

Barwon River EstuaryWatch Monitoring Plan

This Monitoring Plan has been developed by the Barwon River EstuaryWatch Group in conjunction with the EstuaryWatch team at the Corangamite Catchment Management Authority. This plan will guide the group in monitoring the Barwon River Estuary. The Barwon River Estuary is defined as the river reach commencing at the breakwater downstream from the town of Geelong to the river mouth at Barwon Heads, Victoria, Australia.

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All data collected can be viewed on the EstuaryWatch Webportal www.estuarywatch.org.au

The What & Where

Estuary of Study: Barwon River Estuary

Name of Monitoring Group: Barwon River EstuaryWatch Group

What activities will members of the group undertake?

- EstuaryWatch Mouth Condition Monitoring
- EstuaryWatch Physico-chemical Monitoring
- EstuaryWatch Event Monitoring

Figure 1. Maps of Barwon River Estuary. EstuaryWatch Monitoring sites marked.

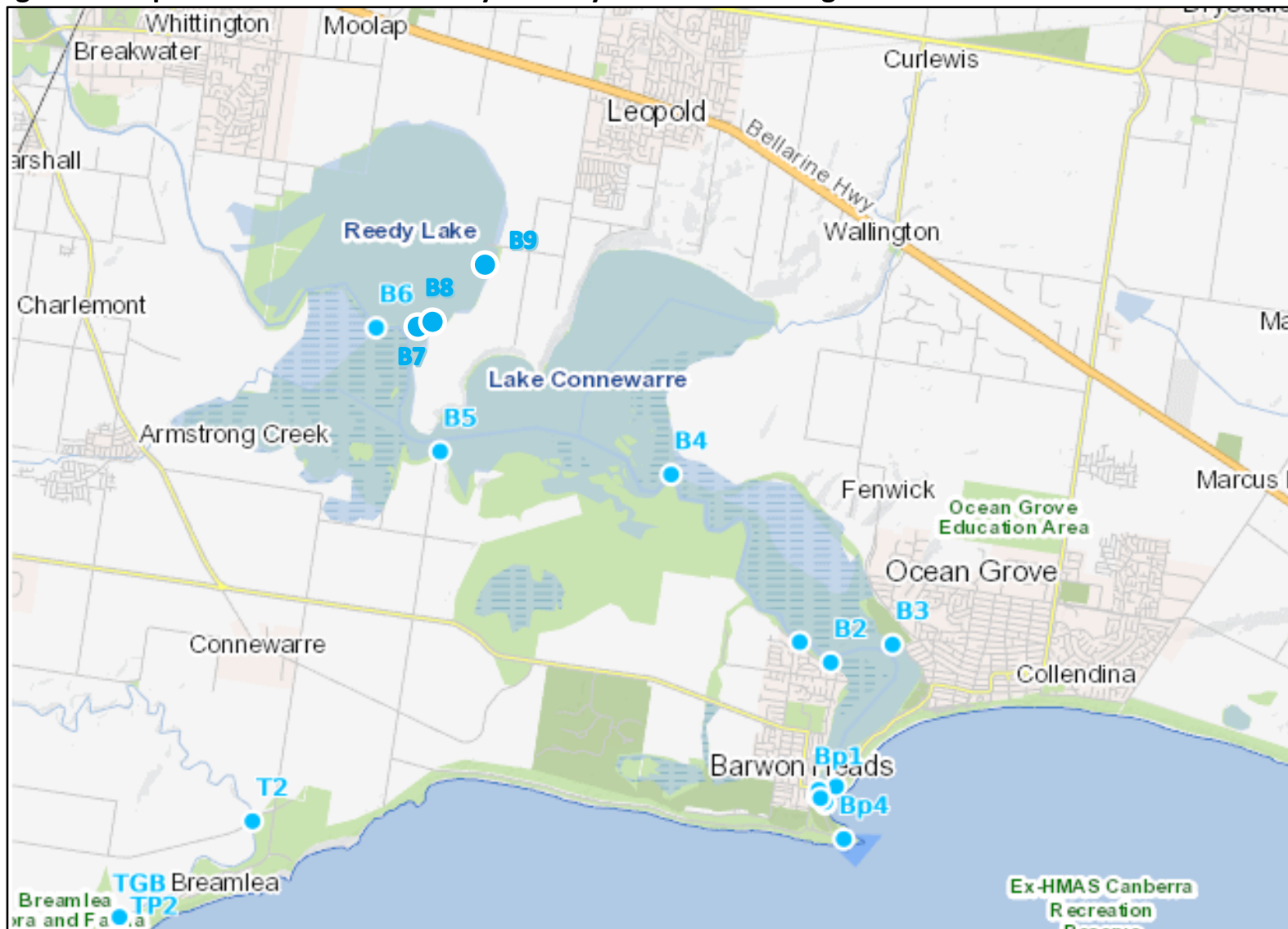


Figure 2. Expanded map of EstuaryWatch Mouth Condition Photopoint Sites on the Barwon Estuary.

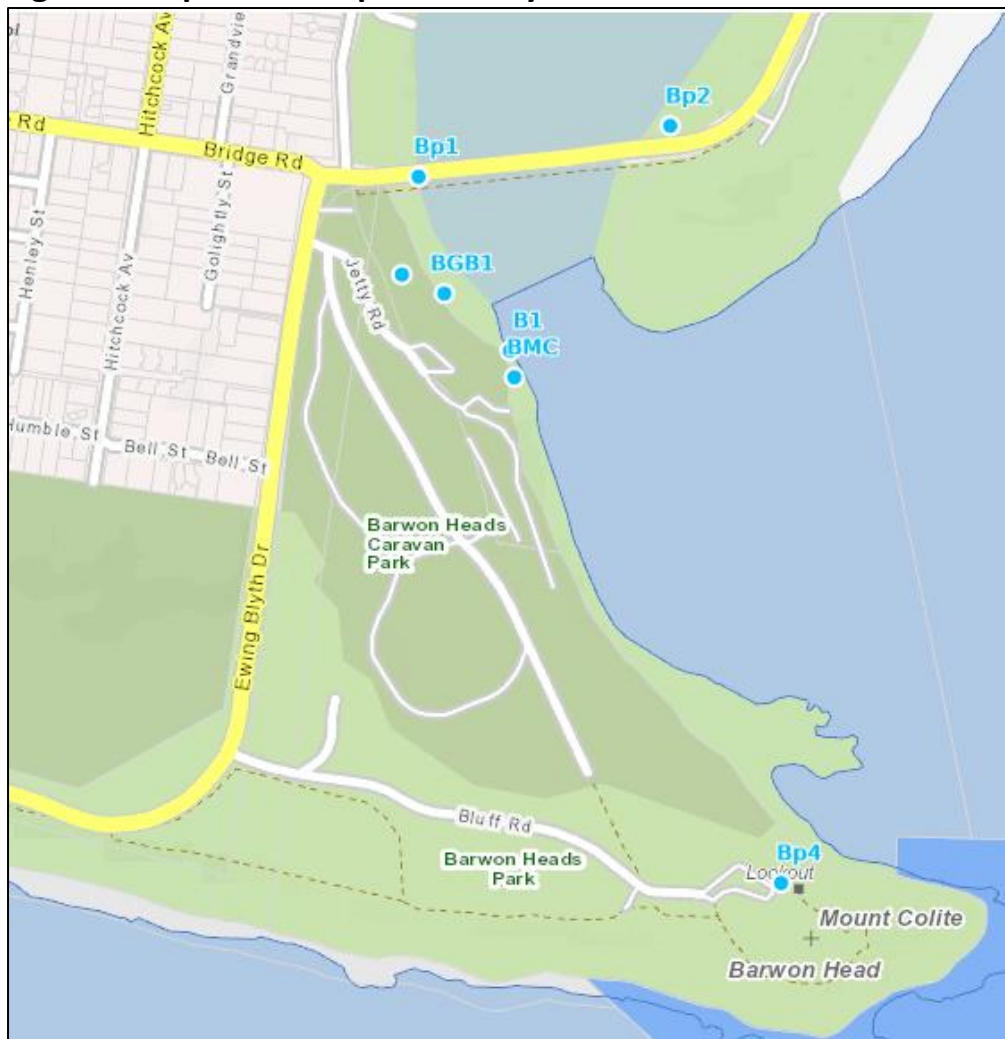


Figure 3. Lower Barwon Wetlands and watering infrastructure. The location of the watering infrastructure has guided the location of EstuaryWatch monitoring sites B7, B8 and B9.



The Who

Barwon River EstuaryWatch Group

The Barwon River EstuaryWatch group is composed of volunteer community members trained in EstuaryWatch monitoring techniques by the EstuaryWatch Coordinator.

Team Leader

Philip Scambler is the Barwon River EstuaryWatch Team Leader. He is responsible for coordinating the activities of the team and ensuring the monthly monitoring is carried out. Philip is also primarily responsible for communicating with the EstuaryWatch Coordinator.

Team

The Barwon EstuaryWatch group are enthusiastic community members with a passion for their local estuary and a commitment to assisting in the management of its health into the future.

The Why

Why is EstuaryWatch monitoring conducted on the Barwon River?

The objectives of the Barwon River Estuary Monitoring Plan reflect the overall objectives of the EstuaryWatch program.

The Barwon River EstuaryWatch monitoring program aims to:





- increase community participation in monitoring the Barwon River Estuary's condition
- increase the availability of reliable and relevant Barwon River Estuary condition data and information to the community and to waterway managers
- increase community awareness and knowledge of the Barwon River Estuary's management and condition.



Why are group members involved?

The reasons why Barwon River EstuaryWatch group members volunteered to undertake monitoring of the Barwon River Estuary include:





- Personal interest in the local natural environment and wishing to learn more about it
- Linking volunteer work to professional careers and study in the environmental management and science fields
- A desire to help conserve and protect the estuary and local coastal environment
- Wishing to collect valuable data on the estuary that can contribute to management of the estuary into the future.

Mouth Condition Monitoring Sites



Site Code	Bp1		
Site Location		<p>William Buckley Pedestrian Bridge. East end of 15th handrail plank from the Barwon Heads side of bridge. An EW sign is situated on the handrail at the site location. The site is easily accessed via entry to the pedestrian bridge. GPS Site Coordinates: Lat: -38.28269 Long: 144.49481</p> <p>Nearest cross road: Flinders Parade/ Ewing Blyth Drive, Barwon Heads.</p> <p>3 photos must be taken at Bp1 to complete the photopoint sequence. Refer to the Barwon River Bp1 photopoint site guide, and EstuaryWatch (EW) photopoint procedure instructions sheet, for further information.</p>	
Photopoint Shot Description	<p>Shot 1: Facing 112 degrees (Map Bearing) (E) Photo code: Bp1_yyyymmdd_1_112.JPEG Example of shot 1:</p> 	<p>Shot 2: Facing 152 degrees (Map Bearing) (SE) Photo code: Bp1_yyyymmdd_2_152.JPEG Example of shot 2:</p> 	<p>Shot 3: Facing 192 degrees (Map Bearing) (SSE) Photo code: Bp1_yyyymmdd_3_192.JPEG Example of shot 3:</p> 
Potential Hazards	Fall off steep corner of bridge, weather exposure, cyclists, fishermen, slips/trips/falls, fishing hooks, other users, slippery surface when wet platform.		



Site Code	Bp2		
Site Location		<p>Barwon Heads-Ocean Grove Bridge,second pylon. 2 metres out from 2nd pylon located at the eastern end of the Barwon Heads - Ocean Grove Road bridge (upstream side of the bridge). The site can be accessed from Ocean Grove side of the Barwon Heads - Ocean Grove Road bridge or via walking across the pedestrian bridge, and then under both bridges to the photopoint site.</p> <p>GPS Site Coordinates: Lat: -38.28221 Long: 144.49783</p> <p>Nearest cross road: Barwon Heads – Ocean Grove Road and Ewing Blyth Drive, Ocean Grove.</p> <p>2 photos must be taken at Bp2 to complete the photopoint sequence. Refer to the Barwon River Bp2 photopoint site guide, and EstuaryWatch (EW) photopoint procedure instructions sheet, for further information.</p>	
Photopoint Shot Description	<p>Shot 1: Facing 342 degrees (Map Bearing) (NW) Photo code: Bp2_yyyymmdd_1_342.JPEG Example of shot 1:</p> 	<p>Shot 2: Facing 0 degrees (Map Bearing) (North) Photo code: Bp2_yyyymmdd_2_22.JPEG Example of shot 2:</p> 	
Potential Hazards	Hitting your head on a bridge as you walk under it to access the site, weather exposure, cyclists, fishing, slips/trips, other users.		



Site Code	Bp3	
Site Location		<p>Primary dune. Located approximately 200 meters to the ENE of the Barwon Coast Office.</p> <p>INACTIVE post 2013</p> <p>GPS Site Coordinates: Lat: -38.283612 Long: 144.49461</p> <p>Nearest cross road: Bridge Road, Barwon Heads.</p>

Site Code	Bp4		
Site Location		<p>The Bluff Lookout. To access the site from the Barwon Coast office, head along Ewing Blyth Drive towards 13th beach. Turn left into Bluff Road and follow it through to the upper level carpark. Bp4 can be found in the southern corner of the carpark. Take the photos whilst standing on the picnic table located at the lookout.</p> <p>GPS Site Coordinates: Lat: -38.289346 Long: 144.499162</p> <p>Nearest cross road: Bluff Road and Ewing Blyth Drive, Barwon Heads.</p> <p>3 photos must be taken at Bp4 to complete the photopoint sequence. Refer to the Barwon River Bp4 photopoint site guide, and EstuaryWatch (EW) photopoint procedure instructions sheet, for further information.</p>	
Photopoint Shot Description	<p>Shot 1: Facing 342 degrees (Map Bearing) (NNW) Photo code: Bp4_yyyymmdd_1_342.JPEG Example of shot 1:</p> 	<p>Shot 2: Facing 22 degrees (Map Bearing) (North) Photo code: Bp4_yyyymmdd_2_22.JPEG Example of shot 2</p> 	<p>Shot 3: Facing 62 degrees (Map Bearing) (NE) Photo code: Bp4_yyyymmdd_3_62.JPEG Example of shot 3:</p> 
Potential Hazards	Falling off the table, weather exposure, isolated/other users, slips/trips, snakes, uneven ground/path.		

Physical/Chemical Monitoring Sites

Site Code	B1	
Site Location		<p>The Heads. Easily accessed via walkway from behind “At The Heads” Restaurant in Barwon Heads, off Ewing Blyth Drive near the Barwon Coast Office.</p> <p>GPS Site Coordinates: Zone: Lat: -38.284329 Long: 144.495908</p> <p>Nearest cross road: Jetty Road, Barwon Heads. Off Ewing Blyth Drive, Barwon Heads.</p>
Potential Hazards	Falling in, weather/exposure, fishing hooks, slips/Trips/Falls, dogs, other users, no railing or support when monitoring.	
Monitoring Advice	Volunteer monitored. Monthly.	
Site Code	B2	
Site Location		<p>Boat Ramp Jetty. Easily accessed via boat ramp carpark off River Parade, Barwon Heads.</p> <p>GPS Site Coordinates: Zone: Lat: -38.265367 Long: 144.496879</p> <p>Nearest cross road:River Parade and Pelican Crt, Barwon Heads.</p>
Potential Hazards	Slips/trips/falls, weather/exposure, pedestrians on walking tracks, cars in car park, falling in, fishing/ hooks, no railing, surface slippery when wet, other users.	
Monitoring Advice	Volunteer monitored. Monthly.	

Site Code	B3	
Site Location		<p>Ocean Grove Boat Ramp. Pedestrian part of Ocean Grove Boat Ramp. Accessed via Guthridge Street, Ocean Grove.</p> <p>INACTIVE post 2012</p> <p>GPS Site Coordinates: Zone: Lat: -38.262927 Long: 144.50758</p> <p>Nearest cross road: Guthridge Street and Wallington Road, Ocean Grove.</p>
Potential Hazards	Boats and cars, fisher people, weather conditions, slips trips and falls, no guard rails on jetty, deep water body.	
Monitoring Advice	Inactive	
Site Code	B4	
Site Location		<p>The Thunderbolt. Site accessed via boat or canoe (a long way to travel from Barwon Heads for canoe access).</p> <p>GPS Site Coordinates: Zone: Lat: -38.239823 Long: 144.469257</p> <p>Nearest cross road: The site is only accessible via boat. The nearest boat ramp access is at the Ocean Grove Boat Ramp at Guthridge Street, Ocean Grove.</p>
Potential Hazards	Falling in, weather/exposure, boating related hazards, remote location, other boating craft.	
Monitoring Advice	Volunteer monitored. Monthly as possible.	

Site Code	B5	
Site Location		<p>Taits Point. Turn off Barwon Heads Road onto Staceys Road at the Barwon Heads Airport. Drive to the end of this road to a circular carpark at Lake Connewarre. The site is located on the floating jetty at the end of Staceys Road.</p> <p>GPS Site Coordinates: Lat: -38.236693 Long: 144.429293</p> <p>Nearest cross road: Staceys Road and Barwon Heads Road, Connewarre.</p>
Potential Risks	Slippery gravel, weather exposure, isolated/other users, slips/trips/falls, glass/rubbish, fishermen/hooks, no railing, boat traffic, cars in car-park.	
Monitoring Advice	Volunteer monitored. Monthly.	
Site Code	B6	
Site Location		<p>Lower Breakwater. To access this site, turn off the Bellarine Hwy onto Coppards Road, then head south to Calder Street. Enter locked gate at the end of Calder Street. Or alternatively the site can be accessed via boat from the Geelong Ski Club. <u>This site only monitored when accompanied by an EstuaryWatch Coordinator.</u></p> <p>GPS Site Coordinates: Lat: -38.219866 Long: 144.418216</p> <p>Nearest cross road: Calder Street and Coppards Road, Whittington.</p>
Potential Risks	Snakes, weather, contractors, slippery rocks, uneven ground, remote location, 4WD track, duck shooting.	
Monitoring Advice	Coordinator and Volunteer monitored. Quarterly & Event Based.	

Site Code	B7	
Site Location		<p>Reedy Outlet Gate South Side. Access is only via four wheel drive through a locked gate. <u>The site must only be accessed by EstuaryWatch volunteers when accompanied by an EstuaryWatch Coordinator.</u> To access the site, turn off the Bellarine highway onto Coppards Road, then head south to Calder Street. A locked gate is located at this point and a four wheel drive access track can then be followed to the site.</p> <p>GPS Site Coordinates: Lat: -38.219845 Long: 144.426777</p> <p>Nearest cross road: Calder Street and Coppards Road, Whittington.</p>
Potential Risks	Snakes, uneven ground, remote, 4WD track, duck shooting, changing vegetation.	
Monitoring Advice	Coordinator and Volunteer monitored. Event based.	
Site Code	B8	
Site Location		<p>Reedy Outlet gate North Side. Access is only via four wheel drive through a locked gate. <u>The site must only be accessed by EstuaryWatch volunteers when accompanied by an EstuaryWatch Coordinator.</u> To access the site, turn off the Bellarine highway onto Coppards Road, then head south to Calder Street. A locked gate is located at this point and a four wheel drive access track can then be followed to the site.</p> <p>GPS Site Coordinates: Lat: -38.219845 Long: 144.426777</p> <p>Nearest cross road: Calder Street and Coppards Road, Whittington.</p>
Potential Risks	Snakes, uneven ground, remote, 4WD track, duck shooting, changing vegetation.	
Monitoring Advice	Coordinator and Volunteer monitored. Event based.	

Site Code	B9	
Site Location		<p>Fitzgerald’s Road Boat Ramp. Access is only via four wheel drive through a locked gate. <u>The site must only be accessed by EstuaryWatch volunteers when accompanied by an EstuaryWatch Coordinator.</u> Access to the site is through a locked gate located off Fitzgeralds Road in Leopold. Once through the gate drive towards the windmill and then past it onto the boat ramp.</p> <p>GPS Site Coordinates: Lat: -38.214144 Long: 144.433791</p> <p>Nearest cross road: Fitzgerald’s Road, Leopold.</p>
Potential Risks	Snakes, uneven ground, remote, 4WD track, duck shooting, changing vegetation.	
Monitoring Advice	Coordinator and Volunteer monitored. Event based.	

The WHEN

Site	Site Name	Monitoring Type	Notes
B1	The Heads	Monthly	1 st Thursday of every month.
B2	Boat Ramp Jetty	Monthly	1 st Thursday of every month.
B4	The Thunderbolt	Monthly	1 st Thursday of every month.
B5	Taits Point	Monthly	1 st Thursday of every month.
B6	Lower Breakwater	Event based	Quarterly, dependent on 4WD track being accessible. This site is also monitored when sites B7 to B9 are monitored.
B7	Reedy Lake Outlet Gate South Side	Event based	Linked to opening and closing of Reedy Lake gates and the peak drying season for Reedy Lake. Monitors will be notified by EstuaryWatch Coordinator when monitoring will occur. This is likely between October and April.
B8	Reedy Lake Outlet Gate North Side	Event based	Linked to opening and closing of Reedy Lake gates and the peak drying season for Reedy Lake. Monitors will be notified by EstuaryWatch Coordinator when monitoring will occur. This is likely between October and April.
B9	Fitzgerald's Road Boat Ramp	Event based	Linked to opening and closing of Reedy Lake gates and the peak drying season for Reedy Lake. Monitors will be notified by EstuaryWatch Coordinator when monitoring will occur. This is likely between October and April.

General event based monitoring (storms, high tides, unusual events etc.): this occurs as needed.

The HOW

Monthly Monitoring

Regular monitoring includes mouth condition and phys/chem monitoring starting from the mouth and working upstream. The *Barwon River Monthly Monitoring Guide* (see Appendix A to this document) outlines tasks to be undertaken at each monitoring session.

Quarterly and Event Based Monitoring Sites

Volunteers will meet an EstuaryWatch Coordinator at a designated location and travel to the monitoring site.

General Event based monitoring

The group will communicate via email and phone to arrange monitoring if possible.

Equipment

The Barwon River EstuaryWatch Monitoring Kit is housed at the Barwon Coast Caravan Park Office. The kit is also accessible via the caravan park office at weekends. A sign-out register is with the kit. This form must be signed when taking the kit, and signed when the kit is returned. The Monitoring Kit will be serviced annually by the EstuaryWatch Coordinator and individual items replenished as needed.

Reporting Unusual Results

Individual monitors are to alert the EstuaryWatch Coordinator ASAP to any unusual trends or outliers in the monitoring data they collect.

Risk Assessment

- A review of a Safe Work Method Statement will be undertaken at each monitoring site by the EstuaryWatch Coordinator and at least one Barwon River EstuaryWatch volunteer.
- If a volunteer sustains an injury during the course of EstuaryWatch monitoring or experiences a near miss, even minor, it must be reported to an EstuaryWatch Coordinator as soon as possible

Data Entry & Credibility

The Barwon River EstuaryWatch Group is responsible for:

- entering the monthly monitoring data which they collect onto the EstuaryWatch online database. This includes both mouth condition and physical/chemical monitoring data. (If you do not enter the data personally, ensure another EstuaryWatch monitor does).
- once entered, sending through all data sheets via regular mail in reply paid envelopes provided to the EW Coordinator CCMA office
- storing all photo point and estuary event photos on CDs provided
- attending the bi-annual QA/QC training run by the EstuaryWatch Coordinator.

Appendix A: Barwon River Monthly Monitoring Guide

Monthly Monitoring Task List

Task Order	Task Details <i>(please note: it is recommended that task 1 be carried out indoors prior to monitoring).</i>
Barwon River Lower Monitoring	
1	Conduct an electrical conductivity calibration check. Calibrate for electrical conductivity if required. (refer to Appendix C (pg 34/35) of EW methods monitoring manual for more details)
2	Record 'start' water level height and time on 'Mouth Condition Data Sheet'. This reading is to be taken from the water level gauge board on a jetty pylon at B1.
3	Carry out mouth condition and photopoint monitoring (BMC, Bp1, Bp2, Bp4)
4	Drive to Phys/Chem (B1), carry out monitoring procedure.
5	Drive to Phys/Chem (B2), carry out monitoring procedure.
4	Drive to Phys/Chem (B5), carry out monitoring procedure.
6	Record 'finish' water level height and time on 'Mouth Condition Data Sheet'. This reading is to be taken from the water level gauge board on a jetty pylon at B1.



Things to remember on the day:

1. This monitoring guide applies to the monthly monitoring undertaken at sites BMC, B1, B2 and B5. Site B4 is monitored by a member of the group with access to a boat. Sites B6-B9 monitoring is event based and organized by the EstuaryWatch Coordinators.
2. Gauge board readings must be taken before and after the mouth condition monitoring process, to assist in data interpretation.