

This Standard Operating Procedure section for cleaning and decontamination of vessels is taken from the current Draft of the Bio-Security Control Measures for Abalone Herpes Like Virus: A Code of Practise.

## SOP 2: Protocol for Decontamination of Vessels, Personnel, Machinery and Equipment

### Purpose

This protocol describes the process for decontaminating vessels, personnel, machinery and equipment used in the commercial harvesting of abalone from the wild. This protocol also applies to individuals or organisations undertaking research or surveillance studies of wild abalone. The protocol aims to set out procedures that will minimise the risk of the spread of abalone herpes-like virus due to these activities.

Items that should be de-contaminated under this protocol, include:

- Boats, including hulls and decks, anchors and anchor/mooring lines.
- Divers, diving equipment including wetsuits, fins, masks, buoyancy devices, hooker gear and other abalone harvesting equipment (especially baskets, nets and knives etc.).
- Transport vehicles and boxes.
- Personnel (other than divers).

The decontamination process involves a combination of physical and chemical procedures to remove soiling and inactivate the target pathogenic organism. This protocol has been developed using the following key references which should be consulted for more detailed information on decontamination:

Ellard, (2006). *Decontamination*. AQUAVETPLAN Operational Procedures Manual. Aquatic Animal Health Program FRDC.

OIE Aquatic Animal Health Code (2006). ([http://www.oie.int/eng/normes/fcode/en\\_sommaire.htm](http://www.oie.int/eng/normes/fcode/en_sommaire.htm))

### Materials and Equipment

#### 1. Equipment for de-soiling.

- Brushes and scrapers.
- Misters and low pressure sprayers – useful for applying detergents and disinfectants to surfaces.
- High volume pumps – particularly useful for rinsing as they are good for thoroughly wetting equipment.
- High Pressure Water Cleaners (HPWC). Key piece of equipment for all stages of cleaning and disinfection. Highly efficient at dislodging most types of gross soiling.

#### 2. Appropriate cleaning agents

Compounds recommended for decontamination include:

- **Detergents:** Detergents are normally a complex mixture of compounds that help to remove and disperse dirt. Detergents should be used for the removal of gross fouling and organic matter, although this will assist with removing the virus it may not kill or inactivate the virus. The following detergents are suitable for general cleaning purposes:
  - **Boats.** Suitable detergents include those used for washing trucks or specifically designed for cleaning boats are available from a number of suppliers. These compounds are not classified as hazardous and are normally bio-degradable;
  - **Wetsuits and other diving equipment.** There are specialised wetsuit wash preparations, but if they are not readily available a mild liquid soap or shampoo will do just as well;

- **Baskets and nets.** Any of the above detergents should be suitable for soaking equipment;
  - **People.** Soaps should be used to wash hands, laundry detergents to wash clothes.
- **Disinfectants.** Disinfectants should be used specifically to kill or inactivate the virus after the item has been cleaned (see above). Suitable disinfectants include:
- **Ovadine** (Iodine based disinfectant)
  - **Virkon** (not suitable for wetsuits)
  - **Hypochlorite** compound such as bleach or calcium hypochlorite.

### 3. Operator protection equipment

This is as specified in the Material Safety Data sheets for the chemicals being applied.

## Procedures

A series of sub-protocols have been developed to cover the items to be decontaminated under this protocol, including:

**SOP 2.1: Decontamination of vessels.**

**SOP 2.2: Decontamination of divers, wetsuits and dive equipment.**

**SOP 2.3: Decontamination of transport vehicles and boxes.**

**SOP 2.4: Decontamination of other personnel.**

### SOP 2.1: Decontamination of vessels.

A key risk here is the presence of organic fouling on the hulls of boats. The herpes-like-virus is more likely to attach and be transported on the hull of vessels if there is organic matter and marine organisms present than if the hull is clean. Another risk area is the deck area (and associated equipment) where abalone are brought on board or held that may be contaminated with mucus that can harbour the virus.

All commercial abalone dive vessels currently operating in Victoria are removed from the water at the end of each day. However, vessels in other jurisdictions or used for other purposes (research or surveillance) may remain in the water. The decontamination protocol for vessels that are removed from the water will be different from those that remain in the water.

As a matter of routine, commercial vessels will not be entering areas that are known or suspected to be infected with herpes-like virus, but research or surveillance vessels may deliberately enter these areas. It is possible that commercial vessels could encounter diseased abalone during their routine operations. With this in mind three protocols have been developed:

- **General protocol for vessels removed from the water;**
- **General protocol for vessels remaining in the water;**
- **Protocol for vessels exposed to herpes-like virus.**

#### 2.1.1 GENERAL PROTOCOL FOR VESSELS REMOVED FROM THE WATER

This protocol applies under normal operating conditions where the boat has not been operating in areas known to have been recently, or suspected to be, infected with the herpes-like virus:

1. Prior to leaving port the vessel hull should be inspected to ensure that it is free from organic matter. All gross fouling and organic matter should be removed from the hull of the vessel by scraping, brushing, hosing or using high pressure water cleaners. The hull of the vessel should

be cleaned after each trip with freshwater and kept free of organic matter and marine organisms.

2. Decks, diving equipment and other equipment should be hosed down with freshwater, washed with disinfectant, rinsed with freshwater and left to dry in sunlight after each trip.
3. Operators should ensure that organic matter accumulated under carpets and other difficult to reach places is removed and the area rinsed with freshwater.
4. Back bungs (if present) should be undone to allow any water to drain out of the boat (preferably so that the water will drain to land rather than back into the sea) and any bilge areas should be rinsed thoroughly with freshwater.

## **2.1.2 GENERAL PROTOCOL FOR VESSELS REMAINING IN THE WATER**

This protocol applies under normal operating conditions where the boat has not been operating in areas known to have been, or suspected of be, infected with the herpes-like virus.

1. **After the harvest has been offloaded, all decks, equipment and superstructures should be cleaned through scrubbing or with high pressure sprayers. The use of a detergent in this process is recommended as boats that remain in the water may not have the opportunity to dry off.**
2. **All external areas must be rinsed with freshwater.**
3. **Decks, diving equipment and other equipment should be hosed down with freshwater, washed with disinfectant, rinsed immediately with freshwater and left to dry in sunlight after each trip.**

## **2.1.3 PROTOCOL FOR VESSELS EXPOSED TO HERPES-LIKE VIRUS**

This can occur when vessels are deliberately taken into areas that are known to be infected with herpes-like virus, or when diseased animals are encountered during routine harvesting, surveillance or research operations.

1. In all cases, prior to leaving port the vessel hull should be inspected whilst on the trailer to ensure that it is free from organic matter. This should involve the removal of all gross fouling and organic matter from the hull of the vessel by scraping, brushing or using high pressure water cleaners. This does not apply to boats already in the water.
2. After the harvest has been offloaded, ideally the boat should be slipped to allow for thorough cleaning. If this is not possible or practical then the boat should be cleaned down to the waterline on the hull.
3. All decks, equipment and superstructures should be rinsed with freshwater through scrubbing or with high pressure sprayers.
4. Detergent should be sprayed on all surfaces on the inside of the hull, gunwales and topsides (outside of the hull) and rinsed off with a hose or similar appliance.
5. Similarly the external hull of the vessel should be sprayed with detergent and rinsed with freshwater.
6. All pipework and pumps, particularly those used to pump water for abalone holding facilities should be rinsed with disinfectant.

7. Clean and soak all equipment (anchors, mooring lines, net bags and fenders etc.) in disinfectant for a period of 30 minutes.
8. Bilges and scuppers should be emptied whilst in the area of infection. If they are full of water on return to shore they will require additional dosing with disinfectant before opening or pumping.
9. All internal areas should be thoroughly cleaned and rubbish, clothing and equipment should be bagged in heavy duty plastic bags prior to their transport to shore. All bags should be sprayed externally with disinfectant.

## **SOP 2.2: Decontamination of divers, wetsuits and dive equipment.**

Equipment commonly used by abalone divers includes: wetsuits; regulators, hoses, buoyancy devices, control panels, net bags and knives. The appropriate level of decontamination will depend on the level of risk associated with the activities undertaken by the diver. This will result in decontamination taking place more frequently rather than different procedures. The categories of decontamination for divers have been identified as follows:

- **General.** Applies to divers operating in areas where there is no history of infection and where no suspicious abalone have been observed.
- **Category 1.** Applies to divers involved in the observation or removal of dead or moribund abalone confirmed, or suspected, to be infected with herpes-like virus or operating within areas known to be infected, but with no direct contact with infected abalone.

### **GENERAL DECONTAMINATION PROTOCOL FOR DIVERS**

1. Remove gross contamination of organic material by rinsing divers, equipment and decks throughout diving operation.
2. At the end of diving rinse all equipment in freshwater to remove salt, including rinsing the inside of a buoyancy compensator device (BCD) if used.
3. All equipment must be washed or sprayed with a wetsuit cleaning solution or mild soap or shampoo to remove traces of organic matter. Dive suits must be washed inside and out (note that **Virkon is not suitable for cleaning dive suits**) and other equipment can be immersed in large plastic bins with disinfectant.
4. Thoroughly rinse all dive equipment in freshwater and dry in well ventilated area.

#### **2.2.2 CATEGORY 1 DECONTAMINATION PROTOCOL FOR DIVERS**

1. Remove gross contamination of organic material by rinsing divers, equipment and decks throughout diving operation. This should be repeated after each dive, particularly when moving between sites.
2. At the end of diving rinse all equipment in freshwater to remove salt, including rinsing the inside of a buoyancy compensator device (BCD) if used.
3. All equipment must be washed or sprayed with a wetsuit cleaning solution or mild soap or shampoo to remove traces of organic matter. Dive suits must be washed inside and out (note

that **Virkon is not suitable for cleaning dive suits**) and other equipment can be immersed in large plastic bins with disinfectant.

4. Thoroughly rinse all dive equipment in freshwater and dry in well ventilated area.

## **SOP 2.3: Decontamination of transport vehicles and boxes.**

Vehicles will be used to transport the abalone in boxes to the processor or holding facility. As such, only the parts of the vehicle in contact with the boxes should need to be decontaminated – assuming that personnel follow appropriate protocols.

### **2.3.1 DECONTAMINATION PROTOCOL FOR TRANSPORT VEHICLES AND BOXES**

**General (applies in all cases)**

1. **All solid debris should be removed from trailers and transport boxes/ harvest bins and the area wiped with disinfectant. All residual mucous, blood and faecal material must also be removed.**

#### **Where the vehicle has carried infected (or suspicious) animals:**

1. Remove the boxes and clean the underside of the boxes and the area where they were sitting in the vehicle using a dilute detergent.
2. All fixtures and fittings (aeration equipment, pipework etc) must be dismantled and rinsed with freshwater to ensure that infected material is removed.
3. The wheels, wheel arches, bodywork and undercarriage must be cleaned and disinfected.
4. The external surface of the vehicle should be soaked in a detergent and scrubbed down. The truck should be left to dry in sunlight.

## **SOP 2.4: Decontamination of other personnel.**

Personnel other than divers must also undergo decontamination to ensure that the virus is not transmitted. Heaviest contamination of personnel will occur when infected animals are handled on-board the boat, where mortalities are collected and where there is exposure to mucous or faecal material from the abalone.

### **2.4.1 DECONTAMINATION PROTOCOL FOR PERSONNEL**

1. **It is important that appropriate waterproof, protective clothing is worn at work.**
2. **Protective clothing should be cleaned with a sponge or low pressure pump whilst still being worn to remove gross organics. The clothing can then be soaked in dilute detergent for the 30 minutes, rinsed and hung up to dry. Rubber boots should be scrubbed.**
3. **Personnel should regularly wash their hands in soapy water.**

## **12. LOCATION OF INFECTED OR DISEASED ABALONE**

During any diving operation, if any abalone are located that are suspected of being infected with the virus, or any other disease, the following steps should be taken:

- 12.1 **Collect a sample of the suspect abalone and immediately cease fishing.**
- 12.2 **On return to the boat, place the abalone in a sealed plastic bag and, if possible, keep on ice.**
- 12.3 **Note the GPS location and any general description of the location, including the depth of the water.**
- 12.4 **Take pictures of area if possible**
- 12.5 **Carry out a full wash-down procedure before leaving the area.**
- 12.6 **Immediately notify appropriate industry organisation and Fisheries Victoria on telephone.**

### **Information required to make Disease a Report**

When reporting the site of, or the suspected presence of disease or sick abalone the following information should be provided;

- (a) **Diver contact details**
- (b) **Date and time of location**
- (c) **Reef code and area description of where suspect abalone located**
- (d) **GPS co-ordinates**
- (e) **Depth of water**
- (f) **Basis for suspecting incidence of disease, ie external signs of disease, number of dead or dying abalone, listlessness, etc. *If the number is not answered directly, a message should be left and a Fisheries Officer will be in contact.***
- (g) **Collected abalone should be placed in a sealed plastic bag and kept at as low a temperature as possible without freezing. *Note: Large 'GLAD ZIP SLIDE' bags can be purchased from a supermarket for this purpose and should be carried on all boats. The abalone industry associations will supply these free of charge.***

### **Contact Numbers**

VADA            Ph. (03) 5529 2001,    Mobile 0418 292 004,

Disease Hotline Ph. (03) 5561 9997  
DPI Disease Watch Ph. 1800 675 888  
Duty Officer Ph. 0418 519 215  
13 FISH Ph. 13 3473