


# **Victorian**

## **Abalone Harvesting**

### **Code of Practice**

**This Code was developed by the  
Victorian Abalone Divers Association Inc.**

**With**  
**Assistance from** 

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## ABBREVIATIONS

<b>AFC</b>	Abalone Fishery Committee. Abalone sub-committee of the Fisheries Co-Management Council
<b>AbCom</b>	Abalone committee of Seafood Industry Victoria
<b>AbPro</b>	Abalone Processors Association.
<b>AFAL</b>	Abalone Fishery Access Licence. Licence issued under the 1995 Fisheries Act allowing commercial harvest of abalone in Victoria.
<b>Beach Price</b>	Beach Price is the amount paid to a diver by a abalone processor for live un-shucked abalone, weighed at the point of landing. (prior to processing)
<b>Blacklip</b>	Blacklip Abalone. <i>Haliotis rubra</i>
<b>Chipping</b>	Removal of abalone from reef, by means of an abalone knife or tool .
<b>Code</b>	Abalone Harvesting Code of Practise
<b>CZ</b>	Central Zone. Victorian Central Abalone Management Zone. Area covers from Hopkins River, Warrnambool to the opening of Lakes Entrance Harbour.
<b>DPI</b>	Department of Primary Industries
<b>EBFM</b>	Eco-system Based Fisheries Management
<b>ESD</b>	Ecologically Sustainable Development
<b>EZ</b>	Eastern Zone. Victorian Eastern Abalone Management Zone. Area covers from Entrance of Lakes Entrance Harbour to NSW border.
<b>EZAIA</b>	Eastern Zone Abalone Industry Association Inc.
<b>Fishing Effort</b>	The aggregate fishing activity of abalone divers operating under the authority of an Abalone Fishery Access Licence.
<b>FRDC</b>	Fisheries Research and Development Corporation
<b>FV</b>	Fisheries Victoria
<b>GVP</b>	Gross Value of Production (Beach Price)
<b>Greenlip</b>	Greenlip Abalone. <i>Haliotis laevigata</i>
<b>High Grading</b>	Sorting of abalone catches to specific size requirements prior to landing.
<b>IVR</b>	Interactive Voice Response for reporting abalone catch weights over the phone, prior to leaving point of landing.
<b>Knife Edge Fishing</b>	Harvesting of abalone reefs with the resident abalone are very close to the LML. Can be an indication of serial depletion.

## Code of Practice      Abalone Harvesting

<b>LML</b>	Legal Minimum Length.
<b>Lm</b>	Length at sexual maturity – same as LOFM
<b>LOFM</b>	Length of First Maturity. The length of abalone when it first shows signs of reproductive maturity at a particular reef location. Same as Lm.
<b>MAFRI</b>	Marine and Freshwater Research Institute. PirVic.
<b>MOU</b>	Memorandum of Understanding. Referring to the agreement between FV and VADA in displacing or distributing fishing effort along the CZ coast.
<b>MSC</b>	Marine Stewardship Council
<b>Nominated Diver</b>	A person for the time being nominated to harvest abalone on behalf of the holder of an Abalone Fishery Access Licence.
<b>PirVic</b>	Primary Industries Research Victoria. MAFRI.
<b>QRP</b>	Is the conservative catch level which could reasonable and responsibly be expected from each sub-zone for the specified season. The QRP may be less than the optimal sustainable level of production for a given sub-zone.
<b>Quota Year</b>	1 <sup>st</sup> of April to the 31 <sup>st</sup> of March in the following year.
<b>Reef Code</b>	An alphanumeric code (identifying a section of coast) which is used for reporting the origin of specific commercial catches.
<b>SIV</b>	Seafood Industry Victoria. Seafood industry peak body.
<b>SOP</b>	Standard Operating Procedure. Consistent methods of performing certain operations, to arrive at a standardised result.
<b>TAC</b>	Total Allowable Catch. The total amount of live whole abalone that can be harvested within a management zone.
<b>The Code</b>	Abalone Harvesting Code of Practise
<b>URP</b>	Is the catch level at which a sub-zone could be presented as a candidate for detailed evaluation and possible closure for the remainder of the season.
<b>VADA</b>	Victorian Abalone Divers Association inc
<b>VAFMP</b>	Victorian Abalone Fisheries Management Plan
<b>VAPA</b>	Victorian Abalone Processors Association Inc.
<b>VML</b>	Voluntary Minimum Length. The voluntary length at which abalone are harvested by industry.
<b>WADA</b>	Western Abalone Divers Association inc
<b>WZ</b>	Western Zone. Victorian Western Abalone Management Zone. Area Covers from Hopkins River Warrnambool to the S.A. border.

## 1. INTRODUCTION

Victoria now provides over 12 % of the worlds production of wild caught abalone and is considered to be one of the most sustainable fisheries. The fishery is predominantly made of two species Blacklip Abalone (*Haliotis rubra*) and Greenlip Abalone (*Haliotis laevigata*). The principal reason for the fishery remaining vibrant and growing is the leadership, stewardship and commitment provided by the commercial abalone industry in ensuring that the abalone resources in Victoria remain sustainable.

The Abalone industry commenced in Victoria in 1962, growing through the 1960's, and involving up to 300 divers in 1968. In these early days it was characterised by instability, poor quality control, fluctuating markets and inconsistent catches. During this time diving technology was primitive, ineffective and in many instances extremely dangerous. Divers worked with homemade compressors, from beaches using non-floating hoses, snorkeling from rocky shorelines and using inflated tractor tubes to fish the inside reefs of enclosed bays. Screwdrivers and levers were used to pry the abalone from the reefs, filling up to six Potato sacks in one dive.

The shore crew would pull the diver and his catch by the hose line, hand over hand, through the surf zone, to land the catches. The catches were then man handled along the beaches and up high cliffs to open flat bed tray trucks for delivery to the factories for processing. All this made diving for abalone an exhausting and risky business. The introduction of boats, better compressors and an overall improvement in all types of diving equipment has made the abalone industry much safer. A greater understanding of dive medicine and the effects of diving on the body has also contributed to a safer work environment.

In the early 1960's at the beginning of the abalone fishery, there was little understanding as to the principles of ESD (Ecological Sustainable Development), and EBFM (Eco-system Based Fisheries Management) but even with this lack of knowledge, the ability to see, touch and observe abalone in their natural environment, allowed the industry members to understand how their fishing impacts on the resource. This saw the industry promoting and seeking regulated restrictions on effort and participation from as early as 1965 and by 1968 had introduced the first voluntary unregulated measures to protect abalone stocks.

This stewardship and commitment to protecting the sustainability of the abalone resources in Victoria, through voluntary measures over and above those regulated requirements has continued to the present day. These have included, closing of areas to fishing, the introduction of catch limits on reefs, preventing the large footprint effects from daily harvesting activities, larger voluntary size limits, the moving of effort and controlling of the amounts of abalone harvested from each location or reef code.

Historically, as the voluntary measures have proved themselves, the abalone industry has worked with Government and the Fisheries Department to make the voluntary measures and initiatives to the more formalised structure of regulation. The Victorian abalone diving industry, is committed to continuing this process of consultation and implementation into the future, and has developed this Abalone Harvesting Code of Practice. This document will foster industry best practice in the harvesting and handling of abalone and the preservation of the marine environment upon which the abalone resource is dependent.

## **2. CONTEXT**

This code has been compiled on the basis of industry's understandings that:

- 2.1 At all times the sustainability of the abalone resource, and protection the abalone habitat is encouraged.
- 2.2 This code is commended to all licensed commercial abalone harvesters who are operating in Victoria.

The Victorian abalone fishery is dependent upon maintenance of healthy, balanced and diverse marine habitat.

- 2.3 The abalone fishery management regime is based upon ecological sustainability and thereby seeks to maintain the resource biomass.
- 2.4 Ideally, the harvest from the abalone resource should be constituted by not more than the surplus production of the resource which is over and above the current base biomass.
- 2.5 As holders of the restricted access rights to the resource we are its real stewards and the means by which the management regime will facilitate sustainability.
- 2.6 Whilst Legal Minimum Lengths (LML) and Total Allowable Catches (TAC) are the core management tools, there are additional significant contributions that can be made by industry toward the preservation and enhancement of the resource.
- 2.7 Every reasonable effort is made to ensure the sustainability of the abalone resource.
- 2.8 Significant threats to the resource include:
  - Bio-security
  - Theft
  - Serial Depletion
  - Habitat degradation
  - Complacency
  - Apathy

## **3. RESOURCE MANAGEMENT GOAL**

- 3.1 The Victorian abalone Industry's resource management goal as described in the Victorian Abalone Fishery Management Plan, is to maintain the Victorian abalone biomass above that which existed in the year 2000, and in the longer term to achieve an increasing biomass.
- 3.2 Maintenance of an adequate egg production and recruitment by the abalone biomass to ensure a sustainable abalone industry in Victoria.
- 3.3 To promote the management, development and use of the abalone resource in Victoria in an efficient, effective and ecologically sustainable manner.

- 3.4 To promote the conservation of the Victorian abalone resources, habitats and ecosystems.
- 3.5 To provide stewardship of the Victorian abalone resources.
- 3.6 To ensure all handling and harvesting techniques are reviewed at least once every 12 months.

## **4. HARVESTING**

- 4.1 Divers should make every reasonable effort to remove abalone from rock substrate so as to minimise any injury to the abalone or to any other organisms or the habitat.
- 4.2 Divers shall not intentionally damage any other organism whilst harvesting abalone.
- 4.3 Divers should not leave abalone bags unattended where possible, so as to avoid damage or attack from predators (leather jackets, wrasse, port jackson sharks etc).
- 4.4 An abalone should be selected for harvest on the basis that it is obvious or likely it will exceed the Legal Minimum Length (LML) or Voluntary Minimum Length (VML) (so as to minimise mortalities or damage caused by the detachment of the abalone from the reef).
- 4.5 Divers should consider not harvesting greenlip abalone as a by-catch when harvesting blacklip abalone. Consideration should be given to trying to obtain premiums for the harvesting of greenlip abalone.
- 4.6 Divers should not conduct high grading of catches. This causes unacceptable damage to the abalone that are returned to the reef, because during handling abalone are cut and damaged. As abalone have no clotting agents in their blood they can bleed to death.
- 4.7 Divers should consider and comply with all bio-security measures listed in [Section 10](#).

## **5. HARVESTING EQUIPMENT**

- 5.1 Divers must carry with them a tool which has minimum size limit markings clearly visible at all times.
- 5.2 Divers abalone iron or tool should be maintained in a way that it does not damage abalone being pried from rocks or reef.
- 5.3 Deckhands cleaning tool should be maintained in a way that it does not damage abalone being cleaned.
- 5.4 Divers who have VADA allocated data loggers should give consideration to using them in as many different dive sites as possible.

## **6. HARVESTING SITE SELECTION**

- 6.1 Divers should be mindful of the benefits to the resource of spreading harvesting effort across all the productive reefs in the zone.

- 6.2 Spreading of effort across productive reef should include specific efforts to work all areas of the reef including deeper and shallower areas.
- 6.3 Divers should implement the “200 kg move on” strategy. That is upon catching 200 kg at a dive site rotate effort to another site.
- 6.4 Divers total daily catches should not exceed those listed in [APPENDIX A](#).
- 6.5 If diving 2 areas with different daily catch limits, on the one day, the lesser amount listed in APPENDIX A shall be the daily catch limit used. *(When diving multiple areas on one day extra attention should be paid to bio-security practices [Section 10](#))*
- 6.6 Divers should comply with all Special Conditions as listed in [APPENDIX B](#).
- 6.7 Divers should comply with all Memorandum of Understanding (MOU) agreements with Fisheries Victoria, as listed in APPENDIX E.

## 7.      **UNDERSIZED ABALONE**

- 7.1 In the event that a diver detaches an undersized abalone from the reef, he must replace the abalone on its home site and wait until it has firmly attached itself before moving away. Divers shall protect the replaced abalone from natural predators whilst the abalone is reattaching itself.
- 7.2 If the deckhand detects an undersized abalone in the diver’s catch, then the undersized abalone must be placed in the next catch bag to be given to the diver, for correct replacement on the reef. Abalone must not be thrown overboard lest they become victims to predators or fail to land on suitable reef.
- 7.3 Abalone which are on board should be protected from heat, sun and wind by being covered eg with wet hessian bags or similar items.

## 8.      **TAGGED ABALONE**

- 8.1 To aid in the collection of growth data, Abalone which are found to be tagged, should have the following information recorded;
- Date and time;
  - The tag number and colour,
  - Location and depth found
  - Length and width of shell
  - Which processor it has been sent to, (if the abalone is of legal size)
- 8.2 The above information can be forwarded to PirVic or to VADA for collection and passing on.
- 8.3 You should request that the processor keep the tagged shell for collection by PirVic. Placing the tagged abalone on the top of the abalone stacked in the bin may help for the processors to locate them.

- 8.4 Occasionally when abalone are initially tagged, divers are requested not to harvest those animals, for a short period of time, so as to allow growth to occur. You will be notified of these times and locations when they happen. It is requested that you comply with the timelines

## **9. HABITAT AWARENESS**

- 9.1 Any unusual underwater observation, increase in the number of starfish, sea urchins, dead abalone, signs of poaching activity, empty shells or any suspicious activity should be reported to authorities (Police, DPI, Zone Associations) as soon as possible.
- 9.2 The ability of anchors to damage reef and habitat must be recognised, and reasonable effort made to avoid and minimise such damage.
- 9.3 Divers should attempt to participate in the Resource Development workshops so as to keep up to date with and help resolve current issues.

## **10. BIO-SECURITY ABALONE FISHING PROCEDURES**

VADA recommends that divers do not knowingly dive in areas known to be infected or affected by disease or other contaminants. When conducting abalone harvesting operations, divers should always be aware of the possible transference of disease, or contamination for one fishing site to another. It is particularly important to conduct **all** abalone harvesting operations as though a disease or contaminant may be present, because the implications of inadvertently moving or transferring a disease can have devastating effects on the abalone resource and the environment. It is suggested that divers follow the following bio-security procedures at all times, whether or not they suspect the presence of a disease or contaminant.

### **Procedures for Harvesting Abalone in Areas not Adjacent to known disease areas**

It is suggested that divers are aware of good bio-security procedures at all times and use the following procedures to prevent the spread of disease

- 10.1 Conduct normal fishing operations, ensuring all equipment including bins are kept clean.
- 10.2 Do not return any abalone to the water other than from where they were caught. Sizing and sorting must be completed before relocating the vessel.
- 10.3 Conduct normal washdown procedures with detergent ensuring vessels and equipment are kept clean
- 10.3 If an area is suspected of being contaminated with some disease or virus, stop fishing and complete the procedures as listed in sections 11 and 12, AND RETURN TO PORT, completing wash down procedures.
- 10.4 Record and Complete information for [Disease Report](#).
- 10.5 **DEFINITELY DO NOT FISH ANY OTHER AREAS.** Moving to another area may cause the disease for spread more rapidly.

## **Procedures for Harvesting Abalone in Areas Adjacent to Known Diseased Areas**

VADA recommends that divers do not knowingly dive in areas known to be infected or affected by disease or other contaminants. The risk of inadvertently transferring contamination or damaging remaining abalone stocks should be avoided. The following bio-security procedures and [Standard Operating Procedures for bio-security](#) should be followed at all times when diving in areas adjacent to known to be affected by disease or some other contamination. These are precautionary measures, designed to prevent the spread of disease, through the day to day abalone harvesting operations; *(For purposes of bio-security, an adjacent area is defined as diving operations conducted within 30 kilometres of known disease infected or contaminated reefs)*

- 10.11 Where possible dive only one reef code or area per day as drainage from the catch bins may potentially transfer the viruses and disease if present.
- 10.12 If unable to work only one reef code or area, the diver should conduct [wash down](#) procedures prior to moving to a different diving location
- 10.13 No matter what, a diver should not conduct diving operations in a know disease or contaminant infected area, and in a non infected area on the same day.
- 10.14 Do not return any abalone to the water other than from where they were caught. (Section 10.2)
- 10.15 If an area is located or suspected of being contaminated with the virus etc, stop fishing and complete the procedures in Section 11 and 12, and complete wash down procedures before returning to port.
- 10.16 Record and Complete information for [Disease Report](#)
- 10.17 **DEFINITELY DO NOT GO TO ANY OTHER AREAS.** Moving to another area may cause the disease for spread more rapidly.

## **11. WASHDOWN PROCEDURES**

Cleanliness and simple washing of the vessel and abalone knives, nets, gloves and equipment with truck wash, other detergents or disinfectants, can assist with prevention and the spreading of the disease. In order to prevent the inadvertent transfer of disease divers should at the completion of each day's fishing.

Wash down procedures should always be carried out prior to moving from one reef area or code to another when diving in reef areas adjacent to known infected areas.

*(For purposes of bio-security, an adjacent area is defined as diving operations conducted within 30 kilometres of known disease infected or contaminated reefs)*

- 11.1 A thorough wash down of the boat and all dive gear should be carried out using soapy water. The primary objective of this wash down is to remove all traces of organic material or slime which may carry viruses or diseases.
- 11.2 Particular attention should be paid to gloves, ab irons and catch bags.

- 11.3 The diver should wash down his wetsuit, fins, mask, etc, using soapy water. A large sponge, pressure spray or similar can be utilised for this.
- 11.4 The deckhand should wash all traces of slime from his person, gloves, sorting table and data loggers. The deck area should be thoroughly washed down with soapy water.  
*Note: It is important that all footwear should be thoroughly washed.*
- 11.5. A plastic rubbish or similar bin containing a strong detergent solution can be utilised for wash-down. The detergent solution can be any bio-degradable truck-wash, dishwashing detergent or similar. A small scrubbing brush should be used to ensure that all organic material is removed.
- 11.6 Following the unloading of the day's catch, boats should be washed down with soapy water. A pressurised water sprayer with detergent attachment can be utilised for this purpose. Ensure that the equipment and gear is disinfected.
- 11.7 All bins are being washed down at the processors, however any bin that appears to have traces of organic material, should be rewashed with soapy water.
- 11.8 The Victorian Abalone Divers Association (VADA) will provide Bio-security kits, sprayers and detergents to the abalone divers, free of charge.
- 11.9 If divers inadvertently come across and a reef areas that has a disease outbreak or suspected as having a disease outbreak, then the full decontamination procedures listed in the following Standard Operating Procedures section is to be applied.

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-degradeable;
  - **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,  
WADA Ph. 0417 119 577  
EZAIA Ph. (03) 9787 8900 Mobile 0419 368 285

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

### **13. POLLUTION**

- 13.1 All that is taken out on a licensed abalone vessel should be returned. Nothing should be intentionally thrown overboard as rubbish.
- 13.2 All observed pollutants, (flotsam, oil spills) which constitute ecological hazards should be reported to authorities (Police, Department of Primary Industries, Harbour Master, Port Authorities) as soon as possible.

### **14. ON BOARD CLEANING AND HANDLING**

- 14.1 Divers and deckhands should take extra care when retrieving full abalone bags from water to vessel.
- 14.2 Full bags should be gently lowered to deck or cleaning table, on to wet hessian bags, foam mat or similar, to avoid damage to abalone shell or meat.
- 14.3 All abalone shell should be cleaned thoroughly. All abalone should be packed in to clean abalone bins and to processors standards to minimise meat damage.
- 14.4 Abalone bins should never be over-stacked. Full abalone bins should be covered with wet hessian bags at all times and watered regularly. Bins should have drain holes.
- 14.5 When packing abalone bins, thought should be given to the total weight of the abalone bin and contents and how they are to be handled during unloading and at the processors.

### **15. MINIMUM LENGTH FOR HARVESTING**

- 15.1 Determination of the minimum length for harvesting of abalone in each of the 3 Victorian zoned areas should be premised on the general rule of thumb that those abalone should have had opportunity to reproduce at least once before they qualify for potential capture.
- 15.2 A resource management goal is to maintain the abalone biomass above that which existed in the year 2000, and in the longer term to achieve an increasing biomass. The main factor contributing to this goal is maintaining adequate egg production by the biomass.
- 15.3 In 2001 the abalone industry adopted Size at First Maturity plus Two Years of Growth as the foundation for determining appropriate minimum lengths which will facilitate adequate egg production. VADA is continuing in its commitment to research and informed decision making.
- 15.4 The concept of spatial management of abalone stocks has been developed by VADA, which recognises that abalone in different areas mature at different lengths. As part of this commitment to ensuring that abalone are harvested at a spatially applicable minimum length.
- 15.5 VADA is committed to ensuring that no abalone will be harvested in a size regime which allows abalone to become eligible for harvest before they have had opportunity to contribute to reproduction. This is not sustainable, and the abalone industry size determining policy (LOFM and spatial management) seeks to address and prevent this possibility.

15.4 This size of abalone may be expressed as:

Length at First Maturity (referred to as “L50”) (in millimetres)  
Plus 2 years of Growth (in millimetres).

15.5 In setting precise lengths, account should also be taken of other factors such as variability of growth rates within reef areas, and practicality of enforcement.

15.6 The agreed minimum lengths for each season are listed in [APPENDIX B](#) and defined by reef maps in [APPENDIX C](#).

## APPENDIX A

### Special Conditions

#### **Divers Total Daily Catches**

1. In recognition of the Resource Management Goals divers are encouraged to spread the effort of their fishing over larger areas. To help lessen the impact of fishing (or footprint) on any particular dive location or reef code the following initiatives are promoted.
  - 1.1 When fishing for abalone in reef codes 4.01 to 5.03 inclusive, an individual divers shall not land greater 700 kilograms of abalone per day.
  - 1.2 When fishing for abalone in reef codes 6.01 to 18.09 inclusive, an individual divers shall not land greater 500 kilograms of abalone per day.

#### **Special Condition Recreational Fishing Locations**

1. In August, 2004 the Department of Primary Industries released the Regulatory Impact Statement (RIS) for the Fisheries (Recreational Abalone) Regulations 2004. These regulations were designed to address a number of enforcement and environmental issues involving the licensed recreational fishers.
2. Whilst it is recognised that VADA has already implemented a number of significant resource development initiatives that benefit all stakeholders in the abalone resource, it is recognised that at a number of specific locations a number of additional initiatives can be used to further assist in the sustainability of the abalone resource.
3. In accordance of Section 3.1 of the RIS, VADA has developed a number of Special Conditions to be incorporated into its Code Of Practice for Abalone Harvesting that will help facilitate the rapid rebuilding of identified inshore stocks of abalone frequently used by licensed Recreational Fishers.
4. These Special Conditions in relation to **Section 3.1 of the RIS for Fisheries (Recreational Abalone) Regulations 2004**, will be known as **Special Conditions A** and will remain in the VADA Code of Practise for Abalone Harvesting for the period of time from the 1<sup>st</sup> of January, 2005 to until the 31<sup>st</sup> of December, 2007, at which time they will cease.
5. VADA advises that divers comply with the following recommendations:
  - 5.1 At the request of VADA and after going through a consultation process with industry, Fisheries Victoria have implement a Fishery Notice to increase the minimum size limits in all areas that were previously 110mm to 115 mm, and all areas that were previously 120 mm increased to 123mm. This will effectively protect the voluntary sizes that industry have been working to by giving a new base level of protection.
  - 5.2 Reef Code 13.06: (Flinders Pier to Balnarring Beach)
    - a. No harvesting of abalone to occur at depths shallower than 5 metres.

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- 5.3 Reef Code 13.05: (Flinders Back Beach)
  - a. No harvesting of abalone to occur at depths shallower than 3 metres for the area
  
- 5.3 Reef Codes 12.01 to 12.05 inclusive: (Rye and Mornington Peninsula Back Beaches)
  - a. The Voluntary Harvest Size for Blacklip abalone be raised from 115mm to 120mm.
  
- 5.4 Reef Codes 11.11 to 11.19 inclusive: (Eastern side of Port Phillip Bay)
  - a. No commercial fishing for abalone.
  
- 5.5 Reef Code 10.01: (Torquay)
  - a. For the area of Bancoora Surf Lifesaving Club to Point Danger
  - b. No harvesting of abalone to occur at depths shallower than 3 metres for the area
  
- 5.6 Reef Codes 7.04 and 7.05: (Apollo Bay)
  - a. For the area known as Blanket Bay on the border of reef codes 7.04 and 7.05.
  - b. No harvesting of abalone to occur at depths shallower than 3 metres for the area.
  
- 5.7 Reference should also be made to the other agreed minimum harvest lengths as listed in Appendix C.

## APPENDIX B

### Voluntary Minimum Harvesting Lengths for Abalone

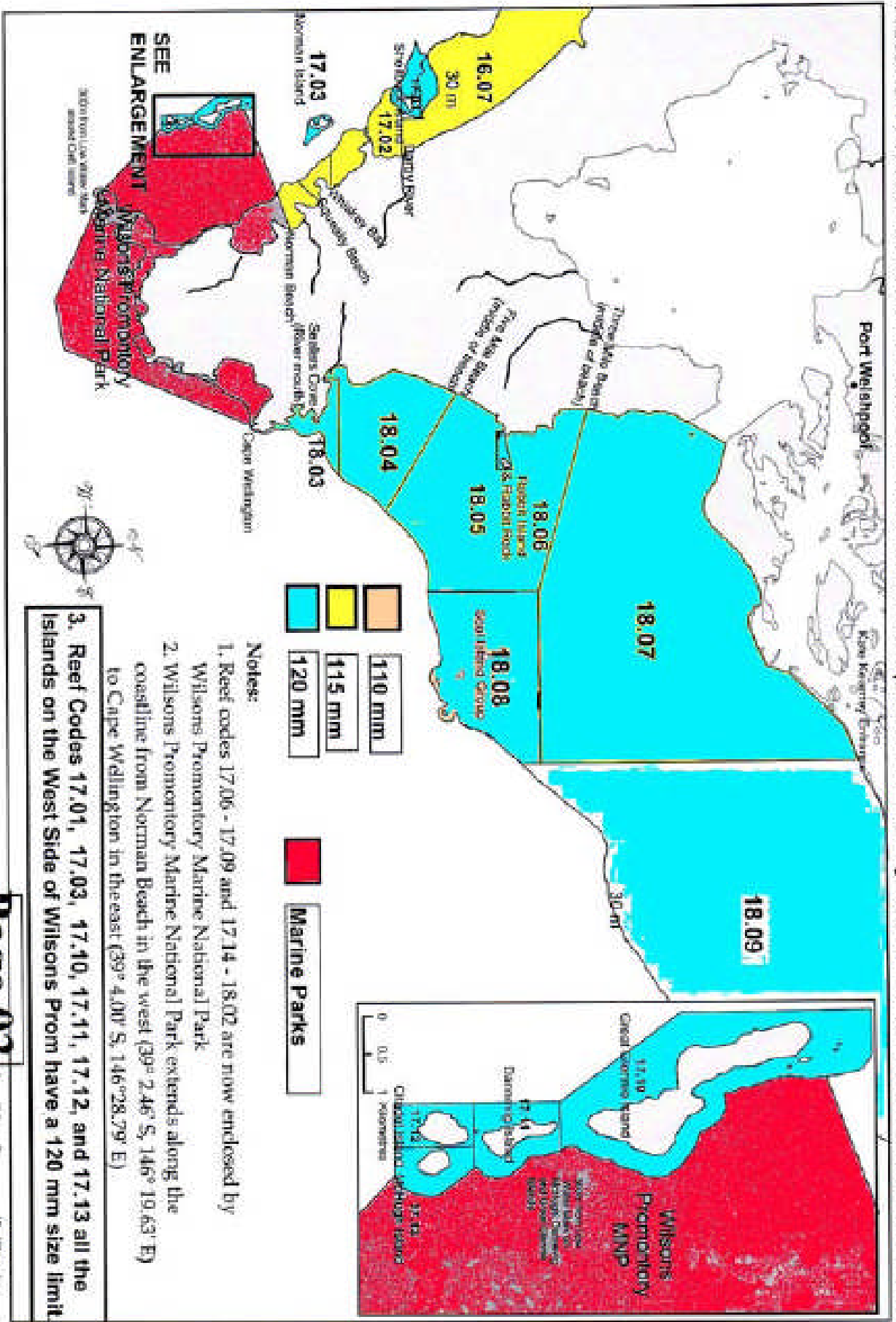
1. As the result of ongoing research VADA has undertaken in relation to the length of first maturity and the Data Logger assessment of actual commercial catches, it has been recognised substantial variability occurs in the growth rates of abalone at different dive locations. It was recognised that the historical application of single size limits over large areas failed to take into account the variability of the growth rates.
2. At the completion of the 2005-2006 fishing season VADA has accumulated 4 years of actual commercial catch information. This information consists of time date and location the abalone have been caught as well as the size structure of the abalone harvested.
3. It was agreed at the Resource Development Workshop on the 14<sup>th</sup> of March, 2006, as there was to be 4 years of commercial catch information available to be assessed that VADA should undertake an assessment process of the data logger information with a view to identifying appropriate LML for abalone in each reef code.
4. Upon identifying the appropriate LML for each reef code, VADA will then develop a protocol and procedure of progressing to the LML within a specified period of time.
5. It is recognised that the size limits should reflect the growth composition of the **majority** of abalone stocks within the defined area.
6. VADA through the workshops has developed voluntary minimum lengths for harvesting abalone applicable to smaller management scale areas.
7. It is recognised that the process for increasing the voluntary minimum lengths has to be completed in small steps to ensure that serial depletion does not occur in the faster growing areas.
8. VADA recognises that the review of the minimum lengths is ongoing, and requires further development and will review each of the size limits bi annually at the Resource Development workshops.
9. VADA recommends the voluntary sizes to be used by divers in harvesting abalone in each of the reef codes listed:
  - 9.1 In all Central Zone Reef Codes
    - a. The minimum size for harvesting Blacklip abalone in all areas is raised from 110mm to 115mm, by Fishery Notice.
    - b. The minimum size for harvesting Blacklip abalone in all areas is raised from 120mm to 123mm, by Fishery Notice.
  - 9.2 Reef Codes 4.01 and 4.02.
    - a. The minimum size for harvesting Blacklip abalone is further raised to 130 mm.
  - 9.3 Reef Codes 5.01 to 5.03

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- 9.4 a. The minimum size for harvesting Blacklip abalone is raised from 123mm to 125 mm.  
Reef Codes 6.01 to 6.03.
  - a. The minimum size for harvesting Blacklip abalone is raised from 123 mm to 125 mm
- 9.5 Reef Codes 7.01 to 7.03 and Reef Code 7.07.
  - a. The minimum size for harvesting Blacklip abalone is raised from 123 mm to 125 mm
- 9.6 Reef Codes 6.04:
  - a. The minimum size for harvesting Blacklip abalone is 123mm.
- 9.7 Reef Codes 11.01 to 11. 10 inclusive:
  - a. The minimum size for harvesting Blacklip abalone in Port Phillip Bay is 100mm
- 9.8 Reef Codes 12.01 to 12.05 inclusive:
  - a. The minimum size for harvesting Blacklip abalone is raised from 115mm to 120 mm.
- 9.9 Codes 17.01, 17.03 and 17.10 to 17.13 inclusive:
  - a. The minimum size for harvesting Blacklip abalone is raised from 115mm to 120 mm.
- 9.10 Reef Codes 18.03 to 18.07 inclusive:
  - a. The minimum size for harvesting Blacklip abalone is raised from 115mm to 120 mm.
- 9.11 Reef Code 18.08:
  - a. The minimum size for harvesting Blacklip abalone is 115mm.
- 9.12 Reef Code 18.09:
  - a. The minimum size for harvesting Blacklip abalone is 115 mm.



Victorian Abalone Reef Codes - Central Zone Map CZ10 - Darby River to Kate Kearney Entrance



Coordinate datum: WGS84

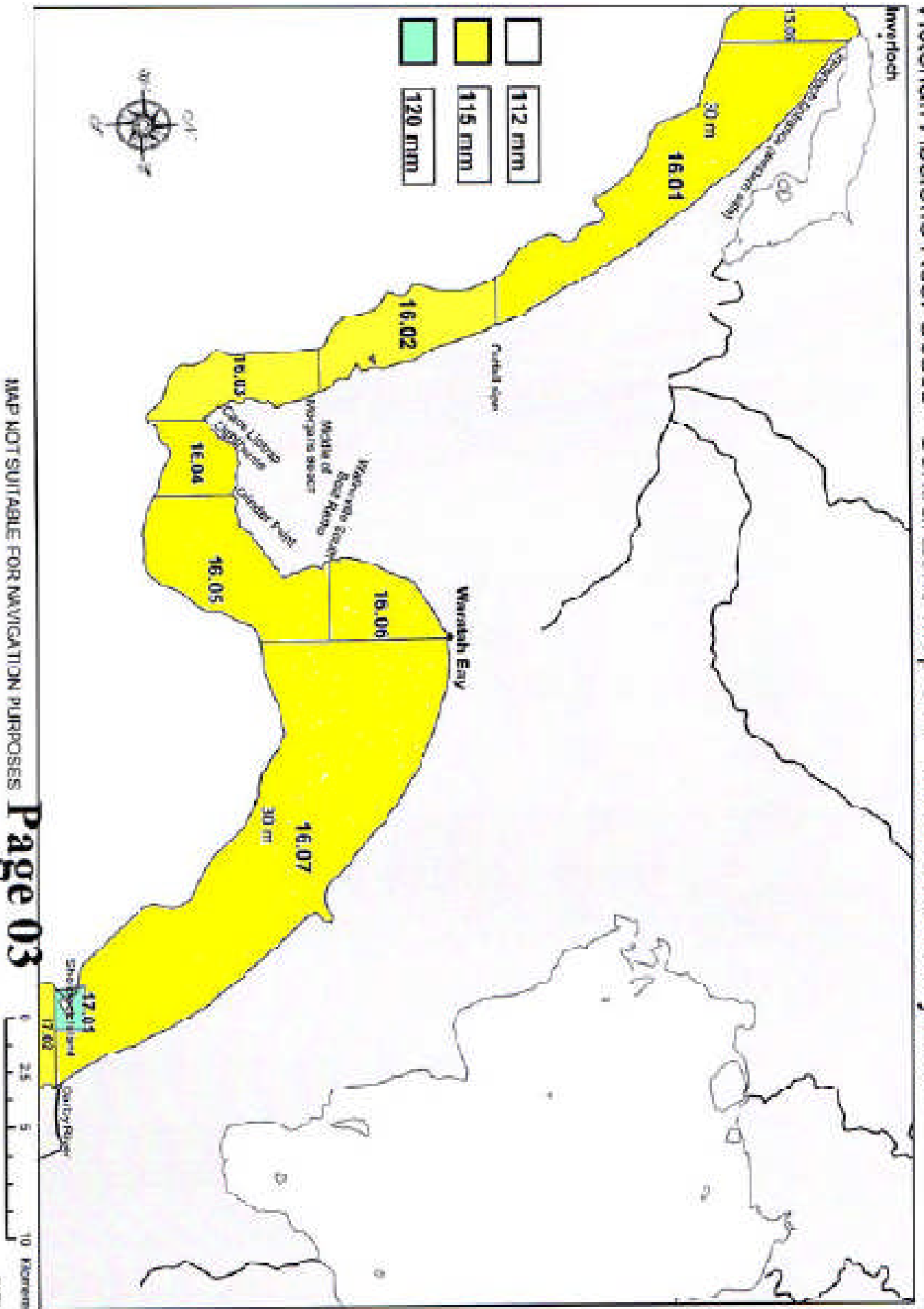
MAP NOT SUITABLE FOR NAVIGATION PURPOSES

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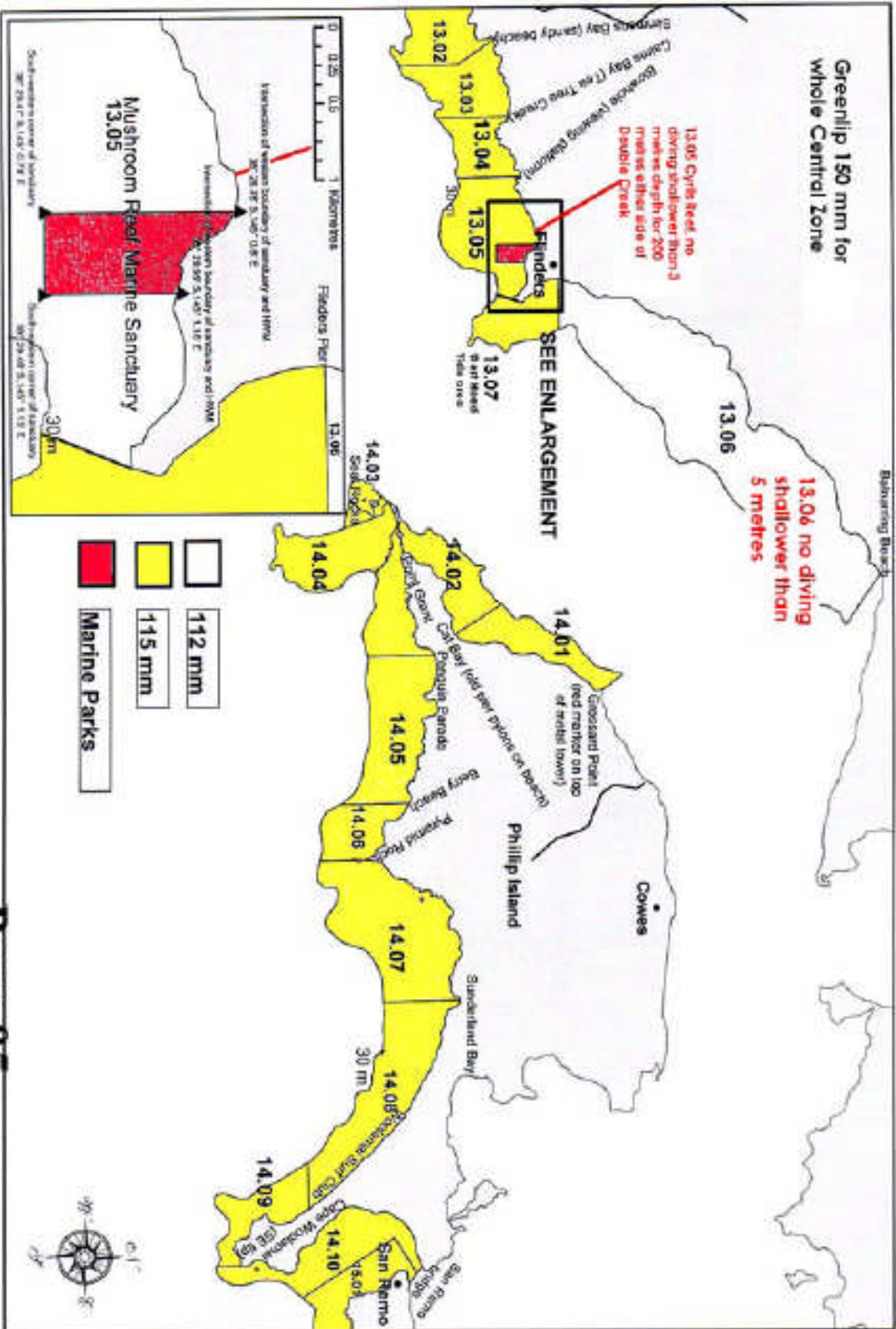
Victorian Abalone Reef Codes - Central Zone Map CZ9 - Inverloch to Darby River



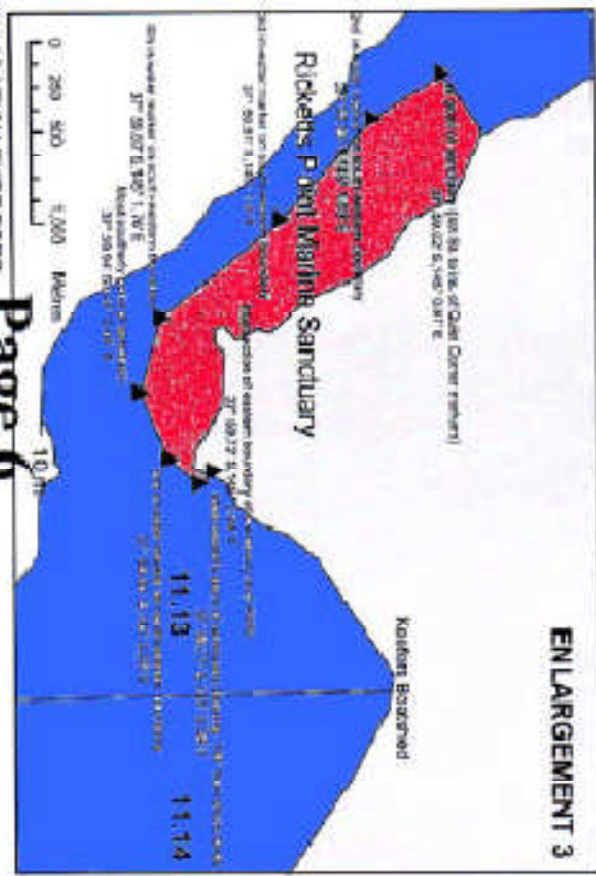
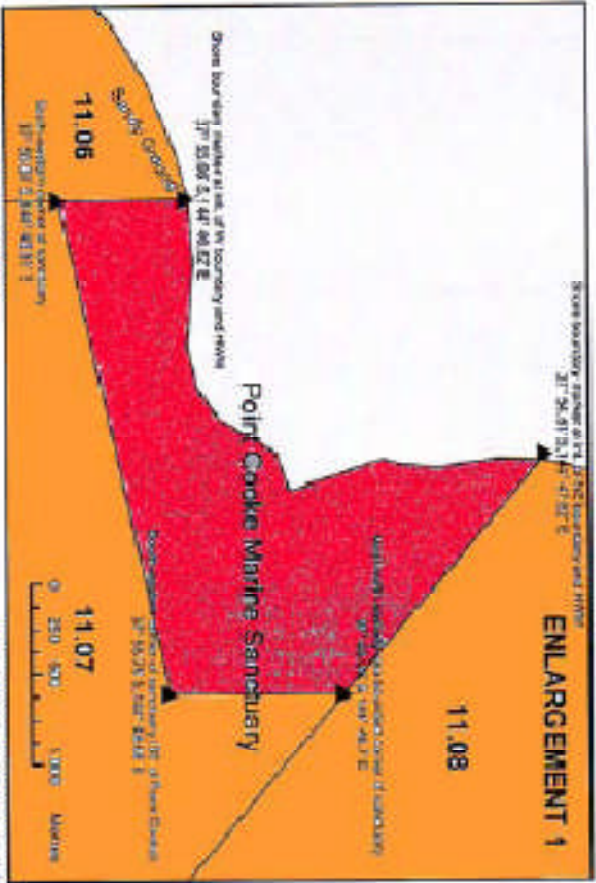
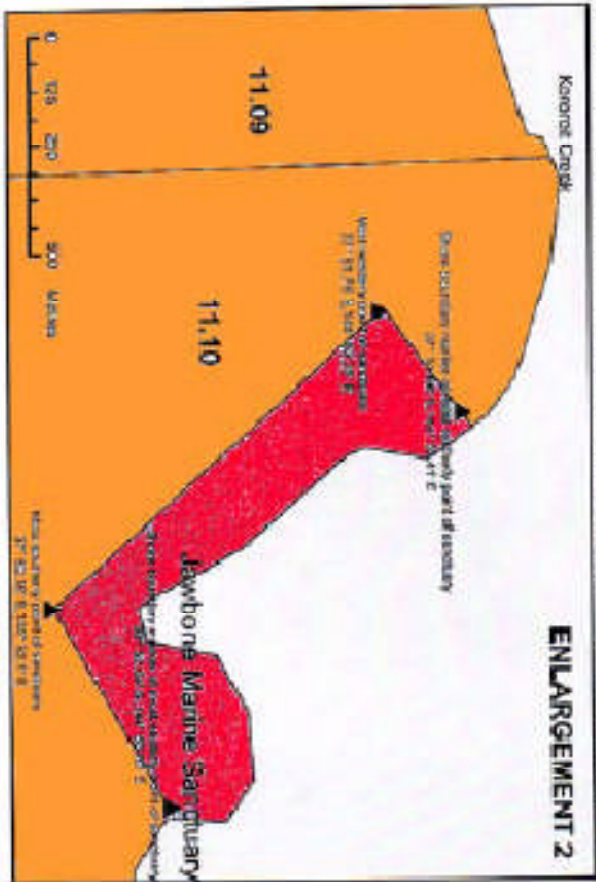
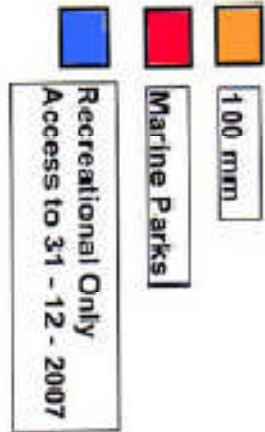
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Victorian Abalone Reef Codes - Central Zone Map CZ7 - Western Port



Victorian Abalone Reef Codes - Central Zone Map CZ6A - Port Phillip Bay Marine Sanctuaries



Coordinate datum: WGS84

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Victorian Abalone Reef Codes - Central Zone Map C22 - Pebble Point to Grey River

