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Class: GEOG 300, F17

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Q #: 1-17; Total Word Count: 537 (not including citations)

* 1. **Saving the oceans: Are marine protected areas the answer?**

# Interpretation (44 words):

A further increase of marine protected areas (MPAs) is not enough to protect marine environments. While there has been a substantial increase in the number and areal extent of MPAs in recent decades, there continues to be an alarming decline of marine wildlife worldwide (Deguignet et al. 2014; McCauley et al. 2015).

* 1. ***Analysis (403 words):***
	2. Overfishing and the destruction of marine habitat are the main causes of biodiversity loss witnessed in the global oceans today (McCauley et al. 2015; p.1255641-5). To address this, international efforts to conserve marine biodiversity have grown substantially over the last two decades; the exponential increase in the extent of MPAs globally in recent years is testament to this (Deguignet et al. 2014, p.15). The benefits of creating MPAs is well understood, however, their effectiveness in conserving biodiversity is “controversial” (Stevenson, Tissot, and Walsh 2013, p.50). While is some cases MPAs have been linked to an increase of marine biodiversity, in reality there is much uncertainty regarding the efficacy of MPAs to protect biodiversity (Klein et al. 2015, p.1). For this reason, increasing the global marine area covered by protected areas might not be sufficient to address the current crisis of marine biodiversity loss.

A main problem is that often times existing MPAs are not placed in strategic locations; this largely inhibits their capacity of effectively serving in the conservation of marine ecosystems (Watson et al. 2014, p.67). Some MPAs are placed in areas that do not necessarily encompass locations that harbor substantial levels of biodiversity. Consequently, such MPAs would "offer no or little protection to marine biodiversity" (Klein et al. 2015, p.4). For this reason, management plans for future establishment of MPAs must not only focus on expanding the marine area to be protected, but also incorporate spatial dimensions of biodiversity hotspots more strategically (Watson et al. 2014, p.71; McCauley et al. 2015, p.1255641-6).

Another leading reason MPAs fail to protect biodiversity is that there is often a lack of support from local governments, institutions or communities (Bennett and Dearden 2014, p.107). This is not only visible in the lack of enforcement dedicated to protect existing MPAs, but also in the limited resources allocated to the conservation of marine ecosystems (Watson et al. 2014; p.69). A main cause of local opposition to MPAs is that although the creation of MPAs has the potential of empowering and improving the living standards of local communities, in many cases the outcomes result in local livelihoods displacements (Bennet and Dearden 2014, p.108). Although the ecological benefits of MPAs are well-documented, predicting the socio-economic benefits that ensue from them is more difficult to measure, and while the benefits of MPAs are shared by society, the costs are often “concentrated” and “absorbed” by the local communities (Stevenson, Tissot, and Walsh 2013, p.50). Consequently, when creating a conservation plan for new marine areas it is essential that the needs of local fishing communities are taken into account. Not only would these measures benefit local peoples, but this could also aid in the effectiveness of an MPA, as there would be more local support and interest in the success of the MPA.

# Evaluation (20 words):

Watson et al. (2014) and Klein et al. (2015) used global datasets to conduct their analyses; the incorporation of fine-scale data in future studies could greatly impact their results.

# Inference (31 words):

The degradation of marine environments – even in smaller scales – poses detrimental impacts at broader scales, as the decline of biodiversity “can generate waves of ecological change,” altering how ocean ecosystems function (McCauley et al. 2015, p.1255641-0).

# Explanation (39 words):

* 1. The deteriorating state of the world’s oceans is an issue everyone must be concerned about, as not only marine wildlife is affected, but numerous terrestrial species – including humans – largely depend on a wealth of services provided marine environments.

# Sources:

Bennett, N. J., and P. Dearden. 2014. Why local people do not support conservation: Community perceptions of marine protected area livelihood impacts, governance and management in Thailand. *Marine Policy* 44 (Supplement C):107–116.

Deguignet, M., D. Juffe-Bignoli, J. Harrison, B. MacSharry, N. Burgess, and N. Kingston. 2014. 2014 United Nations List of Protected Areas. *UNEP-WCMC: Cambridge, UK*.

Klein, C. J., C. J. Brown, B. S. Halpern, D. B. Segan, J. McGowan, M. Beger, and J. E. M. Watson. 2015. Shortfalls in the global protected area network at representing marine biodiversity. *Scientific Reports* 5. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4668359/ (last accessed 17 September 2017).

McCauley, D. J., M. L. Pinsky, S. R. Palumbi, J. A. Estes, F. H. Joyce, and R. R. Warner. 2015. Marine defaunation: Animal loss in the global ocean. *Science* 347 (6219):1255641.

Stevenson, T. C., B. N. Tissot, and W. J. Walsh. 2013. Socioeconomic consequences of fishing displacement from marine protected areas in Hawaii. *Biological Conservation* 160:50–58.

Watson, J. E. M., N. Dudley, D. B. Segan, and M. Hockings. 2014. The performance and potential of protected areas. *Nature* 515 (7525):67–73.