NATIONAL WEATHER SERVICE INSTRUCTION 10-303
MARCH 15, 2023

Operations and Services
Marine and Coastal Weather Services, NWSPD 10-3

MARINE AND COASTAL SERVICES STANDARDS AND GUIDELINES

NOTICE: This publication is available at: https://www.weather.gov/directives/.

OPR: W/AFS26 (M. Bailey) **Certified by:** W/AFS26 (G. Schoor)

Type of Issuance: Routine – Admin Update

SUMMARY OF REVISIONS: This directive supersedes NWS Instruction 10-303, *Marine and Coastal Services Standards and Guidelines*, dated March 15, 2023. This is an administrative update made only to change all references of "Gulf of Mexico" to "Gulf of America". No content changes were made with this update, and the effective date was not affected.

ALLEN.ALLISON.LEIGH.1365831072 Digitally signed by ALLEN.ALLISON.LEIGH.1365831072 Date: 2025.03.18 07:16:44 -04'00'

Allison Allen Date
Director
Analyze, Forecast and Support Office

Marine and Coastal Services Standards and Guidelines

Table of Contents **Page**

1 Purpose

To have the most value, it is essential that National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) marine weather products are consistent, accurate, available, and transmitted to and received by users in a timely manner. To this end, they are made available through a wide variety of dissemination vehicles outlined in this instruction. A complete discussion of the communication requirements and formats is given in NWS Instruction (NWSI) 10-1701, Text Product Formats and Codes.

1.1 Responsibilities

To ensure NWS marine weather products are effectively processed and disseminated, offices issuing them will ensure their products are clear, properly disseminated, and properly formatted.

1.2 General Guidelines

Forecasters are responsible for the timeliness, currency, and accuracy of the marine weather products issued for the marine area of responsibility. However, to the extent possible, forecasters should try to maintain spatial and temporal consistency between adjoining offices and from one forecast period to the next. Forecasters from Weather Forecast Offices (WFO), as well as the Ocean Prediction Center (OPC) and the National Hurricane Center's (NHC) Tropical Analysis and Forecast Branch (TAFB), will use the tools at their disposal to minimize discontinuities in gridded products prepared at adjoining offices as much as possible.

Marine forecasts will include significant or predominant weather events impacting marine users. Wind and sea conditions will always be included in NWS marine forecasts. To most effectively describe these conditions, one value or a small range of values should be used. To avoid confusion, transition terms for winds and seas should be discrete and consistently used. Wind speed transition terms, such as "INCREASING" and "DIMINISHING," and direction transition terms, such as "BECOMING" and "SHIFTING," should be used to add clarity to the forecast trends. The terms "VEERING," "BACKING," "BECOMING," "SHIFTING," or "RISING" may be used when appropriate, but **not** "DECREASING". For seas, transition terms such as "BUILDING" and "SUBSIDING" should be used.

NWS marine products may include tidal information. If tidal information is included, it should cover no more than 24 hours, and will be based on official government observations or predictions.

Marine forecasts should not use the word "under" when describing winds below a certain threshold. Instead, use the words "less than". For instance, in the High Seas Forecast, state "WINDS LESS THAN 20 KT" versus "WINDS UNDER 20 KT". Similarly, do not use the word "below" when describing seas less than a certain threshold. Instead, use "less than". For instance, in the High Seas Forecast, state "SEAS LESS THAN 8 FT" versus "SEAS BELOW 8 FT". Also, use separate sentences when describing the wind and sea conditions in the Offshore Waters and High Seas Forecasts.

2 Update Guidelines

Forecasters should update gridded and text forecasts whenever existing or expected weather

conditions differ significantly (i.e., there is a change in a warning or advisory status) from the forecast and are expected to continue for more than two (2) hours. If an amendment is needed near the next scheduled forecast time (i.e., within an hour), the forecaster may issue that forecast early in lieu of an amendment. Specific instructions and criteria are described in NWSIs 10-310, 10-311, and 10-312.

Based on available information, use the following guidelines for updating marine forecasts. The regions and local offices may develop local updating procedures and criteria to supplement these guidelines.

2.1 Wind

Amend if the following occur or may occur:

a. There is an unpredicted change in status of advisories or warnings.
b. Highest sustained wind speed increases or diminishes 10 knots (KT) or more from forecast (20 KT or more if no change in hurricane force wind warning status occurs).
c. Mean wind direction changes by more than 45 degrees from forecast when speeds are 20 KT or greater.
d. Mean wind direction changes by more than 60 degrees from forecast when speeds are less than 20 KT).
e. Sustained wind and/or gust conditions may begin to affect marine operations adversely or favorably.

2.2 Seas

Amend if unpredicted wind wave, swell, or combined seas may begin to affect marine operations either adversely or favorably.

2.3 Visibility

For WFOs providing visibility forecasts, amend if the following occur:

a. No restriction to visibility is in the forecast and the forecast visibility of five (5) nautical miles (NM) or more changes to **one (1) NM** or less over a significant part of the forecast area.
b. Forecast visibility of one (1) NM or less increases to **five (5) NM** or more over a significant part of the forecast area.

2.4 Weather

Amend if significant, unpredicted changes in weather may begin to affect marine operations either adversely or favorably.

2.5 Severe Local Storm Watches

If a watch for severe local storms is issued over Coastal or Nearshore Waters marine zones, the routine marine forecast will be updated.

3 Warning/Advisory Guidelines

Criteria for all marine warnings and advisories are defined in Appendix A. Instructions on short-

duration warning events (less than two hours) are contained in NWSI 10-313.

Headline standards and other appropriate methods for highlighting long duration events (more than two hours) are described in NWSIs 10-310, 10-311, and 10-312.

If, in a forecast, a forecaster includes a range of winds or seas that cross a warning or advisory threshold, the highest value will determine the advisory or warning category (e.g., a gale warning is issued for a forecast of "Winds 25 to 35 KT").

Forecasters may use frequent gusts rather than the sustained winds if these values better describe existing conditions. Refer to Appendix A for the definition of "frequent gusts".

If a tropical cyclone is anticipated to impact a marine area, the headlines associated with that system, as issued by the NHC, Central Pacific Hurricane Center (CPHC), or WFO Guam (based on Joint Typhoon Warning Center (JTWC) guidance) supersede all other headlines.

4 Coordination and Collaboration

Field offices with adjoining or overlapping areas of responsibility should coordinate and collaborate to ensure products are consistent and compatible. This effort includes communication with appropriate governmental forecast agencies outside the United States.

Forecasters should reference Section 4, Inter-site Coordination and Collaboration, of NWSI 10-201, National Digital Forecast Database and Local Database Description and Specifications for detailed information on the coordination and collaboration processes for gridded forecasts and analyses.

4.1 U.S. Coast Guard (USCG)

The USCG disseminates marine safety messages, including marine weather forecasts and warnings, to mariners in and around the U.S. coastline. It also retrieves and forwards observational data to the NWS. National, regional, and local level NWS managers should closely work with their USCG counterparts to ensure the most effective level of service is provided.

4.2 Assistance to the NOAA Office of Response and Restoration (NOAA HAZMAT)

For Hazardous materials (HAZMAT) releases, NWS marine forecast offices will maintain current phone numbers and contact information of their NOAA HAZMAT Scientific Support Coordinator(s) (SSC(s)). Offices will also maintain standard procedures to anticipate and respond to the specialized forecasting needs of an oil spill or other marine HAZMAT release. Visit http://response.restoration.noaa.gov.

4.3 Users

To ensure user needs are being met, the NWS will maintain regular contact with users of its marine products (i.e., USCG, recreational and commercial mariners, U.S. Power Squadrons, etc.). Similarly, the NWS will cooperate with other NOAA offices to meet organizational goals.

5 Product Header Formats

All marine products issued by the NWS will have common product headers. Included in these headers are:

(WMO ID)(ISSUANCE TIME)(AMENDMENT/CORRECTION IDENTIFIER) (AWIPS ID)

PRODUCT NAME [+ Optional descriptor]
NATIONAL WEATHER SERVICE (CITY) (STATE)(or OFFICE ID)
(VALID TIME) AM/PM (TIME ZONE) (DAY) (DATE-MON DAY YEAR)
[Refer to NWSI 10-1701 for further guidance on headers]

5.1 World Meteorological Organization (WMO) Identifier (ID)

The WMO has established a scheme used throughout the world for identifying meteorological products. These codes are defined in WMO Manual 386: https://community.wmo.int/en/activity-areas/operational-information-service/volume-c1. Each alphanumeric marine product issued by the NWS will have an appropriate WMO header.

5.2 Issuance Time

This time is automatically placed on every product transmitted.

5.3 Amendment/Correction Identifier

This is a three-letter code to denote if a product has been non-routinely amended (AAX) or corrected (CCX). Use separate letters to denote more than one change (e.g., CCA, CCB, and CCC).

5.4 Advanced Weather Interactive Processing System (AWIPS) ID

Each NWS alphanumeric product has been assigned a six-letter identifier (see Appendix C). Each alphanumeric marine product issued by the NWS will include an appropriate AWIPS ID.

5.5 Product Name

This is the common phrase describing what the product is (e.g., COASTAL WATERS FORECAST). Each alphanumeric marine product issued by the NWS will include an appropriate product name.

5.6 City/State

Each alphanumeric marine product issued by the NWS will include the appropriate city and state in which the office issuing the product is located.

5.7 Office ID

The forecast branches of the NHC and OPC should include their office identifiers in this location.

5.8 Issuance Date/Time

This is the date/time the product was issued in local time. In products that span multiple time zones, the date/time may be shown in Coordinated Universal Time (UTC), rather than local time.

For high seas forecasts broadcast via SafetyNET, the date/time should reflect the scheduled broadcast time of the forecast.

5.9 Universal Geographic Code (UGCs)

In the coastal and offshore waters and Great Lakes, all marine zones have been assigned UGCs as noted in NWSI 10-302. Forecasts, statements, and warnings including these areas will contain the UGC line identifying the marine zones impacted by the product. As in NWSI 10-1702, the format of this line is: "(UGC CODE[S])-(EXPIRATION TIME)-."

5.10 Valid Time Event Code (VTEC)

When required, VTEC line(s) will be included on the line immediately below the UGC line as in NWSI 10-1703. The current VTEC-enabled NWS product suite, along with other information regarding implementation of VTEC, is available on the Internet at: https://www.weather.gov/vtec/.

6 Communication Systems

Marine products are disseminated through a variety of systems, including the following: NOAA Weather Radio; USCG and other governmental and commercial radio stations, Navigational Teleprinter Exchange (NAVTEX), Simplex Telephone Exchange over Radio (SITOR), and radio facsimile broadcasts; Internet and other computer-to-computer systems; and satellite-based systems, such as SafetyNET and the Emergency Managers Weather Information Network (EMWIN). Complete information on these systems can be found via the NWS Marine Forecasts webpage at: https://weather.gov/marine/. Other systems may be added with coordination through NWS headquarters, Office of Dissemination. Several of the most widely used marine dissemination systems are described below.

6.1 NOAA Weather Radio (NWR)

NWSI 10-1710 provides overall policy on NWR. The marine portion of the NWR program should routinely include the latest forecasts for marine areas within the radio's broadcast area and a summary of local area marine observations. Marine watches, warnings, and advisories should be emphasized. Additional information, such as offshore waters forecasts, oceanographic conditions, tidal data, etc., may be included based on local user requirements. The amount and content of the marine products broadcast over the NWR may be adjusted according to the time of day and season.

Special Marine Warnings (SMWs) affecting any part of a NWR listening area should be immediately placed in the broadcast cycle. Use of the 1050 Hertz (Hz) warning alarm for SMWs is at the forecaster's discretion, in accordance with NWSI 10-1710. Broadcast of other non-routine marine products is at the discretion of the local office manager, based on local user requirements. Broadcasts of emergency marine information, such as MAYDAYs and Public Service Announcements, should be in accordance with NWSI 10-1710.

6.1.1 NWR Specific Area Message Encoding (SAME)

The SAME event codes, listed below, should be broadcast via NWR. WFOs should periodically review, as well as immediately inform, the Analyze, Forecast and Support Office, Marine and Coastal Services Branch (W/AFS26) of any changes to NWR programming as listed at

https://weather.gov/nwr/nwrsame by sending corrections via e-mail to marine.weather@noaa.gov.

EVENT	SAME EVENT CODE
Hurricane Watch*	HUA
Hurricane Warning*	HUW
Hurricane Local Statement*	HLS
Severe Thunderstorm Watch	SVA
Special Marine Warning	SMW
Tornado Watch	TOA
Tropical Storm Watch*	TRA
Tropical Storm Warning*	TRW
Tsunami Watch#	TSA
Tsunami Warning#	TSW

*Not applicable to Great Lakes and Alaska forecast areas.
#Not applicable to Great Lakes.

6.2 USCG Radio Broadcasts

The USCG is a prime disseminator of marine weather information for the United States via high frequency (HF), medium frequency (MF) and very high frequency (VHF) voice, NAVTEX (an international automated MF direct-printing service), SITOR, and radio facsimile (U.S. Navy in Hawaii). Lists of NWS products and broadcast schedule information are available under the NWS Marine Forecasts webpage at https://weather.gov/marine The USCG receives NWS text forecasts via the NOAA Weather Wire System (NWWS), using the Internet as a backup.

6.3 Internet

All NWS marine weather products, text and graphics, should be accessible on the Internet, to the extent possible. Each WFO and National Center should maintain a marine webpage providing such information as local forecasts, tide predictions, and local observations.

6.4 FTPMAIL

NWS radiofax charts, marine text products, and buoy/Coastal-Marine Automated Network (C-MAN) observations are available via e-mail. The FTPMAIL server will be maintained by NWS headquarters and is intended to allow Internet access for mariners and other users, who do not have direct access to the World Wide Web, but who are equipped with an e-mail system. For the FTPMAIL "Frequently Asked Questions" file, visit: https://weather.gov/media/marine/ftpmail.txt.

6.5 Digital Marine Weather Dissemination System (DMAWDS)

DMAWDS is a web-based system with restricted access, Volunteer Observing Ship (VOS) participants, and other users authorized by WFOs receive products from it.

6.6 Radiofax

Per NWSI 10-311, NWS prepares high seas weather maps, satellite images, ice charts, etc., for broadcast via four USCG stations (Boston, New Orleans, Pt. Reyes, and Kodiak) and one

Department of Defense (DoD) transmitter site (Honolulu). Content and scheduling of these broadcasts is centrally managed by the NWS Marine, Tropical, and Tsunami Services Branch (AFS26). Proposed changes to the product suite or broadcast times will be coordinated with AFS26, National Centers, and adjacent WFOs from earliest development stages. User notification will be in accordance with NWSI 10-1805. User notification for major changes should also include the USCG's and the National Geospatial-Intelligence Agency's (NGA's) "Notices to Mariners," which will be coordinated by AFS26. General information on radiofax and links to products may be found at: https://weather.gov/marine/radiofax_charts.

6.7 Other Dissemination Systems

NWS marine products are distributed by other means, including several common to other NWS forecasts including telephone recordings, NWWS, EMWIN, NOAA's Satellite Broadcasting Network (SBN or NOAAPort), etc. For more detailed information, see the NWS Marine forecasts webpage at: https://weather.gov/marine/.

Appendix A – Definitions

Ashfall Advisory: An advisory issued for a volcano undergoing an eruption where there is the potential mariners could be affected significantly by hazards such as less than 1/4" of ashfall accumulation, pumice rafts, or some floating debris.

Ashfall Warning: A warning issued for a volcano undergoing a major eruption where there is the likelihood that mariners could be affected significantly by hazards such as greater than or equal to 1/4" of ashfall accumulation, significant debris, lava, or lahar flows.

Brisk Wind Advisory: A small craft advisory issued for ice-covered waters. Not issued for the Great Lakes.

Coastal/Lakeshore Hazard Message (CFW): An NWS product issued to describe coastal and lakeshore flooding, high surf, and, at WFO option, a high risk of rip currents. A Coastal/ Lakeshore Flood Advisory will be issued when minor flooding is possible (i.e., over and above normal high tide levels). A Coastal/Lakeshore Flood Watch will be issued when flooding with significant impacts is possible. Additionally, a Coastal/Lakeshore Flood Warning will be issued when flooding that will pose a serious threat to life and property is occurring, imminent, or highly likely. See NWSI 10-320 for more information.

Coastal Waters Forecast (CWF): The marine forecast for areas, including bays, harbors, and sounds, from a line approximating the mean high water mark (average height of high water over a 19-year period) along the mainland or near shore islands extending out to as much as 100 NM. Refer to NWSI 10-302 for a complete list of marine zones.

Cold Front: The leading, progressive edge of a density discontinuity ahead of a cooler/drier airmass. These boundaries tend to be narrower than warm fronts due to the higher density low-level air in their wake which helps drive their forward motion. Over the continent, a minimum of 6°C (10°F) over 500 kilometers (300 NM) is usually needed for a frontal zone with smaller differences needed over the oceans.

Dense Fog Advisory: An advisory for widespread or localized fog reducing visibilities to regionally or locally defined limitations not to exceed one NM.

Dense Smoke Advisory: An advisory for widespread or localized smoke reducing visibilities to regionally or locally defined limitations not to exceed one NM.

Developing Gale/Storm: In the High Seas and Offshore forecasts, this terminology is a headline used in the warnings section to indicate that gale/storm force winds are not now occurring but are expected before the end of the forecast period.

Dryline: The leading edge of a significant density/dewpoint discontinuity forced by foehn winds off the Rockies, usually ahead of a significant synoptic scale system moving through the West/Southwest United States. They usually progress eastward during the heating of the day, and westward at night. A tight 14°C (25°F), or a broader 17°C (30°F), dewpoint gradient is used

to help determine the existence of a dryline. The dryline does not have to be the leading edge of all the change in the dewpoint, merely where the best gradient/leading edge of foehn winds exists (mainly after Bluestein).

Freezing Spray Advisory: This is an advisory for an accumulation of freezing water droplets on a vessel at a rate of less than two centimeters (cm) per hour caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Frequent Gusts: Wind gusts of long duration, typically greater than two hours during a 12-hour forecast period.

Gale Warning: A marine warning of sustained surface winds, or frequent gusts, in the range of 34 knots (39 miles per hour (mph)) to 47 knots (54 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Gale Watch: A watch for an increased risk of a gale force wind event for sustained surface winds, or frequent gusts, of 34 knots (39 mph) to 47 knots (54 mph) inclusive, but its occurrence, location, and/or timing is still uncertain.

Great Lakes Marine Alert Message (MAW): A message generated whenever storm force or greater winds are included in any open lakes forecast.

Great Lakes Marine Forecast (MAFOR): A coded version appended to each of the Great Lakes open lakes forecasts.

Great Lakes Weather Broadcast (LAWEB): An observation summary prepared to provide Great Lakes mariners with a listing of weather observations along or on the Lakes.

Hazardous Seas Warning: A warning for wave heights and/or wave steepness values meeting or exceeding locally defined warning criteria.

Hazardous Seas Watch: A watch for an increased risk of a hazardous seas warning event to meet Hazardous Seas Warning criteria but its occurrence, location, and/or timing is still uncertain.

Heavy Freezing Spray Warning: A warning for an accumulation of freezing water droplets on a vessel at a rate of two cm per hour or greater (0.7 cm per hour or greater in Alaska Region) caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Heavy Freezing Spray Watch: A watch for an increased risk of a heavy freezing spray event to meet Heavy Freezing Spray Warning criteria but its occurrence, location, and/or timing is still uncertain.

High Pressure System: A relative maximum in the pressure pattern, usually accompanied by at least one closed isobar, which normally has an outward, clockwise circulation from its center in

the Northern Hemisphere and an outward, counterclockwise circulation in the Southern Hemisphere.

High Seas Forecasts (HSFs): Marine forecasts for the major oceans of the world. In this context, major gulfs or seas (e.g., the Gulf of America or the Bering Sea) are included within these forecast areas. Areas of responsibility for the United States are determined by international agreements under the auspices of the WMO.

High Surf Advisory: A High Surf Advisory is issued when breaking wave action poses a threat to life and property within the surf zone. High surf criteria vary by region. High Surf Advisories are issued using the Coastal Hazard Message (CFW) product.

High Surf Warning: A High Surf Warning is issued when breaking wave action results in an especially heightened threat to life and property within the surf zone. High surf criteria vary by region. High Surf Warnings are issued using the Coastal and Lakeshore Hazard Message (CFW) product.

Hurricane/Typhoon Warning: For the Atlantic, Eastern Pacific, Central Pacific, and Western North Pacific hurricane basins, an announcement that sustained winds of 64 knots (74 mph or 119 km/hour) or higher are expected somewhere within the specified area in association with a tropical, subtropical, or post-tropical cyclone. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical storm force winds (24 hours for the Western North Pacific). A hurricane or typhoon warning can remain in effect when dangerously high water or a combination of dangerously high water and waves continue, even though winds may be less than hurricane or typhoon force.

Hurricane Force Wind Warning: A marine warning for sustained winds, or frequent gusts, of 64 knots (74 mph) or greater, either predicted or occurring, and not directly associated with a tropical cyclone.

Hurricane Force Wind Watch: A watch for an increased risk of a hurricane force wind event for sustained surface winds, or frequent gusts of 64 knots (74 mph) or greater, but its occurrence, location, and/or timing is still uncertain, and not directly associated with a tropical cyclone.

Inter-Tropical Conversion Zone (ITCZ): A zonally elongated axis of surface wind confluence of northeasterly and southeasterly trade winds in the tropics.

Knot (abbrev. KT): Unit of speed used in navigation, equal to one (1) nautical mile (the length of one (1) minute latitude) per hour or about 1.15 statute miles per hour, or 0.5 meters/second).

Low Pressure System: A relative minimum in the pressure pattern, usually accompanied by at least one closed isobar, which normally has an inward, counterclockwise circulation in the Northern Hemisphere and an inward, clockwise circulation in the Southern Hemisphere.

Low Water Advisory: An advisory to describe water levels which are significantly below

average levels over the Great Lakes, coastal marine zones, and any tidal marine area, waterway, or river inlet within or adjacent to a marine zone that would potentially be impacted by low water conditions creating a hazard to navigation.

Marine Weather Message (MWW): A product issued to describe long duration (greater than two hours) marine weather hazards impacting the coastal waters and Great Lakes. This product is used to issue marine watches, marine warnings, and marine advisories (e.g., gale, storm, hurricane force wind events). See NWSI 10-315 for more information.

Marine Weather Statement (MWS): A product issued to provide mariners with details on significant or potentially hazardous conditions not otherwise covered in existing marine warnings and forecasts. See NWSI 10-314 for more information.

Marine Wind: The wind value stated in a Marine or Great Lakes NWS forecast is an expected wind at 10 meters above the sea surface averaged over a two-minute period.

Marine Wind Gust: The wind gust value stated in a Marine or Great Lakes NWS forecast is an expected maximum five-second wind speed forecast to occur within a two-minute interval at a height of 10 meters above the sea surface.

Monsoon Trough: A surface trough in association with a monsoon circulation. This is depicted by a line on a weather map showing the location of minimum sea level pressure coinciding with the maximum cyclonic turning of the surface winds, with southwesterly or northwesterly flow prevailing equatorward and northeasterly flow prevailing poleward of the typically zonally oriented trough axis.

Nautical Mile (NM): A unit of distance used in marine navigation and marine forecasts. It is equal to 1.15 statute miles or 1,852 meters. It is also the length of one (1) minute of latitude.

Nearshore Marine Forecast (NSH): The marine forecast for an area of the Great Lakes from a line approximating mean low water datum along the coast or an island, including bays, harbors, and sounds, out to five (5) NM. Refer to NWSI 10-302 for a complete list of zones.

Occluded Front: A front that forms southeast/east of a cyclone that moves deeper into colder air, in the late stages of wave-cyclone development. Cold occlusions result when the coldest air surrounding the cyclone is behind its cold front, and are normally seen on the west sides of ocean basins and with clipper systems descending from the arctic. Warm occlusions form when the coldest air surrounding the cyclone is ahead of its warm front, forcing the cold front aloft. Warm occlusions are normally seen on the east side of ocean basins and just to the lee of the United States portion of the continental divide (mainly after Glickman, 2000).

Offshore Waters Forecast (OFF): A marine forecast for that portion of the oceans, gulfs, and seas beyond the coastal waters extending to a specified distance from the coastline, to a specified depth contour, or covering an area defined by specific latitude and longitude points. Refer to NWSI 10-302 for a complete list of zones.

Open Lakes Forecast (GLF): The marine forecast for the U.S. waters within a Great Lake not including the waters covered by an existing Nearshore Waters Forecast. Refer to NWSI 10-302 for a complete list of zones.

Outflow Boundary: A mesoscale surface boundary formed by the horizontal spreading of thunderstorm-cooled air. These features may last more than a day (after Glickman, 2000).

Rip Current: A relatively small-scale surf-zone current moving away from the beach. Rip currents form as waves disperse along the beach causing water to become trapped between the beach and a sandbar or other underwater feature. The water converges into a narrow, river-like channel moving away from the shore at high speed.

Severe Thunderstorm Watch: A watch issued when conditions become favorable for severe thunderstorms to develop and headlined in the Coastal Waters Forecast, the Great Lakes Open Lakes Forecast, and the Nearshore Marine Forecast. Reference NWSI 10-512 for severe thunderstorm watch criteria.

Shearline: The final stage in the life cycle of a cold front over the subtropics and tropics. Lying equatorward of the subtropical ridge, these boundaries have lost all temperature contrast over the warm ocean and have minimal dewpoint contrast across them. They delineate an area where wind speed quickly increases on the poleward side at least 10 knots from nearly the same direction (within 45 degrees). Since mid- and high-level cloudiness previously associated with the cold front has dissipated due to lack of upper level support, a shearline is indicated on satellite imagery as the leading edge of a line of low-level clouds with tops near 10,000 feet. Shearlines lie in troughs, but due to lack of surface data over the subtropical/tropical ocean, the trough may not be recognized in the available surface observations. Using streamline analysis, a shearline is denoted by a confluence of streamlines equatorward and west of the col area where a cold front divides the subtropical ridge. The symbol for shearline is a red colored alternating dot-dash pattern.

Significant Wave Height: The mean or average height of the highest one third of all waves in a swell train or in a wave generating region. It approximates the value an experienced observer would report if visually estimating sea height. When expressed as a range (e.g., Seas 2-4 feet), indicates a degree of uncertainty in the forecast and/or expected changing conditions (not that all waves are between 2-4 feet).

Small Craft Advisory (SCA): An advisory issued by coastal and Great Lakes WFOs for areas included in the Coastal Waters Forecast or Nearshore Marine Forecast products. Thresholds governing the issuance of small craft advisories are specific to geographic areas.

NWS Region Thresholds for SCAs

Eastern - Sustained winds or frequent gusts ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for lakes, harbors, bays, etc.) and/or seas or waves four (4) to seven (7) feet and greater, area dependent (four (4) feet on the Chesapeake Bay).

Central - Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots

inclusive, and/or seas or waves greater than four (4) feet.

Southern - Sustained winds of 20 to 33 knots, and/or forecast seas seven (7) feet or greater that are expected for more than two (2) hours.

Western - Sustained winds of 21 to 33 knots, or frequent gusts, and/or wave heights exceeding 10 feet (or wave steepness values exceeding local thresholds).

Alaska - Sustained winds or frequent gusts of 23 to 33 knots. A small craft advisory for rough seas may be issued for sea/wave conditions deemed locally significant, based on user needs, and should be no lower than eight (8) feet.

Pacific - Sustained winds 25 to 33 knots and/or seas 10 feet or greater; except in Guam and the Northern Marianas Islands where it is sustained winds or frequent gusts of 22 to 33 knots and/or seas of 10 feet or greater, and in American Samoa where it is sustained winds of 20 to 33 knots and/or seas of eight (8) feet or greater.

Special Marine Warning (SMW): A warning of potentially hazardous weather conditions usually of short duration (two hours or less) producing sustained marine thunderstorm winds or associated gusts of 34 knots or greater; and/or hail 3/4 inch or more in diameter; and/or waterspouts affecting areas included in a Coastal Waters Forecast, a Nearshore Marine Forecast, or an Great Lakes Open Lakes Forecast that is not adequately covered by existing marine warnings. Also used for short duration mesoscale events such as a strong cold front, gravity wave, squall line, etc., lasting two (2) hours or less and producing winds or gusts of 34 knots or greater. In offices without VTEC, the Special Marine Warning can be utilized to issue Ashfall Warnings. See NWSI 10-313 for more information.

Squall Line: A solid line of convection, usually associated with rapid pressure fluctuations and high winds. The squall line will normally be placed at the leading edge of the wind shifts and inside the leading pressure trough. The symbol for squall line is a red colored alternating two dot-dash pattern.

Stationary Front: The equatorward edge of a slow-moving density discontinuity with a motion of less than 10 knots (12 mph). Winds tend to lie parallel to these boundaries. Over the continent, a minimum of 6°C (10°F) over 500 km (300 NM) is usually needed for a frontal zone with smaller differences required over the oceans.

Storm Warning: A marine warning of sustained surface winds, or frequent gusts, in the range of 48 knots (55 mph) to 63 knots (73 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Storm Watch: A watch for an increased risk of a storm force wind event for sustained surface winds, or frequent gusts, of 48 knots (55 mph) to 63 knots (73 mph) inclusive, but its occurrence, location, and/or timing is still uncertain.

Surf Zone Forecast (SRF): A forecast issued for the very narrow area of water between the high

tide level on the beach and the seaward side of breaking waves.

Swell: Wind-generated waves that have traveled out of their generating area. Swells characteristically exhibit smoother, more regular and uniform crests and a longer period than wind waves.

Tornado Watch: A watch issued when conditions become favorable for tornadoes to develop and headlined in the Coastal Waters Forecast, the Great Lakes Open Lakes Forecast, and the Nearshore Marine Forecast. Reference NWSI 10-512 for tornado watch criteria.

Tropical Storm Warning: An announcement that sustained winds of 34 to 63 knots (39 to 73 mph or 63 to 118 km/hour) are *expected* somewhere within the specified area within 36 hours (24 hours for the western North Pacific) in association with a tropical, subtropical, or post-tropical cyclone.

Tropical Wave (formerly known as inverted trough): A trough or cyclonic curvature maximum in the trade wind easterlies. The wave may reach maximum amplitude in the lower middle troposphere, or may be the reflection of an upper tropospheric cold low or an equatorward extension of a mid-latitude trough.

Trough: An elongated area of low pressure with no distinct low level center. Winds usually flow cyclonically through it, outside of terrain influences.

Warm Front: The equatorward edge of a density discontinuity behind a retreating/modified cool/dry airmass. This type of frontal zone is significantly broader than a cold front, due to the slower erosion of the superior density airmass ahead of the boundary. Over the continent, a minimum of 6°C (10°F) over 500 km (300 NM) is usually needed for a frontal zone while smaller differences are necessary over the oceans.

Waterspout: In general, a tornado occurring over water. Specifically, it normally refers to a small, relatively weak rotating column of air over water beneath a cumulonimbus (Cb) or towering cumulus cloud. Waterspouts are most common over tropical or subtropical waters. The exact definition of waterspout is debatable. In most cases, the term is reserved for small vortices over water that are not associated with storm-scale rotation (i.e., they are the water-based equivalent of landspouts). But there is sufficient justification for calling virtually any rotating column of air a waterspout if it is in contact with a water surface.

Appendix B – Accepted Abbreviations

The following have been agreed to by the NWS and the USCG for use in marine text forecasts:

Day of Week	SUN, MON, TUE, WED, THU, FRI, SAT
Months	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC

Direction	N, NE, E, SE, S, SW, W, NW
Latitude / Longitude	N, S, E, W (e.g., 27N 97W)
Latitude / Longitude Points	e.g., 05N 109.5W, 16N 108W, 00N 76W, 27N 180W (Avoid decimals where possible)

Atlantic = ATLC
Average = AVG
Degree = DEG
Equator = EQ
Fathom(s) = FM
Foot / Feet = FT
Hurricane = HURCN
Inter-Tropical Convergence Zone = ITCZ
Knot(s) = KT
Latitude = LAT
Longitude = LONG
Millibar(s) = MB
Nautical Mile(s) = NM
Pacific = PAC
Pressure = PRES
Position = PSN
Quadrant = QUAD
Thunderstorm(s) = TSTM(S)
Visibility = VSBY

The following additional terms may be used for radiofax graphics; however, they should be shown in a radiofax Legends Key and other outreach materials to assist mariners in learning the meaning of these terms. Additional abbreviations may be used following coordination among Offices/Centers producing radiofax products and AFS26:

Tropical Cyclone = TC
Tropical Depression = TD
Tropical Storm = TS

Appendix C – Text Marine Product List by AWIPS ID

XXX is the three letter identifier of the office issuing the product; VVV is a two or three letter identifier designating specific areas for the High Seas, NAVTEX, or Offshore Waters Forecasts; ZZ is a two letter identifier designating a specific Great Lake for the Open Lake Forecast; and YYY is a three letter identifier of the appropriate ocean (PAC (Pacific) or ATL (Atlantic)) for the Marine Weather Discussion.

PRODUCT	AWIPS IDENTIFIER
Coast Guard Report	CGRXXX
Coastal / Lakeshore Hazard Message	CFWXXX
Coastal Waters Forecast	CWFXXX
Open Lakes Forecast	GLFZZ
High Seas Forecast	HSFVVV
Marine Forecast Matrix	MFMXXX
Marine Weather Discussion	MIMYYY
MAROB Observations	MOBXXX (experimental)
Marine Weather Statement	MWSXXX
Marine Weather Message	MWWXXX
Nearshore Forecast	NSHXXX
NAVTEX Forecast	OFFVVV
Offshore Forecast	OFFVVV
Other Marine Report	OMRXXX
Plain Language Ship Report	PLSXXX
Special Marine Warning	SMWXXX
Surf Zone Forecast	SRFXXX
Tide Report	TIDXXX