

**TARGET CAPABILITY**  
**LIST**  
**WATER SEARCH AND**  
**RESCUE**

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# **TARGET CAPABILITY LIST**

## **WATER SEARCH AND RESCUE**

**Capability Definition**

Water Search and Rescue is the capability to coordinate and conduct water search and rescue response efforts for all hazards involving water, including searching affected area(s) for victim(s) human and, to the extent no humans remain endangered, animal. Understanding that some victims may refuse rescue unless animal companions are also rescued. This capability includes locating, accessing, medically stabilizing, and extricating victims from the damaged area.

**Outcome**

The greatest number of victims(human and to the extent no humans remain endangered, animal) are rescued and transferred to medical or mass care capabilities, in the shortest amount of time, while maintaining rescuer safety.

**Relationship to the National Response Plan Emergency Support Function(ESF)/Annex**

This capability supports the Emergency Support Function(EFS) #9 Search & Rescue (Primary) , ESF #13 Law Enforcement, ESF #6 Mass Care, Emergency Assistance, Housing, and Human Services, ESF #1 Transportation.

**Preparedness Task and Measures/Metrics**

<b>Activity: Develop and Maintain Plans, Procedures, Programs, and Systems</b>	
<b>Critical Preparedness Tasks</b>	
Incorporate Water Search and Rescue(WSAR) plans and procedures for urban, rural, and other water search and rescues into jurisdiction's Emergency Operations Plan(EOP) or EOP Annexes	yes/no
Pre-identify typed WSAR resources	yes/no
Develop resource allocation processes and procedures for WSAR capable resources that also support other capabilities/functions	yes/no

Identify resources from other agencies or capabilities that may assist with WSAR, and plan to integrate such additional resources as necessary	yes/no
Develop plan to incorporate nationally certified SAR volunteers	yes/no
Develop management plan to address uncertified volunteers	yes/no
Develop plan for WSAR teams that will be deployed out-of-region to be self-sustaining for 72 hours	yes/no
Establish plans, procedures and protocols for logistical support for water search and rescue	yes/no
<b>Preparedness Measures</b>	<b>Metrics</b>
Scale of jurisdiction's water search and rescue capability is related to risk/threat analysis	yes/no
Team is equipped in accordance with the National Incident Management System (NIMS) Resource Typing System	yes/no
Federal, State, regional, and local Water Rescue(W/R) Capabilities are NIMS Compliant	yes/no
Water Rescue(W/R) plans address logistical support (e.g. directing resources, re-assigning tech-specialists, managing uncertified volunteers).	yes/no
Plans address demobilization of Water Rescue(W/R) operations (e.g. replenishing supplies and equipment, re-assigning personnel)	yes/no
Plans address Water Rescue(W/R) personnel needs (e.g. physical, psychological, financial assistance).	yes/no
Water Rescue(W/R) plans are integrated with the incident management structure (e.g. W/R teams coordinated with fatality management and EMS resources).	yes/no
Water Rescue(W/R) plans address information sharing requirements	yes/no
<b>Activity: Develop and Maintain Training and Exercise Programs</b>	
<b>Critical Preparedness Tasks</b>	
Establish training and exercise program for W/R personnel as per EOP	yes/no

Train and equip W/R personnel to the appropriate standards commensurate with their mission	yes/no
<b>Preparedness Measures</b>	<b>Metric</b>
Training program has been established	yes/no
Training and exercises programs address both urban and rural search and rescue	yes/no
Frequency with which W/R activities are exercised in large and complex exercises	Every 12 months
<b>Performance Measures and Metrics and Critical Tasks</b>	
<b>Activity: Direct Water Search &amp; Rescue Tactical Operations</b> <b>Definition: In response to notification of entrapment, provide management and coordination of W/R capability, through demobilization for single or multiple teams.</b>	
<b>Critical Tasks</b>	
Receive and accept W/R request/activation order	yes/no
Participate in W/R planning process and operational briefings	yes/no
Plan and coordinate W/R operations at incident site	yes/no
Direct W/R resources according to the National Incident Management System (NIMS), the Incident Command System (ICS), and consensus-level technical rescue standards	yes/no
Determine need for deployment of additional W/R assets	yes/no
Establish and maintain a chronological log of events in the field	yes/no
Document and collect W/R operations information, including chronological log of events in the field for use in after action review	yes/no
Re-assign/rotate technical specialist, as needed	yes/no

Maintain accountability of all W/R personnel	yes/no
Identify logistics capability of incident site to determine whether deployed W/R teams must be self-sustaining	yes/no
Develop W/R team reassignment/demobilization plan	yes/no
<b>Performance Measures</b>	<b>Metric</b>
W/R teams are incorporated into the incident command structure	yes/no
Frequency with which situation and resource status information are received (and also after a significant change)	Every 30 minutes
Number of loss-time injuries per deployment of W/R personnel during W/R efforts	<1
Time in which tactical plan is developed and implemented by State, regional, and/or local W/R, based on the Incident Action Plan (IAP)	Within 2 hrs from arrival on-scene
Time in which tactical plan is developed and implemented by Federal responding W/R resources based on the Incident Action Plan (IAP)	Within 4 hrs from arrival on-scene
Demobilization/reassignment plan is developed and takes into account long-term personnel follow-up	yes/no
<b>Activity: Activate Water Search &amp; Rescue</b> <b>Definition: In response to notification, mobilize and arrive at the incident scene to begin operations.</b>	
<b>Critical Tasks</b>	
Receive Water Search and Rescue(WSAR) alert/activation order	yes/no
Participate in WSAR planning process and operational briefings	yes/no
Initiate mobilization procedure	yes/no
Assemble personnel and equipment at designated location	yes/no
Deploy available Federal, State, Regional, and/or Local WSAR resources commensurate with request	yes/no

Transport team (personnel and equipment) to incident scene	yes/no
Collect and analyze incident information to assist WSAR capability deployment decisions	yes/no
<b>Performance Measures</b>	<b>Metric</b>
Time in which local WSAR capability arrives on-scene	Within 2 hrs from notification
Time in which regional WSAR capability arrives on-scene	Within 6 hrs from notification
Time in which State WSAR capability arrives on-scene	Within 12 hrs from notification
Time in which Federally identified WSAR capable resources are deployed	Within 6 hrs from request of state
Time in which first Federally identified WSAR capable resources arrive on-scene	Within 24 hrs from notification
<b>Activity: Provide Material and Other Support</b> <b>Definition: Upon arriving on-scene, provide, track, and maintain equipment and supplies as well as support base of operations.</b>	
<b>Critical Tasks</b>	
Participate in WSAR planning process and operational briefings	yes/no
Establish base of operations	yes/no
Maintain accountability of team, equipment, and supplies	yes/no
Provide medical care for WSAR personnel, including the K-9 first responders	yes/no
<b>Performance Measures</b>	<b>Metric</b>
Time in which a functional Base of Operations is established and ready to support initial WSAR operations	Within 60 min. from arrival at incident site

Percent of accountability for team, equipment, and supplies maintained	100%
Percent of deployable WSAR capability that can sustain its own operations for up to 72 hrs. without additional resources	100%
Percent of WSAR personnel and service animals whose health is monitored at least once per work cycle	100%
<b>Activity: Conduct Water Search and Rescue Reconnaissance</b> <b>Definition: Once on scene and equipped, provide rapid assessment of assigned WSAR work areas and recommend search priorities/tactics to Incident command</b>	
<b>Critical Tasks</b>	
Assess incident site(s) to determine WSAR course of action	yes/no
Assess the incident site(s) for Hazardous Materials (HazMat) or other environmental conditions	yes/no
Develop map(s) of search area to be used in WSAR tactical operations	yes/no
Communicate findings and recommend priorities to Team Management	yes/no
<b>Performance Measures</b>	<b>Metric</b>
Time in which reconnaissance team provides preliminary recommendations on search priorities and strategies	Within 1 hour
WSAR coordinates with land based SAR units areas and conditions of reconnaissance that may soon become accessible by land based rescue units	Within 1/2 hour of recommendations
<b>Activity: Search and Rescue</b> <b>Definition: Upon being assigned a search area, begins search and rescue operations</b>	
<b>Critical Tasks</b>	
Participate in WSAR planning process and operational briefings	yes/no

Take appropriate scene/site safety measures	yes/no
Conduct area search and rescue, prioritizing extrication of victims as needed	yes/no
Search for victims using physical and all other measures necessary	yes/no
Identify and report further potential/actual victim locations (live and dead)	yes/no
Report progress of search efforts on a regular basis to WSAR command	yes/no
Maintain accountability for WSAR personnel, equipment, and supplies	yes/no
<b>Performance Measures</b>	<b>Metric</b>
Percent of assigned area searched	100%
Time in which systematic search of an area affected by a large-scale emergency is initiated	Within 30 min. from operations briefing
Frequency with which updated situation and resources status reported is provided to WSAR command (including after major change in condition)	Every 30 Min.
<b>Activity: Extrication</b>	
Definition: Upon notification of location of victim(s), perform extrication	
<b>Critical Tasks</b>	
Participate in WSAR planning process and operational briefings	yes/no
Ensure scene/site safety (security)	yes/no
Coordinate extrication strategy with medical personnel	yes/no
Extricate trapped victims	yes/no
Provide periodic progress reports while rescuing	yes/no

Maintain accountability of rescuers, victims, equipment, and supplies	yes/no
<b>Performance Measures</b>	<b>Metric</b>
Percent of dangerous conditions affecting extrication mitigation to allow rescuer and victim safety in accordance with SOP	100%
Frequency with which updated situation and resource status reported is provided (including after major change in conditions)	Every 30 Min.
Percent of located victims extricated	100%
<b>Activity: Provide Medical Treatment</b>	
Definition: Upon access to victim, provide emergency medical care and coordinate with medical personnel to treat and transfer victim to more definitive medical care	
<b>Critical Tasks</b>	
Participate in WSAR planning process and operational briefings	yes/no
Medically stabilize trapped victims according to Medical protocols	yes/no
Ensure medical stability of victims , according to Medical protocols, throughout packaging, extrication, and transport to more definitive care	yes/no
Coordination of medical treatment between rescuers and medical personnel	yes/no
Transfer victims to more definitive medical care	yes/no
Maintain accountability of rescuers, victims, equipment, and supplies	yes/no
<b>Performance Measures</b>	<b>Metric</b>
Percent of victims whose standard of care is maintained according to medical protocols	100%
Percent of time resources were identified to transfer patient to more definitive medical care	100%

Activity: Redeploy/Demobilize

Definition: Upon completion of assigned mission; debrief, resupply, brief for new assignment. Upon completion of operational time period; debrief, resupply, ensure that oncoming WSAR personnel have all pertinent information, rest. Upon completion of deployment, disengage from incident site, and debrief

<b>Critical Tasks</b>	
Resupply equipment needed for redeployment	yes/no
Repackage equipment cache for demobilization	yes/no
Demobilize base of operations	yes/no
Arrange transportation for personnel and equipment	yes/no
Debrief WSAR capability personnel	yes/no
<b>Performance Measures</b>	
	<b>Metric</b>
Time in which equipment cache is re-inventoried and packaged for transport	Within 12 hours from start of demobilization
Time in which base of operations is returned to original conditions	Within 12 hours from start of demobilization
Percent of Water Search and Rescue personnel debriefed prior to returning to home base of operations	100%

## *Linked Capabilities*

### **Linked Capabilities**

### **Relationship**

On-site Incident Management

Water Search and Rescue integrates itself into the local Incident Command/Unified Command System.

WMD and Hazardous Materials Response and Decontamination

Water Search and Rescue coordinates with WMD, HazMat, and Decontamination to identify hazardous conditions, ensure WSAR members have appropriate protective clothing and equipment, and ensure WSAR personnel and equipment are appropriately decontaminated.

Emergency Triage and Pre-Hospital Treatment

Water Search and Rescue coordinates with Emergency Triage and Pre-Hospital Treatment to ensure medical care of victims and rescuers during and after rescue.

Emergency Public Safety and Security Response

Water Search and Rescue relies upon Emergency Public Safety and Security Response assistance to secure search and rescue sites, safely divert public from the area, and to provide security for the WSAR Base of Operations.

Search and Rescue (Land Based)

Water Search and Rescue coordinates with Search and Rescue (Land Based) Teams for equipment, manpower, and expertise to search areas where structure integrity will be in question.

Mass Care(Sheltering, Feeding, and Related Services)

Water Search and Rescue notifies Mass Care of location of people and companion animals encountered during the course of water search and rescue operations.

Animal Disease Emergency Support

Water Search and Rescue notifies Animal Disease Emergency Support of location of livestock, dangerous Animals, and injured wildlife encountered during the course of water search and rescue operations.

Fatality Management

Water Search and Rescue notifies Fatality Management of location of remains encountered during the course of water search and rescue operations.

Responder Safety and Health

Water Search and Rescue relies upon Responder Safety and Health for site hazards to help ensure that appropriate precautions are identified and that personal protective equipment/supplies are available to protect WSAR personnel.

Environmental Health

Water Search and Rescue relies upon Environmental Health to monitor environmental public safety from Decontamination and other possible hazmat runoff.

Communications

Water Search and Rescue must have the ability to transmit/receive unsecure/secure voice, data, and images between multi-agencies involved in rescue operations.

### ***Resource Element Description***

<b><u>Resource Elements</u></b>	<b><u>Components and Description</u></b>
Type I Water Search and Rescue	Per NIMS or Greater
Type II WSAR	Per NIMS
Type III WSAR	Per NIMS
Type IV WSAR	Per NIMS
United States Coast Guard	USCG Search and Rescue and National Strike Teams
National Guard	Search and Rescue
State Water Divisions	States Water Divisions if Trained in Water Rescue Techniques
Local Water Rescue Resources	Local Water Rescue Resources not typed by state but verified by the local Authority Having Jurisdiction(AHJ)
United States Navy	Navy Divers if Team is activated for a prolonged and/or large dive incident

### ***Planning Assumptions***

#### **General**

- Although Water Search and Rescue is applicable to Scenario #10: Natural Disaster-Major Hurricane, the capability planning factors were developed from this scenario and multiple other actual responses throughout the country to identify adjustments and/or additions to the planning factors and national targets for response.
- This capability applies to a wide range of incidents and emergencies, including both natural occurring events, man caused events, and large accidents involving the need for Water Search and Rescue. The primary condition affecting the performance of the capability is the weather. This uncontrollable factor could affect the time factors for response to the most devastated areas. Putting rescuers into affected areas to soon has the potential for great loss of rescuer lives.
- Local response time: 0-2 hours
- Regional response time: 2-10 hours

- State response time: 2-24 hours
- Federal response time: 24+ hours
- Given that WSAR is extremely time-sensitive, initial operations will be undertaken by local, State, and those volunteer personnel willing and able to assist in locating victims. The local and State resources can quickly become overwhelmed in a catastrophic event, so previously identified outside resources should be notified and activated for deployment immediately.
- All injuries and trapped victims need to be extricated to dry land. Fatalities should be extricated only after all victims with life threatening injuries.
- WSAR needs to coordinate with helicopter operations, to identify and search locations quickly and efficiently.
- All locations need to be hazmat assessed so that rescuers have the proper personal protective equipment(PPE) prior to entering.
- Trapped victims have the best chance of survival if they are rescued within 72 hours. They may survive up to 14 days if provided drinking water.
- Victims who have been underwater for longer than 90 minutes should be moved into the recovery category, providing that no air source is available for life sustainment.
- The doctrine of “do no harm” will apply to all WSAR operations. Water Search and Rescue personnel will take into consideration the dangers of contamination and unstable physical structures before entering into an area that may contain surviving victims and will take appropriate safety and protective measures before commencing operations.
- The size of the jurisdiction and the risks/threats history presented will determine how extensive the WSAR capability needs to be.
- Jurisdictions may be able to obtain WSAR resources that are sufficient to meet that jurisdiction’s needs from elsewhere.
- Training and team size must be to the minimum standards set by NFPA 1670 and NIMS Typing respectively.
- WSAR resources may not be available due to the size and scope of the affected areas.
- Weather, location, distance, and available transportation affect how quickly WSAR resources can reach the scene.
- The type of WSAR resources deploying will affect what type of equipment it has and how long it can conduct WSAR operations without re-supply.
- When there is a “Base Camp” with sufficient resources WSAR teams may not need to be self-sustaining.
- Weather, hazardous conditions, size of area, scope, access, criminal activity (hazard) determines level of work-area access and efficiency with which areas can be searched for victims.
- Complexity and circumstances of the entrapment affects the amount of time required to safely access, stabilize, and extricate victims.
- Intensity of equipment and personnel utilization will increase or decrease duration each WSAR capability is able to work.
- The level of effort required to restore (or replace) equipment cache items will depend on how heavily they were used and to what extent they need to be decontaminated/cleaned.
- Downstream flow of water needs to be taken in to account for evacuation and deployment locations of assets.

***Planning Factors from an In-Depth Analysis of a Scenario with Significant Demand for the Capability (Natural Disaster-Major Hurricane)***

<b><u>Resource Organization</u></b>	<b><u>Estimated Capacity</u></b>	<b><u>Scenario Requirement Values</u></b>	<b><u>Quantity of Resources Needed</u></b>
Type I Water Search & Rescue	Extrication of victims in 24 Hrs: Accessible: 60 Heavily Entrapped: 10	Accessible: 45 Maximum rescued per 24 Hrs. Heavily Entrapped: 6 Maximum rescued per 24 Hrs.	33,500 (Estimated people rescued from Hurricane Katrina) 33,500 victims/45 per day= 248 Type I Teams for 3 days (72 Hrs. being the best life sustaining time period).
Type II Water Search & Rescue	Extrication of victims in 12 Hrs: Accessible: 30 Heavily Entrapped: 5	Accessible: 30 Maximum rescued per 24 Hrs. Heavily Entrapped: 3 Maximum rescued per 24 Hrs.	Requires two teams, each working 12 hours each
Type III Water Search & Rescue	Extrication of victims in 12 Hrs: Accessible: 10 Heavily Entrapped: 2	Accessible: 20 Maximum rescued per 24 Hrs. Heavily Entrapped: 4 Maximum rescued per 24 Hrs.	Requires two teams, each working 12 hours each
Type IV Water Search & Rescue	Extrication of victims in 12 Hrs: Accessible: 8 Heavily Entrapped: 0	Accessible: 16 Maximum rescued per 24 Hrs. Heavily Entrapped: 0 Maximum rescued per 24 Hrs.	Requires two teams, each working 12 hours each
United States Coast Guard			Assets required will be based on the number of rescues anticipated.
National Guard			Assets required will be based on the number of rescues anticipated.
State Water Divisions			Assets required will be based on the number of rescues anticipated.

Local Non-typed, but  
AHJ verified Water Rescue Teams

Assets required will  
be based on the  
number of rescues  
anticipated.

United States Navy

Assets required will  
be based on the  
number of  
rescues/recoveries  
anticipated and time  
of divers in the water.

### *Approaches for Large-Scale Events*

- During incidents, licensing and certifications need to be national and NOT restricted by State borders. A border should NOT determine the location of a resource.
- Basic Water disaster training should be standard, such as that sanctioned by NIMS, NFPA, and/or the National Response Plan(NRP), to allow more rescue personnel to be used at the disaster.

### *Target Capability Preparedness Level*

<i>Resource Element unit</i>	<i>Type of Element</i>	<i>Number of Units</i>	<i>Unit Measure (number per X)</i>	<i>Lead</i>	<i>Capability Activity Supported by Element</i>
Type I WSAR	Resource Organization	1	Per each States Regional break Down	State	All WSAR Activities
Type II WSAR	Resource Organization	1	Per each States Regional break Down	County	All WSAR Activities
Type III WSAR	Resource Organization	1	Per each States Regional break Down	Local(City)	All WSAR Activities

**Special Note: Areas prone to flooding should have immediately available a Type I WSAR Team**

- All Natural disasters have some involvement with water
- Drowning is the third leading cause of death in the United States
- 8,000 Drowning deaths occur in the U.S. each year
- Approximately 40% are under the age of 5
- Drowning is the 2nd leading cause of traumatic death in persons age 1-44 years old
- 85% of all drowning victims are male
- Drowning can occur in any body of water
- Survival is possible if fast action is undertaken
- **Public Safety personnel are part of these statistics**
- **NO Area is safe from Flooding**

- Every year, floods drive some 75,000 Americans from their homes; on the average, 127 persons are killed each year. These destructive overflows have caused property damage in some years estimated at more than \$2 billion. During the years 1985–2001, the total annual number of floods or flash floods ranged from 361 (1988) to 3,376 in 1998. A total of 32,047 flash flood/flood events were recorded in 1985–2001