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Boundary Pass underwater listening station cabled hydrophone array system

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David E. Hannay

- JASCO Appl. Sci., 2305-4464 Markham St., Victoria, BC, Canada, david.hannay@jasco.com

Art Cole Jack Hennessey

- JASCO Appl. Sci., Dartmouth, NS, Canada

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ABSTRACT

An advanced cabled real-time underwater listening station was deployed in May 2020 in Boundary Pass, British Columbia, Canada, to measure underwater radiated noise of commercial vessels and to detect and track vocalizing marine mammals. This system was sponsored by Transport Canada and is operated jointly by Vancouver Fraser Port Authority and JASCO Applied Sciences (Canada) Ltd. The system consists of two synchronized tetrahedral hydrophone arrays, each with 1.65 m hydrophone spacings, deployed 300 m apart on the seabed in 190 m water depth. The hydrophone frames are connected to shore by two 2.8 km fiber-optic cables, and also support ADCP and CTD sensors, sound projectors for calibrations, and video cameras. The Boundary Pass location was chosen because of its relatively deep water and because the major inbound and outbound commercial shipping lanes leading to Vancouver become narrow and adjacent here, allowing acoustic measurements of ships passing in both directions. In this presentation we will discuss the system technical design and sensor specifications. We will also discuss its deployment and the data processing and presentation systems, with a brief overview of the substantial measurements obtained in the first full year of operation.

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