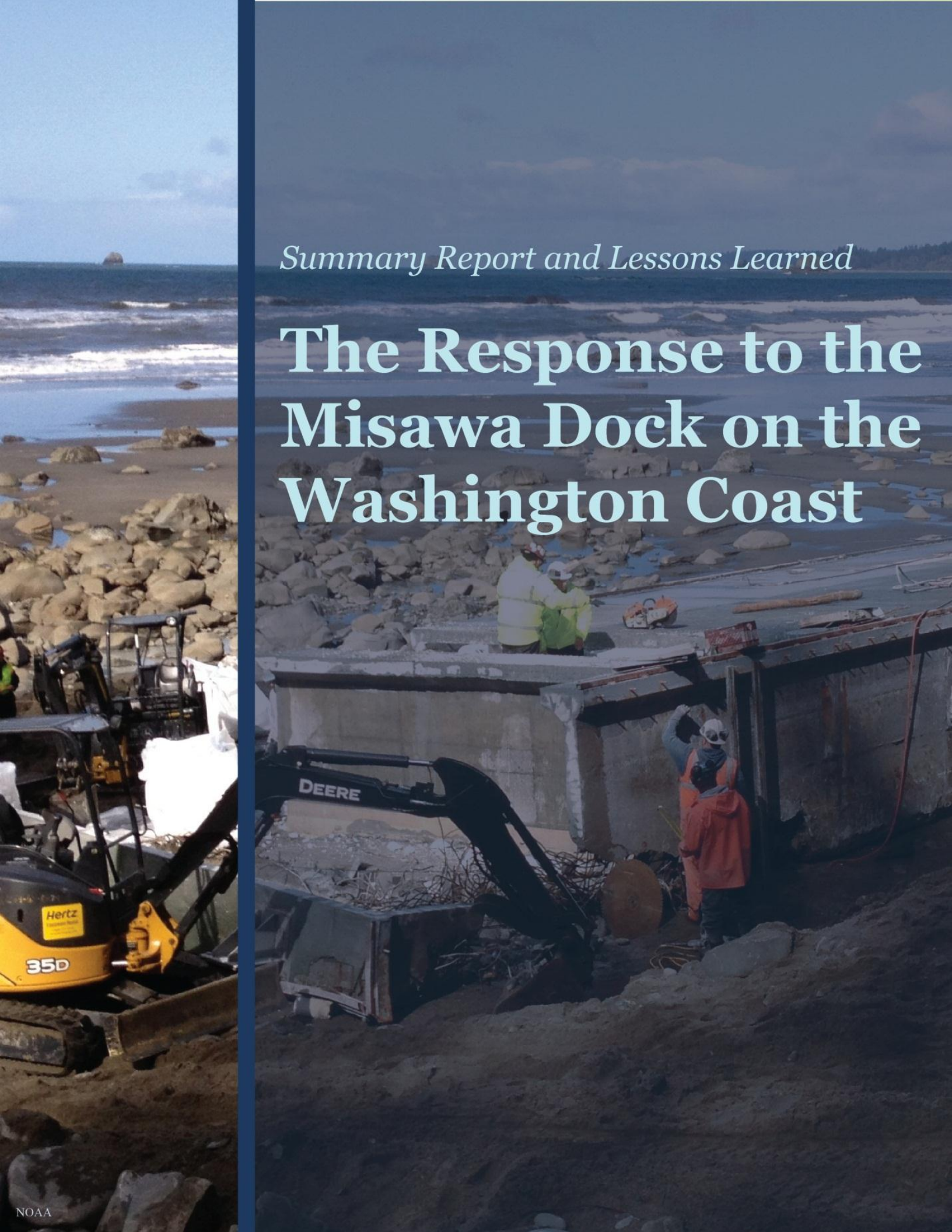

Summary Report and Lessons Learned

The Response to the Misawa Dock on the Washington Coast

NOAA

Acknowledgments

The response to the Misawa dock in Washington State was a complex and involved operation that benefited greatly from the collaboration and good will of federal, state and local agencies, tribal government, academia, and industry. We are grateful to the following:

NOAA Office of Response and Restoration
NOAA National Marine Sanctuaries, Olympic Coast National Marine Sanctuary
NOAA National Weather Service
National Park Service, Olympic National Park
Washington State Emergency Management Division
Washington State Department of Ecology
Washington State Department of Fish and Wildlife
United States Coast Guard
US Fish and Wildlife Service
Quinault Indian Nation
The Undersea Company of Port Townsend
Oregon State University
Williams College

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Linda Kent, Terry Egan, Hollie Smith, Carol Bernthal, Lisa Symons, Keeley Belva, Leah Henry and Asma Mahdi provided insightful comments.

The report was edited and finalized by Asma Mahdi, Leah Henry and Dianna Parker, NOAA Marine Debris Program.

Table of Contents

Executive Summary

On December 14, 2012, a floating dock -- one of the four washed out from Misawa harbor by the devastating tsunami that hit Japan on March 11, 2011 -- was spotted off the Washington coast and reported to the U.S. Coast Guard (USCG). Federal and state agencies and Indian Tribes responded quickly and collaboratively, and prepared for the response, at sea or on shore. National Oceanic and Atmospheric Administration (NOAA) generated trajectories to estimate the dock's movement and possible landfall. USCG launched over-flights to search for the dock, locating it on December 18 at a remote beach in Washington State, within the Olympic National Park and Olympic Coast National Marine Sanctuary (OCNMS) areas.

State and federal agencies convened in Forks, Washington at an Incident Command Post, and along with aquatic invasive species (AIS) experts, conducted a site visit to assess the dock and attached a tracking buoy to it. In later visits the agencies removed all visible growth, greatly reducing further risk of AIS introduction. Once it was on shore, responsibility for removal of the dock shifted to the landowners, NOAA and National Park Service (NPS), who put together a funding package and managed the contracting efforts to remove the dock. Work on communication and outreach continued throughout the response, with the state website serving as a conduit for information on the dock removal efforts.

On March 16, the removal contractor deployed equipment and supplies to the dock's location. Using concrete saws and mini excavators, the contractor cut the dock to pieces and flew concrete and foamed plastic by helicopters to a nearby landing site accessible to trucks, which hauled the dock pieces to a landfill for disposal and recycling. On March 26, all removal operations ended successfully, and the response to the floating dock was completed.

The response was conducted safely throughout. Safety was emphasized during agency personnels' visit to the dock and during the removal process. Addressing safety concerns proactively and with professional consideration resulted in no injuries and safety mishaps, despite the challenging conditions.

Background

The March 11, 2011 earthquake and tsunami in the Tohuku region of Japan claimed nearly 19,000 human lives, injured 6,000 people, and inflicted severe damage on the local communities and infrastructure. Japan's Ministry of the Environment estimates that approximately 5 million tons of debris washed out to sea, of which 1.5 million tons remained afloat initially, while the rest sunk near shore. The floating debris was comprised of a variety of items from the devastated communities and infrastructure, including wood, plastic items, fishing gear, vessels, and four large docks from the fishing port of Misawa in northeastern Japan (Figure 1).

On June 5, 2012, a large floating dock covered with marine growth washed up on Agate Beach near Newport, Oregon. Within a few days, it was confirmed that the dock – 66 ft long, 20 ft wide, and 7 ft high - was one of the four Misawa docks, and that dozens of coastal Japan marine species were part of the marine growth. The dock was quickly cleaned of the growth covering it and was removed from the beach in early August. This incident confirmed not only that the floating docks lost from Misawa could cross the ocean and wash ashore, nearly intact, at a location 4,500 miles from Japan, but that organisms, native to coastal Japan, can survive the journey and potentially pose a risk to the local ecosystem on the other side of the ocean. The scientific and marine safety communities took note, and mariners were further advised and reminded of the on-going risk of collision with large debris items. The arrival of additional docks or large debris items originating from the tsunami became a distinct possibility.

In Washington, state, federal, and tribal entities, as well as non-governmental organizations (NGOs) and industry, had been preparing for the arrival of tsunami debris since late 2011. The state led the drafting and implementation of a state-wide marine debris response plan in early 2012, which calls for a "Whole of Government" approach to address marine debris, where the state would respond on all beaches along Washington's outer coast if invited by the owner. Recognizing that the rugged, partially inaccessible northern outer coast of the state is vastly different from the south outer coast, the agencies met on September 17, 2012, to discuss specific challenges in addressing marine debris along the north outer coast, and followed up on November 28, 2012, with a table top exercise that included a scenario of a large dock coming ashore at a remote part of the north outer coast. On December 14, 2012, a dock was reported off the coast of Washington State.

First Phase: Dock at Sea

Notification

At 1807h on December 14, 2012, USCG Sector Columbia River/Station Grays Harbor received report from a fishing vessel, *Lady Nancy*, of an unmanned, unlit barge 30 feet long by 12 feet wide adrift in the Pacific Ocean off the Washington coastline (Figure 2). The reported object was about 16 nautical miles northwest of the Grays Harbor entrance in position 47° 05.833N 124° 28.338W. USCG issued a hazard to navigation advisory to mariners, and notified NOAA, which in turn notified Washington State's Japan tsunami marine debris (JTMD) lead, who in turn activated other state agencies, as outlined in the Washington State Marine Debris Response Plan.

Modeling and Overflights

Finding the floating object, suspected to be one of the lost docks from Misawa, was a first priority. NOAA Office of Response and Restoration (OR&R) conducted its first General NOAA Operational Modeling Environment (GNOME) model run and trajectory analysis on the night of December14 and forwarded results to USCG. The next day, USCG flight crew, braving stormy weather conditions and poor visibility, conducted a search but was unable to locate the dock. Over the next few days NOAA and USCG worked closely on trajectory modeling (Figure 3), flight search areas, and flight paths. USCG flight crews conducted additional overflights on December 16, 17, and 18, locating the dock on Tuesday, December 18, aground on the shore at 1430h, at 47° 47.721 N, 124° 28.943 W, one mile due east of Alexander Island (Figure 4), within the boundary of Olympic National Park (ONP) and OCNMS (Figure 5).

Agencies Coordination and Initial Action

Saturday, Dec. 15, the day after the initial sighting, proved critical for setting the first phase of the response to the dock in motion, as well as the collaborative and productive approach used throughout the response. Conference calls were held with the Quinault Indian Nation (QIN) and federal agencies (OCNMS, ONP, and U.S. Fish and Wildlife Service [USFWS]) to discuss the situation and agree on a plan of action. All agreed on the collaborative, Unified Command approach to address the dock as specified in the Washington Marine Debris Response Plan.

By the end of the day, the entities involved took the following actions:

Washington State

- Activated the JTMD response team
- Conducted phone notification to county and tribal emergency management points of contact (POC)
- Explored contracting, including a towing vessel, if needed
- Focused on actions after the object makes landfall, including addressing invasive species
- Coordinated response to invasive species using state assets, and placed out-of-state assistance on stand-by
- Discussed possible floating object landfall with coast landowners and federal agencies with local interests: QIN, OCNMS, ONP, and USFWS
- Took the lead on addressing the media (after the weekend), in collaboration with federal agencies and QIN

USCG

- Sent out ‘hazard to navigation’ notices to mariners
- Conducted an overflight despite challenging weather conditions
- Considered deploying a tracking buoy for the dock, if the dock was found
- Collaborated with the state on addressing the media

NOAA OR&R

- Sent an initial trajectory on December 14, at 2300h and a corrected trajectory on December 15 incorporating observed winds
- Sent initial notification to three Federal agencies and five coastal Tribes
- With the state, conferred with coastal landowners – QIN and Federal agencies - to discuss current status and removal options
- Identified a media POC and worked with the state and federal agencies to address the media

Quinault Indian Nation

- Met with the state and NOAA to discuss the object landfall and explore response options
- Agreed to participate in a Unified Command with the state, if needed
- Requested the state to apply its "Whole of Government" approach on QIN land, and agreed to provide oversight
- Planned to look for the floating object on its beaches, as weather conditions allowed

OCNMS, ONP, USFWS

- Discussed with the state the object landfall and explored response options
- Generated a map with access roads and paths to facilitate the response on agencies' land
- Requested the state to apply the "Whole of Government" approach on federal land, and agreed to provide oversight
- Planned beach surveys if safe and prudent to do so

Second Phase: Dock on Land

The dock was found by USCG overflight on December 18, which initiated the second phase of response. On December 19, the state set up an Incident Command Post (ICP) at the University of Washington's Olympic Natural Resources Center in Forks, a facility with lab space suitable for initial processing of suspected AIS found on the dock.

Dock Assessment

State and federal agency representatives, as well as AIS experts from Oregon State University (OSU) and Williams College, assembled at the ICP, and in the morning on December 20, an assessment team led by ONP staff, attempted to reach the dock. The team reached Mosquito Creek, 400 yards from the dock but was unable to cross it due to an unusually high water level. The next day the team did reach the dock and completed a number of tasks:

- **Overall characterization:** The team took numerous photos of the dock (Figure 6), assessed its overall condition, and measured its dimensions, which were identical to the dock that beached in Oregon. This dock suffered significant damage and was found in much worse condition than the Oregon dock. Some damage seemed to have occurred some time ago, and some was recent. Considering the location of the dock, nearby sheared and broken rocks, and the fact that the

dock seemed to have moved since being spotted by USCG and even since the previous day, the dock was clearly mobile (Figure 7).

- **Tracking buoy:** The team secured and activated a tracking buoy to the dock's deck (Figure 8).
- **Aquatic Invasive Species:** The team assessed the abundance and distribution of AIS on the dock and collected numerous samples of organisms.
- **Radiation assessment**: Samples were taken from the dock to be analyzed for radiation.
- **Confirmation of dock origin**: The team looked for a plaque or other identifying markers on the dock, but was not able to find one. The team took photos of what appeared to be Japanese writing on dock parts. These photos were shared with the General Consulate of Japan in Seattle, and the Consulate initiated the confirmation process.

After the team came back to the ICP, a planning meeting took place. Given that there would be no daytime low tides until early January, thus making the dock mostly inaccessible, it was decided that the ICP would stand down until that time.

Transition to Removal

Coordination on next steps continued. Washington State advised federal agencies that it would continue to support the response to the dock under its "Whole of Government" approach, but since the dock was on NPS and OCNMS land, these agencies should take the lead on response efforts. In a conference call of the agencies on January 2, 2013, various options – from no removal action to complete removal - were considered. It was agreed that the dock must be removed because:

- It presents a safety risk to park visitors
- It may deteriorate further and make salvage more complicated and expensive
- It may break down and release large amounts of foamed plastic in a very sensitive environment
- It presents AIS risks
- It was damaging the shoreline and may contribute to bluff erosion
- Leaving it in place is incompatible with OCNMS and NPS policies
- The dock may refloat, drift out to sea, and be a hazard to navigation

The agencies agreed to address the AIS on the dock as soon as possible, ensure proper tracking of the dock if it refloats and drifts out to sea, and explore funding and contracting options for complete removal. The agencies also agreed to continue to meet at least once a week to share information and coordinate action.

AIS

Concerns about AIS on the dock were raised shortly after it was reported, and for all agencies AIS has been a high priority to address. The dock that landed in Oregon was covered with growth, including dozens of non-native species. The situation with the dock in Washington was somewhat different. On December 21, 2012, during the first site visit, the team noticed that roughly 75% of the dock surface was clean of visible biota, likely the result of physical action (scouring). The team collected 50-60 lbs.

of specimen samples and brought them back to the ICP. Within three days, the AIS experts were able to identify 29 coastal species from Japan. Further analysis put the number at over 60. The agencies agreed that removal of the remaining growth was a high priority and should be executed quickly to the degree feasible at this remote location.

On January 3 and 4, 2013, the team revisited the dock and cleaned the remaining growth from the dock. By then, even more growth had been stripped from the dock by surf action. Cleanup was done by scraping visible growth on the sides and deck of the dock, hauling 400 lbs. of biota up the bluff and away from water access, and sterilizing the surface with a bleach solution, used sparingly and under a permit from OCNMS. Vertical and horizontal bumpers, providing shelter to living organisms, were removed, cleaned, and stored in the hold of the dock (Figure 9). The team estimated that 99% of the visible growth had been removed, and additional AIS remediation efforts at this stage were no longer necessary.

Following the marine growth removal from the dock, AIS experts agreed that both the total mass and the number of species on the Washington dock were far less than what was found on the Oregon dock. Additional cleanup would be considered if the dock is removed by sea to a port of refuge. As it turned out, this option was not exercised, and no further AIS cleanup was done.

OCNMS Survey

The dock landed at a remote location with no road access and difficult access by sea with outcroppings of rocks in the surf zone and nearshore waters. Nautical charts for this area were very outdated; the area was last surveyed in the 1930s. To assist with the at-sea removal option, OCNMS used its own vessel, the RV *Tatoosh*, and taking advantage of favorable weather conditions in mid-January 2013, conducted a multibeam survey of the nearshore area, coming as close as a quarter of a nautical mile from the dock. These data were essential to determining a suitable path for tug access and best towing route (Figure 10).

Dock Tracking

Tracking the dock location at sea was another high priority from the time it was first reported, for both safety and operational purposes. This could have been achieved by attaching a tracking buoy to the dock with a line, or securing a beacon to the dock itself. Both NOAA and USCG had such devices ready, but the dock was not sighted after the initial report, and the opportunity to attempt to attach a tracker to the dock, a significant challenge, thus did not present itself.

In the first visit to the grounded dock, the team secured a NOAA tracking buoy to the deck of the dock and activated it. This was done to ensure that the location of the dock was known at all times, especially if it refloated, a remote possibility. The buoy transmitted GPS locations twice a day via email received by NOAA and several agencies.

After a few days, the charge of the solar-rechargeable batteries on the buoy was decreasing, and there was concern that the buoy would stop transmitting. Therefore, an additional beacon was secured from NOAA PMEL and attached to the dock on January 4 (Figure 11). Fortunately, both the tracking buoy and the PMEL beacon continued to transmit daily, and for several weeks, all involved entities were updated daily on the location of the dock, which remained essentially the same (Figure 12).

Radiation

The concerns that Japan tsunami marine debris is contaminated with radiation captured media attention but had little scientific basis. Numerous measurements by state agencies showed no elevated radiation on any of the marine debris items suspected and confirmed to have come from the tsunami in Japan. Nevertheless, samples were collected from the dock and analyzed by Washington State Department of Health. The dock, like all JTMD items sampled so far, did not have above-normal radiation levels.

Confirmation

The Consulate General of Japan in Seattle was contacted to provide confirmation that the dock is from Japan and was released as a result of the March 11 , 2011 tsunami. Photos of the dock and information on its dimensions, as well as coastal Japan species found on it were provided to the consulate on December 21, 2012. Unfortunately, a critical part found on the Oregon dock, a plaque with identifying information, was not found on this dock, which slowed the confirmation process in Japan. Auspiciously, when the bumpers were removed on January 3 and 4, 2013, a photo of a specific ID number on the bumper was taken and passed on to the Consulate. This ID positively confirmed that the dock was one of the four docks washed away from Misawa by the tsunami.

Communication and Outreach

The dock generated considerable interest and media inquiries requiring on-going communication and outreach. As with all other elements involving the dock, the communication and media relations were a collaborative effort of all agencies involved.

In all, nine news releases were generated about the incident. The first press release was done by the USCG on December 16, 2012, with input from the state and NOAA. Most subsequent press releases were done by the state, with input from all involved. When the lead on the response shifted from the state to NOAA and NPS, communication staff of these two agencies took the lead on media outreach and communication. The state, however, continued to provide critical outreach support, including media releases, website updates, and a Flickr website to post photos and videos.

The remote dock location challenged the communication efforts. The area was closed to the public for safety reasons. Bringing media on site was not advisable, and yet images and videos of the removal were needed for communication efforts. A workable solution came from a NPS volunteer videographer, who came to the site and videotaped the removal operations. Additional images were provided by the salvage contractor, OCNMS and ONP staff, and time lapse cameras stationed at different angles near the dock. All were used to provide material for media releases and for the

website, and were readily available to media via the incident website on special Flickr and YouTube pages.

A press conference was done via conference call on March 21, during the removal operations. Several state-wide and local reporters called in to join this briefing on the removal status and ask questions. On March 28, when the dock removal was complete and the final news release on the incident was issued, the Washington governor also issued a statement to the media, thanking the government of Japan for the funding gift that helped pay for the dock removal.

Funding

Funding for dock salvage presented a significant challenge. After the dock made landfall, it became clear that lack of road access or safe and clear access by sea would make the removal operation much more costly than the $84,000 spent to remove the dock in Oregon. An initial estimate put salvage at approximately $500,000. When the federal agencies assumed the responsibility to remove the dock, they also assumed the responsibility to pay for the removal – or part of it. It was fortunate that a few weeks prior to the dock's landing, the Government of Japan provided gift funds to help support removal of JTMD in the US and Canada. With the full support of Washington State and the Government of Japan, some of these gift funds were used to remove the dock.

Using the Japanese gift funds to cover the entire removal operation was not an acceptable option, and each agency was asked to contribute funding. ONMS was able to provide $75,000 emergency response funds. Since the NPS does not receive appropriated funds specifically for marine debris emergency cleanup efforts securing funding took longer. The NPS was able to match the $75,000 OCNMS put toward the effort, and the funding package to pay for the dock removal moved forward. Thus, the funding package was complete, with federal agencies paying $150,000 of the total $628,000 salvage cost, and the remainder ($478,000) covered by funding from the gift funds from the Government of Japan. Both NOAA and DOI contributed a significant amount of in-kind labor to plan and implement the salvage.

Contracting

The dock landed in an area shared by ONP OCNMS, and of the two, the ONMS, the lead office for OCNMS, had more experience with salvage work and vessel removal and therefore took the lead in the contracting process. ONMS reached out to the NOAA Western Acquisition and Grants Office (NOAA AGO) early in the process to discuss available contracting avenues and mechanisms including an urgency justification. Since this type of salvage work is not common, NOAA AGO and ONMS contacted the USCG to determine if one of their emergency, pre-negotiated Basic Ordering Agreements (BOAs) could be used for this operation. Unfortunately, there was no quick and efficient mechanism to use existing USCG BOAs. USCG is modernizing their BOAs to allow other agencies to order directly in the future. In fact, ONMS has already placed order against the modernized BOAs in California for an unrelated salvage operation.

While ONMS prepared the full requisition package including an unusual and compelling urgency memorandum and cost estimates, work was underway on the basic Statement of Work. Over a week period in mid-January ONMS and ONP staff drafted several versions of the Statement of Work with considerable uncertainty on whether the dock could be removed by towing it off the beach or would have to be removed by air.

By January 24, NOAA AGO accepted ONMS' requisition package and posted the initial Request for Proposal (RFP) on Fedbiz.gov with a request for submissions within five business days. The Small Business Administration (SBA) instructed NOAA AGO to invoke small business set-aside for this procurement due to the estimated dollar value, therefore only small businesses were allowed to bid on the RFP. It should be noted that ONMS and NOAA AGO disputed this restriction from the SBA and were prepared to immediately open the requisition process up to Full and Open competition had no qualified small businesses responded to the RFP.

Salvage contractor representatives visited the dock, inspected it closely, and provided proposals for removal. Their proposals ruled out removal by sea, focusing instead on cutting the dock on site during periods of low tides, and removing the parts by helicopter. Input received from the manufacturer supported this approach, stating that removal by sea would be risky. The proposals received were far costlier than the previous estimate, but there was agency consensus that complete removal of the dock should be done. Other options were briefly considered and deemed unacceptable risks to the environment, to public safety, or both.

Assembly of the funding package for air removal and the extensive reviews required slowed the contracting process. The contract was awarded on February 28, and after the contractor's salvage plan was reviewed and approved, salvage operations were ready to begin around mid-March.

Third Phase: Removal

Planning for removal of the dock was an evolving process. It began with a focus on removal by towing vessel to a harbor equipped to handle the dock. It later shifted to cutting the dock in place and removing the pieces via heavy lift helicopter during periods of favorable tides, and the final approach was removal during both low and high tide and using mostly light and medium lift helicopter.

Prior to issuance of a contract, OCNMS conducted emergency consultations with USFWS and the National Marine Fisheries Service for Endangered Species Act and Marine Mammal Protection Act considerations. Because this was an emergency response, formal consultation was not required. Informal consultation, however, helped identify disturbance concerns, which were used to guide and limit removal operations. There was heightened concern for disturbance to Marbled Murrelets during nesting season, which begins on April 1, of each year. Fortunately, salvage operations were completed before this trigger date. A post-action, biological assessment consultation document was provided by

OCNMS to USFWS after the response was completed. A no adverse effects determination was made for all species, except for Marbled Murrelets, for which a "may effect, but not likely to adversely affect" determination was made. Impacts were considered insignificant and discountable.

Dock removal began on March 16 with the mobilization by the heavy lift Vertol helicopter of equipment, two mini excavators, and fuel (Figure 12). The mini excavators built a berm approximately 10 ft high on the inland side of the dock (Figure 13) to store equipment and supplies safely above high tide. The heavy lift helicopter demobilized that day. During the next week the crew used two mini excavators, three concrete saws, and a variety of smaller tools to cut the concrete parts of the dock (Figure 14), remove the foamed plastic, and fly foamed plastic pieces out using the Jet Ranger helicopter to fly foamed plastic (Figure 15). A Huey helicopter with 3,000 lb lift capacity was used to fly out pieces of concrete.

The weather cooperated for the most part. Except for one stormy day on March 20 when operations were halted and work was uninterrupted from sunrise to sunset on most days. OCNMS and ONP staff monitored the work every day throughout the removal operations, and on March 24, they inspected the site and verified that the removal had been completed satisfactorily (Figure 16). The contractor then demobilized the equipment and supplies, using the Vertol helicopter. All the dock debris from the landing site was transported to the Forks landfill, where the contractor confirmed that the majority of the debris would be recycled. By March 26, all removal operations were completed, and the contractor and all equipment had been demobilized.

Discussion and Lessons Learned

The response to the Misawa dock on Washington coast was unprecedented and a number of lessons learned were gleaned from different phases of the response.

Planning and Preparations

- An established plan for response to marine debris was helpful, not only because the plan outlined response options and defined agency responsibilities for various scenarios, but also because agencies had already collaborated on preparation of the plan, which increased effectiveness of communications.
- Likewise, the agency meeting to discuss response options along the north outer coast held in advance of this incident helped agency staff be better prepared for addressing marine debris.
- The table top exercise was particularly useful in identifying response needs and operational issues that need to be addressed.

Initial Response

- The notification process between USCG to NOAA to the State, Tribes, and other federal agencies was efficient.
- Trajectory work by NOAA was useful to determine the search area for the floating dock.

- Excellent overflight efforts were conducted by USCG, which located the dock despite challenging weather conditions.
- Good initial response leadership was provided by the State, including calls with Tribes and agencies.
- The initial ICP location in Forks, which allowed for preliminary processing of the AIS at a location near the dock site, worked well.
- ONP provided strong field leadership and site familiarity (access to the dock), including attention to safety.
- Overall, communications with the potentially impacted agencies and land owners (including the Quinault Nation) were effective. Conference calls, in addition to email and phone updates, with the Hoh, Quileute, and Makah tribes would have been even better.

AIS

- There was good response overall, and critical assistance from Williams College and OSU. A National Science Foundation grant supporting AIS on JTMD had been funded and was particularly helpful in enabling this assistance.
- AIS remediation (risk reduction) actions are complicated by remote geography and may not have been as immediate, effective or thorough as options available where access is less difficult.
- State AIS experts from WDFW are regional leads, and they were effective in coordinating the AIS response.
- Tribes are very interested in potential AIS impacts to natural resources. They would like to receive updates and final report on AIS from WA dock.
- It is important and prudent to initiate AIS monitoring in the area of the dock landing. ONP conducts intertidal monitoring, but this monitoring does not address AIS effectively and does not include a site near the impacted shoreline. There is a need for more funding to adapt intertidal monitoring to this incident and AIS tracking in the immediate area.

Tracking

- Not having a tracking device on the dock after it was first sighted was detrimental to maritime safety and response. Within limits of safe operations, every effort should be made to place a tracking device on a large and potentially hazardous floating object so its location is known at all times to enable interception and towing, and to support precise hazard to navigation notifications.
- Responsibility and methods for deployment of a beacon on a floating object at sea are not fully defined, leaving the questions: Who does it? How?
- Having beacons on board the dock after it was beached was a huge advantage and relief. Dock location was transmitted several times daily. If the dock had washed out to sea, it would have been detected quickly and located easily.
- The ATI tracking buoy transmitted throughout, but the battery charge declined over time. Possibly because the solar panel was not able to keep the battery fully charged or because the battery pack was old. There is a need to ensure that beacons on JTMD are reliable. The PMEL beacon worked flawlessly, and having it as backup was reassuring.

Funding

- The gift funds from Japan enabled the removal of the dock. It is conceivable that without these funds, the dock could not have been removed or remediation options would differ for lack of funds.
- There is no established process to fund marine debris emergency response. NPS has funds for other emergencies but not marine debris. This slowed down the funding process. Agencies need to add marine debris response to their list of emergencies.
- Identifying funding sources slowed down contracting and dock removal. Fortunately, this was a solid dock that did not quickly disintegrate. A time lag or delay between detection and remediation can lead to disintegration or fragmentation of debris, which would have resulted in more complicated removal or no removal efforts.

Contracting

- The contract process took longer than originally estimated. For future emergencies ONMS/ORR may want to consider 'escalating' the issue through NOS leadership to the Director of AGO and Department of Commerce Contract Law Review to ensure minimum turnaround times at each phase of the process.
- While NOAA Western AGO worked quickly and suspended the normal 15 day posting requirement, the large amount of funding required additional review, and hence slower process.
- The complexity of the funding from a non-appropriated source and the long funding allocation process, through NOAA and NPS, slowed down the contracting process. Requisition packages must have all funding in place before the process may continue.
- Only the USCG has Basic Ordering Agreements (BOA) in place with salvage/towing companies, to intercept a large marine debris item at sea and tow it to a port of refuge. USCG is modernizing their BOA's to allow other agencies to order directly. This process has occurred already in California but not in Washington or Oregon.
- NOAA contracting will explore options for a more expedited contracting process.
- It is best to have a performance RFP, not a descriptive one. The RFP should state what is needed, and the contractor should be allowed to devise the best method to accomplish the work.
- It is also clear that checking with other federal agencies (USCG) regarding appropriate business classification codes is helpful in ensuring that qualified vendors can provide bids.

Communication and Outreach

- Overall, communication and outreach worked well, with effective collaboration among NPS, NOAA, USCG, and WA State.
- Washington State does not have resources for a weekend or after-hours communication POC, thus none was available on the initial weekend of response. NOAA and USCG assumed responsibility and issued a press release, but having the state communication POC available would have helped.
- Having the landowner and/or federal agencies in charge of the operations assume communications lead sooner may have been helpful, especially to media who had questions that only the landowner or federal agencies could answer.
- Having the Washington State Department of Ecology website to post updates was helpful and useful.

- Providing access to videos and photos on Flickr was helpful.
- The time series photos of the removal process were powerful outreach tools.

Removal

- A safe operation, with no injuries, was a high priority, and safe operations facilitated effective response.
- Overall, the contractor did excellent work and completed timely removal of the dock before the end of March when potential impacts to natural resources (Endangered Species Act-listed species) become more of a concern, and operations would have required additional consultation.
- The contractor minimized foamed plastic dispersion on the beach and collected pieces that managed to escape from containment.
- Removal efforts benefited from the contractor using medium lift, instead of heavy lift helicopters. It would have been harder overall to move larger pieces, and possibly more costly. See the above comment on performance-based, rather than descriptive RFP.
- Element of luck: Overall, there was good weather for March, with only one stormy day and little down time.
- The contractor was resourceful at working at higher tide and was able to continue the operations and meet the deadline.
- Emergency consultations under the Endangered Species Act and Marine Mammal Protection Act were conducted efficiently and effectively by OCNMS. However, the timing, scope, and process for these consultations differ for emergency and non-emergency responses. Federal agencies must comply with these consultation requirements for all actions with potential to impact species or habitats.
- The expense and complexity of the removal from a remote site underscored the preference to intercept large marine debris items at sea rather than let them wash ashore.

Challenges of Incident Response on Remote Coastlines

- The most significant challenge to this response was access to the site. The remote nature of the location on coast could have delayed the identification of the grounding site. This was mitigated by the USCG efforts. Once the dock was located, the local knowledge of ONP rangers for access routes, wilderness travel and safety considerations was a mitigating factor.
- Other complicating factors included short periods of daylight, winter storms, and high tides, which combined to create potentially hazardous conditions on the beach. A further complicating factor was high rainfall, which made some stream crossings hazardous on some days.
- A lack of available aircraft that met federal agency requirements and contractor needs in addition to differing agency rules for staff boarding aircraft differ for NPS and ONMS staff and complicated the option of transporting agency crews on site by helicopter.
- Much of the early work (close up inspection of the dock, AIS mitigation) was accomplished by hiking in, but the actual recovery would not have been possible without allowing access to the wilderness by helicopter.

Figures

Figure 1: One of floating docks at the port of Misawa (Photo: Port of Misawa)

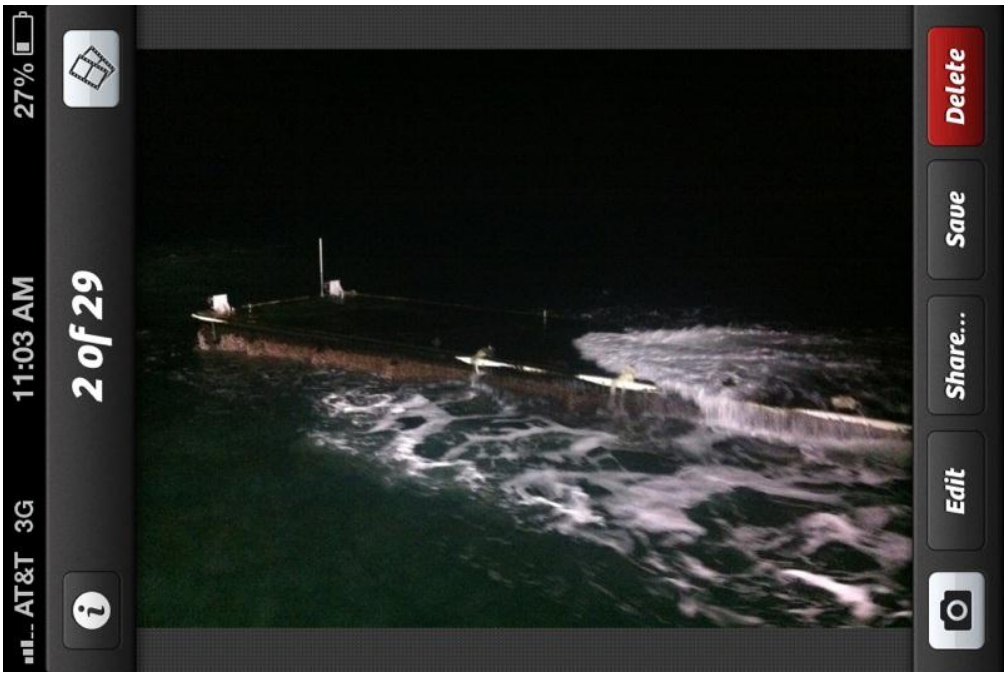

Figure 2: The dock as first photographed by F/V *Lady Nancy* (Photo: *Lady Nancy*)

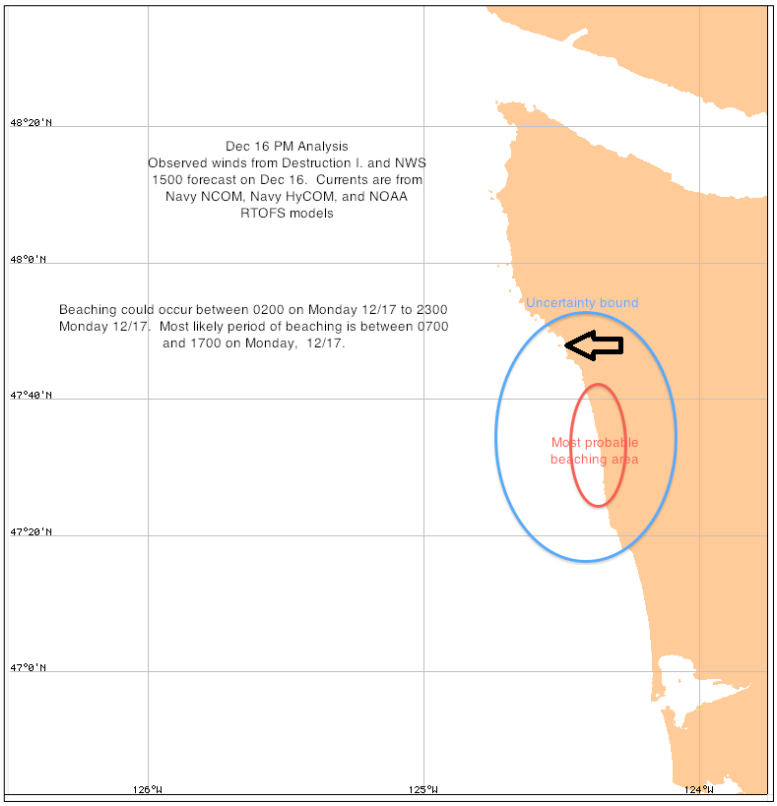

Figure 3: NOAA trajectory with arrow pointing to dock location (Image: NOAA)

Figure 4: Dock found by USCG on December. 18 (Photo: USCG)

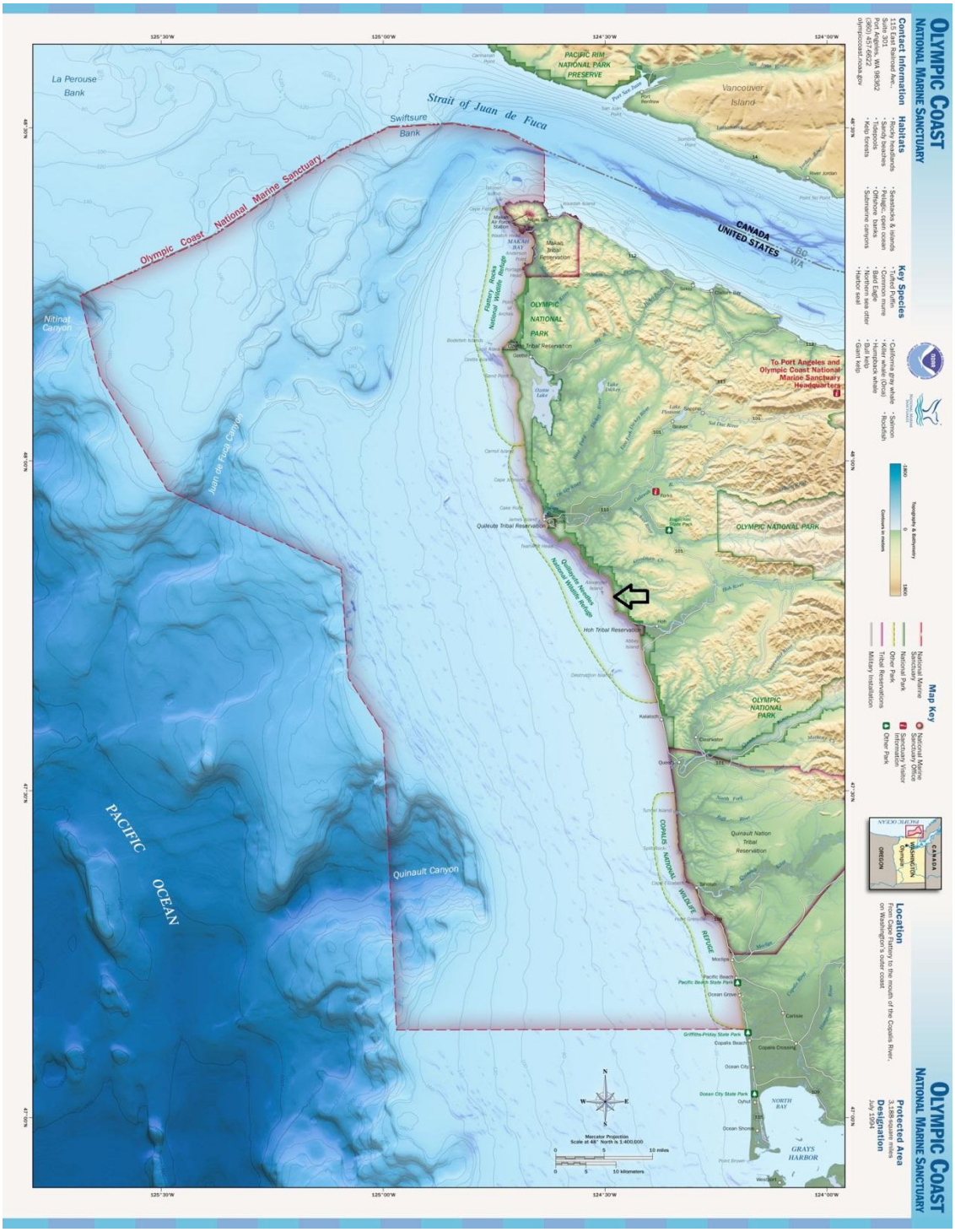

Figure 5: Dock location (arrow) at Olympic National Park, Olympic Coast National Marine Sanctuary, and US Fish and Wildlife refuge. (Map: OCNMS)

Figure 6: The dock on December 21th, 2012, perpendicular to the shoreline. (Photo: WDFW)

Figure 7: Dock on January 3rd, 2013, now parallel to the shoreline. Severe damage is visible. (Photo: NPS)

Figure 8: The tracking buoy is attached to the dock (Photo: WDFW)

Figure 9: AIS cleanup. Judicious use of bleach on removed fenders and bumpers on Jan 3 (Photo: NPS)

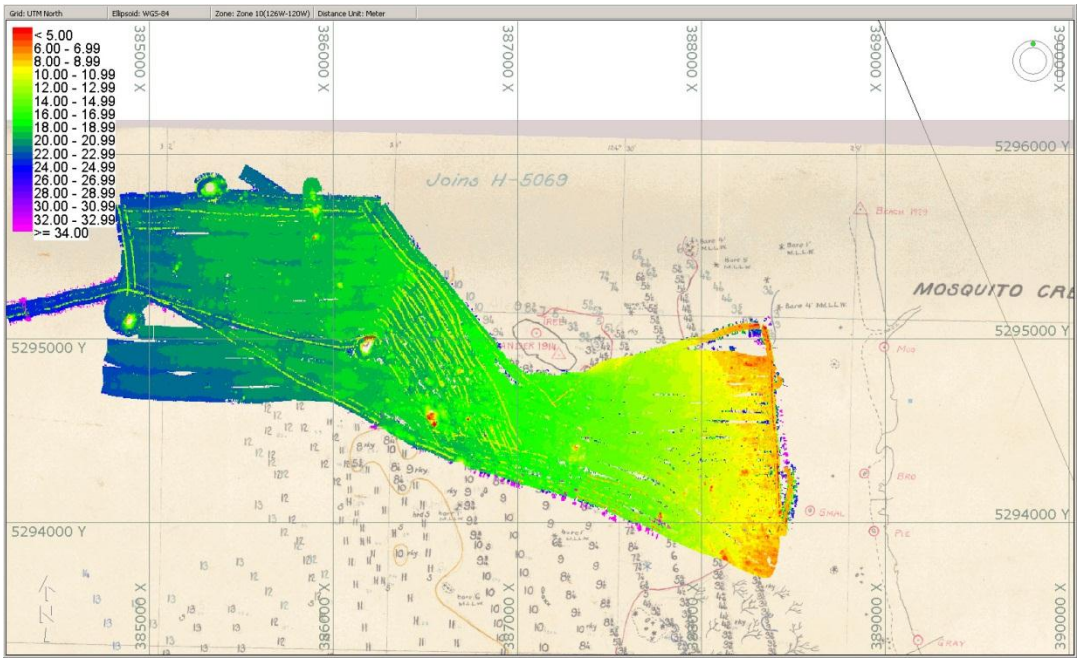

Figure 10: Side Scan Survey map generated by OCNMS in preparation of the dock removal (Image: OCNMS)

Figure 11: Repositioning the PMEL beacon on the dock on Jan 17 (Photo: NOAA)

Figure 11: Google map with dock locations (Image: NOAA)

Figure 12: Mobilization of equipment with the Vertol helicopter (Photo: The Undersea Company)

Figure 13: Mini excavators constructing the berm (Photo: The Undersea Company)

Figure 14: Cutting the dock with a concrete circular saw (Photo: NOAA)

Figure 15: Removal of foamed plastic with the Jet Ranger (Photo: NOAA)

Figure 16: Site cleanup after dock removal is completed (Photo: The Undersea Company)