



Protocol 1. Site Conditions Data Sheet

Field monitoring Initial Observations	
Name of site or water body:	
Coordinates:	
Date of monitoring:	
Time of monitoring:	
Name of monitor(s): (names of all group members)	
School or organization name: (if applicable)	

1. Meteorological conditions:
Weather Conditions (circle one): Sunny Partly cloudy Cloudy Rain Fog Snow Hail Thunderstorm
Air Temperature (°C):
Wind speed (mph): <i>Method = Anemometer</i>
Wind direction (circle one): N NW W SW S SE E NE <i>Method = Wind sock</i>
Humidity (%): <i>Method = Sling Psychrometer</i>



2. Recent Rainfall

Has it rained in the past 24 hours? Y / N

Has it rained in the past 72 hours? Y / N

Has it rained in the past 7 days? Y / N

3. Tide conditions

Tide level:

Low | Medium low | Mid | Medium high | High

Today's PM high tide:

Time:

Height:

Method = NOAA tides and current, Tides app, or published Tide Table

Current speed:

Distance (meters):

Time (seconds):

Method = estimate by throwing a stick or cracker and observing time/distance

Current direction:

Flood current (incoming tide) | Slack water | Ebb current (outgoing tide)

4. Water Conditions

Take a photograph of the water with your camera in landscape orientation.

Describe the water color:

Light Blue | Dark Blue | Light Green | Dark Green | Light Brown | Dark Brown

Oil sheen present? Y / N

Is there any garbage in the water? Y / N



Record type and extent of garbage in the water:

Type	Extent			
	None	Sporadic	Common	Extensive
Hard Plastic				
Soft Plastic				
Metal				
Paper				
Glass				
Organic				
Other _____				

Notes: _____

Are there any sewer or outfall pipes? Y / N

If Y, what is the diameter of the pipe (cm)?

If Y, is there any flow through the pipe? Y / N

How much?

Trickle | Light Stream | Steady Stream | Full Flow



5. Land conditions:

Take a photograph of the land with your camera in landscape orientation.

Choose shoreline type:

bulkhead/wall | fixed pier | floating dock | riprap/rocky shoreline | dirt or sand | other

Estimate percent surface cover for the adjacent shoreline (about 500 x 500 feet)

_____ % Impervious Surface (concrete/asphalt paths, roads, buildings etc.)

_____ % Pervious Surface (dirt, gravel etc.)

_____ % Vegetated surface (grass, shrubs, trees)

= _____ % Sum should equal 100%.

Is there any garbage on the adjacent shoreline? Y / N

Record type and extent of garbage on the adjacent shoreline:

Type	Extent			
	None	Sporadic	Common	Extensive
Hard Plastic				
Soft Plastic				
Metal				
Paper				
Glass				
Organic				
Other _____				

Notes: _____



Protocol 2. Oyster Measurements Data Sheet

Instructions: This datasheet is used to record field metadata (location, time and group information) as well as the condition of the oyster cage and oyster measurements.

Name of site or water body	
Coordinates:	
Date of monitoring:	
Time of monitoring:	
Name of monitor(s): (names of all group members)	
School or organization name: (if applicable)	

2. Depth of oyster cage

Submerged depth of cage (meters):

Method = record length of wet line from surface to cage



3. Condition of oyster cage

Take a photograph of the oyster cage.

Bioaccumulation on cage:

None/clean | Light | Medium | Heavy

None/clean – No macroalgae or animals present

Light – Macroalgae or minimal animals present that do not encroach on mesh openings

Medium – Some encrusting macroalgae/animals reducing size of mesh opening up to 25%

Heavy – Encrusting macroalgae/animals reducing mesh opening by over 50%

Note any damage to cage:

4. Measuring Oyster Growth

Directions: Ten substrate shells in a cage will be tagged with engraved plastic number tags (1–10). Each tagged substrate shell will have multiple live oysters growing on it; over time these will begin to die in increasing numbers. Only live oysters on tagged shells should be measured, whereas dead oysters found on tagged shells should be simply counted. **Measure all live oysters on each tagged substrate shell**, starting at the umbo end and working towards the bill.



Substrate Shell #1			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #1 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #1 mortality	#Live:	#Dead:	



Substrate Shell #2			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #2 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #2 mortality	#Live:	#Dead:	



Substrate Shell #3			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #3 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #3 mortality	#Live:	#Dead:	



Substrate Shell #4			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #4 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #4 mortality	#Live:	#Dead:	



Substrate Shell #5			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #5 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #5 mortality	#Live:	#Dead:	



Substrate Shell #6			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #6 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #6 mortality	#Live:	#Dead:	



Substrate Shell #7			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #7 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #7 mortality	#Live:	#Dead:	



Substrate Shell #8			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #8 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #8 mortality	#Live:	#Dead:	



Substrate Shell #9			<i>Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.</i>				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #9 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #9 mortality	#Live:	#Dead:	



Substrate Shell #10			Check if the oyster is dead or alive. Measure and record the size (in mm) of each live oyster below.				
	DEAD	ALIVE	MEASUREMENT (mm)		DEAD	ALIVE	MEASUREMENT (mm)
1.				16.			
2.				17.			
3.				18.			
4.				19.			
5.				20.			
6.				21.			
7.				22.			
8.				23.			
9.				24.			
10.				25.			
11.				26.			
12.				27.			
13.				28.			
14.				29.			
15.				30.			

Substrate Shell #10 oyster size (mm)	Min:	Max:	Avg:
Substrate Shell #10 mortality	#Live:	#Dead:	

Population total: oyster size (mm)	Min:	Max:	Avg:	Population total: mortality	#Live:	#Dead:
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Protocol 3. Mobile Trap Data Sheet

Instructions: This data sheet is used to record field metadata and the types and quantities of mobile animals found within the small compartments containing mesh and oysters.	
Name of site or water body	
Coordinates:	
Date of monitoring:	
Time of monitoring:	
Name of monitor(s): (names of all group members)	
School or organization name: (if applicable)	



Mobile Trap

Mobile Organisms observed: Use hard copy field guides or the guide included in the app to identify all mobile species found within the mobile trap. **Note:** We recommend first sorting animals by type into separate petri dishes or containers, and then counting. Where quantities are very large, used a combination of a timed sort and subsampling. First, take 20 min to sort organisms according to their type as well as possible, then count, counting a subsample of the groups that have very high numbers. For those numerous groups, split the remaining organisms within each group into subsamples approximating the first subsample, then multiply by the number of subsamples to tally the estimated total number of individuals for each group.

Common Name	Latin Name	Quantity	Sketch	Notes or questions



Protocol 4. Settlement Tiles Data Sheet

Instructions: This datasheet is used to record both field metadata and the types and quantities of sessile organisms found on the settlement tiles attached to the sessile trap.

Name of site or water body	
Coordinates:	
Date of monitoring:	
Time of monitoring:	
Name of monitor(s): (names of group members)	
School or organization: (if applicable)	

Settlement Tiles

1. General tile description (condition, damage, sedimentation): _____

2. Sessile organisms observed: *Take a picture of the front surface of the tile as described in the protocol instructions. Overlay the tile with the sample grid. Use the app field guide within the app or other field guides to identify the dominant species within each of the sample squares. Record the dominant and co-dominant cover (if present) in each of these squares on the datasheet below. Record any additional species found within these squares as notes.*



Tile 1 – Sampling sheet

Overlay the tile with the sample grid. Identify the dominant species within each of the sample squares. Record the dominant cover in each of these squares on the datasheet below. Record any additional species found within these squares as notes. Tally up the number of squares (each equating to 4% of area) that each species or cover type occupies on the tile and list them in the second table.

Sample square	Dominant cover – common name	Dominant cover – Latin name (if applicable)	Co-Dominant cover – common name	Co-dominant cover – Latin name (if applicable)	Notes
1					
2					
3					
4					
5					
6					
7					
8					
9					

General comments on Tile 1:



Tile 2 – Sampling sheet

Overlay the tile with the sample grid. Identify the dominant species within each of the sample squares. Record the dominant cover in each of these squares on the datasheet below. Record any additional species found within these squares as notes. Tally up the number of squares (each equating to 4% of area) that each species or cover type occupies on the tile and list them in the second table.

Sample square	Dominant cover – common name	Dominant cover – Latin name (if applicable)	Co-Dominant cover – common name	Co-dominant cover – Latin name (if applicable)	Notes
1					
2					
3					
4					
5					
6					
7					
8					
9					

General comments on Tile 2:



Tile 3 – Sampling sheet

Overlay the tile with the sample grid. Identify the dominant species within each of the sample squares. Record the dominant cover in each of these squares on the datasheet below. Record any additional species found within these squares as notes. Tally up the number of squares (each equating to 4% of area) that each species or cover type occupies on the tile and list them in the second table.

Sample square	Dominant cover – common name	Dominant cover – Latin name (if applicable)	Co-Dominant cover – common name	Co-dominant cover – Latin name (if applicable)	Notes
1					
2					
3					
4					
5					
6					
7					
8					
9					

General comments on Tile 3:



Tile 4 – Sampling sheet

Overlay the tile with the sample grid. Identify the dominant species within each of the sample squares. Record the dominant cover in each of these squares on the datasheet below. Record any additional species found within these squares as notes. Tally up the number of squares (each equating to 4% of area) that each species or cover type occupies on the tile and list them in the second table.

Sample square	Dominant cover – common name	Dominant cover – Latin name (if applicable)	Co-Dominant cover – common name	Co-dominant cover – Latin name (if applicable)	Notes
1					
2					
3					
4					
5					
6					
7					
8					
9					

General comments on Tile 4:



Protocol 5. Water Quality Data Sheet

Instructions: This datasheet is used to record field metadata, water quality parameters and amount of sediment collected by the sediment trap attached to the Restoration Station.

Name of site or water body	
Coordinates:	
Date of monitoring:	
Time of monitoring:	
Name of monitor(s): (names of group members)	
School or organization: (if applicable)	

1. Water Quality Parameters	<i>Take 3 measurements for each parameter. In the app, the drop-down menu will list the recommended method first.</i>				
Depth of Sample: _____					
Parameter	Method	Results			Units
Water Temperature					
Dissolved Oxygen					
Salinity					
pH					
Turbidity					
Nitrates					
Phosphates					
Ammonia					



2. Sediment Tube

Describe the appearance of the accumulated sediment on the outside of the sediment tube.

Smell (pick one):

Earthy | Briny | Seaweed | Rotten Eggs | Dead Fish | Oil/Petroleum

Color (pick one):

Light Brown/Sandy | Chocolate Brown | Chocolate Brown/Green | Brown/Black

Thickness (pick one):

Grainy | Sticky | Runny | Claylike | Clumpy | Muddy

Organisms (circle all that apply):

Crustaceans | Fish | Molluscs | Sponges | Tunicates | Worms | Other

Notes: