
BIOL 420 | Tiffany Mak

Marine Protected Areas

Dynamic MPAs may offer better species protection than static MPAs

What are Marine Protected Areas (MPAs)?

- Allotted areas in the ocean with regulations that aim to conserve species biodiversity³
- Different regulations:
 - Partial fishing (ex. seasonal, species specific, subsistence, etc.)
 - No-take MPAs (ie. no extraction/fishing/harvesting allowed)

8%

Current protection status⁴

30%

Goal by 2030^{2,3}

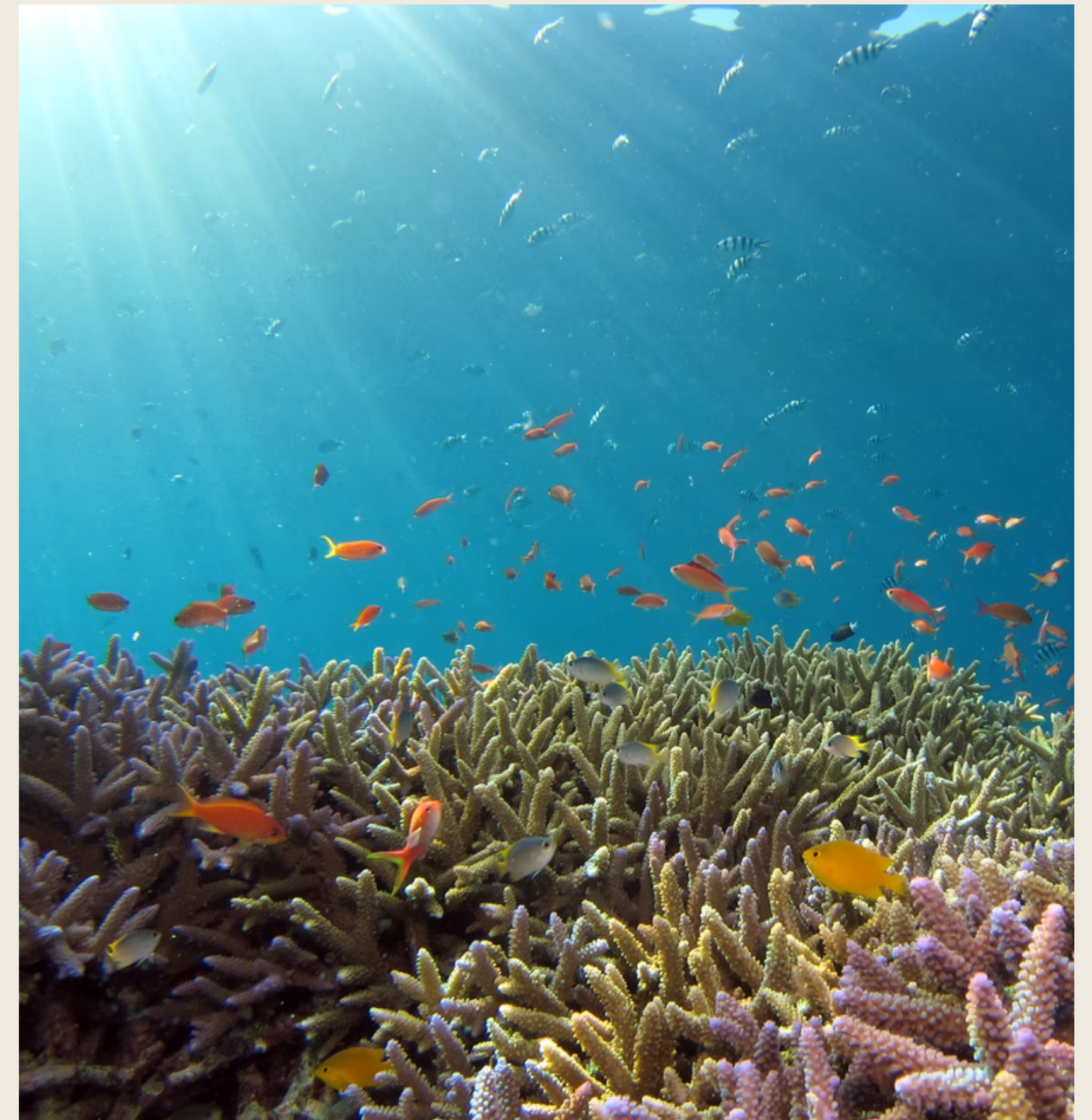
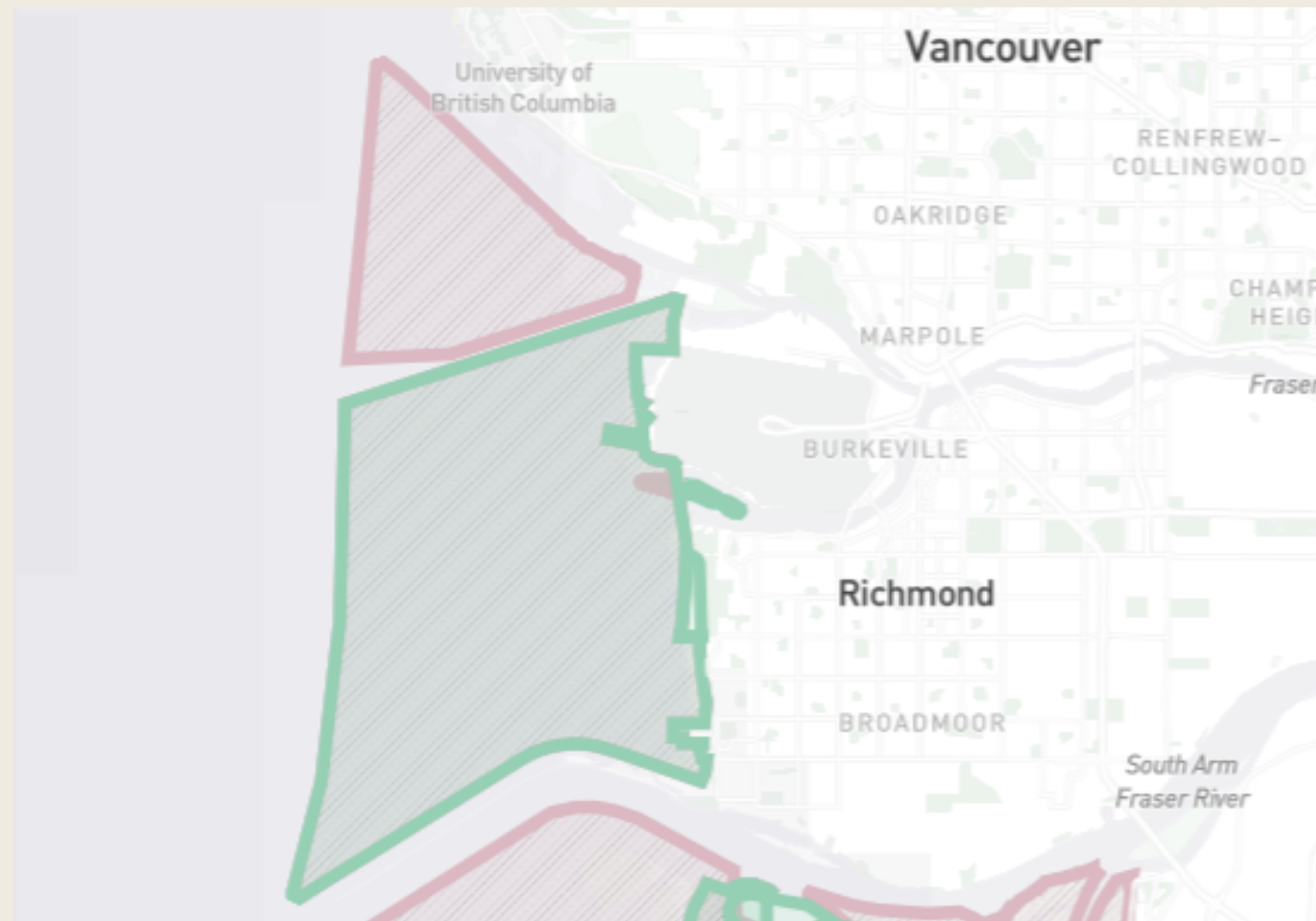


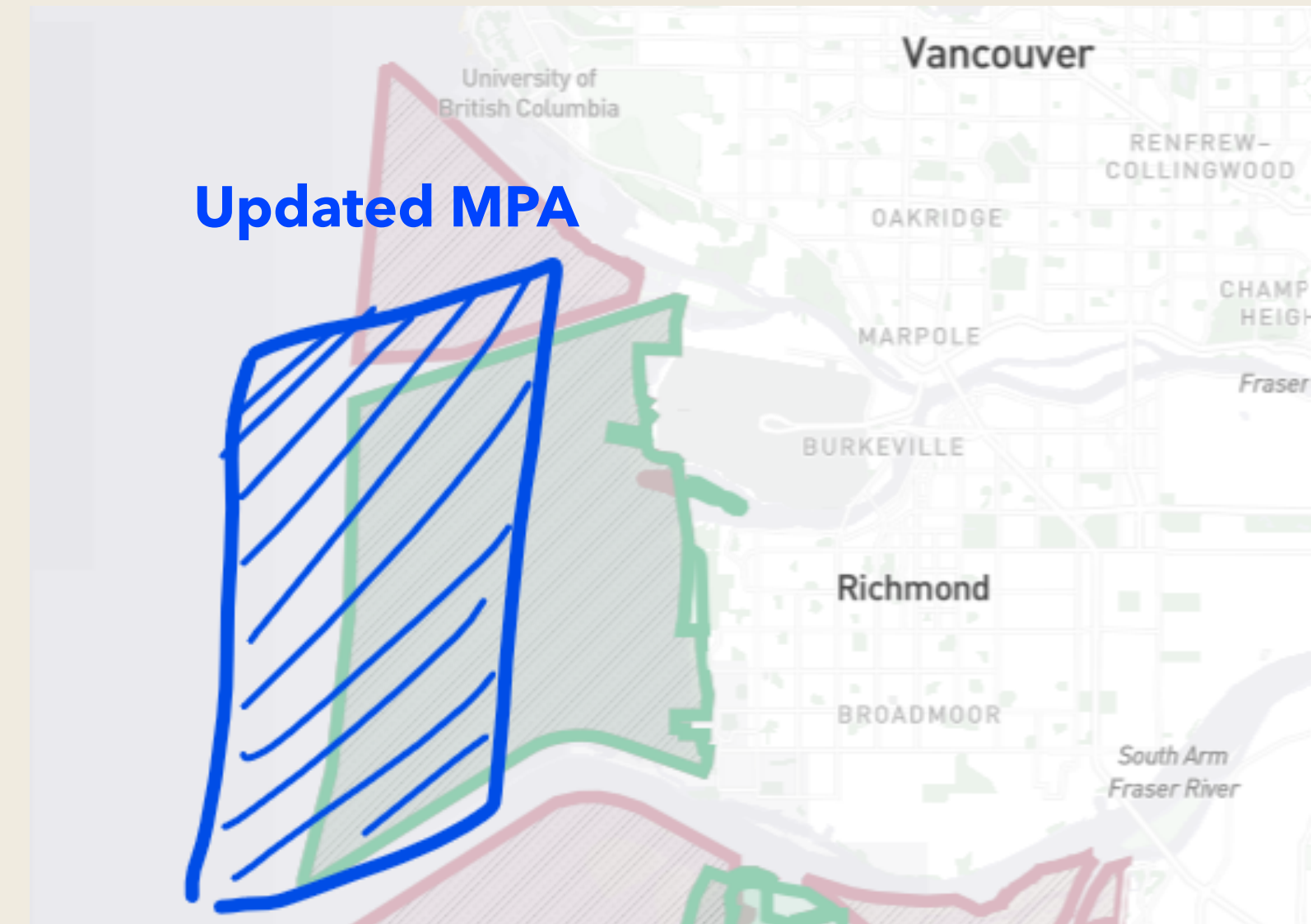
Photo: Hiroko Yoshii on Unsplash

Problem

- Current MPA systems are **not very effective** at protecting species¹
- **Static MPAs:**
 - Stays permanently in 1 location
- **Dynamic MPAs:**
 - Changes location based on bycatch data to help reduce bycatch¹



16% less bycatch¹



57% less bycatch¹

Considerations

Ecological

- MPAs protect species and biodiversity, but organisms may leave protected areas¹



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Economic

- Money needed to hire personnel (monitor bycatch & fishing activity, raise awareness around the changing MPAs)
- Fisheries (short-term impact: reduced catch and income; long-term impact: increased fish stock and income)

Social

- Difficult to govern/monitor due to its dynamic nature
- Need to inform all stakeholders (fishers, locals, foreigners, etc.)
- It is already difficult for some people to understand current boundaries of static MPAs (will become even more difficult as the MPAs change)



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Conclusion

- In certain situations (ex. protecting an ocean feature, biodiversity hotspot, etc.) → static MPAs may be more suitable¹
- Dynamic MPA systems which rely on current data provide opportunities for better protection, especially as climate change alters species habitats¹
- More research and stakeholder engagement is needed to better understand the feasibility of changing MPAs



Photo: Knut Troim on Unsplash

References

1. Hilborn, R. et al. (2022). (Note: unable to cite because the article is not currently available)
 2. IUCN. (2021). *Post-2020 global diversity framework*. IUCN. <https://www.iucn.org/resources/issues-briefs/post-2020-global-biodiversity-framework>
 3. Ma, M. (2022). *Shifting ocean closures best way to protect animals from accidental catch*. UW News. <https://www.washington.edu/news/2022/01/17/shifting-ocean-closures-best-way-to-protect-animals-from-accidental-catch/>
 4. UNDP, SCBD & UNEP-WCMC. (2021). *Creating a nature-positive future: The contribution of protected areas and other effective area-based conservation measures*. <https://www.undp.org/publications/creating-nature-positive-future-contribution-protected-areas-and-other-effective-area>
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