UNDERWATER HULL CLEANING

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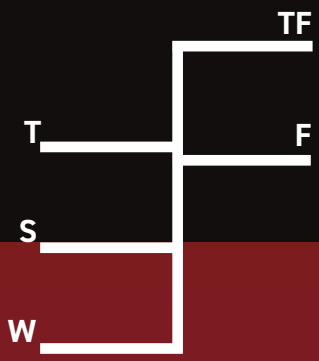
SHIPOWNERS OFTEN ENGAGE IN UNDERWATER HULL CLEANING OPERATIONS TO MAINTAIN THE EFFICIENCY AND PERFORMANCE OF THEIR VESSELS. **HOWEVER, IT IS IMPORTANT TO RECOGNISE THAT SUCH OPERATIONS COME WITH INHERENT RISKS THAT NEED TO BE EFFECTIVELY MANAGED TO ENSURE DIVERS SAFETY AND PREVENT INCIDENTS.** THIS GUIDANCE PROVIDES MEMBERS WITH INFORMATION ON HOW TO CONDUCT DIVING OPERATIONS SAFELY AND PREPARE FOR SUCH OPERATIONS.



Underwater hull cleaning may seem like a straightforward task, but it involves various hazards that should be carefully addressed. These hazards include:

- **Poor underwater visibility and/or adverse weather conditions** which may affect divers ability to avoid underwater hazards or find their way around the ship.
- **Divers equipment such as hoses or cables becoming entangled in the ship's rudder, propeller, bilge keels and other underwater elements** which may result in the diver becoming immobilised or trapped under water. This in turn may result in them running out of air and lead to injury or death.
- **Divers being exposed to injury** from moving ship equipment, such as bow thrusters and propellers.
- **Divers being exposed to electrical shocks** from the ship's equipment if it is not powered down, for example types of cathodic protection and damaged underwater cleaning devices.
- **Divers being pulled into or immobilised by the ship's suction systems,** when working in the vicinity of sea chests, which can result in injury or drowning.
- **Diving equipment running out of air,** becoming damaged or malfunctioning.
- **Divers being affected by decompression sickness (DCS).** This includes relatively shallow depths, where extended dive time may result in the need to surface quickly without following the appropriate decompression procedure.

Further events involve:

- **The release of growth and debris from the hull being treated as environmental contamination.** Some port and coastal state authorities take a particular view on where such operations are allowed and on what conditions. It is advisable to seek guidance in this regard and contact local correspondents if required.
- **Accidental release of chemicals,** oil or other contaminants into the water by the divers.
- **The potential of unlawful activities connected with diving,** e.g. where illegal items are placed on the hull or the ship's structure is tampered with.
- **As with any activity resulting in safety risk exposure, it is advisable that the preventive measures to address the above are considered in a systematic manner** i.e. through a structured risk assessment reflecting the identified hazards. Members may also have an existing, relevant procedure and/or the appropriate permit-to-work in their safety management system (SMS). We have the following comments regarding the preventive measures which should be considered:
- **Divers should be appropriately certified,** trained and experienced in underwater cleaning operations.
- **The plan for diving activity should be discussed and agreed by all involved** – divers, the ship command as well as deck and engine teams. This should include the general programme for the operation, the required safety precautions, communication protocols and focal persons, contingency plans and emergency protocols including emergency shutdown. The harbour master and local port authority should also be contacted prior to the start of any diving operations.

Image reproduced courtesy of **DIVING STATUS Underwater Services**.

All relevant danger areas such as underwater suctions should be identified and marked for the reference of the diving crew.

No mechanical or electrical equipment (propellers, thrusters, rudders and fins), underwater suctions or discharges should be active in the diving area in accordance with the agreed plan. The use of a lock out, tag out (LOTO) system is strongly recommended. If a continuous operation of a suction/discharge system is required, a switchover e.g. between ship sides, should be planned and agreed in advance. It should also be communicated and synchronised in accordance with the plan. The use of a LOTO system should extend to the other vessel involved in the STS operation.

A safe working zone around the underwater cleaning area should be identified and marked as appropriate with buoys or other similar means. Clear orders should be issued to the crew regarding access restrictions and any activities prohibited in this zone during the operation. Regular announcements should be made on both vessels advising that underwater operations are ongoing. The 'Alpha' Code of Signals flag should also be raised as appropriate.

The permit-to-work and the risk assessment should indicate what emergency equipment should be available and ready for immediate use, as well as identify the personnel qualified and designated to operate it.

Weather conditions should be monitored and underwater operations interrupted/postponed if required.

Sufficient lighting should be provided at the cleaning area as required.

The position of the divers and the dive boat should be continuously monitored by the crew. They should be ready to communicate with the dive team and initiate the emergency protocol at any time.

The ship's crew should ensure the cleaning process does not result in environmental damage or harm the aquatic life and should adhere to international and local regulations in this regard.

The appropriate security measures should be maintained with regard to the underwater operation, personnel access control and prior personnel screening. Any unusual or suspicious activities should be reported. Members may already have the relevant procedures in their ship security plan (SSP) and other measures should be considered in a security risk assessment.

By following these guidelines and taking proactive measures to manage the risks associated with diving operations, shipowners can enhance the safety of their personnel and vessels. Members requiring any further guidance are advised to contact the loss prevention department.