

**California MLPA Master Plan Science Advisory Team
Draft Responses to Question #9 Received at the
October 16-17, 2007 NCCRSB Meeting
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9. What impact would the delineation of “vessel no traffic zones” of varying widths have on the level of protection assigned to an MPA?

According to the CDFG memorandum dated November 1, 2007, vessel no traffic zones would be designated as “special closures” and not marine protected areas (MPAs) *per se*. However, in some respects vessel no traffic zones would serve a similar function to medium or high protection MPAs because access would be restricted. The level of protection provided below the water surface would depend on the size of the Special Closure, whether or not the closed area had other access from shore or to divers, and whether or not the Special Closure was also within an MPA. Small Special Closures likely would provide only low to medium protection levels to most mobile animals but could provide higher protection levels to very sedentary (e.g., benthic invertebrates) animals.

a. What would be the specific benefit to seabirds and marine mammals?

This question was also addressed in response to Question 6 from the NCCRSB July 10-11, 2007 meeting. Vessel no traffic zones would provide a high protection level for seabirds and marine mammals at breeding colonies, roosting and haul-out sites. Vessel traffic, including motorized and non-motorized, can cause significant levels of disturbance to seabirds and marine mammals (e.g., Allen et al. 1985; Riemer and Brown 1997; Carney and Sydeman 1999; Rojek et al. 2007; U.S. Fish and Wildlife Service, unpubl. data). Vessel noise, such as from loud engines and generators, caused many disturbances to seabirds and pinnipeds at the Farallon Islands in the past (PRBO Conservation Science and USFWS, unpubl. data). Disturbances can lead to reductions in productivity or site abandonment. Disturbances at foraging areas can disrupt feeding activities and cause animals to leave the area, further prohibiting feeding and leading to costly additional energy expenditures. Frequent disturbances can cause significant impacts. For example, highly migratory birds (e.g., waterfowl, shorebirds) may not acquire adequate energy reserves to complete migrations (references).

Responses of seabirds/waterbirds and marine mammals to vessel approach vary depending on the species, habitat, and level of habituation. Because of this variability, most studies recommend choosing the most sensitive species and location for applying to a system of disturbance buffers (reviewed in Carney and Sydeman 1999). Examples of applied or recommended disturbance buffers are: 1) 500 feet for seabirds and pinnipeds at Three Arch Rocks, Oregon (Riemer and Brown 1997); 2) 300 feet for harbor seals at Bolinas Lagoon, California (Allen et al. 1985); 3) 300 feet around marine mammal rookeries (except for threatened Steller sea lions; National Oceanic and Atmospheric Administration [NOAA]); and 4) 1,000 feet at threatened Steller sea lion rookeries (NOAA Critical Habitat Plan, Steller sea lions; NOAA).

Data for boat disturbances to Common Murre breeding colonies in central California were presented in tabular form in the response to Question 6 from the NCCRSB July 10-11, 2007

meeting. Updated data (including 2007) are presented here graphically for easier viewing. From these data, about 50% of disturbances occurred at vessel distances of ≤ 50 m (164 ft.), 70% at ≤ 150 m (492 ft.), and nearly all (92%) disturbances occurred at distances ≤ 300 m (984 ft.). From these data, levels of protection provided by various no vessel traffic zones could be assigned: 1) low (≤ 175 ft.); 2) medium (150-500 ft); high (500-1,000 ft.); and 4) very high ($>1,000$ feet).

Figure 1. Frequency distributions of vessel distances causing disturbances to Common Murre colonies at nearshore central California colonies (G. McChesney, U.S. Fish and Wildlife Service, unpubl. data) . Distances are shown in 50 meter (164 feet) increments. Disturbance types are displayed as “headbob” (alert or agitated) and “flush/displace” (birds leave site). Dashed lines indicate distances containing 70% and 92% of all disturbances.

