HABITAT COMMITTEE REPORT ON CORDELL BANK CONSERVATION AREA REVISIONS – FINAL

The Habitat Committee (HC) received a presentation from Jessi Waller on this agenda item, including a brief discussion on Agenda Item H.5.a, NMFS Report 1. The HC supports the recommendation from NMFS to move the existing 100 fm coordinates around the bank from the Groundfish Conservation Area into the regulations at 50 CFR 660.73 to maintain the "100 fathom ring" around Cordell Bank that prohibits large footrope trawl gear in the area.

Of particular interest to the HC, the Preliminary Draft Environmental Assessment (H.5 Attachment 1) highlights potential adverse effects to habitat from trawl and non-trawl gear types in section 3.1.2. As noted in that section, adverse effects on habitat depend upon the intensity of fishing, the distribution of fishing with different gears across habitats, and the sensitivity and recovery rates of specific habitat features. Sensitive habitats are known to occur within the action area, including hard substrate (i.e., rocky reef habitat area of particular concern (HAPC)) and deep-sea corals and sponges. For various reasons, including limited time and data, a quantitative analysis to augment the existing information was not feasible for this effort. However, recently available information, including that contained within the national Fishing Gear Effects on Marine Habitats Database, contains relevant information that could be used to supplement the existing analysis. It is worth noting that the information in Section 3.1.2 summarizes information captured in the Pacific Coast Groundfish FMP and is thus general in nature, whereas our proposed updates are pulled from a limited number of recent references and are, as a result, more specific. The HC suggests the following text and references be added to the end of Section 3.1.2 to update information on biogeochemical cycling, derelict fishing gear, plastic pollution, and habitat recovery rates:

> Current research on the effects of trawling indicates that trawl gear can substantially impact benthic habitats through the removal of marine invertebrates, modification of natural habitats, resuspension of sediments, and alteration of oxidation of stored organic matter (Scieberras, et al. 2016, Hiddink et al. 2017, Bradshaw et al. 2021, and Epstein et al. 2022). Lost or derelict fishing gear from various gear types contributes to marine debris, which can have diverse adverse effects on marine habitats and essential fish habitat (Do and Armstrong 2023, Amon et al. 2020, Richardson et al. 2019, Carvalho-Souza et al. 2018, Ragnarsson et al. 2017). Sensitive habitats, such as rocky reef HAPCs and deep-sea corals and sponges, can be particularly vulnerable to impacts, including scouring, breaking, smothering, entanglement or ghost fishing (Nama et al. 2023, Amon et al. 2020, DuPreeze et al. 2020, Carvalho-Souza et al. 2018, Ragnarsson et al. 2017, Arthur et al. 2014). However, species have also been shown to use marine debris as refuge (Nama et al. 2023, Carvalho-Souza et al. 2018). Derelict gear also contributes to the amount of plastic marine debris and the associated negative effects on marine ecosystems (Do and Armstrong 2023, Nama et al. 2023, Amon et al. 2020, Ballesteros et al. 2018). Larger macroplastics can cause both direct (e.g., entanglement, physical damage, substrate coating, and intestinal blockage) and indirect (e.g., pathogen introduction) impacts (Nama et al. 2023, Ragnarsson et al. 2017), though some deep-sea corals have been observed growing on plastic debris (Amon et al. 2020, Ragnarsson et al. 2017). Information on effects from derelict fishing gear on microplastic (i.e., plastic particles less than 5 mm) pollution is

limited (Do and Armstrong 2023). However, there is evidence that microplastics can result in negative effects to coral species, including reduced calcification, prey capture, growth rates, and immune function, and increased exposure to chemical contaminants (Nama et al. 2023, Amon et al. 2020).

Recently available information shows recovery rates vary due to multiple factors, including gear and habitat type, which is consistent with previous conclusions in the Groundfish FMP. For instance, a study conducted by Goode et al. (2021) found habitats achieved almost complete recovery from a trap fishery. In contrast, a quantitative synthesis of trawling in 24 regions worldwide performed by Pitcher et al. (2021) found average recovery rates ranging from 0.29 to 0.68 along a gravel to mud gradient. Lower recovery rates in habitats with higher gravel composition were attributed to higher proportions of longer-lived species found in more stable gravel habitats. In addition, a large-scale assessment of the status of benthic invertebrate communities exposed to trawling performed by Mazor et al. (2020) reported relatively high benthos status levels of 0.80 to >0.95, noting this deviated from other study results reporting higher impact rates (Hiddink et al., 2017; Amoroso et al., 2018; Sciberras et al., 2018). Baco et al. (2019) observed multiple signs of recovery (e.g., coral regrowth from fragments, higher abundances of benthic megafauna) in seamounts that had been protected for more than 30 years compared to sites still exposed to fishing pressure.

References

Amon D.J., B.R.C. Kennedy, K. Cantwell, K. Suhre, D. Glickson, T.M. Shank and R.D. Rotjan (2020). Deep-Sea Debris in the Central and Western Pacific Ocean. Front. Mar. Sci. 7:369. doi: 10.3389/fmars.2020.00369

Amoroso, R. O., Pitcher, C. R., Rijnsdorp, A. D., McConnaughey, R. A., Parma, A. M., Suuronen, P., Althaus, F. et al (2018). Bottom trawl fishing footprints on the world’s continental shelves. Proceedings of the National Academy of Sciences, 115, E10275–E10282. https://doi.org/10.1073/pnas.18023 79115

Arthur, C., A.E. Sutton-Grier, P. Murphy, and H. Bamford (2014). Out of sight but not of mind: Harmful effects of derelict traps in selected U.S. coastal waters. Mar. Poll. Bull. 86:19-28

Baco, A.R., E.B. Roark, and N.B. Morgan (2019). Amid fields of rubble, scars, and lost gear, signs of recovery observed on seamounts on 30- to 40-year time scales. Sci, Adv. 5:eaaw4513

Ballesteros, L.V., J.L. Matthews, and B.W. Hoeksema (2018). Pollution and coral damage caused by derelict fishing gear on coral reefs around Koh Tao, Gulf of Thailand. Marine Pollution Bulletin 135:1107-1116

Bradshaw C, Jakobsson M, Brüchert V, Bonaglia S, Mörth C-M, Muchowski J, Stranne C, Sköld M (2021) Physical Disturbance by Bottom Trawling Suspends Particulate Matter and Alters Biogeochemical Processes on and Near the Seafloor. Frontiers in Marine Science 8

Carvalho-Souza, G.F., M. Llope, M.S. Tinoco, D.V. Medeiros, R. Maia-Nogueira, C. L.S. Sampaio (2018). Marine litter disrupts ecological processes in reef systems. Mar. Poll. Bull. 133: 464-471

Do, H., C.W. Armstrong (2023). Ghost fishing gear and their effect on ecosystem services - Identification and knowledge gaps. Mar. Pol. 150:105528

Du Preez C, KD Swan, and JMR Curtis (2020). Cold-water corals and other vulnerable structures on a North Pacific seamount after half a century of fishing. Front. Mar. Sci. 7:17

Epstein G, Middelburg JJ, Hawkins JP, Norris CR, Roberts CM (2022) The impact of mobile demersal fishing on carbon storage in seabed sediments. Global Change Biology 28:2875–2894

Goode, A.G., J.H. Grabowski, and D.C. Brady (2021). Evaluating benthic impact of the Gulf of Maine lobster fishery using the Swept Area Seabed Impact model. Can J. Fish. Aquat. Sci. 78:698-703

Hiddink, J. G., Jennings, S., Sciberras, M., Szostek, C. L., Hughes, K. M., Ellis, N., … Kaiser, M. J. (2017). Global analysis of depletion and recovery of seabed biota after bottom trawling disturbance. Proceedings of the National Academy of Sciences, 114, 8301–8306. https://doi. org/10.1073/pnas.16188 58114

Mazor, T., C.R. Pitcher, Mazor, T., Pitcher, C. R., Rochester, W., Kaiser, M., Hiddink, J. G., Jennings, S., Amoroso, R.,McConnaughey, R. A., Rijnsdorp, A., Parma, A., Suuronen, P., Collie, J., Sciberras, M., Atkinson, L., Durholtz, D., Ellis, J., Bolam, S. G., Schratzberger, M., Couce, E., ... Hilborn, R. (2021). Trawl fishing impacts on the status of seabed fauna in diverse regions of the globe. Fish and Fisheries, 22(1), 72-86. et al 2021

Nama, S., A. Shanmughan, B.B. Navak, S. Bhushan, K. Ramteke (2023). Impacts of marine debris on coral reef ecosystem: A review for conservation and ecological monitoring of the coral reef ecosystem. Mar. Pollut. Bull. 189, 114755

Pitcher, C.R., J.G. Hiddink, S. Jennings, J. Collie, A.M., R Amoroso, T. Mazor, M. Sciberras, R.A. McConnaughey, A.D. Rijnsdorp, M.J. Kaiser, P. Surronen, and R. Hilborn (2021). Trawl impacts on the relative status of biotic communities of seabed sedimentary habitats in 24 regions worldwide. Proc. Natl. Acad. Sci. 119(2)

Ragnarsson, S.A., J.M. Burgos, T. Kutti, I. van den Beld, H. Egilsdóttir, S. Arnaud-Haond, and A. Grehan (2017). The Impact of Anthropogenic Activity on Cold-Water Corals. In: Rossi, S., Bramanti, L., Gori, A., Orejas , C. (eds) Marine Animal Forests. Springer, Cham

K. Richardson, R. Asmutis-Silvia, J. Drinkwin, K.V.K. Gilardi, I. Giskes, G. Jones, K. O'Brien, H. Pragnell-Raasch, L. Ludwig, K. Antonelis, S. Barco, A. Henry, A. Knowlton, S. Landry, D. Mattila, K. MacDonald, M. Moore, J. Morgan, J. Robbins, E. Hogan, Building evidence around ghost gear: global trends and analysis for sustainable solutions at scale, Mar. Pollut. Bull. 138 (2019) 222–229

Sciberras, M., Hiddink, J. G., Jennings, S., Szostek, C. L., Hughes, K. M., Kneafsey, B., … Kaiser, M. J. (2018). Response of benthic fauna to experimental bottom fishing: A global meta-analysis. Fish and Fisheries, 19, 698–715. https://doi.org/10.1111/faf.12283

Sciberras, M., R. Parker, C. Powell, C. Robertson, S. Kroger, S. Bolam, and J.G. Hiddink (2016). Impacts of bottom fishing on the sediment infaunal community and biogeochemistry of cohesive and non-cohesive sediments. Limnol. Oceanogr. 61:2076-2089.

PFMC
03/03/25