

Modification of NOAA's National Guidelines for Oiled Marine Mammal Response as a Consequence of the Macondo/Deepwater Horizon Oil Spill**Michael Ziccardi¹, Sarah Wilkin² and Teresa Rowles²**¹Oiled Wildlife Care Network, Wildlife Health Center, University of California, Davis, CA95616 USA; ²NOAA, National Marine Fisheries Service, Office of Protected Resources, 1315

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ABSTRACT 299845:

The *Macondo/Deepwater Horizon* response was the United States' first Spill of National Significance and, as such, had significant challenges over a "normal" oil spill response effort. One complex issue in this response was the potential for a large numbers of cetaceans (dolphins and whales), manatees, and sea turtles to be impacted by the oil, as these animals were abundant in the area of oil and at great risk because of their life history, including large amounts of time spent at the surface. To address this risk and provide for response for these species, the Marine Mammal and Sea Turtle (MMST) Group within the Wildlife Branch officially became operational on April 30, 2010, enhancing the operations of the pre-existing marine mammal and sea turtle stranding response network in the northern Gulf of Mexico. Throughout the response, the Group used previously-developed National Guidelines for Oiled Marine Mammal Response, drafted in 2005, to help focus animal collection and care activities in the field as well as within established facilities and to direct collection of samples and data for assessment of the impacts of the spill, with potential use by resource trustees in criminal and civil litigation. While having pre-existing, reviewed and approved protocols to refer to greatly improved response efficiency, significant gaps became apparent in this protocol document due to the challenges associated with coordination across such a complex response and the lack of previous knowledge on how oil can affect the species impacted. Since the conclusion of the MMST effort, NOAA and associated experts have revised and updated this document to institute a more robust command-and-control system within the Wildlife Branch, to better delineate roles and responsibilities for personnel involved in future oiled marine mammal responses, and to provide more detailed information to allow local regions to better prepare for recovering and caring for pinnipeds and cetaceans should they be affected. This paper will detail these changes to this aspect of the Wildlife Branch, and provide attendees a better appreciation for what readiness and training marine mammal responders will be striving towards for future responses.

INTRODUCTION:

When oil spills occur in the marine environment, most species of wildlife in that ecosystem may be either directly or indirectly impacted. The impacts of spilled oil on birds have been long known (Jessup and Leighton, 1996; Leighton, 1993), with documented effects ranging from slight fouling requiring no treatment to acute mortality from hypothermia, and there has been much effort invested in developing protocols for the capture and care of avian species (Massey, 2006; Mazet et al., 2002; Tseng, 1999). Marine mammals are also at risk from oil spills in coastal and offshore waters, and a need for developing guidelines to direct and inform response activities was identified by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), Office of Protected Resources, Marine Mammal Health and Stranding Response Program (MMHSRP). The first comprehensive set of Pinniped and Cetacean Oil Spill Response Guidelines (Guidelines) was created in 2006 (Johnson and Ziccardi, 2006) and brought together the experience and research to that point. The *Macondo/Deepwater Horizon* Spill (DWH) in 2010 was the first significant oil spill to utilize these Guidelines as the blueprint for how to organize the response to potentially oiled marine mammals. While having these Guidelines greatly improved the flow and efficiency of the response, key elements were found to be lacking or missing in the document due to the challenges associated with coordination across such a complex response, the lack of previous knowledge on the species impacted, and some issues to be expected when implementing a protocol for essentially the first time.

Therefore, taking into account the lessons learned from the experiences during the Deepwater Horizon response and the Natural Resource Damage Assessment (NRDA), NOAA Fisheries and associated experts have since modified and updated these Guidelines to institute a more robust command-and-control system within the Wildlife Branch, to better delineate roles and responsibilities for personnel involved in future oiled marine mammal responses, and to provide more detailed information to allow regions to better prepare for recovering and caring for pinnipeds and cetaceans should they be affected. The overall purpose of these Guidelines are to provide a foundation for coordination and communication between state and federal governmental agencies involved in oil spill response and the marine mammal research, conservation and protection resources that exist outside of the spill response community (including marine mammal stranding networks, academic institutions, non-profits, and researchers). Key elements pertaining to this effort include:

- Outlining organizational and reporting structures necessary for wildlife professionals to make effective contributions within the oil spill community;
- Detailing appropriate and standardized data collection techniques to allow for effective response activities (as well as subsequent damage assessment);
- Defining chain-of-custody protocols for animal collection, necropsy and sampling to enable legal proceedings to be accomplished;
- Providing recommendations for protection of human health and oil spill safety training for responders; and
- Presenting guidelines for best achievable care of oiled marine mammals, including information on necessary readiness activities (e.g., training, equipment) needed to accomplish this goal.

While these Guidelines are quite extensive and beyond the scope of what can be presented as an International Oil Spill Conference paper, the following details the key structural elements in what is proposed to constitute NOAA's Marine Mammal portion of the Wildlife Branch prospectively for larger oil spill responses.

STRANDING NETWORKS:

NOAA Fisheries' MMHSRP, formalized by amendments to the MMPA in 1992, was developed to help NOAA Fisheries accomplish key management goals related to marine mammal health, including (among other responsibilities) the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild and coordination of effective responses to unusual mortality events. This mandate has been addressed through the coordination of volunteer stranding networks - a critical element to all readiness and response activities including oil spills. Five regional networks have been established within US coastal states, each consisting of numerous approved network participants external to NMFS (authorized through signed Stranding Agreements from the NMFS Regional Offices or Letters of Authorization from the USFWS, issued under MMPA Section 112(c)) and managed by a Regional Stranding Coordinator (RSC), all of which are overseen by the national response coordinator and the MMHSRP program director. In whole, the MMHSRP oversees, coordinates, and authorizes the activities of more than 120 organizations to respond to marine mammal strandings – some of which are strictly first responders (e.g., animal rescue only), some responding only to dead marine mammal strandings, and some of which are authorized to rehabilitate live marine mammals.

Because of these pre-existing authorizations and structure of the regional marine mammal stranding networks, for oil spills, all planning in each Area or Region should include significant input from the appropriate RSC(s) and/or key stranding network participants to decrease unnecessary infrastructure re-establishment. In turn, through the inclusion of these individuals in planning efforts, responders can be assured of the involvement of organizations with experience related to live and dead animal stranding response for the local area and pre-existing authorization to handle, collect, and treat marine mammals. Additionally, RSCs can then establish priorities for necessary training of stranding network participants, determine equipment and supply needs, and ascertain the most effective way of including and using regional participant organizations during events.

At a stranding network participant level, different organizations will have different levels of interest, capabilities and capacity to respond and take part in oil spill efforts. For effective planning to occur, within each region, established roles and responsibilities that are expected from each stranding network member should be identified and, if needed, added to their stranding agreement. While organizations from within the region that the spill is occurring should be used first if possible, RSCs should clearly communicate with other regions to determine available resources should the spill exceed local capacity. As described above, there are three general classifications of organizations related to their stranding agreements. For the purposes of oil spill response planning, these can be delineated into five different classifications (with individual organizations having the capacity to fill one or more of the following categories depending upon the location and specific needs of the spill):

- 1) Primary Care Organization/Facility: A stranding network organization that possesses the approval and capacity to receive and rehabilitate live oiled pinnipeds and/or cetaceans, including all infrastructure necessary to contain and dispose of hazardous waste.
- 2) Secondary Care Organization/Facility: A stranding network organization with similar capabilities to a Primary Care Organization/Facility with the exception of not having the ability to handle/deal with oiled hazardous waste. These organizations, therefore, could take animals that are cleaned elsewhere for long-term rehabilitation prior to release.
- 3) Processing Organization/Facility: A stranding network organization that possesses the approval and capacity to either conduct field sampling/necropsies within the oil spill area, or can do the same within their facility.
- 4) Field Collection Organization: A stranding network organization that possesses the approval and capacity to conduct field collection of live and/or dead stranded pinnipeds and cetaceans from within the oil spill area and transport these animals to the designated Primary Care, Secondary, or Processing Facility.
- 5) Personnel Organizations: A stranding network organization that cannot fulfill one of the four previous categories but who wish to assist an effort by providing experienced personnel to assist other stranding organizations in the oil spill effort (these may be geographically close to the spill area or a farther distance away, depending on the exact skills needed).

PERSONNEL:

Similar to the different classifications of stranding network organizations, there are different levels of personnel involved in spill response – each of which has different requirements for skills, training, knowledge, abilities and responsibilities. Similar to local facility prioritization, local experienced marine mammal responders will be prioritized if possible. However, there will likely be key contractors that will need to be brought in at the time of a spill to fill gaps in regional coverage, perform specific roles, and/or to augment existing staff. If at all possible, this should be limited to only those personnel that are necessary. While the specific details of each job function is more extensively detailed in the Guidelines, these classifications roughly break down to the following classifications:

- 1) Group Supervisor – Upper manager for each of the key response functions (Recovery, Hazing, Care & Processing);
- 2) Task Force Leader – Lead staff member with a specific tasking (Capture, Field Processing, Facility Processing, Animal Care);
- 3) Area Coordinator – Key personnel within a Task Force that have, for clarity of operation, been further subdivided into discrete elements (Intake, Animal Cleaning, Veterinary);
- 4) Area Staff – Personnel that, by benefit of the skills and knowledge, are assigned critical staff-level roles within the area, but are not responsible for the supervision of other staff;
- 5) Technical Specialists – Key personnel with specialized training/experience (deterrence, large whale euthanasia) that fill individual roles within the response, often as a consultant;
- 6) Volunteers – Personnel that are not monetarily compensated for their roles during a spill effort. Typically, these individuals fall into two broad categories:
 - a. “Spontaneous” volunteers = Members of the public that express interest in assisting at the time of the event but have no previous association with the Stranding Network;
 - b. “Pre-Trained” volunteers or “Paraprofessionals” = Individuals that:

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- i. Are affiliated with a authorized Stranding Network member working within the Wildlife Branch, or are a staff member of a wildlife trustee agency;
- ii. Agree to work under, and abide by, appropriate planning documents prepared by the Unified Command (Site Safety Plan, Incident Action Plan); and
- iii. Have a working knowledge and experience (> three months) with the general protocols, procedures and safety hazards associated with the species of question.

It should be noted that most wildlife response programs regularly use volunteers (particularly at the rehabilitation facility) and that volunteers are an effective and efficient means to provide the necessary manpower to mount wildlife efforts. Furthermore, the inclusion of volunteers within an oil spill effort is a mechanism by which the public can feel empowered to do something about the disaster within their region, as well as gain an experience with animals they may not have been otherwise able to be associated with. The sociological benefits of inclusion of volunteers should not be minimized, and should be encouraged if at all possible within the oil spill response framework. That being said, a comprehensive volunteer management program addressing (at a minimum) volunteer safety, training, supervision, scheduling, and liability, is an essential component of an efficient wildlife response.

INCIDENT ORGANIZATIONAL STRUCTURE:

All oil spill responses in the United States are managed by following a defined Incident Command System (ICS) structure as standardized by the National Incident Management System (NIMS) and modified for oil and hazardous substance spill response by the National Response Team. Coordination of response activities directed at wildlife within this structure usually occurs within the Wildlife Branch, which works under the Operations Section. Some actions that are related to wildlife or can help inform wildlife response efforts occur with the Environmental Unit of the Planning Section (e.g., identification of resources at risk, assessment of Endangered Species Act Section 6 and 7 issues). Guidance for dealing with oiled wildlife is not specifically provided in the National Contingency Plan; therefore the Wildlife Branch operational plan is developed uniquely within each Regional and Area Contingency Plan based on the specific resources present locally and agency involvement. The Wildlife Branch Director (WBD) manages the activities of the federal, state, and local agencies along with commercial and non-profit organizations responsible for wildlife protection and management who fall under the authority of the Unified Command (UC) during spill response. Once the UC activates the Wildlife Branch, several components of oiled wildlife response can be initiated, including reconnaissance to determine species and areas to focus operations, hazing of animals to prevent oiling, search and collection for live and dead animals in the spill area, treatment and rehabilitation of oiled animals, and release and monitoring of recovered animals.

For effective coordination within the overall spill response structure as a whole (and the Wildlife Branch in particular), the Pinniped and Cetacean Oil Spill Response Guidelines have established a working model of how pinniped and cetacean operations should be managed if those resources are deemed at risk (see Figure 1). As in any oil spill response, however, the scope of these operations will be entirely dependent on the complexity of the event and, for most spill situations, a small number of individuals can successfully fill all of the necessary responsibilities. In incidents where pinnipeds and/or cetaceans may be impacted, the WBD

and/or NOAA's Scientific Support Coordinator (SSC) should first contact the RSC, as he/she will be most familiar with local assets that can be used when appropriate. Similarly, the Environmental Unit Leader and/or the SSC will likely be in contact with NOAA Fisheries' Regional Office for Section 7 consultation. Initial discussions between the WBD/SSC and RSC

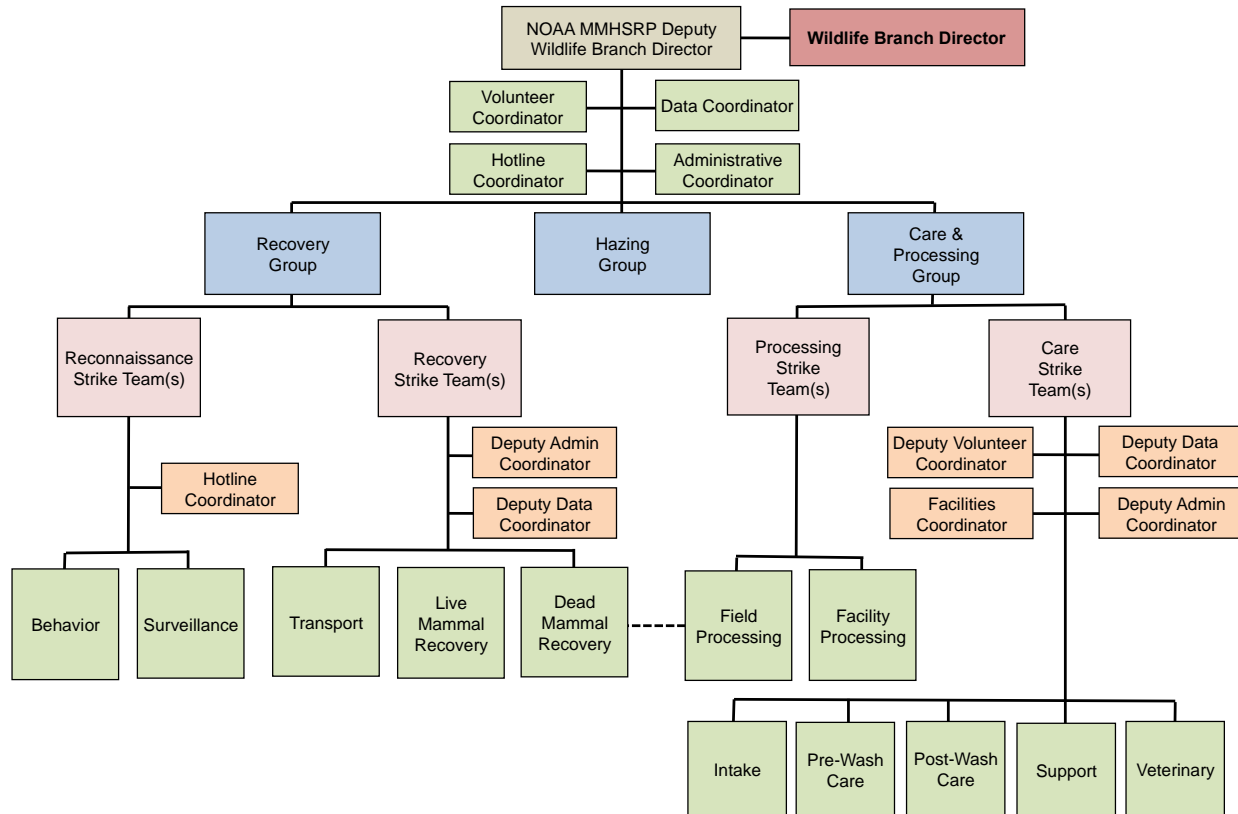


Figure 1: Proposed Pinniped/Cetacean Organizational Structure Within Wildlife Branch should include whether pinnipeds and/or cetaceans are at risk, what assets have been made available by the UC and/or the RP, the regional capacity of the stranding network, whether the UC has approved the development of a Pinniped/Cetacean Group within the Wildlife Branch, and whether the response is large or complex enough to warrant the activation of a Deputy Wildlife Branch Director to focus on pinniped/cetacean issues. In most instances, the RSC will and should fill the DWBD role, but other marine mammal/response specialists from the MMHSRP and/or other professional wildlife organizations may also effectively fill this role if there is a need. Once these initial discussions occur, the level, degree and staging of activation of resources can take place (as well as contacting other RSCs, National Stranding Coordinator, and the MMHSRP Program Director and staff to request additional assistance, if needed). As part of the Guideline structure, specific Groups, Strike Teams, and Areas of Operation have each been defined for pinniped and cetacean response. Within these Guidelines, detailed descriptions of, and requirements for, personnel, safety, documentation, and specific procedural information have been elaborated. The following is an abbreviated descriptor of the activities undertaken within each area – for more detailed information the reader is directed to the Guidelines themselves.

Hazing Group:

Preventing contact between pinnipeds and cetaceans and oil protects these animals from damage associated with oil spills. Much of the effort by which this can occur is directly related to oil clean up (or so-called “primary” response efforts), such as deflection booming, skimming, dispersing oil and in situ burning, which reduces the amount of the oil product in the environment. However, “secondary” response efforts, including minimizing injuries to wildlife by attempting to keep animals away (or “haze” them) from oil and/or cleanup operations, can also be effective in preventing individuals from being exposed and therefore requiring recovery and rehabilitation. Deterrence activities do not come without risks, as many techniques use potentially dangerous and regulated materials (e.g., pyrotechnics, sound generators), as well as there being a dearth of significant knowledge on how each method works on specific species. Additionally, deterrence actions only are effective when there are safe locations to drive animals to, and when the geographic area involved is small enough that it can be effectively controlled, so hazing activities may be inappropriate for larger spills. Marine mammal hazing activities also typically require significant lead time for preparation, particularly in situations where equipment has not been “cached”, and therefore may not be able to implemented on the time scale of a spill response (within hours to the first few days following a release). Lastly, hazing activities must take place only under the authority and oversight of trustee agencies, in coordination with the UC, as such actions are designated as “harassment,” which is a form of “take” under the MMPA and ESA.

Recovery Group: Recovery Strike Team:

Wildlife recovery focuses on the collection/capture of dead and live oiled wildlife and their transport to processing centers. Marine mammal collection during an oil spill response must be done under the direction of the UC, under the applicable agreements/permits from the appropriate management agencies (i.e., NMFS, FWS), and be accomplished with a view not only towards the immediate care of the affected animals but care to collect appropriate data and follow established chain of custody procedures. For most spills, the Recovery Group is the first Group mobilized (due to field operations being of paramount concern early in a response), and therefore effective training and planning within Regional Stranding Networks should ensure robust field operations can be mounted quickly.

During most oil spills, recovery activities requiring large-scale deployment of marine-mammal specific teams will not be necessary. If marine mammals are known to be in the vicinity, mammal recovery teams should be placed on stand-by (e.g., ready to be deployed if there are concerns over oiled mammals), through field teams deployed to search for and collect oiled birds, through the Hotline reports, or through activities of other spill response functions (e.g., SCAT, cleanup). However, these teams do not necessarily need to be out in the field, “deploy,” or cease doing their other daily jobs. Another possible option would be to embed one or two marine mammal experts within select bird response field teams. In these situations, should an oiled marine mammal be encountered, these individuals could then direct the capture operation. In both of these plans, a small number of marine-mammal-specific teams or personnel can be deployed without initiating a separate Marine Mammal Task Force.

During larger events where significant mammal operational activities are required, pinniped and cetacean field operations will take place within two discrete strike teams – one focused on recovery activities and one collecting detailed reconnaissance data. Within the Recovery Strike Team, further division of activities may occur through the creation of teams of personnel responsible for at-sea collection and capture, land-based collection, and transport of collected marine mammals (see Figure 2). Frequently, the most effective use of marine mammal recovery personnel will be to focus efforts on the collection of affected mammals by land capture/recovery on beaches and piers, though in certain situations on-water teams may be necessary (e.g., sea otter capture, collection of dead floating carcasses). The land-based strike team may be further subdivided into teams focused on live animal assessment and capture and those assigned to the collection and/or processing of carcasses of dead mammals. However, if this is the operational structure of this Group, those teams must be able to be deployed immediately upon receiving a report of an impacted marine mammal and must be within a relatively close distance (1-2 hrs) to ensure adequate speed of response. While every response is different, deployment of these recovery teams may follow a number of different approaches:

- “Small” Responses: Recovery teams (collecting and transporting both live and dead mammals) placed on standby at a local Stranding Network member organization and deployed when notified by the Recovery Group Supervisor or DWBD.
- “Moderate” Responses: Recovery teams deployed to regularly survey and provide active coverage of key discrete areas of highest risk, with the remainder of the areas passively covered and deployment of recovery teams occurring after an affected animal is reported to the Wildlife Branch.
- “Large” Responses: On-land (consisting of separate live and dead mammal teams) and on-water teams deployed to regularly and repeatedly cover a defined search area for affected mammals, with separate Transport teams developed and assigned as needed.

Recovery Group: Reconnaissance Strike Team

Baseline information on the distribution of wildlife during an oil spill event is important data for assessing which resources are at significant risk and for developing appropriate response actions. *A priori* historical information is most often available during a spill from the Environmental Unit of the Planning Section (via a trustee acting as a Resources at Risk Specialist), from published documents (e.g., Environmental Sensitivity Index maps, peer-reviewed literature, federal and state management reports), databases held by trustee agencies (e.g., the National Level A stranding database), and from the record-keeping and “corporate

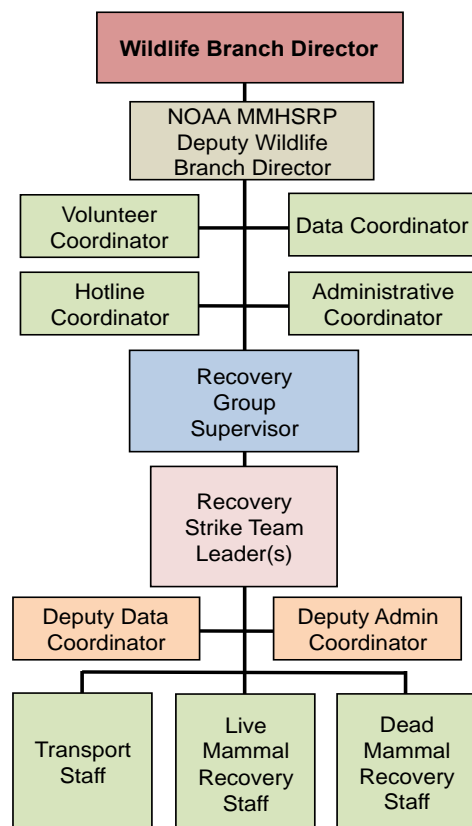


Figure 2: Recovery Strike Team Organizational Chart

knowledge” of local organizations including Stranding Network members. Variations from historic conditions due to daily and seasonal movements of pinnipeds and cetaceans, however, necessitate rapid, real-time reconnaissance of wildlife presence in the spill area. Additionally, indirect effects of spills and their cleanup, such as alterations to behavior, can also be problematic to marine mammal species. In most instances, these data can be collected by the Recovery Strike Team through normal marine mammal collection activities. However, when oil spill incidents become very complex in either size or type of the spill and the habitats involved, the Recovery Strike Team may be challenged to both collect surveillance data in a methodical manner as well as respond to animals in crisis. Real-time data on both marine mammal presence as well as behavior can then be collected actively via a Reconnaissance Strike Team within the Recovery Group using response personnel deployed as aircraft, boat, and/or ground teams, or more passively through manning a “hotline” to receive reports from the general public and from cleanup operators. This Strike Team can be then divided into teams focused on behavioral data and teams dedicated to surveillance, depending on the needs and risks.

In certain situations, it may be determined that the deployment of trained wildlife observers on specific response operations (e.g., skimmers, *in situ* burn teams) may be necessary to during a spill to determine the extent that protected species (under the MMPA and ESA) are being impacted, which needs to be documented for the Section 7 emergency consultation under the ESA, with a secondary function of reporting wildlife that may need intervention or recovery to the Wildlife Branch. This function most often fits within the Environmental Unit of planning (in a similar manner to Shoreline Cleanup Assessment Technique, or SCAT, teams). In cases where limited operational capability is needed and the Wildlife Branch has the capability, select observer operations may fall under the Reconnaissance Strike Team; however, this should be the exception rather than the rule.

Care & Processing Group: Processing Strike Team:

As discussed in the Recovery section above, extensive measures must be taken to ensure that all live and dead animals recovered during an oil spill incident are appropriately collected, identified, documented, and not released or disposed of until approved by the trustees. Each oil spill incident is a legal proceeding, with a number of different activities (such as investigation of cause, determination of environmental impacts, and effects on individual animals) requiring detailed data collected in a legally binding manner. This evidentiary and documentary portion of wildlife operations is collectively known as “Processing”. While additional information is collected and used in each other area of the response, the information collected through the Processing Strike Team is key should questions arise as to who is or is not the Responsible Party, whether animals were indeed oiled during the event, and whether samples were collected, analyzed and stored in an appropriate manner.

Due to the sensitivity of the information being collected, marine mammal processing during an oil spill response must be done under approval from the appropriate management agencies (i.e., NMFS, FWS) following procedures that are pre-established and pre-approved by the Agency’s law enforcement and legal office/division. In certain instances, these procedures may be modified during a response to satisfy the UC and/or incident-specific needs. However, for most incidents, the methods and procedures detailed here will suffice.

Unlike the typical processing that occurs for birds affected by oil spills in the United States, a key element for pinniped/cetacean procedures involves the complete necropsy (or post-mortem evaluation) of all collected animals whenever possible as part of the response effort. Marine mammals (aside from heavily furred animals such as fur seals) are far less likely to succumb to acute injury or death due to external coating, but may have significant internal exposure (from ingestion or respiration) and damage that occurs without concurrent external signs. Therefore, a full internal examination may be the only means to determine whether those animals found dead in the environment were indeed exposed (thereby assisting in defining margins of search effort and species at risk, among other factors), as well as give critical medical information to rehabilitators on potential adverse effects from the oil (or clean up methods used).

Processing of affected mammals may occur either at the Primary Care Facility (the ideal situation, as data collection and sampling can occur under controlled conditions) or in the field (should the animal be too large to transport back to a facility). In either case, the Processing Strike Team must be able to fully sample and document any and all animals that are found. In most situations where field processing is required, staff from the Processing Strike Team located at the facility can be deployed to conduct necropsies/data collection on individual animals in an appropriate, albeit remote, manner. However, for larger responses and/or when animals are being found at great distance from processing facilities, a separate Field Processing Team may need to be formed and remain on stand-by (See Figure 3). There may also need to be numbers of personnel identified and available in a stand-by fashion to augment a typically small Processing Strike Team(s) for response to large marine mammals, as large whale necropsies can be very labor intensive.

Care & Processing Group: Care Strike Team:

Live animals that are affected by petroleum must usually go through an extensive rehabilitation process to allow them to return to normal function. Typically this involves their capture from the environment and transport to a specially-prepared facility where they can be examined, stabilized, cleaned of oil, provided medical attention, given time and support to allow them to return to normal health, and then eventually released back into a clean environment. This rehabilitative care, for the purposes of oil spill response, is labeled as “Care”.

The rehabilitation of oiled pinnipeds and cetaceans is a very labor- and resource-intensive operation. If at all possible, facilities should be in place and ready to care for the species at risk at the onset of a spill, as the development of temporary sites during an emergency is difficult at best. Therefore, the use of existing marine mammal care centers within the appropriate Regional

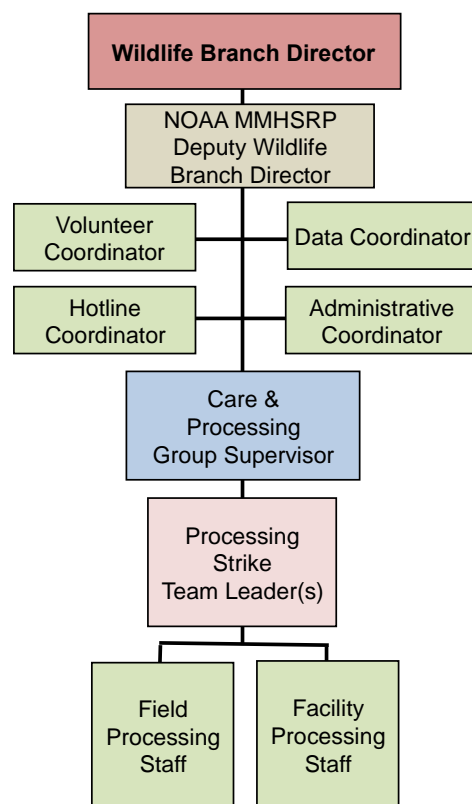


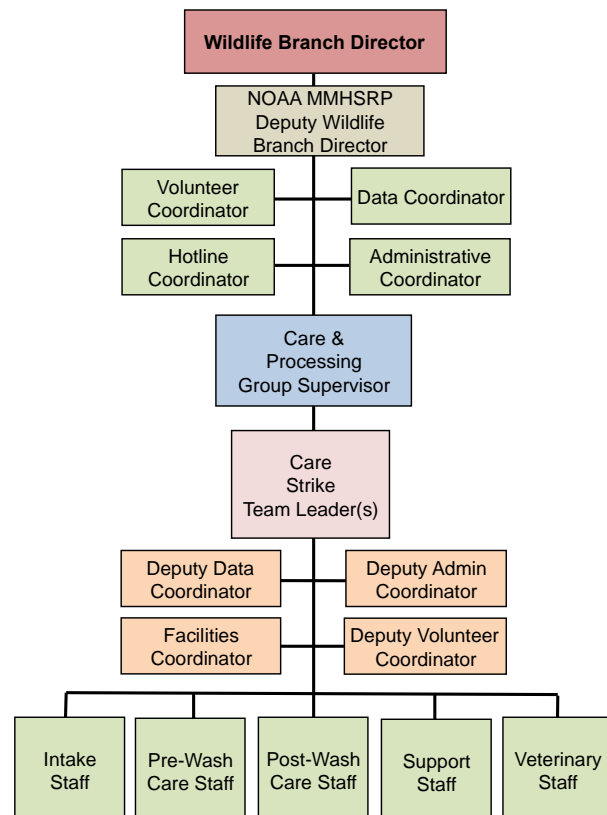
Figure 3: Processing Strike Team Organizational Chart

Stranding Network will always be prioritized as a key response decision, with the Regional Stranding Coordinator making choices as to which facilities should play what roles, in consultation with the MMHSRP Coordinator(s) in Silver Spring, MD, and the Wildlife Branch Director. If the facilities available do not have oil spill-specific equipment and supplies pre-staged and available (which is the most likely case), each will be improved and supplemented as a response cost. All facilities will also be managed by organizations with the appropriate Stranding Agreements to either hold live mammals or collect samples/necropsy dead animals.

Facilities to be used during oil spill responses can have one of a number of different roles depending on their capacity, infrastructure, availability, closeness to the spill, and/or other factors. These facilities are designated as one of the following categories:

- **Primary Care:** Facilities that have the ability to receive live oiled marine mammals, conduct processing and intake procedures, clean them appropriately (and dispose of the oily waste water in a safe and legal manner), and hold them post-wash until they are cleared for release.
- **Secondary Care:** These facilities do not have the ability (or interest) in receiving oiled animals (or to de-oil mammals) but could hold un-oiled/cleaned mammals for extended periods of time to allow for them to return to normal function.
- **Stabilization:** These facilities have the ability to temporarily hold live oiled marine mammals and provide initial “first aid” before moving on to a Primary Care Center.
- **Processing:** These facilities have the capacity to fully process/necropsy dead mammals (following appropriate protocols and sample storage requirements needed for evidentiary purposes).

Due to the extensive nature of the care of oiled marine mammals (or, for that matter, the general rehabilitation of marine mammals), the Care Strike Team has been divided into many discrete components roughly translating to areas within a Primary Care Facility (see Figure 4). These functional Areas are designated Intake, Pre-Wash Care, Cleaning, Post-Wash Care, Support and Veterinary Care, each of which contains a Coordinator, staff and volunteers (if needed). For smaller responses (Tier 1 and 2), these Areas may be collapsed into fewer functional elements but the duties and responsibilities must be accomplished. Specific procedures, as well as any specific requirements for each of these areas are detailed in the Guidelines.



99 **Figure 4: Care Strike Team Organizational Chart**

CONCLUSIONS:

During the *Macondo/Deepwater Horizon* oil spill, the Marine Mammal and Sea Turtle (MMST) Group within the Wildlife Branch officially became operational on April 30, 2010, enhancing the normal stranding response network in the northern Gulf to provide response for these protected species. Throughout the response, the Group used previously-developed National Guidelines for Oiled Marine Mammal Response, drafted in 2005, to direct collection of samples and data for potential criminal and civil litigation, and to help focus animal collection and care activities in the field as well as within established facilities. While having approved protocols to refer to greatly improved response efficiency, significant gaps became apparent in this existing document due to the challenges associated with coordination across such a complex response and the lack of previous knowledge on the species impacted (primarily cetaceans and sea turtles). Since the conclusion of this effort, these Guidelines have been modified and updated to institute a more robust command-and-control system within the Wildlife Branch, to better delineate roles and responsibilities for personnel involved in future oiled marine mammal responses, and to provide more detailed information to allow Regions to better prepare for recovering and caring for pinnipeds and cetaceans should they be affected. While these Guidelines remain in draft form to date, this paper has attempted to provide additional information pertaining to the structural changes to this aspect of the Wildlife Branch, and provide attendees a better appreciation for what readiness and training marine mammal responders will be striving towards for future responses.

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