NOAA Emergency Response Posture Workshop

After-Action Report / Improvement Plan

June 5-6, 2018

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine to include the National Preparedness Goal and related frameworks and guidance. Exercise information required for preparedness reporting and trend analysis is included.

EXERCISE OVERVIEW

Exercise Name	NOAA Emergency Response Posture Workshop
Exercise Dates	June 5-6, 2018
Scope	This exercise was a discussion exercise, planned for two days at the Duval County Emergency Operations Center (515 North Julia Street, Jacksonville, FL 32202). NOAA's Southeast and Caribbean Regional Collaboration Team (SECART) led a NOAA Emergency Response Posture workshop at the Duval County Emergency Operations Center in Jacksonville, FL June 5-6, 2018. Participants included 20 NOAA employees and a representative from one of the Sea Grant Programs in the region. NWS, NOS, NMFS, OAR, OMAO, and HSPO were all represented. SECART members Rich Okulski (NWS WFO Columbia, SC) and Chip Kasper (NWS WFO Key West, FL) led the workshop components. The exercise participants conducted an After Action Review (AAR) of NOAA's actions during pre-storm preparations, during storm impacts, and during post-storm response and recovery phases for Hurricanes Irma and Maria. Leaders broke the participants into two groups for the first day and a half of the exercise. A group leader facilitated discussions on NOAA internal and external actions taken during specific event periods (120 to 36 hours prior to landfall, 36 hours prior to landfall, landfall, and post landfall). Breakout session questions (see Appendix A) were designed to elicit best practices, lessons learned, and recommendations on how to improve readiness and performance for the next major hurricane. Workshop participants also reviewed a draft "NOAA resource directory" for the region. The resource directory, which contains roles and responsibilities and contact information, was assembled in advance of the 2018 workshop by a team of volunteers, many of whom had participated in the 2017 workshop. Participants discussed desired features and content of an ideal resource directory, including its relationship with existing directories and platforms (e.g., National Response Asset Directory (NRAD); NOS Disaster Dashboard; WebEOC, and others).
Mission Area(s)	Response, Recovery, and Restoration

Core Capabilities	Core Partner Decision Support, Office Preparedness, Employee Preparedness, Event Conflict Management, Cross Line Office Coordination
Objectives	1. Identify Best Practices During These Major Hurricanes. 2. Identify Lessons Learned During These Major Hurricanes. 3. Recommend New NOAA Major Hurricane Response and/or Recovery Tasks Based on Irma/Maria Experiences. 4. Incorporate Best Practices and Lessons Learned into the Resource Directory.
Threat or Hazard	Major Hurricane (cat. 3+)
Scenario	After Action Review of Hurricanes Irma and Maria.
Sponsor	Southeast and Caribbean Regional Collaboration Team (SECART)
Participating Organizations	NOAA (various offices), SC Sea Grant, and local Jacksonville, FL Emergency Response Officials.
Point of Contact	Richard Okulski, Meteorologist-in-Charge, Columbia, SC Weather Forecast Office, (803) 765-5501 ext. 222.

ANALYSIS OF CORE CAPABILITIES

Aligning exercise objectives and core capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. Table 1 includes the exercise objectives, aligned core capabilities, and performance ratings* for each core capability as observed during the exercise and determined by the evaluation team.

Objective	Core Capability	Performed without Challenges	Performed with Some Challenges	Performed with Major Challenges	Unable to be Performed
Identify Best Practices During These Major Hurricanes	All		✓		
Identify Lessons Learned During These Major Hurricanes	All		✓		
Recommend New NOAA Major Hurricane Response and/or Recovery Tasks Based on Irma/Maria Experiences	All		✓		
Incorporate Best Practices and Lessons Learned into the Resource Directory	All		✓		

Table 1. Summary of Core Capability Performance

Ratings Definitions:

- Performed without Challenges: The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.
- Performed with Some Challenges: The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.
- Performed with Major Challenges: The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.
- Unable to be Performed: The targets and critical tasks associated with the core capability were not performed in a manner that achieved the objective(s).

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths, and areas for improvement.

ANALYSIS OF OBJECTIVES

Objective 1: Identify Best Practices during These Major Hurricanes

- WFO Columbia meteorologists communicated frequently with the South Carolina Emergency Management Director and the Adjutant General during the approach and evolution of Hurricane Irma.
- The USGS Storm Response Team deployed HOBO water level loggers at numerous locations along the Florida coast prior to the landfall of Hurricane Irma. These sensors measured continuous water level data at short data intervals.
- The Puerto Rico Water Utility released reservoir water based on the WFO San Juan WCM's Hurricane Maria rainfall briefing. This decision mitigated the catastrophic flooding situation that occurred.
- WFO Jacksonville's Hurricane Irma briefings paid particular attention to infrastructure due to the damage caused by Hurricane Matthew 11 months earlier.
- Puerto Rico's Governor enhanced the public risk message for Hurricane Maria based on WFO San Juan's advice. The citizens heeded this message in their actions prior to landfall.
- WFO San Juan adjusted shift hours to accommodate curfews.
- WFO San Juan used Facebook Live to communicate with the public during and after Hurricane Maria due to the lack of other reliable means of communication.
- Counselors from the NOAA Employee Assistance Program traveled to WFOs Key West, Florida and San Juan, Puerto Rico following the hurricanes, and held meetings with employees to assist them in dealing with post-traumatic stress.
- The Southeast River Forecast Center supported the U.S. Army Corps of Engineers with rainfall data using satellite estimates in Puerto Rico after the destruction of the FAA's WSR-88D.
- Several offices executed plans that allowed employees to take care of personal issues following the hurricanes.
- NOAA employees in the disaster zones reacted well when they found themselves in a "first responder" role (e.g., during storm damage surveys).
- The Southeast River Forecast Center provided water level forecasts for the State of Florida Department of Transportation (FLDOT) and Florida Highway Patrol for a *non-forecast point* along I-75 to assist with returning evacuees.
- Sea Grant provided information to businesses that helped them during recovery.

Objective 2: Identify Lessons Learned During These Major Hurricanes.

- NOAA volunteer staff deployed on temporary duty to assist offices prior to hurricane landfalls ended up stuck after the event.
- Continuity of Operations Plans do not account for facilities of last or reasonable resort for staff and/or families. The plans do not account for sufficient supplies, food, cots, and showers.
- NOAA contract employees must follow different evacuation and re-entry guidance compared to full time NOAA employees. NOAA supervisors with contractors coordinated with three different companies during Hurricane Irma, requiring extra levels of coordination.
- A NOAA National Marine Sanctuary lacked the resources to move a vessel which resulted in damage during Hurricane Irma.
- NOAA ordered some OAR/AOML employees to evacuate, although they were supposed to play key liaison roles.
- Several NOAA employees deployed to WFO San Juan for Hurricane Maria did not speak Spanish, limiting their ability to assist the office beyond forecasts and warnings (e.g., high-impact briefings for partners and answering phones).
- The forecast track uncertainty for Hurricane Irma limited the agility of Jacksonville area swift water rescue teams.
- Hurricane related tasks stressed employees before (briefings), during (forecasts and warnings), and after (damage surveys, restoration work) these events.
- NOAA Sanctuary and Office of Response and Restoration continued restoration work for four months (mid-January) after the hurricanes. The staff was not used to the longer days and changing work plans.
- NOAA and other partners experienced difficulty finding disposal areas for marine debris in the U.S. Virgin Islands. Contractors needed to separate debris in Puerto Rico.
- Emergency Notification System messages coming from both the local level and from NOAA Headquarters led to confusion among staff. In addition, the NOAA Homeland Security Program Office (HSPO) experienced long delays in receiving "reports" concerning employee status.
- No readily available and used list of responsibilities and contact information for NOAA offices. It is all out there in various places but not consolidated.
- NOAA employees did not understand the Emergency Travel Policy, creating some confusion.
- Post-storm communications are a challenge in areas hit hard (may not have landline, cell towers, or internet). Satellite phones provide one option. Also discussed were the Wireless Priority System and Government Telephone Communication System as options to improve connectivity.

Objective 3: Recommend New NOAA Major Hurricane Response and/or Recovery Tasks Based on Irma/Maria Experiences.

- Critical Incident Stress Management counseling (post-disaster) and training (annual) likely would better prepare NOAA employees for the experience of working in a state of emergency and a disaster zone.
- Create a pool of hard assets such as generators, tarps, etc. that can be shared across region.
- Develop and improved a NOAA resource directory with the following desired features: IT platform independence; access to contact information (multiple line offices); ability to create and print contact lists.
- Share Occupant Emergency and Continuity of Operations Plans among NOAA offices on a SECART web site.
- Include hurricane evacuation and re-entry instructions into NOAA contractor Statements of Works.
- Design a "playbook" for how to leverage Sea Grant as a conduit to businesses in a more strategic fashion.
- Continue providing a forum for NOAA staff in the region to share information regarding emergency response capabilities and challenges. Consider holding another in-person workshop and/or conducting SECART sponsored disaster related webinars on a monthly or quarterly basis for employees.
- Consider hosting one to two Congressional engagement events per fiscal year to enhance political knowledge of NOAA's disaster capabilities.
- Utilize post-workshop evaluations to help shape future efforts in emergency preparedness for the region.

Objective 4: Incorporate Best Practices and Lessons Learned In The Resource Directory.

- Both internal and external NOAA stakeholders previously expressed a need for a repository of NOAA line office roles, responsibilities, contacts, capabilities, expertise, and authorities (i.e., a "resource directory") during an emergency response. This need was confirmed during Hurricanes Irma and Maria, in 2017.
- A team consisting of SECART members, workgroup members, and participants from the 2017 Emergency Response Posture Workshop developed an initial NOAA resource directory in the form of an electronic spreadsheet during the four months prior to the 2018 workshop. This spreadsheet was shared with participants of the 2018 workshop. During the final afternoon of the workshop, participants discussed the future of the NOAA resource directory.
- Several potential platforms were discussed, including web, smartphone application, and an electronic, printable document. A web-based directory could potentially be hosted on the SECART web site.
- Desired capabilities and features included the ability to search and sort people and associated qualifications and expertise, as well as disaster type and offices.
- External partners and stakeholders need to know contacts and responsibilities for the different parts of NOAA during an emergency response, but also during the preparedness, recovery, and mitigation phases.
- Other directories exist within NOAA (e.g., NOAA Response Asset Directory, NOS Dashboard, NOAA Staff Directory, and Who You NOAA). However, an information need remains, especially among external partners and stakeholder.
- The NOAA Great Lakes Regional Collaboration Team developed a *Guide to NOAA Response and Communication Protocols for Human Caused and Natural Disasters in the Great Lakes*, and the NOAA Pacific Islands Regional Collaboration Team developed a *Guide to Integrated NOAA Response and Communication Protocols for Human-Caused and Natural Disasters in the Pacific*. Both documents focus on communication and collaboration within and among NOAA line offices and programs. They both have identical outlines, including considerable narrative background pertaining to federal response command structures, NOAA line office roles and notification protocols, mandates and authorities, and communication mechanisms. They both contain appendices with "contact directories". The ultimate objectives are identical; namely, "advance communication and better integrate line office capabilities to support a "One NOAA" response to emergency events. The Pacific document goes into additional detail in the appendices, including the presentation of an inventory of NOAA Assets in their region. Development of a similar guide for the Southeast and Caribbean Region may be a logical next step in the evolution of an incipient resource directory.

Appendix A: Workshop Objectives and Agenda

SECART FY18 Disaster Exercise

Location: Duvall County Emergency Operations Center, Jacksonville, FL

Date: June 5-6, 2018 (Travel Days June 4 and 7)

Participants: NOAA employees and local partners

Mode: In Person Discussion Exercise

Discussion Exercise Objectives

1. After Action Review of Hurricanes Irma and Maria
    a. Compare 2017 Exercise Notes Against Actions Taken During These Hurricanes.
    b. Identify NOAA Best Practices During These Major Hurricanes.
    c. Identify NOAA Lessons Learned During These Major Hurricanes.
    d. Recommend New NOAA Major Hurricane Response and/or Recovery Tasks Based on Irma/Maria Experiences.
    e. Incorporate Best Practices and Lessons Learned into the Resource Directory.

Agenda

June 5, 2018

0800 – 0815 Introduction and Exercise Overview

0815 – 1015 Pre Storm (36-120 Hours Prior to Hurricanes Irma/Maria)

a. GROUP A
    i. Office/Program Preparedness Measures
    ii. Specific Office/Program Actions
    iii. Internal Challenges/Opportunities
    iv. Personal Preparedness Measures
b. GROUP B
    i. Support For Partner Preparedness Measures/Resource Decisions
    ii. External Challenges/Opportunities
    iii. Cross Line Office Coordination

1015 – 1030 Break

1030 – 1230 Pre Landfall (0-36 Hours Prior to Hurricanes Irma/Maria)

c. GROUP B
    i. Office/Program Preparedness Measures
    ii. Specific Office/Program Actions
    iii. Internal Challenges/Opportunities
    iv. Personal Preparedness Measures
d. GROUP A
    i. Support For Partner Preparedness Measures/Resource Decisions
    ii. External Challenges/Opportunities
    iii. Cross Line Office Coordination

1230 – 1330 Lunch

1330 – 1530 Landfall/Ongoing Event (Hurricanes Irma/Maria)

e. GROUP A
    i. Office/Program Preparedness Measures
    ii. Specific Office/Program Actions
    iii. Internal Challenges/Opportunities
    iv. Personal Preparedness Measures
f. GROUP B
    i. Support For Partner Preparedness Measures/Resource Decisions
    ii. External Challenges/Opportunities
    iii. Cross Line Office Coordination

1530 – 1545 Break

1545 – 1630 Day One Exercise Close Out

June 6, 2018

0800 – 0815 Day Two Overview

0815 – 1015 Post Storm (Hurricanes Irma/Maria)

g. GROUP B
   i. Office/Program Preparedness Measures
   ii. Specific Office/Program Actions
   iii. Internal Challenges/Opportunities
   iv. Personal Preparedness Measures

h. GROUP A
   i. Support For Partner Preparedness Measures/Resource Decisions
   ii. External Challenges/Opportunities
   iii. Cross Line Office Coordination

1015 – 1030 Break

1030 – 1115 Discussion Exercise Close Out/Feedback Session

1115 - 1215 Lunch

1215 – 1530 NOAA Resource Directory Review and Discussion

1530 Adjourn

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations		
Name	**Email**	**Line Office/Program**
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APPENDIX C: EXERCISE QUESTIONS

FY18 NOAA SECART Disaster Exercise Breakout Session Questions

Pre Storm (36-120 hours prior to landfall)

Group A

1. Did NOAA offices activate their COOPS? What worked according to plan? What didn't work?
2. How did the hurricane forecast track uncertainty factor into notifications, funding authorizations, and personal preparedness actions?
3. What changes did offices face in securing and/or safeguarding facilities, marine mammals, GOVs, and vessels?

Group B

1. How did line office operational plans align or misalign with the plans of our core external partners? How did we address misalignments?
2. Did our external briefings and staff support meet partner requirements? How did we adjust to meet the requirements?
3. What challenges occurred in the coordination of deploying or moving assets into or out of the impact area?
4. How did the hurricane forecast track uncertainty impact partner resource decisions and/or evacuation plans?

Pre Landfall (0-36 hours prior to landfall)

Group A

1. What operational changes occurred with our partners as the event unfolded? How did our plans change based on our partners' decisions?
2. Did the number and/or frequency of briefings change as the event impact time drew closer? Did our partners request additional support? How did we adjust?
3. Did our partners need to request additional assets or move additional assets out of the impact area due to increased forecast confidence?

Group B

1. If offices activated their COOPS, what adjustments did they need to make as the event drew closer? Did any offices notify anyone of a possible need for service backup?

2. How did continued forecast track uncertainty factor into notifications, funding authorizations, and personal preparedness actions?
3. Did offices encounter any specific challenges with equipment on or off site such as generators, radar, transmitters, gauges, and buoys?

Landfall/Ongoing Event

Group A

1. Please describe how any storm impacts affected office operations.
2. Did any observational or communications equipment become inoperable during the event? How did employees address any outages?
3. How did employees cope with the stress of an extreme event which impacted professional and/or personal lives?

GROUP B

1. Describe particular stressful situations encountered while supporting our core partners such as briefings, phone conversations, short notice requests, and interactions with the media.
2. How did the communication of real time damage reports impact the operations of our partners?
3. What workarounds did we utilize to compensate for losses in observational and/or communications equipment?

Post Storm

Group A

1. What support requests did core partners make for recovery operations? Did office staff remain on site to meet these requests? How long did briefings continue post event?
2. How long did it take for offices which shut down during the event to restore normal business operations with core partners?
3. What offices participated in core partner after action/event reviews? Please describe the feedback your office received on its performance during the event.
4. What assistance did you request from another NOAA Line Office during either hurricane? If you did not request such assistance, in retrospect would you have requested it?

GROUP B

1. How did offices free up employees to assess damage to their homes and take care of restoration tasks? Describe how this impacted office operations.
2. How long did it take for offices to resume normal operations? How long did it take to restore damaged observational and communications equipment?
3. What long term changes did these events make to your office operational procedures and culture?
4. What assistance did you request from another NOAA Line Office during either hurricane? If you did not request such assistance, in retrospect would you have requested it?

APPENDIX D: ACRONYMS

Acronym	Term
AAR	After Action Report
AMOL	Atlantic Oceanographic and Meteorological Laboratory
ARD	Assessment and Restoration Division
DAA	Deputy Assistant Administrator
DHS	Department of Homeland Security
DRC	Disaster Response Center
ERD	Emergency Response Division
ERMA	Emergency Response Management Application
FEMA	Federal Emergency Management Agency
HSPO	Homeland Security Program Office
IP	Improvement Plan
LO	Line Office
MDD	Marine Debris Division
NCCOS	National Centers for Coastal Ocean Service
NESDIS	National Environmental Satellite, Data, and Information Service
NGS	National Geodetic Survey
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NOS	National Ocean Service
NRAD	NOAA Response Asset Directory
NWS	National Weather Service
OAR	Office of Oceanic and Atmospheric Research
OCM	Office for Coastal Management
OCS	Office of Coast Survey
ONMS	Office of National Marine Sanctuaries
ORR	Office of Response and Restoration
SECART	Southeast and Caribbean Regional Collaboration Team
SECOORA	Southeast Coastal Ocean Observing Regional Association
SERO	Southeast Regional Office
SMT	Senior Management Team
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
WebEOC	Web-based Emergency Operations Center