

Stranding response and skeletal rearticulation of a Gervais' beaked whale (*Mesoplodon europaeus*)

INTRODUCTION

Gervais' beaked whales (*Mesoplodon europaeus*) appear to be distributed in deep tropical and temperate waters of the Atlantic Ocean and some adjacent waters. Being difficult to spot and identify at sea, they are best known from stranding data. In North Carolina they are the most frequently stranded beaked whale. Off North Carolina they are seen offshore of the continental shelf edge (Fig. 1). Several typically strand each year in NC, most often during cool water months. On July 18, 2012, Cape Hatteras National Seashore staff responded to a fresh dead Gervais' beaked whale on the ocean beach of Salvo, NC (Fig. 2).

METHODS

The animal (Field #CAHA104) was transported to and necropsied at NC State University's Center for Marine Sciences and Technology in Morehead City (Fig. 3). We took photos that would later facilitate skeletal rearticulation (Figs. 4&5). It was a 356 cm long, 146 kg sub-adult male. Pectoral fin radiographs were prepared (Fig. 7). The bones were macerated for 9 months, cleaned (Fig. 8) and soaked in a Dawn/ammonia solution, then soaked for 5 days in 3.5% hydrogen peroxide solution (Fig. 6). The pectoral fins bones were mounted using 1/16" steel rod (Fig. 9), Plexiglas, and E6000 adhesive. A 3/8" steel rod extends through the vertebral centrums and into the cranium (Fig. 10). Ribs were attached using 16 gauge PVC coated annealed wire and casting resin mixed with bone dust. Polyethylene foam represents the intervertebral disks. Monofilament fishing line supports the mandibles.

RESULTS

The total bone and teeth weight was 10.51 kg (23.18 lbs). The modular (seven sections) portable display (Fig. 11) weighs 12.32 kg (27.15 lbs). ~340 person hours were dedicated to this project. The cost of tools, materials, and supplies was approximately \$1,800.



Fig. 1. Coastal North Carolina with a red star at the Salvo stranding site. Difficult to spot and identify, live, presumably healthy Gervais' beaked whales are generally thought to occur in deep water beyond the continental shelf edge.



Fig. 2. The fresh dead Gervais' beaked whale stranding site on the ocean beach of Salvo, NC on July 18, 2012.

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Fig. 3. The necropsy team included from left to right: N. DeFarge, S. Bierly, V. Thayer, J. Sullivan, J. Summers, P. Nader, K. Rittmaster. Not pictured: C. Harms, E. Christiansen.

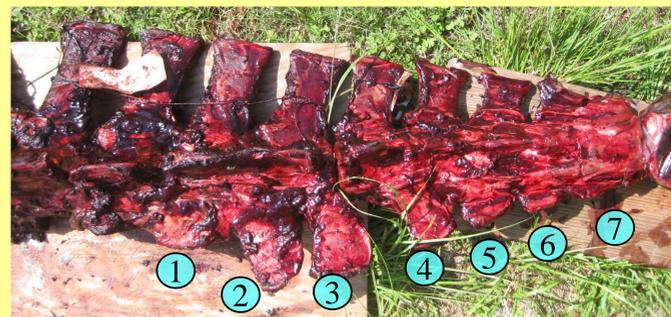


Fig. 4. A section of the caudal vertebrae shows the 7 chevrons (AKA hemal arches) in situ beneath and between the vertebrae. After the necropsy and pectoral fin radiographs, the bones were labeled, wrapped in nylon netting, and macerated in water with horse feces for nine warm months.

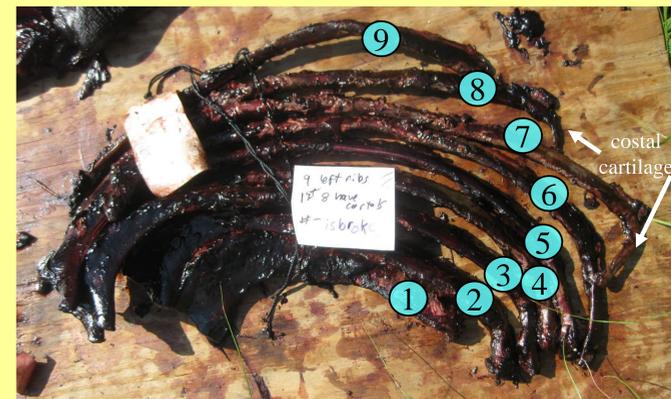


Fig. 5. This photo shows the nine left ribs with costal cartilage present on the ventral ends of left ribs 1-8. We chose not to represent four caudal-most costal cartilage components as they did not appear to articulate with the sternum and would have been a liability in the display.



Fig. 6. The scapulae pre-(left) and post-(right) H₂O₂ soak.



Fig. 7. Pectoral fin radiographs, courtesy of Paul Nader of Lincoln Memorial University, facilitated accurate rearticulation.



Fig. 8. Post-maceration, Jeff Harms, Paula Dailey, and Mary Hunnings cleaned the bones.



Fig. 9. 1/16" stainless steel rod extends from the radius through the humerus and scapula on each pectoral fin to provide strength and attachments prior to applying casting resin to the articulating surfaces.



Fig. 10. A temporary jig supporting the thoracic vertebrae and ribs facilitated adjustments prior to permanent fastening with wire and resin.

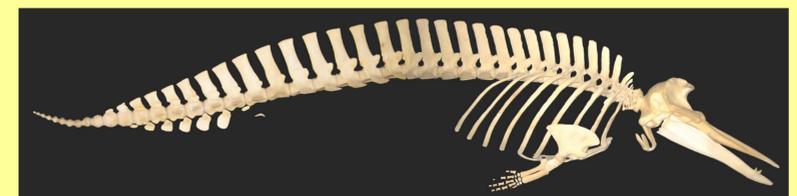


Fig. 11. The 12.32 kg (27.15 lb.) 346 cm (11.3') portable modular skeletal mount can be displayed on a stand or suspended.

Acknowledgments

For their assistance in reporting, recovery, moving carcass, consultation, necropsy, related research, radiographs, bone weighing, bone preparation, note taking, carpentry, photography, volunteer/staff provisioning, music, and funding, thanks to Amy Etherington, Ann Pabst, Ben Wunderly, Bill McLellan, Craig Harms, David Brown, Emily Christiansen, Jeff Harms, Jill Sullivan, John Russell, Kim Merrels, Lee Hamm, Mary Hunnings, Nico DeFarge, Paul Doshkov, Paul Nader, Paul Summers, Paula Dailey, Shane Bierly, Tres Clarke, Valerie Wunderly, Will Nassif, Carolina Cay Maritime Foundation, Friends of the Museum, and owners of a North Carolina "Protect Wild Dolphins" license plate.

Related readings

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