OVERALL GOAL and PURPOSE: To improve coordination between various independent government and non-government entities responding to marine animal stranding, research, health, and management issues and to centralize monitoring and management under one organized body to fund, coordinate, support, archive and share data, and promote collaborative projects. The stranding program is meant to be a subset of a broader marine animal research program initiative directed towards dedicated and systematic collection and analysis of species and habitat specific data.

NOTE:

- WHILE THE DOCUMENT SUGGESTS THE DEVELOPMENT OF A MARINE MAMMAL ACTION PLAN (MMAP), THE FOCUS AND PRIORITY OF THIS DOCUMENT IS STRANDING RESPONSE. SUBSEQUENT DOCUMENTS AND DISCUSSIONS CAN RESULT IN THE DEVELOPMENT OF APPROPRIATE MMAPs.

- THE FOCUS IS ON MARINE MAMMALS, THE DOCUMENT CAN BE EXPANDED TO INCLUDE SEA TURTLES AND SEA BIRDS.

- ONLY LIVE/DEAD MARINE MAMMAL STRANDING RESPONSE AND RESCUE IS ADDRESSED.
Overview of Roles and Responsibilities

Central Government

- Commission and approve a Marine Mammal Action Plan (MMAP) within the framework of the Indian Wildlife Protection Act 1972 under the jurisdiction of the Ministry of Environment and Forests (MoEF).

  * Priorities for the marine mammal action plan are provided at the end of the document.

- The MMAP will consist of four parts: (1) Marine Mammal Research (basic and applied); (2) Marine Mammal Conservation based on Ecosystem Management Principles; (3) Marine Mammal, Sea Bird, and Turtle Stranding Response, Rescue, and Release; (4) Regional cooperation and collaboration within and outside India to promote training, capacity building, and scientific exchange.

- Establish and support a National Marine Animal Research and Response Centre (NARRC) with a National Stranding Response Coordinator and Co-Coordinator overseeing 6 regional stranding centers. The NAARC will be within the Ministry of Environment and Forests or deputed government agency, and the 6 regional centers will award permits and oversee volunteer stranding networks.

- NAARC will also issue special permits for Schedule I species of the Wildlife Protection Act of 1972, amended 1993 (http://envfor.nic.in/legis/wildlife/wildlife1.html) through regional centers, institute grant in aid of research and conservation and maintain the National Stranding Database. NAARC can designate agencies such as CMFRI as a nodal agency to store national level stranding data freely accessible to the public for research and educational purposes*.  SEE DATA ACCESS SECTION

- Establish Annual Competitive Grant Funding for Regional Marine Animal Stranding Centers to support marine animal stranding response activities. Additional Grant in Aid of Research Funding to be established to support national marine mammal health, sea turtle, and sea bird research and conservation activities.

National Stranding Center
• Located within MoEF or CMFRI, or other recognized agency TBD. Headed by a National Stranding Coordinator and Co-coordinator and associated staff.

• Supervises and approves stranding agreements with all 6 regional stranding centers, one from each ecological zone - NW, SW, SE, NE, Andaman & Nicobar Islands, Lakshadweep Islands). Each center will coordinate several stranding centers within defined ecological or geographic boundaries.

• Issues and updates stranding response criteria, protocols, as well as permits for marine animal stranding response and research.

• Sets up a national hotline number for the regional stranding centers and the public to report a marine animal stranding.

• Identifies, verifies, compiles, and updates list of authorized biological labs, stranding centers, personnel (veterinary surgeons, pathologists, stranding center coordinators, NGOs, and affiliates) in an accessible database for the volunteer stranding networks.

• Maintains the National Stranding Database.

• Establishes national grants and supervises disbursement of funds for research and stranding response to regional centers, through a transparent peer-review process.

• Conducts workshops, conferences, and seminars in conjunction with regional centers involving all relevant stakeholders for training, volunteer recruitment, education, scientific exchange, and revising protocols.

• Communicates national level stranding data, includes data from all 6 regional stranding centers, as well as any independent body with a published technical memo or peer-reviewed article, through monthly and annual web-based reports to the public, media, and scientific community. Reports will be made available in regional languages and dialects.

*All trainings will address health and human safety while responding to a stranding event.
A government research facility.

Headed by a regional stranding coordinator and co-coordinator that collaborate and cooperate with local stakeholders and volunteer stranding networks in managing a response.

Will approve written Marine Animal Stranding Agreements, valid for a maximum of 5 years that authorizes regional volunteer stranding networks to respond to a stranding event, collect data and biological samples, archive and analyze data gathered from the incident, disseminate information on marine animal populations including health in official reports and peer-reviewed publications. These agreements serve as Permits. *SEE DATA ACCESS SECTION*

Recruits and staffs trained personnel (volunteers and full time staff) to handle and respond to marine animal stranding event.

Sets up and monitors telephone hot line or web page for the public to report on stranding incidents within their jurisdiction and routes call to appropriate volunteer stranding networks closest to the incident.

Provides staff list including vets, researchers, volunteer coordinators, public relation officer, and other personnel information to National Stranding Center.

Submits Level A/Basic stranding information to the NAARC within 15 days of a stranding event as well as a complete investigative report on a stranding event to NAARC.

Archives biological data in the designated facility listed in the NAARC database.

Conducts regular training workshops and seminars to educate the public, relevant stakeholders, as well as set up, train, and build a volunteer network comprised of members of the local community including students.

 Communicates collected stranding data to the public via peer-reviewed journals, annual reports, or other publications.

Develops field guides, brochures, and educational pamphlets in local languages.

Conducts quarterly training sessions to recruit and train volunteers to follow standardized protocols and take and collect samples and transport or provide it to the stranding center coordinator or person-in charge of stranding response.
• Conducts quarterly training exercises and workshops for the Coast Guard and Forest Officials to respond to an event as first responders. Workshop modules should include: handling, rescuing live animals, and safely disposing dead degraded animals, collecting Level A and other biological relevant data per approved protocols and transporting/providing all biological samples collected to relevant lab or agency.

*All trainings will address health and human safety while responding to a stranding event.*

**Volunteer Stranding Networks**

• Is a non-governmental, independent institution, state/local government agency, or university.

• There can be multiple volunteer stranding networks/center within an ecological zone to cover vast and less populated coastlines. However, all networks should have permits to respond to an event, and need to coordinate and report to the regional stranding center.

• Under the authorization of the stranding agreement can appoint approved trained designates or respond directly to a stranding incident as first responders. Student researchers, scientists, and small organizations will be assimilated into regional volunteer stranding networks either by affiliation or cooperative agreements, but need to report to the head of the appropriate stranding network.

• Conducts regular training and educational workshops for the public through supportive grants from NAARC or through extramural funding sources including international agencies.

• Conducts monthly/quarterly training sessions to recruit and train volunteers to follow standardized protocols and take and collect samples and transport or provide it to the stranding center coordinator or person-in-charge of stranding response. All trainings will address health and human safety while responding to a stranding event.

• Provides all biological samples collected to a previously identified lab/agency within (preferred) or outside their ecological zone for further processing.

• Provides Level A data to the regional stranding center or logs into the NAARC database within 7 days of the stranding incident.

• Each volunteer network will conduct outreach activities targeting locals, social and environmental NGOs, fishermen, schools, colleges, universities within their geographic
range along the coastlines, in local languages or dialects where appropriate. These outreach activities should include educational modules and materials, and training to attend to a stranding event involving a marine mammal, sea bird, or sea turtle and notification of appropriate agencies.

- Volunteer networks can seek private, international, and government funds to support stranding response, education and training activities

DATA ACCESS

- National Stranding Database will contain basic stranding data: Date/Time/Location/Species (Known/Unknown), Photo collected (Y/N), Samples Taken (Y/N), Person to Contact (Appropriate Stranding Center), Species information such as total length, sex, weight, human interaction findings, condition code, ID tag data, and # of animals in groups — These should be freely available to the public

- All Level A data collected by regional stranding networks or affiliates must be reported to their respective Regional Stranding Center within each ecological zone.

- Additional biological data as part of the stranding investigation will be housed within relevant regional stranding network centers or approved labs that includes but is not limited to: histopathology, osteology, morphometrics, stomach contents, reason for stranding, and other biological information pertaining to stranded specimen under investigation.

- Stranding permit holders will have proprietary rights over data other than basic data collected under their permit or jurisdiction. The NAARC will publish basic data from all regional centers for the annual report and make it publicly available on Dec 1 of each year.

- National and Regional Stranding Centers always needs to acknowledge the agencies that collected the data and samples in a publication. Other than Basic Level A data, all other data used by scientists or interested individuals needs to acknowledge data source and obtain requisite permissions. Data sharing is encouraged and permissions to use data should not be restrictive for student or collaborative research projects, or where data holders are co-authors.
Collaborative projects between stranding centers as well as national/international institutions and affiliates are encouraged and do not need specific permits or approvals as long as data source is acknowledged and/or data holders are co-authors.

STRANDING RESPONSE GUIDELINES FOR FOREST OFFICIALS

NOTES:

1. Person first on scene or reporting stranding must contact telephone hotline for stranding center or regional stranding coordinator.

2. If forest officials/coast guard receives intimation of a stranding they should contact the regional stranding coordinator or designated individual in stranding network to respond to the stranding event.

3. Any individual can respond to a stranding event, provided they have training and notify concerned authorities including relevant stranding center immediately of the event before collection of any data. If no stranding center or assistance is available, person responding to event, should collect as much information as possible (Level A), and provide the information to the regional stranding center.

4. At the scene of the incident, the stranding coordinator or designated personnel assume full responsibility for handling a response. They will take appropriate measures to notify proper officials including the coast guard and forest officials, as well as educate and manage the public, provide information to the media, supervise volunteers, and record and collect biological data per approved protocols.

5. Except for designated Public Relations (PR) Official, no other responder, volunteer, or scientist should talk to the media without prior approval from stranding coordinator at the scene. PR person should provide adequate and accurate information to the media during or after the event. PR person should not speculate on stranding reason until definitive and substantial expert information is gathered.

6. For live or dead large cetacean or mass strandings additional assistance from the coast guard or navy must be sought.

KEY STEPS FOR LIVE/DEAD STRANDINGS ON THE BEACH

STEP 1
Contact Regional Stranding Coordinator or nearest volunteer stranding network coordinator

**STEP 2**

Regional/Volunteer Stranding Coordinator will contact nearest FIRST responder FROM A VOLUNTEER STRANDING NETWORK WITH VALID PERMITS to respond to stranding event and inform National Stranding Coordinator of incident.

**STEP 3**

First Responder will intimate forest officials/coast guard about event in case they are not informed.

**NOTE:** PERMITS ARE VALIDATED EVERY 2-5 YEARS. SPECIAL PERMITS AWARDED FROM THE NAARC ARE NEEDED FOR SCHEDULE I SPECIES. STRANDING CENTERS REGULARLY ENCOUNTERING SCHEDULE I ENDANGERED SPECIES CAN APPLY FOR A SPECIAL PERMIT IN ADDITION TO REGULAR PERMIT TO RESPOND TO A STRANDING INCIDENT. THESE PERMITS ALLOW RESPONDERS INCLUDING VETERINARIANS AND RESEARCHERS TO RESPOND TO THE STRANDING EVENT; COLLECT BIOLOGICAL SPECIMENS, COLLECT LEVEL A DATA, AND PROPERLY AND SAFELY DISPOSE DEGRADED ANIMALS AND/OR TRANSPORT SPECIMEN TO PERFORM NECROPSY AND FURTHER BIOLOGICAL INVESTIGATIONS.

**STEP 4**

First Responder and staff will assemble personnel (veterinary doctors/researchers/students/) and manage trained volunteers to handle the event. If no researcher or vet is available, trained volunteers should collect as much data as possible based on accepted protocols and submit to regional stranding coordinator or person-in charge of stranding response.

**STEP 5**

**IF DEAD STRANDING:**

Responders will collect Level A and detailed biological information, photograph specimen according to approved standardized data collecting protocols.

**STEP 6**
Stranded specimen/s need to be transported to a lab for necropsy (applies to small cetaceans, not large whales). If specimen is too degraded, safe and approved disposal techniques should be used to bury specimen.

**STEP 7**

**IF LIVE STRANDING:**

Veterinary expertise should be sought to determine state of animal. If animal is deemed to be returned to sea, than appropriate actions need to be taken to ensure animal and human safety. The Stranding Coordinator or Designated Personnel will oversee the rescue of the stranded marine mammal. Assistance from the Coast Guard, Navy, and Forest Officials should be sought to enable safe release of the whale or dolphin. Trained volunteers and the public can provide additional assistance during mass strandings. Before animal is returned to sea, Level A data needs to be collected including photographs, gender, measurements, and skin and blood samples. Each rescued marine mammal needs to be tagged for later identification or radio tagged to track movements post release. Animals that need to be euthanized will be evaluated on a case by case basis based on veterinary advice as well as based on safety, logistic, and other constraints.

**STEP 8**

Any Level A data collected from a live/dead stranding episode must be provided to the NAARC within fifteen days of the reported stranding. In case of unusual mortality events, detailed investigative reports need to be made available to the National Stranding Center.

**DOLPHIN/WHALE ENTANGLEMENT AT SEA**

- Dolphins and whales can get injured and entangled in fishing gear, marine debris (plastic and other discarded trash). Most, if not all entangled dolphins species may have fatal consequence. If dolphin/whale is entangled at sea, trained personnel at Stranding Centers, trained fishermen, Coast Guard, or Navy should be notified and an appropriate response mounted to remove entangling material. However, untrained individuals should not attempt to rescue or remove gear from an entangled dolphin or whale as this may lead to unnecessary risk and injury. However, under extenuating circumstance such as when fisherman, boat or human safety is compromised, measures can be taken to disentangle gear from affected species. In all cases, proper authorities should be notified.
**EXISTING DATA COLLECTION PROTOCOLS FROM VARIOUS CREDIBLE AGENCIES CAN BE USED BUT NEEDS TO BE STANDARDIZED FOR ALL STRANDING RESPONSE CENTERS BY THE NAARC**

PRIORITIES AREAS FOR THE MARINE MAMMAL ACTION PLAN

1. Reduction in incidentally caught marine mammals, sharks, sea turtles in fishing gear through improved education of coastal communities.

2. Regional, national, and international training for fishers, representatives, scientists in latest fishing technology, better fishing practices, and improved gear development to minimize incidentally caught protected species.

3. Capacity building and training in marine animal stranding rescue, response, rehabilitation (live/dead), disentanglement of dolphins/whales at sea, fisheries observer training to reduce illegal, unregulated, unreported fishing, and incidental catch of protected marine species and juveniles. This should involve regional cooperation with neighboring countries such as Sri Lanka, Bangladesh, Pakistan, and Maldives.

4. Encourage data sharing and collaborative research and training within and outside India through timely workshops, symposia, annual meetings, or conferences as well as through broad and fine scale survey efforts within and outside Indian EEZ. This could be achieved through bilateral agreements.

5. Develop management and recovery plans for key marine mammal species including the Ganges River dolphin (*Platanista gangetica*) and Irrawaddy dolphin (*Orcaella brevirostris*), dugong (*Dugong dugong*), along their entire distribution and range in India.

6. Develop ecosystem-based management plans for key marine turtle and sea bird species along their entire distribution and range in India.

7. Support grants-in –aid research for basic and applied multidisciplinary, collaborative projects (domestic and international) with ecological and societal applications pertaining to living marine resources.

8. Support biannual or seasonal stock assessments or directed surveys (aerial/ship/other platforms) of marine mammal and turtle species found within Indian EEZ.

9. Develop and implement volunteer environmentally friendly and safe boating practices and whale watching guidelines for tour operators or fisherman in the proximity of dolphin or whale species that prevents harassment (behavioral change) or injury of marine mammal or turtle species.