

	NOAA SHIP <i>Reuben Lasker</i>		DOCUMENT NO. 1102-16.1RL	VERSION 1.0
	Deployment and Recovery of Drifting Autonomous Spar Buoy Recorder (DASBR)		EFFECTIVE DATE Sep 16, 2018	
			REVIEW DATE Sep 16, 2021	
	AUTHORIZED BY: /s/ CDR Chad M. Cary, NOAA <hr/> CDR Chad M. Cary, NOAA Commanding Officer, NOAA Ship <i>Reuben Lasker</i>		RESPONSIBLE POSITION Commanding Officer	

DECK OPERATIONS

Deployment and Recovery of Drifting Autonomous Spar Buoy Recorder (DASBR)

The Commanding Officer (CO) shall ensure operations are conducted in compliance with this procedure. All COMMS are conducted via radio, F1, or agreed upon channel.

Purpose:

To set minimum standards and procedures for the deployment and recovery of Drifting Autonomous Spar Buoy Recorders (DASBRs) aboard NOAA Ship *Reuben Lasker*.

Environmental Parameters:

Buoy Ops will only be conducted at the discretion of the Commanding Officer if environmental parameters are outside of the following:

- Wind greater than 30 knots
- Waves greater than 10 ft
- Depth shallower than 50 m
- Significant irregular currents
- Between sunset and sunrise

Required Personnel:

Buoy operations require a minimum of six (6) personnel. The roles include:

- Officer of the Deck
- Deck Boss
- Deck Hand
- Chief Scientist or Science Lead
- Science Assistant
- Survey Tech

Roles and Responsibilities:

Officer of the Deck (OOD):

Positioned on the bridge and is responsible for controlling and navigating the ship during the operation. The OOD shall reference this procedure to ensure the operation is conducted safely and in accordance with the established procedure. The OOD is in charge overall but shall also recognize the experience, expertise, knowledge, and skills of the other team members when evaluating their input. Maneuvers the ship to safely maintain control over the buoy and ensures the buoy does not become fouled under the ship.

Operations officer (OPS):

Will coordinate with department heads to insure adequate personnel are present for evolutions.

Deck Boss:

The Deck Boss (DB) is responsible for maintaining control of the equipment and personnel on deck. Ensures all personnel are wearing proper PPE and conducting the operation safely. The DB is to communicate to the bridge the launch sequence and all other pertinent information. This includes the direction the line and equipment is tending (port, starboard, aft, straight down, forward, etc) approximately every 30 seconds.

Deck Hand:

Deck personnel who, under the guidance and supervision of the deck boss, helps conduct the on deck operations including: assistance in deploying the equipment, grappling the buoy and hauling it back on deck.

Chief Scientist or Science Lead (CS/SL):

Provide the OOD the approximate location for deployment or last known GPS location of buoy to be recovered. Assists with deployment and communicates to the OOD when they are satisfied the buoy is properly deployed.

Science Assistant:

Science assistant is a member of the science party who is involved in the evolution. Assists CS to build, deploy and track the DASBR.

Survey Tech (ST):

Assists with the preparation, deployment of and tracking of the DASBR and any recovery assistance requested.

PROCEDURES:

Deployment of DASBR:

1. CS/SL determines the location where the DASBR is to be dropped and conveys the information to the OOD.
2. 30 minutes before launch/recovery the OOD notifies the CO.
3. On or before arriving station, the OOD does the following:
 - a. Ensures 2 SSDG's are online and the ship is out of "at sea" mode.
 - b. Energizes/tests the bowthruster and notifies EOS to turn on the fans.
 - c. Sets up the ship to point into the wind and seas at approximately 2 kts.
 - d. The OOD communicates readiness to the CO.
 - e. The OOD communicates readiness to the DB.
4. DB requests permission to launch DASBR. Upon approval to launch, Science, Survey, and Deck lower the spar into the water, pay out line, and let it trail away from the ship.
5. DB or his/her designee communicates to the OOD, location of spar and how the line is tending in relation to the ship at regular intervals. DB will also communicate to the OOD when various parts of the DASBR are going over the side.
6. OOD maintains course and speed unless DB communicates that there is an issue on deck (IE. Tangle in line). OOD will come to all stop (if possible) or maintain bare steerage until the issue is resolved. If appropriate, the OOD will stop the main engine and rely solely on the bowthruster.
7. When the anchor is the only part of the DASBR remaining aboard, DB will communicate to the OOD that the buoy is ready to be released.
8. Buoy is released and OOD presses "DASBR Deployed" in SCS.
9. OOD circles back around keeping a safe distance to monitor and allow Science to take pictures of the DASBR. (DASBRs take as long as 20 minutes to become positioned vertically in the water. Patience is critical. Do not attempt to retrieve or adjust a buoy before allowing sufficient time for it to settle out.)

Retrieval of DASBR:

1. 15 minutes prior to maneuvering to retrieve DASBR, the OOD shall:
 - a. Inform CO.
 - b. Have 2 generators online and come out of "At Sea mode".
 - c. Bring the bow thruster (BT) online.
 - d. Turn on Doppler if not already running.
 - e. Ensure all personnel involved in the evolution are aware of their roles and responsibilities.

2. Scientists positioned on the Fly bridge will assist with spotting and orienting the OOD to the location of the DASBR. At night, a scientist will use a portable spotlight from the flying bridge as a secondary aid in locating the DASBR.
3. At night, the OPS will insure personnel are available to search with the ship's spotlight as the primary method to find the DASBR. Reflective tape on both buoys is typically visible at 0.5 nmi range.
4. The OOD will confer with CO in regards to set up of the ship for approach to DASBR. Typical set up the ship is the approach at 3 kts with the wind 20 degrees off the starboard bow. (If weather and sea conditions prohibit this, come up with a plan to be cleared with CO.)
5. DB or his/her designee is to communicate to the OOD the range and bearing of the DASBR from STBD side station during the final approach.
6. The OOD is to make every attempt to line up the DASBR at the starboard side sampling station and anticipate the ships movement to be able to hold station once the DASBR is abeam.
7. Deck will attempt to grapple the DASBR from the STBD side station.
8. If the DASBR is not grappled on the pass, from the side station, the OOD will communicate the need to make another pass with all parties and maneuver to make another approach. It is possible to grapple the buoy from the starboard side back deck, but only if the OOD authorizes.
9. When the buoy is hooked, Deck will bring the buoy alongside the ship.
10. DB or his/her designee will communicate to the OOD, the direction in which the line is tending and relative tension at regular intervals.
11. The OOD will hold station with the wind on the STBD bow to prevent the ship from drifting over the buoy.
12. Deck and Science will work together to bring the buoy aboard or repair and redeploy the buoy.
13. If the buoy is to be redeployed, DB will communicate to the OOD that the buoy is ready to be redeployed.
14. The OOD will acknowledge that the ship is ready for redeployment of the buoy.
15. Deck and Science will release the buoy.
16. OOD will allow the ship to drift away from the buoy before engaging motors or make appropriate maneuvers to keep a safe distance from the buoy when departing the launch site.
17. If necessary, the ship will stay in a safe but close proximity to monitor the DASBR before departing.

