely or confirmed tsunami, with key information about the source - usually an earthquake (lat/lon, region name, origin time). |  |  |
| 6 | Geographical Region | Names of countries/Islands (from a standard list) in NAVAREA with coasts forecast to have hazardous tsunami waves. | Need standard list of key harbors and their names. | It would be better to list only the names of Countries/Islands as standard text (not graphical) products.  TSPs can provide a geographic region name for the area affected, if desired. Additionally, they can provide key harbor names for the area effected, but it is not necessary to use a standardized list of key harbor names for the area. The NAVAREA Coordinator will refer to the chart coverage for the affected area(s) by the event and will utilize the naming convention found on those applicable charts, as appropriate. |
| 7 | Amplifying Remarks | Tsunami impact on ships in shallow waters. Consult local authorities of destination. |  |  |
| 8 | Cancellation Details | Indicate if final message and that continuing hazard possible. Must be evaluated locally. |  |  |

***Example Proposed TSP Maritime Messages***

Example 1 – A TSP initial message for a tsunami affecting 3 NAVAREAs

NAVAREA XI, NAVAREA XIII, NAVAREA X

NORTHEAST PACIFIC COASTS

TSUNAMI THREAT MESSAGE [or whatever the correct term will be] ISSUED BY PACIFIC TSUNAMI WARNING CENTRE [fill in name of the issuing TSP] in support of the UNESCO/IOC PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM [fill in name of the regional system] AT DDHHMM UTC MMM YY. [This clearly identifies that the message has been issued by the recognised expert]

A TSUNAMI HAS BEEN GENERATED BY A MAGNITUDE 8.4 EARTHQUAKE THAT OCCURRED IN VICINITY OF [Position] DD-MM N/S DDD-MM E/W, THE RYUKYU ISLANDS DDHHMM UTC MMM YY [this is the date/time of the earthquake, rather than the originating message]

HAZARDOUS TSUNAMI WAVES ARE FORECAST FOR SOME COASTS OF JAPAN, THE PHILIPPINES, AND INDONESIA [from a list of countries/islands]

TSUNAMI WAVES ARE NOT A HAZARD TO SHIPS IN DEEP WATER BUT CAN CAUSE STRONG CURRENTS AND RAPID SEA LEVEL CHANGES IN SHALLOW WATER, AS WELL AS INUNDATION OF THE COAST. SHIPS APPROACHING THE COAST SHOULD CONSULT LOCAL AUTHORITIES REGARDING LOCAL CONDITIONS AND ADVICES.

Example 2 – A TSP final message for a tsunami affecting 3 NAVAREAs

NAVAREA XI, NAVAREA XIII, NAVAREA X

NORTHEAST PACIFIC COASTS

TSUNAMI CANCELLATION MESSAGE [or whatever the correct term will be] ISSUED BY PACIFIC TSUNAMI WARNING CENTRE [fill in name of the issuing TSP] in support of the UNESCO/IOC PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM [fill in name of the regional system] AT DDHHMM UTC MMM YY. [This clearly identifies that the message has been issued by the recognised expert]

THE THREAT HAS NOW LARGELY PASSED FOR THE TSUNAMI GENERATED BY A MAGNITUDE 8.4 EARTHQUAKE THAT OCCURRED IN IN VICINITY OF [Position] DD-MM N/S DDD-MM E/W, THE RYUKYU ISLANDS DDHHMM UTC MMM YY [this is the date/time of the earthquake, rather than the originating message]

HOWEVER, SHIPS APPROACHING THE COAST SHOULD STILL CONSULT LOCAL AUTHORITIES REGARDING LOCAL CONDITIONS AND ADVICES.

**Annex I Existing Services of the Global Tsunami Warning System**

The map shown in this Annex indicates the area of coverage for each of the four Intergovernmental Coordination Groups for the tsunami warning systems in the Caribbean (CARIBE-EWS), Indian Ocean (IOTWMS), NE Atlantic, Mediterranean & connected seas (NEAMTWS), and the Pacific (PTWS). In addition, the map also shows Areas of Service of the Tsunami Service Providers (TSP)

