

**NATIONAL WEATHER SERVICE INSTRUCTION 10-703**

**JULY 28, 2022**

**Operations and Services**

**Tsunami Warning Services, NWSPD 10-7**

**POST-TSUNAMI AND WARNING EFFECTIVENESS SURVEYS**

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**SUMMARY OF REVISIONS:** This directive supersedes NWS Instruction 10-703, “*Post-Tsunami and Warning Effectiveness Surveys*,” dated February 16, 2017. This instruction includes the following changes:

1. Removed reference to the Caribbean Warning Program.
2. Clarified when to invoke Section 3. Domestic Post-Tsunami Warning/Advisory Effectiveness Surveys (WES).

July 14, 2022

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Date

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**Post-Tsunami and Warning Effectiveness Surveys**

<b>Table of Contents</b>	<b>Page</b>
1. Introduction .....	2
2. Post-Tsunami Surveys .....	2
2.1 Criteria .....	3
2.2 Authority .....	3
2.3 Process .....	4
3. Domestic Post-Tsunami Warning/Advisory Effectiveness Surveys .....	4
3.1 Criteria .....	4
3.2 Authority .....	4
3.3 Process .....	4
3.3.1 Conducting the Emergency Management Survey .....	5
3.3.2 Conducting the Public Feedback Survey .....	5

**1. Introduction**

This instruction describes domestic and international Post-Tsunami Surveys (PTS) as well as Warning/Advisory Effectiveness Surveys (WES).

A PTS is an investigation to determine the physical extent of tsunami inundation and damage and to capture eyewitness accounts of the impact. A PTS follows a different process from Post-Storm Data Acquisition activities. NWS Post-Storm Data Acquisition activities are conducted after unusually destructive and significant hydrometeorological, oceanographic, or geologic events resulting in warning and/or other operational activities by the NWS. See National Weather Service Instruction (NWSI) [10-1604](#), Post-Storm Data Acquisition for the policies and procedures associated with those activities.

A domestic Post-Tsunami WES is an assessment of the U.S. tsunami warning system. A WES is conducted after a significant tsunami warning and/or advisory has been issued for a location within the United States (U.S.) and impact occurred or was expected. The tsunami warning system includes NWS Tsunami Warning Centers (TWCs), International Tsunami Information Center (ITIC), Weather Forecast Offices (WFOs), NWS Impact-based Decision Support Services (IDSS) staff, National Tsunami Hazard Mitigation Program (NTHMP) partners, and local warning capabilities. A WES is conducted in conjunction with NTHMP partners of jurisdiction, and consists of questionnaires provided to emergency management personnel.

**2. Post-Tsunami Surveys**

The purpose of a PTS is to observe and document the effects of tsunamis, especially through tsunami eyewitness reports, and to collect perishable data on tsunami impacts, in order to: a) learn about the nature and impact of the tsunami; and b) be able to make recommendations on the need for further research, planning, mitigation, and preparedness. In the case of a U.S. event, these data are immediately made available and shared with the affected U.S. State or Territory. In the event of an international event, these data are shared with the appropriate country or

countries. Data sharing will facilitate damage assessment needs and enable more informed disaster response decision-making.

## **2.1 Criteria**

A PTS is triggered by the occurrence of a domestic significant tsunami or request for assistance through the United Nations Educational, Scientific and Cultural Organization (UNESCO) International Oceanographic Commission (IOC) as described below.

## **2.2 Authority**

The National Oceanic and Atmospheric Administration (NOAA)-hosted Interagency Council for Advancing Meteorological Services (ICAMS) maintains the National Plan for Disaster Impact Assessments (NPDIA), coordinates inter-agency post-storm damage assessment efforts, and oversees implementation of activities in the Memorandum of Understanding between the NWS and the Civil Air Patrol. The ITIC is the NWS lead for coordinating and facilitating post-tsunami science surveys and disaster impact assessments in coordination with the ICAMS. ITIC will work with the issuing TWC to coordinate and facilitate domestic post-tsunami science surveys and disaster impact assessments.

A domestic PTS is initiated by the Director of the Analyze, Forecast and Support Office (AFSO) (or designee), or by the affected NTHMP State or Territory. Once initiated, the ITIC will coordinate and facilitate the PTS with the TWCs, who will engage domestic NWS units and warning points. Any U.S. PTS should be coordinated with the appropriate NTHMP Federal / State / Territory / commonwealth partner agency. NWS personnel who are approached by outside agencies to serve on a survey team should notify the ITIC Director and their first-line supervisor as soon as possible to let him/her know a request was made.

Upon request, an international PTS is conducted under the auspices of the UNESCO IOC, following a destructive tsunami to assist authorities in other countries. A PTS is organized and facilitated by ITIC with the corresponding Tsunami Information Center (TIC) at the request of the country and/or the UNESCO/IOC. ITIC will work with the U.S. Tsunami National Contact and NWS International Activities Office to coordinate the participation of NWS staff in the international PTS.

Additional coordination efforts are required for an international PTS. The IOC generally initiates an international PTS based on the request from a country and may request the ITIC to lead or support the survey. The affected country may also submit a formal request to the U.S. Department of State (DOS). When requested by the IOC to lead or support a survey, the ITIC will organize a survey team to investigate tsunami damage and inundation in the affected foreign country or countries. The Director of the NWS Pacific Region, the NOAA Tsunami Program Manager, and the NWS International Activities Office will be notified by the ITIC Director when any international PTS team is being formed and whether the team includes U.S. Government personnel or not. International PTSs involving U.S. Government personnel shall be approved by the DOS.

### 2.3 Process

The ITIC conducts, facilitates, and coordinates domestic and international PTSs. These multi-sectoral surveys may document marine and terrestrial environmental, geological, seismological, tectonic, geotechnical, structural, human, social, and economic impacts, in addition to tsunami run up and inundation. Refer to the IOC's [\*International Tsunami Survey Team \(ITST\) Post Tsunami Survey Field Guide 2nd-Edition, IOC Manuals and Guides No. 37, Paris: UNESCO 2014 \(English\)\*](#) for procedures and guidance on conducting national and international surveys, and a summary of the technologies and methods used. Standardized PTS instructions, procedures, and guidance will be made available to all participating nations by the ITIC to enable them to conduct their own surveys.

The ITIC will coordinate with PTS team members to develop a summary report immediately following their survey(s). The summary report will include the data collected, preliminary results, and any recommendations for improving mitigation and preparedness. In the case of an International PTS, the ITIC in coordination with the UNESCO IOC, will compile the reports and make them available to the affected countries.

ITIC and the World Data System's World Data Service (WDS) for Geophysics (co-located at the NOAA National Centers for Environmental Information (NCEI), formerly National Geophysical Data Center) hosts a PTS data archive. The ITIC will coordinate with PTS leaders to obtain quality-controlled data in a timely manner for permanent archiving of the essential tsunami event information at WDS-Geophysics/NCEI.

## 3. Domestic Post-Tsunami Warning/Advisory Effectiveness Surveys (WES)

### 3.1 Criteria

A domestic post-tsunami WES is an assessment of the U.S. Tsunami Warning System and may be conducted following a significant Tsunami Warning or Advisory along the U.S. coastline.

### 3.2 Authority

The Chair of the NTHMP, with input from the NTHMP Program Administrator or a NOAA NTHMP Warning Coordination Subcommittee Co-Chair, will initiate the domestic post-tsunami WES.

### 3.3 Process

The ITIC Director, working with the WES Coordinator, will facilitate a post-tsunami WES. The WES Coordinator is one of the NOAA NTHMP Warning Coordination Subcommittee Co-Chairs or a representative from the National Tsunami Warning Center (NTWC) or the Pacific Tsunami Warning Center (PTWC) as appropriate. Emergency managers and the public are the intended audiences for a post-tsunami WES. Following the issuance of a significant Tsunami Warning or Advisory and initiation of a WES, the ITIC will conduct an emergency management and public survey using the questionnaires and procedures developed and approved by the NTHMP Warning Coordination Subcommittee. The ITIC will use the following procedure to conduct the surveys.

### **3.3.1 Conducting the Emergency Management Survey**

- Within one week of a significant Tsunami Warning or Advisory for a U.S. coastline, the WES Coordinator will contact affected state or territory emergency management agency representatives and provide the questionnaire with basic instructions concerning who to contact, a timeline, and the reporting procedures.
- State or territory representatives will forward the questionnaire to emergency management representatives in their jurisdiction, providing instructions and requested timelines for completion. This may involve in-state travel for direct interaction with emergency management leaders.
- Within six weeks of a significant Tsunami Warning or Advisory, state or territory representatives will return questionnaires to the WES Coordinator for compilation of results.
- Within ten weeks of a significant Tsunami Warning or Advisory, the WES Coordinator will compile the questionnaire results and assemble a report on the results. The results should be compared with previous events to identify trends, best practices, and problems.
- The WES Coordinator will provide the final report to the NTHMP Administrator to publish on the NTHMP website.

### **3.3.2 Conducting the Public Feedback Survey**

- Within one day of a significant Tsunami Warning or Advisory, the tsunami.gov and ITIC websites will display a prominent link to the public feedback questionnaire on the NTHMP website.
- The link will be removed two weeks after a significant Tsunami Warning or Advisory.
- Within ten weeks of a significant Tsunami Warning or Advisory, the WES Coordinator will collect and assemble a report on the public questionnaire results. The results should be compared to previous events to identify trends, best practices, and problems.
- The WES Coordinator will provide the final report to the NTHMP Administrator to publish on the NTHMP website.