Morbidity and Mortality in Marine Mammals Along the Oregon and Southern Washington Coasts 2006-2015

Jim Rice\(^1\), Debbie Duffield\(^2\), and Dalin D'Alessandro\(^2\)

\(^1\) Marine Mammal Institute, Oregon State University, 2030 SE Marine Science Dr., Newport, OR 97365; \(^2\) Portland State University, Biology Department, P.O. Box 751, Portland, OR 97207

**Abstract**

The Oregon Marine Mammal Stranding Network responds to approximately 400 strandings annually, from the California border through Long Beach Peninsula, WA. Whenever possible, thorough necropsies are conducted to determine causes of mortality and to monitor for exposure to disease, biotoxins, and contaminants. The five most commonly stranded species are California sea lions (Zalophus californianus), harbor seals (Phoca vitulina), Steller sea lions (Eumetopias jubatus), harbor porpoises (Phocoena phocoena), and northern elephant seals (Mirounga angustirostris), with occasional records of northern and Guadalupe fur seals (Callorhinus ursinus and Arctocephalus townsendi), grey whales (Eschrichtius robustus), Dall’s porpoises (Phocoenoides dalli), Pacific white-sided dolphins (Lagenorhynchus obliquidens), striped dolphins (Stenella coeruleoalba), sea otters (Enhydra lutris), humpback whales (Megaptera novaeangliae), sperm whales ( Physeter macrocephalus), killer whales (Orcaena orca), and Cuvier’s beaked whales (Ziphius cavirostris).

Here we summarize results from necropsies conducted January 2006 - December 2015, on 1160 carcasses, in a variety of settings: in the field, at Portland State University, at the Hatfield Marine Science Center in Newport, and at Oregon State University’s Veterinary Diagnostic Laboratory (VDL). Formalin-fixed tissues were analyzed by the VDL for histopathology in a majority of cases, and ancillary testing for microbes was also performed on carcasses brought to the VDL. Pneumonia was the most common cause of death. Trauma was found in 641 cases, generally due to fishery interactions, gunshot wounds, and predation.

**Pneumonia**

- 174 cases. Lung worm and bacterial infections were the most common causes.
- Disseminated protozoal infection (Toxoplasma gondii) caused pneumonia in 6 harbor porpoises.

**Pulmonary cryptococcosis** (Cryptococcus gattii) was diagnosed in 3 cases; 2 harbor porpoises (2008) and 1 Dall’s porpoise (2007).

**Leptospirosis**

- 84 of 208 (40%) tested California sea lions were diagnosed by histopathology, immunohistochemistry, and/or PCR of kidney tissue. Many of these occurred during major outbreaks in 2009 and 2010. 45 of these also had severe bronchopneumonia, often with a Streptococcus sp. agent.

**Neurobrucellosis**

- Brucella sp. was isolated from the brains of 7 dolphins from 2 separate spates of strandings: December 5-12, 2012 and February 19-22, 2014. All had severe lymphoplasmaocytic meningoencephalitis.

**Neoplasia**

- 7 types of cancerous tumors were found in 29 animals, representing 6 species

---

**Bacteriology**

- 25 bacterial organisms were identified from 111 carcasses of 10 species

**Protozoal Meningoencephalitis**

- 6 dolphins: Cryptococcus gattii, Macchie, White-sided dolphin, Harbor seal, Northern elephant seal, Steller sea lion

**Pulmonary cryptococcosis** (Cryptococcus gattii) was diagnosed in 3 cases: 2 harbor porpoises (2008) and 1 Dall’s porpoise (2007).

**Bacteriology**

- 25 bacterial organisms were identified from 111 carcasses of 10 species

**Neurobrucellosis**

- Brucella sp. was isolated from the brains of 7 dolphins from 2 separate spates of strandings: December 5-12, 2012 and February 19-22, 2014. All had severe lymphoplasmaocytic meningoencephalitis.