



VSAG Dive Planning Discussion Document

Revision Ref:	Updated	Details
Revised-Safety-Document-Aug 2022	Angus Stuart-Adams	Initial Release
Revised-Aug 2024	Peter Galvin	

Contents

001.	Introduction	2
002.	Choose the Date	2
003.	Choose the Location	3
004.	Wind	3
005.	Swell	3
006.	Local Knowledge	4
007.	Diver's Ability	4
008.	Tidal Flow and Height	4
009	Dive Site	5
010	What to Take	6
011	Actual In Water Plan	6
012	Who Will Stay On The Boat	6
013	Drop Off and Pick Up	6
014	Launch and Retrieval	7
015	Route Planning	7



001. Introduction

All VSAG dives will be planned to some extent, for example a remote location dive, such as at Hogan Island, in challenging conditions, with a number of divers will require considerable planning. However, a shore dive in benign conditions, with a couple of experienced divers who regularly dive together at that site will require little planning. It is also worth emphasising that dive planning covers the "total" plan, not just the "in water" plan.

There are two main components for dive planning;

- Planning before the day
- Planning on the day

The majority of dives will generally at least require consideration of the following,

Before the day Planning

I have plagiarised this from Peter Mosse's document;

1. Before the Day Planning

- Choose the date
- Choose the location
- Wind
- Swell
- Local knowledge
- Divers' ability
- Tidal Flow and Height
- Dive Site
- What to take

2. On the day

- Actual "in water" plan
- Who will stay on the boat
- Drop off and pick up procedure
- Launch and retrieval
- Route planning

But don't be put off by that long list.

002. Choose the Date



There are two approaches;

- Choose a date and watch the forecasts
- Watch the forecasts and when a window appears decide on a date.

003. Choose the Location

There are two approaches;

- Choose the location regardless of the weather but be prepared to change or cancel if the wind and swell don't align.
- Once the weather window is identified choose an appropriate location.

The key factors affecting our decision to dive on any date and on any location are wind and swell.

The date and location decision will depend on many of the factors below, but the key ones are wind and swell.

004. Wind

On our coastline wind (with swell) is one of the key issues determining whether we can dive. If the wind is onshore we will want light winds, say less than 12 knots. If the wind is offshore then, depending on local conditions much stronger winds could be suitable. For example, strong Northerly winds will have little affect if we are tucked in under the high cliffs of Cape Woolamai, but a few kms further out on the Pinnacles could be uncomfortable.

I define off shore here as Northerly along the coast and southerly in the southern part of the Bay.

005. Swell

The BOM defines swell as waves with a period of 12 or more seconds. It originates from storms in the Southern Ocean. The longer the period the more energy, for the same wave height. I tend to want the swell to be below about a meter and periods at or below 13 seconds for shallow dives. However this is not hard and fast. At longer periods and larger swells we can still dive but we may need to be a bit deeper, say greater than 18+ meters.

Waves with a period below 12 seconds are defined as chop and the size of the chop is dependent on the strength of the wind and the distance the wind has been blowing across the water.

Frequently there are swells from at least two directions and wind driven chop perhaps as well. Several marine weather programs will give the height and period of these swells. It is important to consider the effect of the cross swells as the wave heights are additive as they pass one another resulting in a chess board affect where chess squares will be flat as the waves partly cancel out and others will be the



combined height of the two swells. This can be quite uncomfortable in smaller boats as the pattern constantly changes.

It's worth mentioning that a longer period swell will give a more comfortable ride in the boat.

006. Local Knowledge

Local knowledge is probably the most important consideration. Many of our boat owners and dive captains will be familiar with most of our dive sites, however when we are diving on an unfamiliar site we should seek out advice from divers, or others, with local knowledge and proceed with caution.

007. Diver's Ability

This is another key consideration, if I am unfamiliar with a diver I will ask around and consult the VSAG membership list to see how many dives they have done and what qualifications they have. I will also speak to the diver about their experience and err on the side of caution.

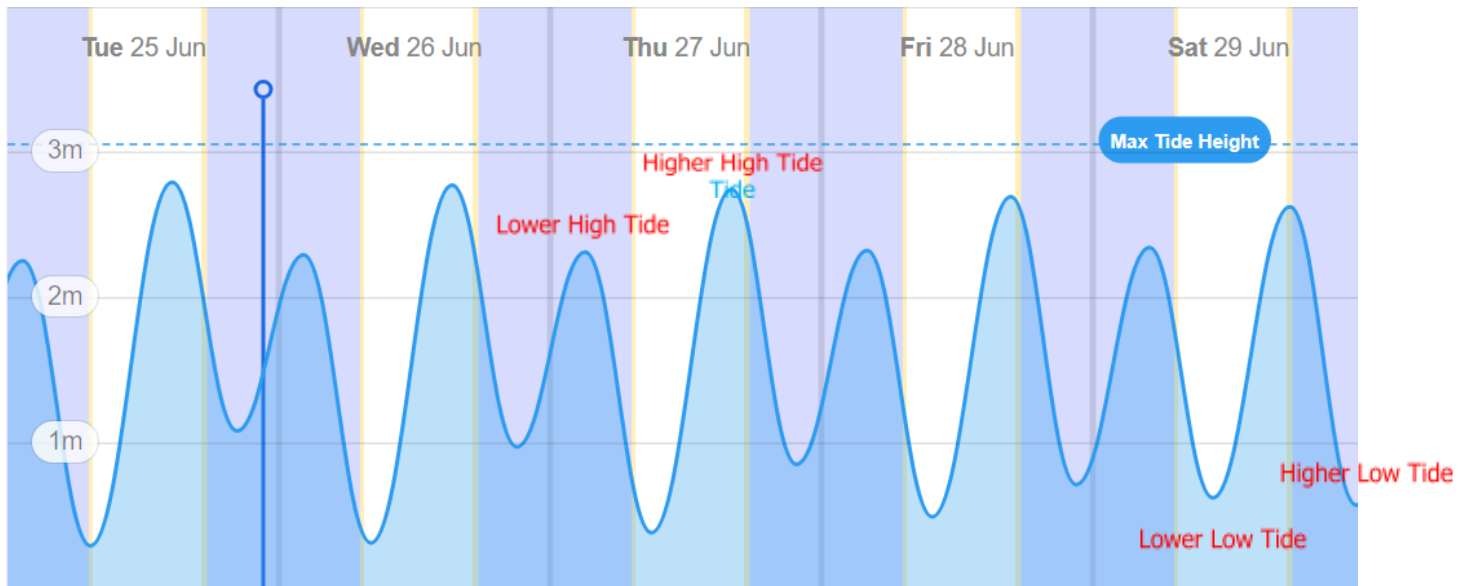
008. Tidal Flow and Height

Tides can have an important impact on our dive planning.

A number of the locations we dive at can be significantly impacted by the tidal flow. An obvious example is a Rip drift dive. But there are other locations that may also be, unexpectedly, affected by tidal flow. For example, Harmers Haven near Cape Paterson, Cody Banks and anywhere near a headland can experience quite severe tidal flows. Recently there was a 2.8 meter tidal difference and this resulted in exceptionally strong tidal flows several kilometres to the East of Cape Paterson.

So how do we determine tidal flow as the plan should include an evaluation of the tidal flow and this could be as simple as looking at the maximum and minimum tides and the time of the dive?

In Victoria we experience semi-diurnal tides (two high waters and two low waters each day). The two high waters on a given day are typically not the same height (the daily inequality); these are the higher high water and the lower high water in tide tables. Similarly, the two low waters each day are the higher low water and the lower low water. The diagram below shows the diurnal tides for five days. The daily inequality is not consistent and varies over the month, in the diagram below the daily inequality is decreasing, i.e. the differences in the highs and lows is decreasing.



We can use the above chart to evaluate the tidal difference and the timing of the dive which will give us an indication of what the tidal flow will be. Although this may also require some local knowledge. So the minimum tidal flows are near the peaks and the troughs, i.e. the high and low tides. The maximum tidal flow in the above example would be halfway between the lower low tide and the higher high tide.

Key Take Out 1: We may time the dive to be near high or low tide to minimise tidal flow on the day.

Key Take Out 2: If we wish to dive with lowest tidal flow then we would try to schedule near the Neap tides which occur twice a month.

Tide Height

Some dive sites and routes to the sites will be affected by the tide height. For example, at Inverloch I avoid crossing the bar if the tide height, when I am going out, is less than about 600 mm, as there may be a slight risk of grounding but also waves of a set height will “break” at lower tide heights. The decision is also affected by the swell forecast, a low forecast will allow us to cross with a little less water depth as waves are less likely to be breaking and will release less energy if they do break.

Breaking waves release considerable energy and are best avoided. When coming in we will ride on the back of a wave which tends to provide more depth and we aren’t going through the break, so we can come into the inlet on a lower tide than what we can go out on.

Barwon River launching has similar restrictions, avoid low tides for launching or recovery.

009 Dive Site



In deciding on the actual dive site many of the considerations above will impact our choice. For example, a shallow dive in one of the small bays near Cape Woolamai is quite different to a dive a few kms away at the Pinnacles.

The depth(s) at the site will also be an important part of the final plan.

010 What to Take

We also need to decide what to take, besides the obvious dive gear.

As we typically do two dives, I always ensure that divers, new ones especially, know to bring lunch and something to drink. During the summer I will advise to bring a large hat and on colder days something warm, dry and that provides protection from wind, spray and rain.

On the Day Planning

We should verify that the forecasts have not changed and if they have revise the plan as necessary.

011 Actual In Water Plan

Once we are on the dive site we should determine the direction and strength of the tidal flow and ensure we plan the dive accordingly. We will consider the following;

- Depth of the dive
- Dive time
- Dive type - anchored, shot line and return or drift dive, use of float or SMBs etc
- What to expect and directions to points of interest, e.g. a wall running North to South, an interesting reef to the East of the anchor or shot line
- Tidal flow
- Diver's ability
- Separation plan
- If anchored, will we use a reel?
- Do we have all required safety gear?

012 Who Will Stay On The Boat

In general VSAG will expect an experienced skipper to stay on the boat, however in benign conditions experienced divers may elect to use a reel, attached to the anchor rope or chain. In strong winds, remote locations, strong tidal flows etc., a skipper must remain on the boat. In remote locations we may require two skippers to remain on the boat.

013 Drop Off and Pick Up

If the boat is "live", i.e. not anchored, then we will plan the drop off and pick up procedures. For example, we may say we will drop off travelling downstream or downwind and the opposite for pick up. In remote



locations, in challenging conditions we may also do a dry run, so that everyone is aware of what will happen and their role.

014 Launch and Retrieval

If the launch and retrieval will be challenging we will have a discussion about the issues and what we will do.

For example, several years ago we planned to dive Beware Reef which required launch and retrieval from the Cape Conran ramp. This was a particularly difficult launch as the ramp had a quite shallow decline, there were hidden rocks just beyond the ramp and there was little protection from the swell and chop. On the first day the conditions were not suitable to dive so we went to the ramp, spoke to some of the locals launching boats and watched the route out to avoid the appropriately named "prop" rock. Thankfully we managed to launch and retrieve the next two days without incident.

Recently at Inverloch the retrieval was going to be difficult as we were planning to retrieve when the tidal flow across the boat ramp was going to be very strong. We decided that the two boats would come in together and the crews would assist each boat out, everyone knew what they had to do and we retrieved without incident.

015 Route Planning

Some dives will require consideration of the route to and from the dive site.

At Inverloch I always make sure that other boat skippers know the route across the bar. I will also mention that there are some offshore reefs past Eagles Nest that may not break the surface but are a serious hazard.

Similarly at Arch Rock there is a bommie that may not break the surface but is shallow and dangerous. I inform other skippers where it is and how to avoid it, i.e. it is 10-20 meters directly out from the first headland, make sure you give the first headland a wide berth.