Data Retrieval and Management

Should there be a brief paragraph explaining the purpose of the chapter

- Frequency of data transfer
- Offload mechanisms

Frequency of data transfer

Depending on logger type, CSB data will be transferred at varying intervals. For first-generation loggers like the YDVR, the data transfer timing depends on a few variables. First, the amount of onboard storage (SD card size) will determine how much data can be stored at one time before the logger is full. Cards larger than 32 GB are not recommended, as they have been associated with errors, and a 32 GB card typically lasts between six months and a year under normal use.

Another variable to consider is the amount of data being saved at a time. A YDVR logger is designed to record any signals coming across the NMEA backbone. On larger vessels such as yachts or cruise ships, this could include things like greywater storage capacity, fuel load, and other kinds of information that are not relevant for CSB. As a result, these loggers can fill up more quickly. If working with a YDVR logger specifically, the “Example Configuration File” in the Templates section can be used to avoid recording some of these unnecessary data streams. For more details, please refer to the Optional Test Submission page.

How frequently your organization wants to maintain contact with program participants may also be a determining factor in how often data is offloaded. Requesting data is a great way to maintain contact with a vessel, and thus it may be helpful to request more regular data drops. For example, the International SeaKeepers Society tends to request data on a quarterly basis as a way of maintaining consistent contact with vessels.

Next-generation loggers, including the WIBL and OFM Mussel Kit, offer more flexibility. These devices can transfer data via Wi-Fi or cellular networks, meaning data is being transmitted in near-real-time. The WIBL will only transmit when the Wi-Fi signal is within range of the device, but on a vessel with star-link this should be fairly continuous. With a cellular connection, this data stream should be continuous if it is within cell-tower range. Each device has onboard storage capacity for several months’ worth of data. These loggers do not require contact with the vessel beyond initial setup, which creates a more hands-off experience for both the CSB program managers and the participating vessels.

Offload mechanisms

The method of retrieving data varies with the type of logger. For first-generation loggers, or when using a WIBL in a similar mode, data must be retrieved manually by removing the SD card, copying the files, and uploading them to a secure cloud location. This allows for the data to not only be transmitted, but to also be stored somewhere secure should something happen to any individual SD card or computer on which data is being processed.

Data offload can be conducted either by the participating vessel or by the CSB program managers. This decision can be made based on the skillsets of participants, the available time for managers, and the locations of vessels in relation to the managers. For example, SeaKeepers requests all data be transmitted by the vessel due to individual vessel locations being too far from any branch or headquarters. Exceptions can be made depending on the case, and in some circumstances, mailing the SD card to the program manager may be the best option. For example, if the vessel owner/operator is uncomfortable with the process of downloading files from an SD card, compressing them, and uploading it to a cloud-based storage account, then it may be best for the trusted node or CSB program manager to conduct this step. For guidance on how to share this procedure with volunteers, see this Example data retrieval guide.

When using a next-gen logger, such as the WIBL in “station” mode, volunteers can use the Wi-Fi link to download the data remotely. As of August 2025, the batch-download function is still in development. Until it is made available, data offload can only be performed on one logger at a time.

When using a fully independent next-gen solution such as WIBL in “ap” mode or OFM Mussel Kit loggers, the data offload process should occur automatically. For a WIBL, you will have set up a link to a dropbox or amazon cloud storage account where the data will automatically offload any time the vessel is within range of the Wi-Fi signal to which it is connected (eg. Starlink). OFM Mussel Kit loggers have the same capability and additionally can utilize cellular connection to leverage a constant data stream. OFM handles the full data collection and management pipeline for their loggers. In addition, they have agreed to provide the raw data back to CSB programs via Dropbox (other options are available).