The Central Puget Sound Marine Mammal Stranding Network conducted full necropsies on 1 harbor seal (Phoca vitulina) and 1 harbor porpoise (Phocoena phocoena) over the period of July – December 2010. In addition, partial necropsies (i.e., selected tissue sampling/collection) were conducted on four harbor seals and four harbor porpoises.

**Harbor seal**

Sex and age composition of the harbor seals consisted of four females and 1 male, all pups. Cause of death has not been definitively determined in any of the animals yet as histopathology is pending. A presumptive diagnosis of fishing gear entanglement was made in one female pup due to evidence of net marks on the pelage. There were two pups which showed signs of starvation, with a very thin blubber layer (< 3mm) and the gastrointestinal tracts empty. For the four animals on which limited necropsies/sampling were conducted, samples obtained included blubber and liver for contaminant analyses and skulls for life history data, educational use, and investigation for ballistic injuries.

**Harbor porpoise**

Sex and age composition of the harbor porpoises consisted of four females and 1 male, of which two were calves, two yearlings and one young adult, respectively. Two were so decomposed that only morphometric measurements were recorded, and the skull retained on one for educational use. A yearling female was observed to have a fractured skull, but did not appear to be ante or peri-mortem. Histopathology is pending on this animal. On the young male, what appeared to be an early small intestinal intussusception was noted on gross exam, and histopathology is pending. A yearling female was noted to have a fractured mandible, but again did not appear to be ante-mortem (histopathology pending).

The Central Puget Sound Marine Mammal Stranding Network conducted full necropsies on 2 harbor seals (Phoca vitulina), 2 harbor porpoise (Phocoena phocoena), 1 Dall’s porpoise (Phocoenoides dalli), 1 Steller sea lion (Eumetopias jubatus), and 1 gray whale (Eschrichtius robustus) over the period of January – June 2011.

**Harbor seal**

Sex and age composition of the harbor seals consisted of one female and one male both yearlings. Cause of death has not been definitively determined in any of the animals yet as histopathology is pending. While exact cause of death was not possible to determine in either animal, the female yearling, which was extremely scavenged, displayed an almost nonexistent blubber layer and enlarged mesenteric lymph nodes. Histopathologic findings did not elucidate the cause(s) of the poor nutritional status of this animal. The increased gastrointestinal roundworm burden was thought to be a consequence of the generalized debilitation associated with starvation.

The male yearling’s stomach was empty, worms were noted in the esophagus, and the mesenteric lymph nodes. Post mortem change hampered microscopic review of sectioned tissues and precluded evaluation of multiple segments of bowel. The veminous pneumonia was considered of particular interest. The lack of associated inflammatory infiltrate, coupled with the extensive congestion, edema and large numbers of adult and larval nematodes, suggested a possible anaphylactoid type reaction, as seen in elephant seals with Otostrongylus spp infections. The gross or clinical finding of dark red fluid exuding from the nares further substantiated the pulmonary process. In this case, the respiratory lesions would have been sufficiently severe to
have compromised normal function and contributed to an acute loss of this animal. The parasites observed on gross necropsy were identified as strongyles.

**Harbor porpoise**

Sex and age composition of the harbor porpoises consisted of an adult female with a fetus and 1 male neonate/yearling. Although the proximate cause of death of the pregnant female may have been attributed to vertebral (thoracic) trauma, the generalized cryptococcosis observed on gross and histopathology likely contributed significantly to impaired homeostasis. The trauma was suggestive of possible boat strike or attempted predation and was likely spontaneous. The fungal infection was pre-existing; the detection of yeast within the submucosa of the uterus further substantiated the possibility of in utero exposure and infection. There were no discernible organisms within the umbilical veins or arteries. The corneal erosions and ulceration were suggestive of physical excoriation, possibly incurred at the time of stranding. Aside from *Cryptococcus* spp, no other significant microbes were recovered.

On the young male porpoise, the cumulative effects of the bronchopneumonia, dermatitis, cellulitis and pancreatic noted on gross and histologic examination would likely have been sufficiently severe to have contributed to antemortem morbidity and possibly the loss of this animal. Despite the lack of bacterial growth from harvested tissues, the respiratory lesions were consistent with verminous pneumonia and secondary bacterial involvement. Although *Crassicauda* spp may have been noted on gross examination of the blubber, histopathology revealed additional changes. The cellulitis was nodular, encapsulated with granulomatous infiltrate and may have been related to the pancreatitis, vitamin E deficiency or some other process. There were no discernible parasites (metazoan or protozoan) associated with the necrotic foci and the possibility of nutritional, endocrine, traumatic or disease processes cannot be discounted. Additional recuts and special stains did not reveal any acid fast bacilli or fungi.

**Dall’s porpoise**

The lone Dall’s porpoise was an adult female. There were no overt lesions which may have accounted for the grossly noted emaciation or loss of this animal; the pulmonary and hepatic sinusoidal congestion were pronounced and consistent with agonal or terminal cardiovascular decompensation. Although epicardial hemorrhage was noted, there was no microscopic indication of an underlying cardiomyopathy. There was a marked depletion of vitamin A, which likely reflected the overall nutritional status of the animal, although some degree of post mortem degradation may also have occurred.

**Steller sea lion**

The sea lion was a subadult male that presented very thin and emaciated. The grossly noted emaciation would likely have contributed significantly to antemortem morbidity and presumably, the loss of this animal; there were no other apparent lesions within the examined tissues which may have contributed to the poor nutritional status of this animal. The multisystemic parasitism was consistent with wild stranded Steller sea lions and the increased numbers in the stomach may have been secondary to generalized debilitation due to starvation. The finding of partially digested fish bones in the oropharynx suggested agonal or terminal regurgitation and that this animal was in the process or more likely, had weaned. The precise cause of the grossly observed dental attrition (tooth wear) and discoloration is unknown. Congenital erythropoietic porphyria is also associated with discolored teeth, but there is no microscopic indication of this condition. Tooth enamel is white and never discolors; reduced enamel production is associated with chronic fluorosis and certain pathogens, including canine distemper virus, and is associated with loss of enamel and tooth discoloration. PCR for CDV proved negative and there were no discernible viral inclusions within the examined tissues. To further resolve the tooth discoloration, microscopic examination of teeth is being conducted. Fecal floatation identified numerous nematode parasites and ova and aerobic culture yielded a few and moderate growth of *Streptococcus phocae* from a lymph node and lung, respectively.
Gray whale

The gray whale was an adult female that was necropsied by CPSMMSN and Cascadia Research. The primary necropsy and histopathology report will be more fully described in their summary report. Briefly, the animal was severely emaciated and presented with an empty stomach and parasitic intestinal nodules. The tentative cause of death is starvation.

Necropsy summary report for Central Puget Sound Marine Mammal Stranding Network  
(July – December 2011)  
By Stephanie Norman, DVM, MS

The Central Puget Sound Marine Mammal Stranding Network conducted full necropsies on 8 harbor seals (*Phoca vitulina*) over the period of July – December 2011.

Harbor seal

Sex and age composition of the harbor seals consisted of two female and 6 males, with one male a premature animal, 4 males that were newborns, one female weanling, a female weanling and a subadult male. Tissues for histopathology were not collected in two animals due to decomposition. Tissues from an additional two animals (2 of the 3 newborn animals) were also not collected as they were determined succumbed to starvation/abandonment.

For the 3 animals for which tissues were collected for histopathology (pending), no obvious lesions were observed that could have accounted for the loss of these animals, with the exception of one animal that had icteric blubber.

The yearling seal was found with a partially ingested plastic bag lodged in its upper gastrointestinal system. The histopathology on this animal is pending.

Cause of death was determined to be ballistic trauma (gunshot) to the head in the male subadult. Ballistic trajectory tracts were identified on necropsy with accompanying hemorrhaging leading to a diagnosis of antemortem ballistic trauma.

Necropsy summary report for Central Puget Sound Marine Mammal Stranding Network  
(January – June 2012)

The Central Puget Sound Marine Mammal Stranding Network conducted full necropsies on 4 harbor porpoise (*Phocoena phocoena*), 1 gray whale (*Eschrichtius robustus*), and a limited necropsy on 1 harbor seal (*Phoca vitulina*), over the period of January – June 2012.

Harbor porpoise

Sex and age composition of the harbor porpoises consisted of an adult female with a fetus, 1 male immature (1-2 years of age), and a subadult male. The proximate cause of death of the pregnant female was not identified. Histopathology results are pending. The fetus did not display any overt gross lesions and also has histopathology results pending.

The subadult male porpoise presented in thin nutritional condition and moderately enlarged mediastinal lymph nodes. The lungs were very firm and pale tan to pink in color. On cut surface, a clear thick gelatinous exudate extruded from the cut surface of the lungs. *Cryptococcus gattii* infection was suspected. Tissues were submitted to the Centers for Disease Control and Prevention for testing and typing. Results confirmed *C. gattii* infectious of type VGIIb (received notification from CDC on 5-25-12).
The juvenile male porpoise live stranded with a large deep wound on the dorsum of the head and neck that was full thickness down to the cranial skull and extended down laterally on either side to almost the level of the eyes. The animal was dispatched by a local sheriff’s office deputy. On necropsy, the animal was exsanguinated and presented with severe crushing injuries to the skull. Under a dissecting scope, a dogfish shark tooth was discovered imbedded in the edge of a section of the head wound epidermis. The animal was in good nutritional condition and did not present with any other grossly visible lesions or abnormalities. Histopathology of samples tissues is pending.

**Gray whale**

The gray whale was a juvenile/subadult male that was necropsied by CPSMMSN and Cascadia Research. The whale was in good body condition and contained ~15-20 lbs of partially digested food in its stomach. In the forestomach was found ~30-40 lbs of woody debris, seasgrass and a small amount of foreign material. There were no signs of entanglement or trauma. Edema and crepitus were noted in the muscle layer. The cause of death at this point is open. Histopathology is pending.

**Harbor seal**

The lone harbor seal was a subadult female with a heavy infestation of lung worms (possible nematodes). Limited sampling was conducted in this animal. Cause of death has not been definitively determined in this animal yet as histopathology is pending.