Small Cetacean Entanglement

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Small Cetacean Entanglement

- 83 entanglement interventions in SER 2004 – 2016 (Blair Mase)
Disease: Entanglement

- Entanglement: An animal in distress as a result of human activity in which an animal has an object or objects attached to their body that they are unable to remove on their own.
  - Immediately life threatening
  - Life threatening
  - Non-life threatening
Disease Reporting

• How is the entanglement reported?
  – Public description, photos or video
  – Photo-ID programs confirm and document

• Disease reporting limitations
  – Reports not always in a photo-ID study area
  – Unsure of chronicity of entanglement at time of report
  – Target animal difficult to find to document
  – Photos do not adequately represent entanglement
    • Lack of 3-D view
    • Difficult to understand what is occurring underwater
Initial Diagnosis

- NMFS consults team of marine mammal veterinarians and biologists.
  - Life threatening?
  - Examine BCS, area of entanglement, depth of entanglement, drag on line, description of locomotion and behavior.
  - Report back to NMFS
- Limitations to initial diagnosis
  - Difficult making diagnosis just from photos/video/description in some cases.
- NMFS makes determination if intervention warranted
- Intervention requires permits - Erin
Entanglement Treatments

• Non-life threatening – Monitor
• Life-threatening – Intervention to disentangle
• Immediate life-threatening (special cases) - NMFS SE Stranding Coordinator can authorize immediate disentanglement in some cases
  – Ex: dolphin wrapped in crab trap struggling to stay at surface
Goals of Small Cetacean Disentanglement Intervention

• Safety of humans and animals
• Successfully disentangle animal
• Document entanglement
• Collect diagnostics
Treatment Protocol - Intervention

• Organize intervention planning call – NMFS
• Planning call – All organizations involved
• Personnel
  – Net lead
  – Catch lead
  – NMFS Personnel
  – Marine Mammal Veterinarian
  – Handlers
  – Photo ID
  – Emergency services
• Boats
• Weather
  – Must be safe for intervention
    • wind and lightening
• Sighting
  – The animal must be sighted within 5 days of intervention
Treatment Protocol - Intervention

• “Go” or “No-Go” call the day before.
  – Target animal sighting
  – Weather
Treatment Protocol - Intervention

- Muster – 30 to 50 people, multiple organizations
- Find and follow the target
- Net set
- Animal capture
- Stabilize, exam, and document
- Disentangle, euthanize or rehabilitation
- Diagnostics
- Tagging
- Parental treatments
- Release
Finding And Capture

- Minutes to hours on boats searching for target animal.
- Following target animal until conditions appropriate for catching
  - Depth
  - Number of animals
  - Current
- Setting net
- Catching animal
  - Safety
Exam and Documentation

• Exam
  – Respiration character and rate
  – Heart rate
  – Body condition
  – Mouth
  – Wounds / entanglement

• Document entanglement
  – Photographs
Disentangle/Euthanize/Rehab

- Three options:
  - Euthanize on site in extreme cases
  - Bring into rehabilitation
    - Rehabilitation space available?
    - Many times dependent calf is entangled
    - Consider stress of transport and acclimation vs potential benefit
  - Disentangle +/- topical treatment
Sampling and Diagnostics

- Usual sampling
  - Blood draw
    - CeMV
    - CBC/Chemistry

- Further diagnostics
  - Radiographs – done once
  - Occasional cytology and cultures
Tagging

- Roto tag – Frequently placed
- Radio tag – In certain cases if available
- Satellite tag - uncommon
Treatment and Release

• Treatments
  – Topical flushing and treatment
    – saline, betadine
  – Exceed – long acting injectable antibiotic
  – Meloxicam – anti-inflammatory

• Release
Follow-Up

• Photo-identification and public
• Radio or satellite tags
Treatment Success

- Based on Noke Durden (2018) for central east coast of Florida:
  - 11/16 (69%) cases successful
  - 3/16 (19%) cases unsuccessful
  - 2/16 (12%) insufficient follow-up
  - Only 50% in poor body condition are successful.

- Veterinarians always searching for ways to improve treatment outcomes.
Improving Treatment Success

• Improve response time - get the ambulance there faster.
• Improve diagnostics which allows veterinarians to make more informed decisions
• Improve medical care which improves chances for success
• Improve post-intervention assessment to guide future treatments
Improving Response Time

• Intervention timeline
  – Reporting to NMFS - Unsure of chronicity of disease at this point
  – MM veterinarian and biologist assessment - Takes about 24 hours
  – Determination of intervention - Takes about 24 hours
  – Planning call - Can occur within days to a week
  – Intervention - Can occur within days to month+

• Overall can take from 4 days to month+, need to aim more for the 4 days.
  – Complicating circumstances: Weather, difficult to find animals, resources (people, boats)
  – What we can control and improve: Network capacity
Improving Diagnostics

• Seldom do we have real-time diagnostic abilities to provide more information for decisions
• Potential diagnostic capabilities
  – iSTAT blood gas and electrolytes
    • 2 min to run off whole blood
  – Estimated WBC and differential and PCV/TS
    • 10 to 15 min after drawing blood to make slide and read
    • Requires microscope on a boat and personnel experienced at reading slide and PCV
  – Ultrasound
    • 10 - 15 min to perform ultrasound in the water
    • Can be done while other procedures being done
  – Radiography
    • 15 min and have to put on deck for short period.
    • Only if animal is deemed stable to pull out of water.
Improved Medical Care

• Current medical care includes:
  – One long term antibiotic (4-5 days), a possible anti-inflammatory, Vit E & selenium +/- calcium
  – One time topical treatment of deep open wounds

• Medical Care based on improved diagnostics
  – Fluids for dehydrated animal
  – Decisions that follow-up care is required
    • Bringing into rehabilitation
      – Many times space not available, must consider stress and adaptability
    • Recapture after 4 to 5 days for another treatment
      – Big departure from current protocols but for more serious infections/osteomyelitis, a second round or more may be required to help animal clear infection. Personnel and Permits
Improve Post Intervention Assessment

• Documentation and analysis of success/failure such as Noke Durden et al, 2018.
• Increased blood analysis
  – only requires a little more blood from the dolphin but money to run tests.
  – Bank blood components in Legacy Archive
• Blowhole and fecal cytology, culture and sensitivity – money to run samples
• Opportunities to get samples on unique animals
Thank You

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