Exhibit I

Public Correspondence

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Mr. Troy Buell & Ms. Cyreis Schmitt
Oregon Department of Fish and Wildlife
Marine Resources Program
2040 SE Marine Science Drive
Newport, OR 97365

RE: Oregon Market Squid Fishery

Dear Mr. Buell and Ms. Schmitt:

Thank you for the opportunity to comment on the developing Oregon market squid (*Doryteuthis opalescens*) fishery. Oceana supports a responsibly managed market squid fishery off the Oregon coast. While market squid are spawning and being fished off Oregon, on a whole, market squid populations have widely decreased due to changing oceanographic conditions. This decline has caused increased international demand and has driven squid prices up by 30%.[1] This international demand sets the stage for intense localized fishing pressure off Oregon, with the risk of overfishing. In order to provide for the responsible and sustainable catch of this important forage species, management measures must be adopted that 1) prevent overfishing, 2) prevent localized depletion, 3) minimize and avoid bycatch, 4) protect seafloor habitats from fishing gear impacts, and 5) minimize impacts to foraging predators.

Market squid are one of the most important forage species in the California Current ecosystem, including the northern California Current region off Washington and Oregon. In fact, they are ranked among the top five most important prey species based on the diet composition of 32 different predators.[2] These predators include fish, marine mammals, and seabirds. California sea lions, for example, feed on market squid regularly with consumption rates fluctuating according to oceanographic conditions and prey abundance.[3] It's estimated that North Pacific albacore consume 43,000 metric tons (mt) of squid per year in the

[1] Hill, K. (2016, May 6). Squid prices up 30% as El Nino tightens global supplies. *Seafood News*. Accessed at, https://www.undercurrentnews.com/2016/05/06/commerce-proposes-hike-in-shrimp-duties-for-india-lowers-vietnamese-rates-across-the-board-2-51/

[2] Ainley, D., P. Adams, and J. Jahncke. 2014. Towards ecosystem based-fishery management in the California Current System – Predators and the preyscape: a workshop. Unpublished report to the National Fish and Wildlife Foundation. Point Blue Conservation Science, Petaluma, California. Point Blue contribution number 1979.

[3] Lowry, M. S., & Carretta, J. V. (1999). Market squid (*Loligo opalescens*) in the diet of California sea lions (*Zalophus californianus*) in Southern California (1981-1995). *CalCOFI Rep.*, 40, 196-207.

California Current.[4] Market squid are also a major prey species in the diet of Chinook salmon.[5] Thayer et al. (2014) found evidence that Chinook salmon increasingly feed on market squid when sardine populations are very low,[6] indicating that this prey may be especially important when other forage species' populations are at low levels like they are now. Seabirds, such as Rhinoceros Auklets, Common Murres, Cormorants, and Shearwaters[7] rely on market squid as a reserve or even primary food source. The challenges presented by the temporal variations of the forage community must be accounted for with responsible and precautionary fishery management policies.

Relatively little is known about the market squid population dynamics in Oregon. During the fishery of 1983-1985, it was found that market squid off the Oregon coast produce fewer eggs than market squid in California.[8] It was, therefore, concluded that this population cannot sustain high harvests like those off California.[9]

With this background in mind, Oceana requests that you consider the following recommendations. First, we request an annual catch limit be set. Annual catch limits protect against overfishing and the uncertainty associated with this population's abundance and characteristics. The current market uncertainty and demand highlights the importance of implementing a catch limit. It is essential that an annual catch limit be implemented to prevent overfishing of market squid in Oregon, in a similar vein, though not to the same magnitude, as the California Market Squid Fishery Management Plan (MSFMP).

Second, protecting market squid spawning aggregations requires measures to avoid localized depletion. Time and area closures must be used to account for target species' spawning habits and the welfare of non-target species. For example, allowing squid to spawn uninterrupted by fishing efforts over weekends is one method employed by the State of California to protect this species. Intensive fishing efforts focused on one location may endanger a particular school or aggregation and may cause it to be overfished with impacts on dependent marine life. Implementing time closures and area based catch limits will protect the market squid population from localized depletion.

Third, due to bycatch concerns, we request the prohibition of trawl gear when targeting market squid. Trawl gear is not currently a legal gear type for targeting market squid outside of Oregon state waters. Prohibiting the use of trawl gear will minimize unintended impacts to non-target species that are taken as bycatch in this gear, including salmon, Dungeness

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[4] Glaser, S. M., Waechter, K. E., & Bransome, N. C. (2015). Through the stomach of a predator: Regional patterns of forage in the diet of albacore tuna in the California Current System and metrics needed for ecosystem-based management. *Journal of Marine Systems.* 146, 38-49.
[5] Thayer, J. A., Field, J. C., & Sydeman, W. J. (2014). Changes in California Chinook salmon diet over the past 50 years: relevance to the recent population crash. *Marine Ecology Progress Series*. 498, 249-261.
[6] Id.
[7] Recksiek, C. W., & Frey, H. W. (1978). Biological, oceanographic, and acoustic aspects of the market squid *Loligo opalescens* Berry. State of California, Department of Fish and Game. *Fish Bulletin.* 169, 1-185.
[8] Starr, R. M., & McRae, J. E. (1985). Market squid (*Loligo opalescens*) investigations in Oregon. Oregon Department of Fish and Wildlife. Information Reports, 85-10.
[9] Id.

crab, smelt and groundfish.[10] Furthermore, small mesh pink shrimp trawls are not currently fished in the nearshore and if they are used there to target market squid, there may be new bycatch species and increased bycatch rates of the many small, juvenile fish that use the nearshore environment. Should trawl gear be maintained as a legal gear type for this fishery, we recommend 100% observer coverage to monitor bycatch rates and amounts. Previous state market squid observer programs have been insufficient to fully assess the impacts of using trawl gear in this fishery, with observations focused on vessels using purse seine gear.[7]

Fourth, due to habitat impact concerns, we request the prohibition of bottom trawl gear for targeting market squid. The substantial harmful effects of bottom trawling on seafloor communities have been well documented in many scientific reviews[11] and empirical studies worldwide, including off Oregon.[12] Increased bottom trawl effort in the Oregon nearshore has the potential to reduce seafloor habitat complexity and market squid spawning habitat.

Fifth, we request measures to prevent fishing market squid in close proximity to Oregon seabird colonies. Fishing operations near seabird nesting grounds disrupt foraging and threaten the birds' proximal food sources. Squid fishing should not be allowed in these areas due to the potential for fishery and seabird interactions. California enacts a similar area closure for seabirds in all waters of the Gulf of the Farallones National Marine Sanctuary. Restricting squid fishing from important seabird areas will prevent seabird exposure to fishery light and noise disturbances, and reduce competition.

Last, we stress it is important to monitor and enforce the state's marine protected areas and marine reserves. Vessel monitoring systems (VMS) should be required to provide certainty that fishing is occurring outside of state protected area boundaries.

Now, more than ever, it is essential to utilize the well documented tools of sustainable fishery management to protect Oregon's market squid populations and dependent marine life. We greatly appreciate your attention to this important issue. Thank you for your time. We look forward to working with you on this and other fisheries issues.

Sincerely,

Ben Enticknap
Pacific Campaign Manager and Senior Scientist

[10] Somers, K.A., Jannot,J., Lee, Y. W., Riley,N. B., Tuttle, V., & McVeigh, J. (2015). Estimated discard and catch of groundfish species in the 2014 U.S. west coast fisheries. NOAA Fisheries, NWFSC Observer Program, 2725 Montlake Blvd E., Seattle, WA 98112.

[11] e.g. NRC (National Research Council). (2002). Effects of trawling and dredging on seafloor habitat. National Academy Press, Washington D.C.

[12] Hannah, R.W., S.A. Jones, W. Miller, J. S. Knight. (2010). Effects of trawling for ocean shrimp (*Pandalus jordani*) on macroinvertebrate abundance and diversity at four sites near Nehalem Bank, Oregon. Fish. Bull. 108:30-38.