

2016 GREAT VICTORIAN FISH COUNT

Only in our Southern Seas

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VICTORIAN
NATIONAL PARKS
ASSOCIATION
Be part of nature

Victorian National Parks Association

Our vision is to ensure Victoria is a place with a diverse and healthy natural environment that is protected, respected and enjoyed by all.

We work with all levels of government, the scientific community and the general community to achieve long term, best practice environmental outcomes and help shape the agenda for creating and managing national parks, conservation reserves and other important natural areas across land and sea in Victoria.

We are also Victoria's largest bushwalking club and provide a range of education, citizen science and activity programs that encourage Victorians to get active for nature.

ReefWatch

ReefWatch is the Victorian National Parks Association's marine citizen science program. It encourages divers and snorkelers to monitor marine life at their favourite dive sites.

ReefWatch coordinates a number of marine conservation programs, including 'Adopt a Sponge', 'PlateWatch', 'ReefCam' and the Great Victorian Fish Count.

In 2012, ReefWatch won an award for 'Excellence in Education' from the Victorian Coastal Council.

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Project partners

Parks Victoria

Parks Victoria's responsibilities under the *Parks Victoria Act 1998* are to manage the state's parks, reserves, waterways and other public land, including a representative system of terrestrial and marine national parks and marine sanctuaries. It is also the local port manager for Port Phillip Bay, Western Port and Port Campbell.

Parks Victoria works in close partnership with other government and non-government organisations and community groups to manage parks and reserves and encourages community participation within them.

Parks Victoria's philosophy of 'Healthy Parks Healthy People' promotes involvement in activities within parks to maintain and improve the health of individuals and the community as well as contributing to a better understanding of Victoria's parks. Participation in the Great Victorian Fish Count is a great example of this and for connecting people and communities with parks.

Coastcare Victoria

Coastcare Victoria is a statewide program run by the Department of Environment, Land, Water and Planning (DELWP). Coastcare Victoria facilitators work directly with these communities and connect them with the state's coastal management

system – coastal and natural resource management planners, managers of public land, local government and government programs targeting issues in coastal areas.

Redmap

Redmap (Range Extension Database and Mapping Project) is a national 'citizen science' site that captures data and maps marine species that may be extending their range in Australia in response to changes in the marine environment. In Victoria, Redmap is hosted by Museums Victoria and all recorded sightings are verified by marine scientists.

Museums Victoria

Museums Victoria is Australia's largest public museum organisation. As the state museum for Victoria it is responsible for looking after a collection of nearly 17 million objects, documents, photographs and specimens. Its research, in the fields of science and humanities, uses the museum's collections and expert staff to further what we know about the social and natural history of Victoria and beyond.





Seastar on kelp.
Photo: David Bryant

Executive summary

More than 400 people took to the water at 29 sites along the Victorian coastline for the 2016 Great Victorian Fish Count. The event's theme was 'Only in our Southern Seas' and celebrated the unique marine life found in Australia's southern waters and nowhere else on the planet. The Great Victorian Fish Count focuses on 25 key species found in Victoria's coastal waters.

The most commonly sighted species along the coast was the bluelthroat wrasse, which was recorded in more than 80% of the surveys. Other species that occurred in more than half of all surveys were:

- **magpie perch**
- **Victorian scalyfin**
- **dusky morwong**
- **six-spined leatherjacket**
- **zebrafish**
- **old wife**
- **horseshoe leatherjacket.**

Although just 5.3% of Victoria's coastal waters are protected as marine parks or sanctuaries, they are popular locations for snorkelers and scuba divers to explore – more than 30% of the surveys completed were in marine protected areas. They are also home to the only sightings of western and eastern blue groper during this year's Great Victorian Fish Count. This highlights the important role Victoria's marine protected areas play in providing protection for a species that has a small home range and is vulnerable to fishing.



White-barred boxfish and red morwong were sighted outside of their usual range and it is believed a harlequin fish was seen at Flinders Pier. This will be an exciting find if confirmed – harlequin fish have not been seen in Victorian waters for decades. The Victorian National Parks Association and its partner Redmap would appreciate receiving any photos taken in Victoria of any of the species listed on the Redmap website: www.redmap.org.au/region/vic/species.

The results of the 2016 Great Victorian Fish Count would not be possible without the hundreds of volunteers who lent us their eyes, and donated their time and enthusiasm to this large-scale citizen science research project. The data collected has been entered into the Atlas of Living Australia and is accessible to scientists, managers and the public to learn more about Victoria's unique marine life.



Ornate cowfish.
Photo: John Gaskell

Introduction

1.1 Background

The Great Victorian Fish Count, now in its twelfth year, is the largest marine citizen science event in Victoria. Over this time hundreds of divers have recorded thousands of fish along the Victorian coastline. The fish count is held every year in November and December with dive clubs, local marine national park and sanctuary friends groups, schools and other groups ‘taking a dive that counts’.

The project provides a ‘snapshot’ of selected species found in the temperate coastal waters of Victoria. The data collected can be used to investigate changes in species composition and size at locations throughout the state’s coastal waters.

The Great Victorian Fish Count aims to help passionate people take part in an event that gathers valuable marine data, promotes active learning and gives them the chance to reconnect with their local coastal environment. In turn, this creates understanding, awareness and cooperation between the public, scientists and government agencies.

1.2 Citizen science

Citizen science is the involvement of community members in scientific projects that collect data. It provides an opportunity for participants to learn from each other. For example, the Great Victorian Fish Count brings together scientists, marine managers, divers, snorkelers and community members to increase and share our knowledge about fish found

in their local waters. In 2016 more than 400 participants collected data on fish species across the Victorian coastline. Having so many pairs of eyes in the water searching for fish provides a large amount of data on the distribution of fish in Victoria. It would be extremely difficult for scientists to find the time and resources to collect such a vast amount of information.

1.3 Partnerships with local communities

Over the past 12 years the project has been led by the Victorian National Parks Association in partnership with Museums Victoria, Parks Victoria, Coastcare Victoria, dive operators and local community groups. In 2015, we were pleased to add Redmap to our list of partners for the first time and continued to do so in 2016.

All project partners benefit the Great Victorian Fish Count by providing experience and knowledge on the Victorian marine environment.

Project partners provide:

- scientific expertise;
- communications skills and knowledge;
- local, regional and state-based knowledge on coasts, habitats and fish;
- local community knowledge;
- connection with local communities and networks;
- skills, experience and qualifications to lead diving and snorkelling trips.

We are grateful for the continued



Dive2U crew at Blairgowrie Pier.

Photo: AJ Morton

support of all partners and look forward to working with them in upcoming fish counts.

1.4 Only in our southern seas

Victoria's marine life is unique and diverse, with a high proportion of the marine life only found in this region. To celebrate this, the theme of the 2016 Great Victorian Fish Count was 'Only in our Southern Seas'.

The majority of marine species found in Australia's temperate waters (this includes Tasmania, South Australia and southern Western Australia) are not found anywhere else on the planet. It is estimated that more than 85% of bony fish, 90% of marine invertebrates

and 60% of algae species occur only in this part of the world (Commonwealth of Australia 2015).

There are some truly unique marine habitats and species that Victorian divers and snorkelers can experience.

1.5 The 2016 fish 'face'

The 'face' of the 2016 Great Victorian Fish Count was the blue groper. There are two species found in Victoria, the eastern lives in the east of the state while the western is found in Port Phillip Bay and further west. Victoria is the only state in which you will find both species; until recently they were thought to have largely disappeared from Victorian waters

due to overfishing. However, in recent years the Victorian National Parks Association has been received anecdotal reports of increased sightings from participants in its ReefWatch program. During the 2009 Great Victorian Fish Count, there was also a confirmed sighting of the western blue groper at the Barwon Bluff Marine Sanctuary. The sighting inspired a campaign to protect the blue groper in Victoria and, after initially being granted temporary protection, the western and eastern blue groper are now fully protected in Victorian waters. This has helped its successful return and is proof that citizen science can shape environmental policies.

Despite its name, the blue groper is a wrasse and the second-largest wrasse species in the world. Slow moving and inquisitive, it will often approach divers and snorkelers, earning it the badge of the 'friendliest fish in the sea'. Blue groper form 'harems' and remain in and around a small area their entire life, which can be up to 60 years long. The harems consist of a male and a number of females. Like other wrasse species they are able to change sex – when the male in a harem dies or is caught, the dominant female will change sex to become male. The groper's slow sexual maturity (its sexuality can take as long as 15 years to develop) contributes to its vulnerability.

1.5.1 Further sightings of blue groper

The Victorian National Parks Association is interested in any further sightings of the eastern or western blue groper. Snorkelers or divers taking to the water are encouraged to keep an eye out for them, particularly

where they haven't seen them before. It is difficult to tell the difference between the eastern and western blue groper (differing scale size and scale lines the only indicators). That is why a photo to confirm the sighting is always appreciated.

1.6 The Atlas of Living Australia

This is the first year that all data collected during the fish count was entered into the Atlas of Living Australia. The atlas is a collaborative, national project that brings together biodiversity data from multiple sources and makes it available and usable online. Or, to put it simply, the atlas is an online resource where anyone can go to get information on any species of interest to them. Data is entered via the BioCollect tool developed by the atlas team to support citizen scientists, ecologists, scientists and natural resource managers – <http://biocollect.ala.org.au/acsa/project/index/99915577-ada2-48ef-907e-193550ac66bb>). Currently, there is a paucity of information on the distribution of marine species in Victoria, so the Great Victorian Fish Count is filling many of these data gaps.

All previous Great Victorian Fish Count data are in the process of being uploaded to the atlas. This will add more than 10 years' of marine records to the database that will be accessible to marine scientists, managers and the public.



Native 11-arm seastar at Frankston Pier.

Photo: Kade Mills

1.7 The Great Victorian Fish Count identification slates

This year, thanks to a Coastcare Victoria grant, ReefWatch investigated updating the existing Great Victorian Fish Count slates with community groups and dive store owners. While there were several suggestions for new species to be added to the list, the consensus was that any more than the existing 25 species would make it difficult for many participants to correctly identify additional fish

species and would impact on the continuity of the data collected. Instead, more than 400 new slates were produced to improve their ease of use and the efficiency of the Great Victorian Fish Count.

CHAPTER 1



Photos by Phillip Wierzbowski, Dive La Trobe and Ocean Divers



Photos by Phillip Wierzbowski, Dive La Trobe and Ocean Divers

Methodology

2.1 Survey period

The Great Victorian Fish Count runs during November and December each year, with the 2016 count beginning on 19 November and finishing on 11 December.

The dates were initially selected to coincide with the national Coastcare Week, which is held on the first week of December. While there has been feedback that the November to December period is not ideal for some of the participating groups, it is important that the data collected remains consistent and allow for the comparison of results from previous years. The Great Victorian Fish Count will continue to be held during November and December, but will be expanded to four weeks to allow greater flexibility for the participating groups.

2.2 Site selection

Surveys took place all along the Victorian coastline (Figure 1), with participating groups choosing their own sites. To ensure continuity in data over time, groups are encouraged to select a site they are familiar with and will monitor it each year.

Below is a list of the sites surveyed during the 2016 Great Victorian Fish Count:

Western Victoria

- Barwon Bluff Marine Sanctuary
- Jarosite Reef, Point Addis Marine National Park, Anglesea
- Eagle Rock Marine Sanctuary, Aireys Inlet

- Lee Breakwater, Portland
- Merri Marine Sanctuary, Warrnambool
- Pea Soup, Port Fairy
- Warrnambool Breakwater
- Port Campbell Bay, Port Campbell

In and around Port Phillip Bay

- Blairgowrie Yacht Squadron
- Castle Rock
- Cottage by the Sea
- Flinders Pier
- Frankston Pier
- Jawbone Marine Sanctuary, Williamstown
- Lonsdale Reef – outer (in Port Phillip Heads Marine National Park)
- Point Cooke Marine Sanctuary, Point Cook
- Point Franklin, Portsea
- Point Ormond Reef, Elwood
- Pope's Eye (in Port Phillip Heads Marine National Park)
- Portsea Pier/Reef
- Ricketts Point Marine Sanctuary
- Royal Beach, Mornington
- Rye Pier
- St Leonards Pier
- The Springs, Point Lonsdale (in Port Phillip Heads Marine National Park)

Eastern Victoria

- Beware Reef Marine Sanctuary, Cape Conran
- Bunurong Marine National Park – Shack Bay, Cape Paterson

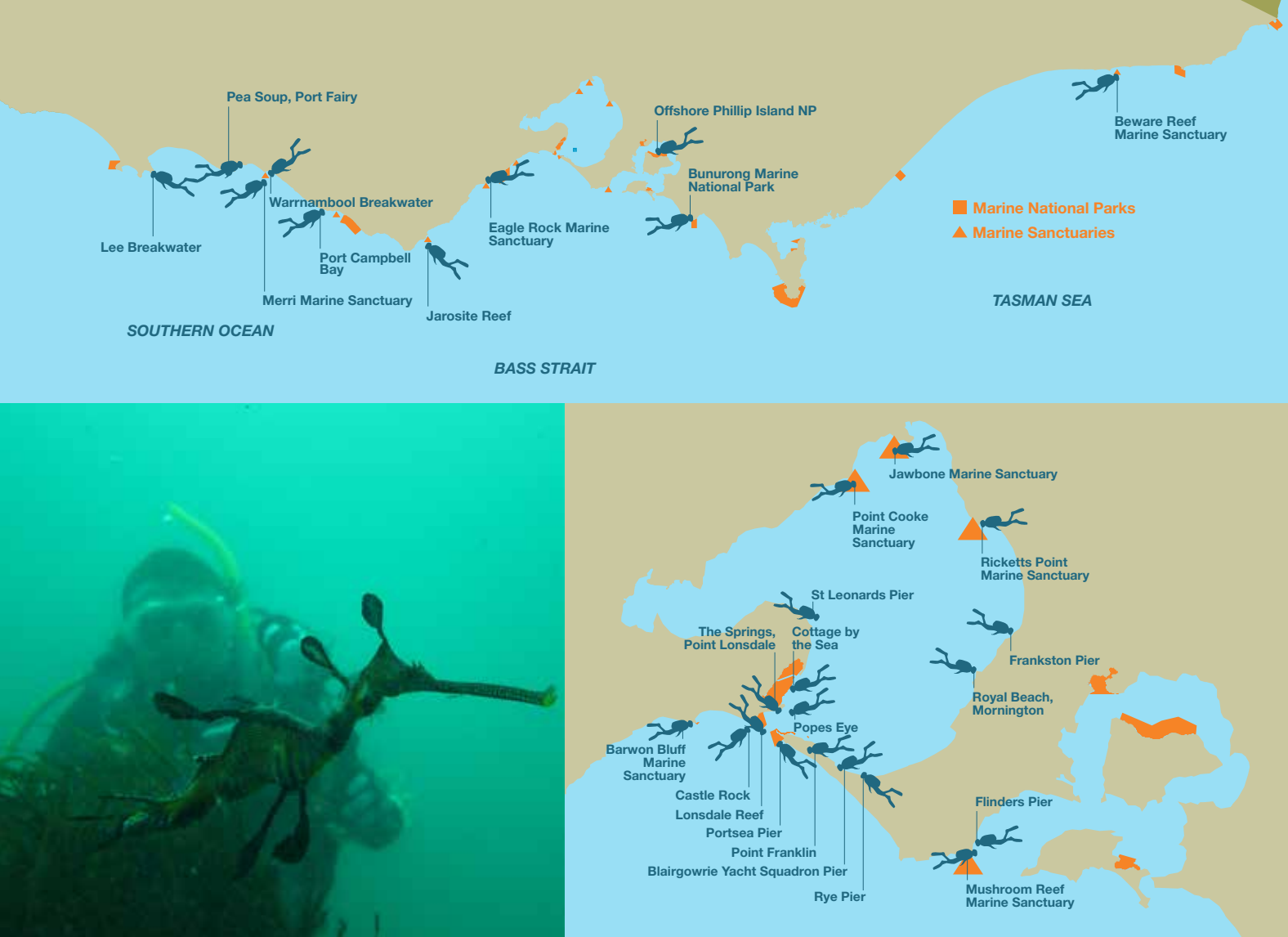


Figure 1. Sites surveyed in 2017.

- Phillip Island Nature Park – east, offshore of tip
- Phillip Island Nature Park – south offshore of tip.

A large number of sites were surveyed in the Port Phillip Bay region, where groups continue to show a high level of participation and coverage of the area. Western Victoria was also well represented, although weather conditions and a shark sighting prevented some groups from collecting data near Warrnambool and Lorne.

While eastern Victoria was under-represented in the 2016 Great Victorian Fish Count, the Victorian National Parks Association is committed to building a stronger network with local communities there in the hope that more surveys will be completed in future fish counts.

2.3 Survey method

Each participating dive operator is supplied with a standard Great Victorian Fish Count kit, which contains fish identification training booklets, identification slates and survey forms.

The ‘Roving Diver’ Technique

All participants work in buddy pairs or small groups for the entire site survey and use one identification slate between them. During the survey, the Roving Diver Technique (RDT) is employed, whereby participants swim freely throughout the selected site and record all the fish identified on their monitoring slate. Participants are encouraged to follow a route that does not overlap with other buddy pairs, and to pause and observe for fish along the way, in case they were disturbed

CHAPTER 2



Old Wife. Photo John Gaskell

and had been hiding.

During the survey, participants place the observed fish species into one of three abundance categories on the

identification slate (Figure 3). Each category has a corresponding symbol, which is crossed out progressively as increasing numbers of that particular species are observed (Figure 4).



SYMBOL			
CATEGORY	1-5 FISH	6-20 FISH	20+ FISH

Figure 3. Key to fish abundance categories.

2.4 Data summary

At the conclusion of the survey, the Great Victorian Fish Count survey form data sheet (Figure 5) is completed in the company of all participating buddy pairs and groups. The form includes information regarding the survey site location, weather conditions, time spent underwater and visibility.

The form is filled out immediately after the dive, and involves consultation with all of the participants to ensure a good representation of the average result. The names of the 25 target species are also listed on the form and there are additional spaces for any species the

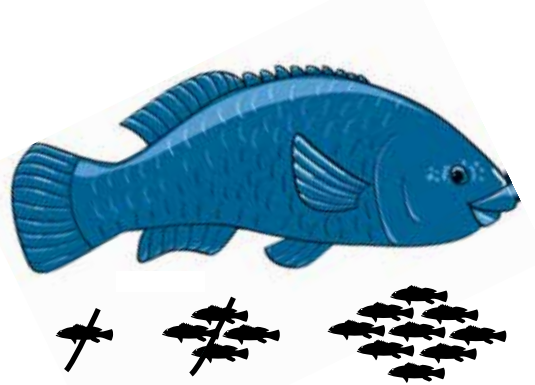


Figure 4. The abundance categories and corresponding symbols used on the Great Victorian Fish Count identification slates.

group might like to add. An abundance category is marked for each species observed by the group, with the category being based on the average results from all participating buddy pairs.

The results of the site survey are

GVFC Survey Form
Reef Watch Victoria
PO Box 666, Melbourne, VIC 3001 • Ph: 03 8341 7446 • www.reefwatchvic.asn.au • info@reefwatchvic.asn.au

Registration Details
Dive Group (registered dive operator/friends group): _____ Registration N°: _____

Site Details
Site name: _____

Location:
Latitude: _____ S Longitude: _____ E
If using a GPS, please use WGS 84 DATUM

Site Description
Habitat (tick all that apply):
☐ Large Rocky Reef (>2m face) ☐ Low Rocky Reef (<2m face) ☐ Rubble
☐ Artificial Reef (eg. pier, wrecks) ☐ Sand/Mud ☐ Other
 Type of cover (tick all that apply):
☐ Kelp (long, leathery brown algae) ☐ Mixed algae ☐ Seagrass
☐ Sponges, sea squirts & other ☐ Other
 If Other, please describe: _____

Site Conditions
The following are the site conditions on the day of the survey
 Date of Survey: DD/MM/YYYY Time start: 24 hr time Time finish: 24 hr time
 N° of divers: _____ Duration: hours : mins Max. Depth: m Visibility: m Water Temp.: °C
 Tide: ☐ High ☐ Low Swell height: ☐ 0m ☐ 0.5m ☐ 1m ☐ 1.5m ☐ 2m
 Tidal stream: ☐ Flood ☐ Ebb ☐ Slack Current: ☐ Strong ☐ Weak ☐ Nil
 Page 1

Figure 5. The Great Victorian Fish Count Survey form.

emailed or posted to ReefWatch or entered straight onto the Atlas of Living Australia database. This year several participating groups entered their results and photos into the atlas, with their feedback extremely positive and noting how easy and quick the atlas form was to use. Participants will be encouraged to submit their results this way in the future.

2.5 Data presentation

Survey results emailed or posted to ReefWatch were entered into the Atlas of Living Australia database, from where all data were downloaded.

This year's results are presented to:

- give an overview of main habitats surveyed and survey methods used

- illustrate the occurrence and abundance of species surveyed in 2016
- Compare 2016 to 2015.

The results are displayed as a percentage. This was calculated for each of the target species using the formula (percentage occurrence = number of surveys species sighted in / total number of surveys X 100). This enables a quick overview of which species were sighted more frequently during the Great Victorian Fish Count. All data is presented in the Appendix at the end of this report.



Flathead Hiding in the shallows.

Photo: Kade Mills

Results

3.1 General summary

3.1.1 Participation and conditions

Forty-two surveys were carried out at 29 sites along Victoria's coastline during the 2016 Great Victorian Fish Count (Appendix 1). Depth of sites varied from 1.5–20 metres, with visibility varying from 1–22 metres and water temperature ranging from 14–18°C (Appendix 1).

The number of fish counters in each participating group varied from three (Friends of Beware Reef) to 23 (Ricketts Point Marine Care Group), with participants spending anywhere from 30 to 120 minutes in the water (Appendix 1).

3.1.2 Survey methods

The majority of the surveys (72%) were completed by scuba divers (Figure 6). The remainder were done by snorkelers (26%) or both divers and snorkelers (2%) (Figure 6). Many of the snorkelling surveys were done in a marine sanctuary or marine national park (Appendix 1).

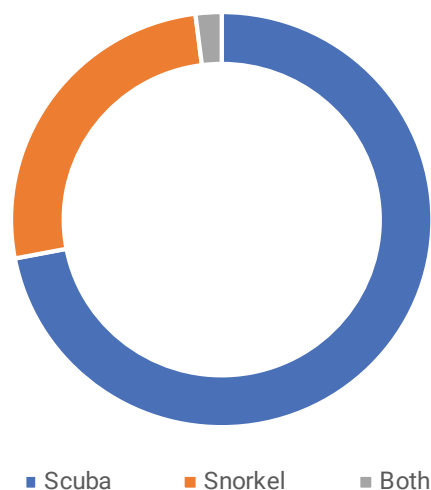


Figure 6. Survey methods used (%).



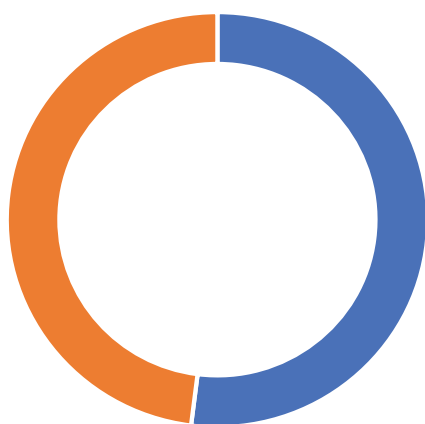
Six spined leatherjacket at Popes eye.

Photo: Kade Mills



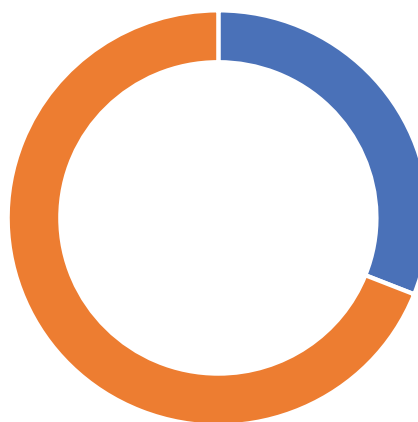
Magpie perch at Popes eye.

Photo: Kade Mills



■ Artificial reef ■ Rocky reef

Figure 7. Habitat surveys conducted on (%).



■ Marine national park or sanctuary
■ Unprotected waters

Figure 8. Protection status of survey sites (%).

3.1.3 Habitats surveyed

Most surveys were done on natural rocky reefs (60%), with the remaining (40%) completed on artificial structures (Figure 7). Additional habitat present at sites included sponge gardens, seagrass meadows, kelp forests and sandy sediments (Appendix 1).

3.1.4 Protection status of survey sites

The majority of the surveys (69%) were conducted in unprotected waters with the remaining (31%) undertaken within a marine national park or sanctuary (Figure 8).

3.2 The fish of 2016

- Bluethroat wrasse was the most commonly observed species, recorded in 86% of the surveys and mostly recorded in abundances of 20 or more.
- Species observed in more than 50% of surveys were the magpie perch, Victorian scalyfin, dusky morwong, six-spined leatherjacket, zebrafish and the old wife.
- Less common species included the eastern and western blue groper and red morwong, which appeared in fewer than 10% of the surveys conducted.

3.3 Comparison of 2016 to 2015

- Bluethroat wrasse was the most frequently sighted fish in both 2015 and 2016.
- Most species were sighted at similar frequencies (within 10%) in both years.
- Dusky morwong and banded morwong were sighted more frequently in 2016.
- Horseshoe leatherjackets, shaw's cowfish, ornate cowfish, sea sweep, silver sweep, senator wrasse, Maori wrasse and herring cale were seen less frequently in 2016.

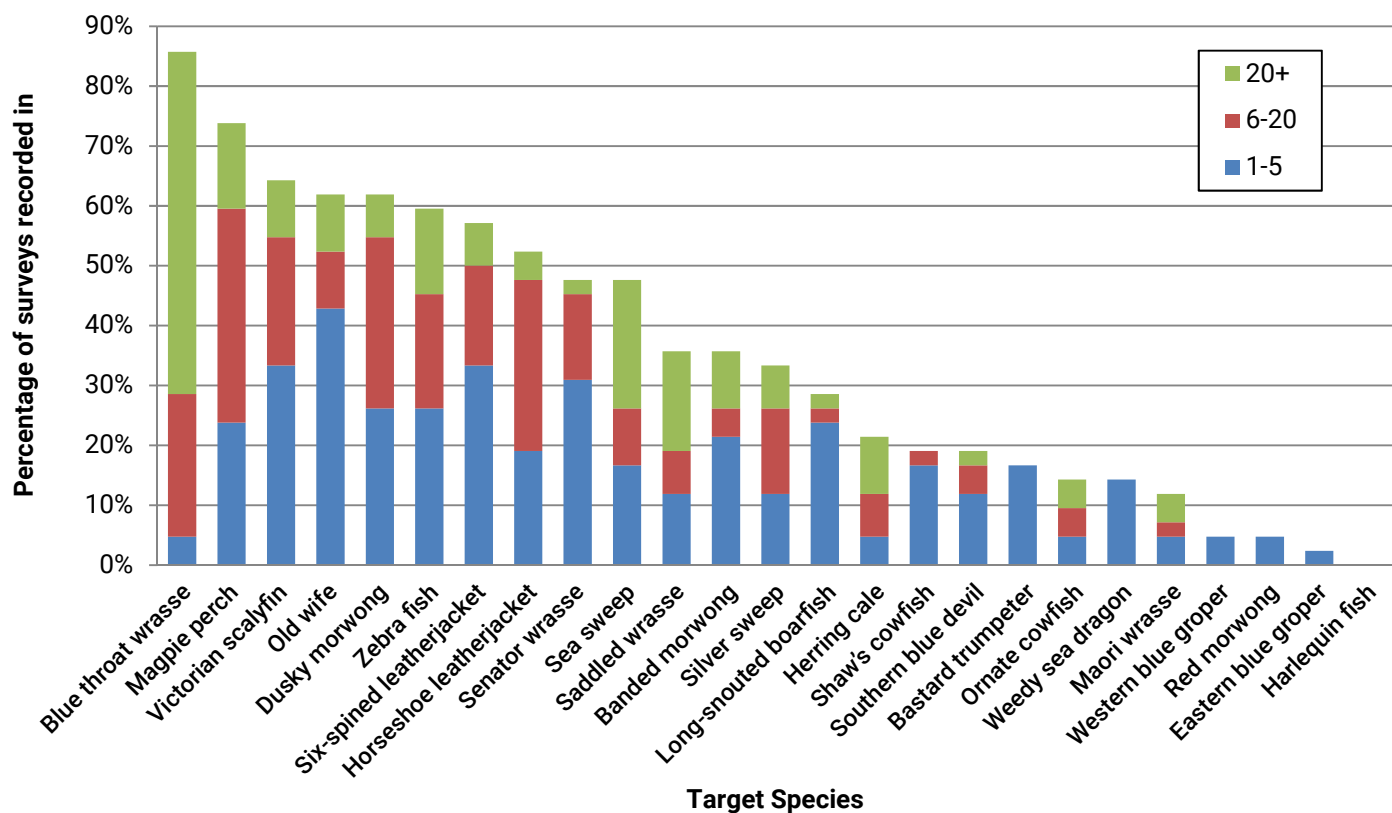


Figure 9. Percentage of surveys each species was recorded in and abundance category (n=42).

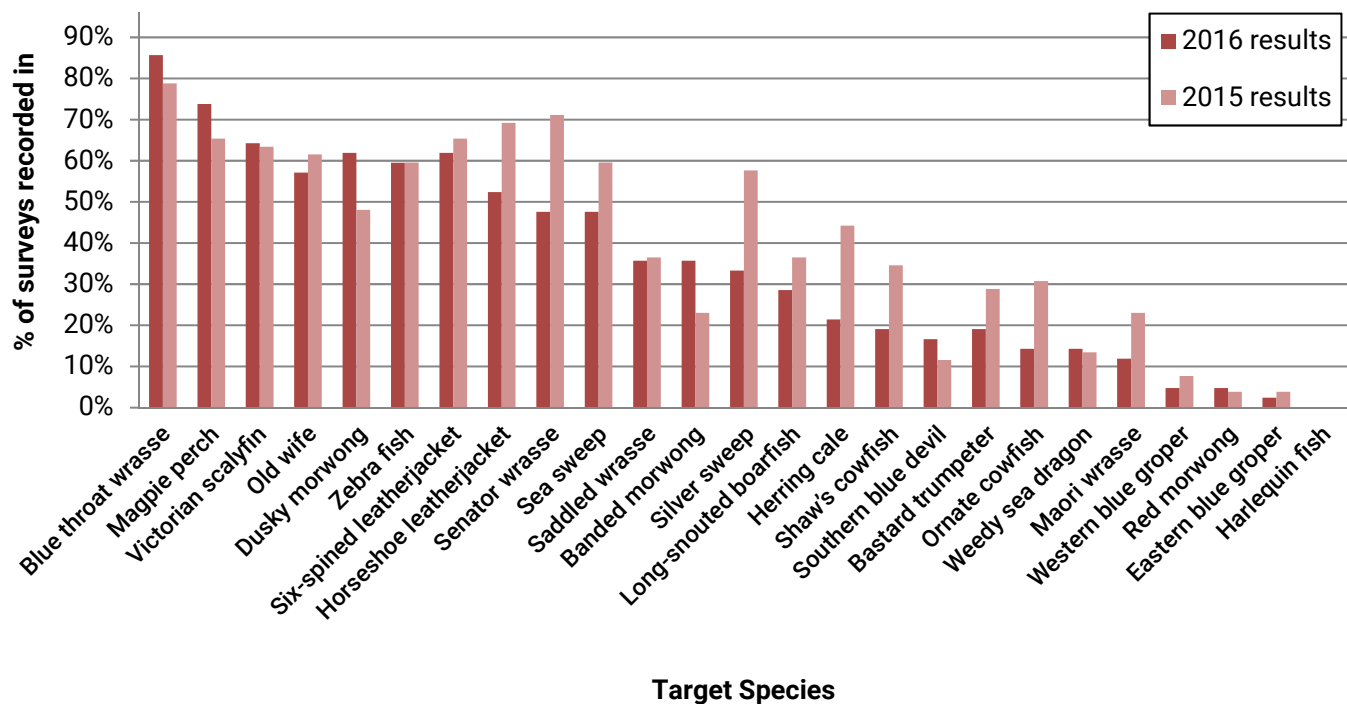


Figure 10. A comparison between the percentage occurrences of each species calculated for the 2015 (n=42) and 2016 results (n=44).

Discussion

4.1 General summary

4.1.1 Participation and conditions

The range of sites, depths, water temperature and visibility encountered by groups highlights the dynamic nature of Victoria's unique coastline.

4.1.2 Survey methods

The large involvement of scuba divers is due to the continued support and enthusiasm of local dive groups and businesses. Many of the surveys undertaken by snorkelers were in marine national parks or sanctuaries because events in these areas are run by Parks Victoria and/or Marine Care Friends Groups who are often restricted to snorkelling.

4.1.3 Habitats surveyed

Only a small proportion of Victoria's coastline comprises artificial structures, yet they are very popular sites for scuba diving. The reasons for their popularity include ease of access, diversity of marine life and dive suitability in a variety of conditions. However, divers have said they would like to be involved in the planning process when maintenance works or extension of facilities occurs to help mitigate the short-term impacts of the works. An example of the work that volunteer recreational divers can achieve was recently provided by Dive2U, which coordinated and

fundraised for Operation Sponge, a project that relocated more than 5,000 sponges and ascidians while a pier was undergoing routine maintenance (<https://www.facebook.com/OperationSponge/>).

Natural rocky reefs, on the other hand, while dominant along our coastline, are mostly exposed and more difficult to access than many of the artificial structures. Such difficult access meant the Warrnambool Sub Aqua Group could not dive on the weekend they had scheduled for this year's Great Victorian Fish Count.

4.1.4 Protection status of survey sites

Marine protected areas cover approximately 5.3% of Victorian state marine waters (Parks Victoria 2014). They provide opportunities for people to experience and observe marine life that is undisturbed by fishing and other extractive activities. Although they only cover a small percentage of Victoria's marine waters, they are embraced and used widely by the diving community as indicated by the large percentage of surveys carried out in marine protected areas compared to the size of the coast they cover.

4.2 The fish of 2016

Bluethroat wrasse were observed in high abundances and were the most frequently sighted species during the 2016 Great Victorian Fish Count. The sighting of so many is to be



Blue ringed octopus at Frankston Pier.

Photo: Kade Mills

expected – they are widespread in south-eastern Australia, with adults usually inhabiting deep, exposed rocky reefs and juveniles shallower weedy areas (Bray 2017b). Both habitats are frequently surveyed by divers during the Great Victorian Fish Count.

The low occurrence of the eastern blue groper during the Great Victorian Fish Count is due to its limited distribution. It is only known to occur in Victoria east of Wilsons Promontory. With only one survey done in this region, at Beware Reef, there were limited chances for it to be sighted. Western blue groppers were sighted more frequently than eastern blue groppers. They were sighted in low abundances at Barwon Bluff Marine Sanctuary and Pope’s Eye, and have been observed at these locations for several years. The repeated sightings of western blue groppers at these locations is likely to be the same individuals each year, as the species is known to stay at the

same location and have a small home range (Bray 2017a).

Red morwong, like eastern blue groppers, only occur east of Wilsons Promontory. One of the sightings occurred within its known range at Beware Reef, while the other sighting at Phillip Island is outside its range. There is no photograph to confirm this sighting and it may be a misidentification.

4.3 Comparison of 2016 to 2015

Most species were sighted in similar frequency over the past two Great Victorian Fish Counts. With both dusky and banded morwong targeted by fishing activities, it is encouraging to see they were sighted more frequently this year, albeit only just above a 10% increase. It will be of

interest to see the results for these species next year. Many species were sighted more frequently in 2015. This is most likely due to the water temperature in Port Phillip Bay (where most surveys are done) being higher during the 2015 survey than 2016 (Watkins 2017). The increase in water temperature would likely increase the sightings of many species because they are known to migrate into Port Phillip Bay from coastal waters as the water warms (Parry et al. 1995).

4.4 Species not on slates

A number of other species were recorded that do not appear on the official identification slates, particularly toadfish, moonlighters, other leatherjacket species, stingarees, stingrays and sharks.

Special mention should be made of Point Cooke Marine Sanctuary, which harbours a very unique habitat of sponges, patch reef and soft sediments. Similar to previous years, only a few of the 25 target species were recorded here. However, it is a popular spot for eagle rays, stingarees, spotted rays, fiddler rays, gummy sharks and Port Jackson sharks – all observed within the sanctuary. With many of the animals observed being female and/or juveniles, it is believed the area could be acting as a nursery to many of these species.

Dive2U conducted a night dive at Blairgowrie Pier, showcasing the often bizarre species that can be found in the water once the sun has set. This included various species of octopus, squid, seahorse and juvenile cuttlefish, as well as stingarees and banjo sharks.

It was also encouraging to note that large schools of fish targeted by recreational fishers were observed during the Great Victorian Fish Count at a number of sites, in particular Australian salmon, whiting, snapper and trevally.

4.5 Reports of ‘fish on the move’

The 2016 Great Victorian Fish Count saw the Victorian National Parks Association continue to maintain its partnership with Redmap Victoria following the 2015 theme of ‘fish on the move’. Once again participants were encouraged to keep an eye out for any fish that seem unusual to the area. The following species indicate that there could be exciting things happening in Victorian waters. However, it should be noted that these are only unconfirmed reports at this stage as the species’ were not captured on film. The importance of capturing images or footage of any unusual or unfamiliar fish observed when in the water cannot be overstated. The photos can be viewed by staff at the Victorian National Parks Association and referred to marine scientists at both Museums Victoria and Redmap Australia for identification, ensuring the sightings are added to official records.

Harlequin fish

A particularly exciting observation was made at Flinders Pier, with the report of a harlequin fish. Endemic to Australia from Port Phillip Bay to Western Australia, this species has not been recorded in Victoria in recent times. The harlequin fish is a long-lived, site-attached species with a small home range. The

Victorian National Parks Association will monitor further reports of the species. Anyone diving in the area is encouraged to keep an eye out for the fish and if captured on film, report it to the Victorian National Parks Association and Redmap Australia.

Red morwong

This fish is rarely found in Victoria west of Wilsons Promontory – it usually exists in the warmer temperate waters of eastern Australia. The Victorian National Parks Association has been receiving information that indicates they are being spotted by local anglers and divers. Redmap and VNPA are would like to hear of any sightings west of Wilsons Promontory.

White-barred boxfish

While not captured on film, there was also a report of a white-barred boxfish (2015's feature fish) at Eagle Rock Marine Sanctuary. This builds on a sighting following the Great Victorian Fish Count last year, where a previous participant spotted the species at Pope's Eye, indicating that this previously uncommon species may be expanding its range into Victoria. The Victorian National Parks Association and Redmap Australia are particularly interested in any further sightings of the species in Port Phillip Bay.

We look forward to maintaining a watch for 'fish on the move' in Victoria and will contribute any recordings to Redmap – just don't forget to take a photo of your lucky find!

A vertical underwater photograph on the left side of the page. It shows a diver in blue water, swimming over a dense kelp forest. The kelp has large, brown, leaf-like fronds. The diver is wearing a blue wetsuit and a mask, and is positioned in the upper left quadrant of the image.

References

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Parry, G, Hobday, D, Currie, D, Officer, R & Gason, A 1995, The distribution, abundance and diets of demersal fish in Port Phillip Bay.

Watkins, AB 2017, Port Phillip Temperature Observations, <<http://www.baywx.com.au/temps.html>>.

An underwater photograph showing a diver in a blue wetsuit and red fins swimming over a dense kelp forest. The water is clear and blue, and the kelp is brown and green. The diver is positioned in the upper left quadrant of the image.

Appendix

