

2008 Summer Testing Sengekontacket Rev3.Doc

9 June 2008

Task	Total Coliform – Part 1
Sampling Method/Description	Test include Total Coliform/E-Coli and Enterococcus to confirm possible human sources. Samples to be taken at eight (8) locations used by the Division of Marine Fisheries (DMF). See Appendix for sampling method details.
Timing Requirements (e.g. tides, time of day, etc.)	Ebb tide at low point Collection no later than Thursday to avoid greater than 24 hour holdover in lab
Schedule	June – July – August 2x month for DMF sites See Appendix p. 10 for likely calendar dates
Who (team number, composition, skills)	Primarily boat based, one Edgartown and one Oak Bluffs team (or one beach side and one shore side) 2/3 people per boat
Tools/Equipment (testing, boats, etc.)	Boats, equipment per protocol in Appendix (bottles, labels, rubber bands, pencils, cooler, ice packs, data sheets, dip stick(s))
Testing Protocol	Collect one sample per site except for one duplicate sample at one site for quality control. See protocol in Appendix p. 7.
Test Provider	Wampanoag Tribe Water Quality Lab Kendra – telephone #508.645.2903 Call to confirm lab availability and delivery timing
Sample Delivery	Samples must be tested within 24 hours and kept refrigerated until delivered. Preferable to deliver samples same day.
Cost	\$10 per sample by Tribe Lab 2 (1 Total Coliform + 1 Enterococcus) x 2 (times per month) x 8 sites x 3 months (June, July, August) = 96 test samples @ \$10 each Working estimate of \$1,000
Funding	Contributions, possible homeowner association contributions
Reporting (forms, format,etc.)	See Appendix p. 8 data sheets

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Task	Total Coliform - Part 2 Special Sites
Sampling Method/Description	<p>See sampling method in Appendix.</p> <p>Total coliform samples to be taken at the following additional sites at either tidal or rain events. The intent is to take a linked series of tests upstream and downstream of likely contamination sources.</p> <ol style="list-style-type: none"> 1. Sarson's Island – flood tide to Felix Neck (cormorants and gulls) 2. Majors Cove – freshwater wetland 3. Farm Neck – 14th hole creek, Little Bridge and 9/18th hole 4. Haystack Island (terns) 5. Road runoff – NLT after first ¼" rain, Big and Little Bridge, bike path at Trapps, Boulevard/Landing, gully off 4th Street, boat launch near 7th street 6. Tidal ditches – salt marsh at Felix Neck and State Beach between Big Bridge and Brant's Point 7. Seeps – any identified in shoreline surveys
Timing Requirements (e.g. tides, time of day, etc.)	Collection no later than Thursday to avoid greater than 24 hour holdover in lab
Schedule	June and possibly again in July See Appendix p. 10
Who (team number, composition, skills)	Primarily boat based, one Edgartown and one Oak Bluffs team (or one beach side and one shore side) 2/3 people per boat
Tools/Equipment (testing, boats, etc.)	Boats, equipment per protocol in Appendix (bottles, labels, rubber bands, pencils, cooler, ice packs, data sheets, dip stick(s))
Testing Protocol	Collect one sample per site except for one duplicate sample at one site for quality control. See protocol in Appendix p. 7.
Test Provider	Wampanoag Tribe Water Quality Lab, Kendra – telephone # 508.645.2903 Call to confirm lab availability and delivery timing

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Task	Total Coliform - Part 2 Special Sites
Sample Delivery	Samples must be tested within 24 hours and kept refrigerated until delivered. Preferable to deliver samples same day.
Cost	\$10 per sample by Tribe Lab 2 (1 Total Coliform + 1 Enterococcus) x 2 (times per month) x 8 sites x 2 months (June and possibly July) = 64 test samples @ \$10 each Working estimate of \$1,000
Funding	Contributions, possible homeowner association contributions
Reporting (forms, format, etc.)	See Appendix p. 8 data sheets

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Task	Nitrogen/Water Quality
Sampling Method/Description	See sampling method in Appendix p. 12-26 Eliminate silicate tests Samples to be taken at DMF eight (8) locations and golf course and both bridges
Timing Requirements (e.g. tides, time of day, etc.)	Ebb tide at low point within 2 hours of dead low, in morning before flood tide begins (to provide some clues about sources of contaminants found) Collection no later than Thursday to avoid weekend greater than 24 hour holdover in lab No later than Thursday morning in the week to meet the last fast ferry
Schedule	End of June – mid July – mid August 1x month
Who (team number, composition, skills)	Primarily boat based, one team 2/3 people per boat Sample filtering to be conducted at MVC by assistant to OB Shellfish constable
Tools/Equipment (testing, boats, etc.)	Boats, equipment per protocol in Appendix (bottles, labels, rubber bands, pencils, cooler, ice packs, data sheets, dip stick(s) YSI-85 meter Secchi disk Filters (provided by SMAST)
Testing Protocol	Standard lab methods conducted previously

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Task	Nitrogen/Water Quality
Test Provider	U.Mass. School of Marine Science and Technology (SMAST) New Bedford MA
Sample Delivery	3pm Fast Ferry to New Bedford (could be held over for next day ferry) Unescorted. SMAST lab staff pick up at Fast Ferry dock. Contact lab prior day to confirm pickup
Cost	\$75 per sample Fast Ferry transportation fee for cooler
Funding	
Reporting (forms, format,etc.)	SMAST data evaluation available early 2009 unless elimination of silicate test improves turnaround time

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Task	DNA/Robotyping
Sampling Method/Description	Sampling at 4 locations: Majors's Cove, Sarson's Island (between island and channel), Little Bridge (at Farm Neck) and culvert at Trapp's Pond. Reference samples to be taken for: septic, skunk, cormorant, term
Timing Requirements (e.g. tides, time of day, etc.)	Reference samples all to be taken in June. Ebb tide at low point Not following any significant rain event
Schedule	June – July – August 1x /month Coincident with Total Coliform tests
Who (team number, composition, skills)	SAME TEAM AS TOTAL COLIFORM Primarily boat based, one Edgartown and one Oak Bluffs team (or one beach side and one shore side) 2/3 people per boat
Tools/Equipment (testing, boats, etc.)	Boats, equipment per protocol in Appendix (bottles, labels, rubber bands, pencils, cooler, ice packs, data sheets, dip stick(s))
Testing Protocol	Pre-process for enumerating fecal coliforms and isolating <i>E. coli</i> colonies at the Wampanoag Environmental Laboratory in Aquinnah using mFC agar. Identification of <i>E. coli</i> strains according to standard lab protocols (see UNH Jackson Environmental Lab report November 2007). Confirmed <i>E. coli</i> isolates are analyzed for determining ribopatterns.

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Task	DNA/Robotyping
Test Provider	Ribotyping tests at University of New Hampshire, Jackson Environmental Lab, Durham, NH, Dr. Stephen Jones. Wampanoag Lab for pre-processing (?)
Sample Delivery	Prefer air to Portsmouth. Seeking volunteer flight services potentially from (Dick Sherman, Rob Potter, Dave Luening or Bill Brine) Must initiate testing within 6 hours
Cost	\$5,000 per round (\$1,000 per reference or test sample) Total \$15,000
Funding	Funding from Friends of Sengekontacket Inc. and Shellfish Constable budgets of Oak Bluffs and Edgartown, some CPA funding
Reporting (forms, format,etc.)	No raw data but full analytical report from Dr. Jones at UNH lab.

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Sampling Protocol for both the microbial source identification and coliform monitoring 2008

Prior to heading out the collector shall obtain the following:

1. Proper number of sterile HDPE 250 ml. sample bottles
8 for coliform (water samples only)
5 for microbial source (4 water 1 source feces)
2. Cooler
3. Ice Packs
4. Field Data Sheets
5. Chain of Custody Form
6. Pencil

Sampling procedure:

Be sure that sample bottle is labeled for the site being sampled and its identification is properly recorded on the field data sheet

1. Remove cap
2. invert bottle
3. put into water (bottle still inverted) to a minimum depth of 8 inches
4. right bottle and allow to fill
5. replace cap – be sure cap is tight
6. Place in cooler

Samples must remain in cooler with cold pack(s)

Collector shall complete the top portion of chain of custody

Both the custody form and data sheet must be kept with samples.

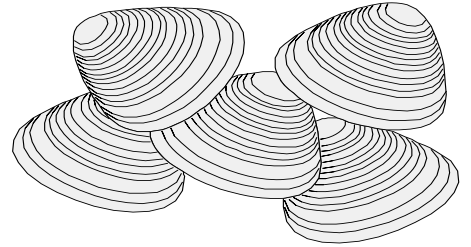
Cooler with samples need to be delivered to the Wampanoag Environment Laboratory within 12 hours for analysis.



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Field Data Sheet

Station _____
Date _____
Time _____



Percent cloud cover _____ Last Rain _____ Amount of Rain _____

Air Temp _____ Wind Direction _____ Wind Speed _____

Tide state _____ Time Low tide _____ Time High Tide _____

Samples Taken: _____ Meter used _____

Depth _____

Temp _____

Sp. Conduct. _____

Conductivity _____

Salinity _____

Oxygen % _____

Oxygen mg/l _____

pH _____

Secchi Disk

Depth down _____ Depth up _____ Depth to bottom _____

Depth _____ Nutrients _____ Bacteria _____ Phytoplankton _____ Chlorophyll A _____

Depth _____ Nutrients _____ Bacteria _____ Phytoplankton _____ Chlorophyll A _____

Depth _____ Nutrients _____ Bacteria _____ Phytoplankton _____ Chlorophyll A _____

Device used to take samples at depths below surface: _____

Notes: (number of birds, floating debris, rack line, etc.)

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Collector(s) _____

Oak Bluffs Shellfish Department Chain of Custody Form

Sample number(s) _____

Collector _____

Destination _____

Date and Time Sent _____

Sent by _____

Received by _____

Date and Time _____

Destination _____

Date and Time Sent _____

Sent by _____

Received by _____

Date and Time _____

Destination _____

Date and Time Sent _____

Sent by _____

Received by _____

Date and Time _____

Laboratory receiving samples _____

Notes:

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Revised
Schedule for fecal coliform monitoring
Sengekontacket Pond

2008

The following sampling times are approximate. All samples will be collected on an ebbing tide.

Sampling for ribotyping should be taken on a monthly schedule at the same time as sampling for the coliform monitoring. It is essential to predetermine availability of both the Wampanoag Tribe Lab and the UNH Jackson Lab as well as the logistics to get the samples to each lab within prescribed time frames.

Sampling Schedule

May 28 before noon

June 11 after 7:30 AM and before 12:30 PM

June 25 before 11:30 AM

July 9 before 11:00 AM

July 23 before 9:30 AM

August 6 before 9:30 AM

August 27 after 9:30 AM

September 10 after 8:00 AM

September 24 after 8:30 AM

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May 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

July 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24 31	25	26	27	28	29	30

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Monitoring Project MVC Volunteer Sampling Program- 2008

Equipment to bring:

YSI 85 meter	Secchi Disk
Depth Sounder	Pencil
Data sheets and clipboard	Map

Sample bottles, cooler, ice, filtration for dissolved nutrient sample and dipstick

In addition, you will need an anchor to hold you in place while you record the various data. If it is likely to rain, bring a clear, plastic bag large enough to enclose the data sheet clip board. Also bring the water proof paper.

Meter Data Collection Process:

On the way to the pond, turn on the YSI meter; it needs to warm up for about 15 minutes before being calibrated. Before you calibrate, remove the probe from its storage slot and expose it to the air for 15 seconds then re-insert it for a few more minutes.

Run the **calibration** as per the instruction sheet. The altitude will already be entered as "0" so you only have to hit Enter to accept that value and get to the next screen. When the DO saturation shows on the screen, it should show a value close to 100%. Hit "Enter" to accept that and the screen will read "SAVE". You are now ready to record data.

On station, **anchor** the boat so it will not drift while you record the data.

Next, use the **depth sounder** to determine the total depth. This figure will be in meters. Record this value on your data sheet where the "Total Depth to Bottom" entry space is provided.

Record the first set of data at the surface with the tip of the probe about 6 inches below the surface. The second set should be recorded 0.5 meters from the bottom. For example, if the depth sounder says the total depth is 2.1 meters, lower the probe just past the 1.5-meter mark on the cable. On the field data sheet, write the depth at the top of the column and the data on station in order down the column. This meter cannot test for turbidity or pH- leave these blank.

After the meter readings are recorded, lower the **Secchi disk** over the shaded side of the boat until you can no longer see it. As it drops in the water column, it will fade to the point where you cannot make out the black and white quadrants and then will become a whitish glow as you lower it further. At that point, a very small amount of increase in depth will make the disk disappear. This is the value that you should record as "Depth down". As you raise the meter back up, it will re-appear as a whitish glow. Record this as the "Depth up".

NOTES:

- The ½ meter markers on the meter cable are in yellow and the 1-meter marks in white tape.
- While recording the dissolved oxygen readings (both percent saturation and milligrams per liter) move the probe constantly back in forth to provide

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watermovement through the oxygen sensor. Once these readings are done, you do not need to move the probe while recording conductivity, temperature and salinity.

Water Sample Collection:

All sample bottles should have label tape applied and station number and analysis or analyses required written on the label tape in indelible marker. In addition, the station number, the date and the name "Wilcox" written on the label tape.

E.g.:

SKT1 6/25/08

Dissolved wilcox

Samples to be collected:

- 1 liter sample bottle for chlorophyll and particulate filtration back at the lab
- 60 ml dissolved nutrient bottle filtered on station if possible

The water sample is collected at a depth of 8 to 12 inches below the surface. It is best to collect with the dip stick but can be collected by hand.

Plunge the bottle below the surface and allow it to fill about 1/3 with on-site water. Bring to the surface, cap and shake vigorously. Dispose of the rinse water over the side opposite where you are collecting the sample. Plunge the bottle in to the sample depth and allow it to fill until air bubbles cease to rise.

Pour sample water into the plastic syringe, shake and dispose over the side. Refill syringe with sample water. Insert plunger, connect to filter housing with flow through according to arrow on the side of the housing. Push 20 ml through the filter housing and over the side to clear it. Push 10 ml into the 60 ml sample bottle. Shake vigorously and dispose over the side. Push remainder of the syringe through the filter and into the sample bottle. Cap the bottle, refill the syringe and continue until the 60 ml bottle is rim full.

Refill the 1 liter bottle on station at the appropriate depth.

Note the sample water should pass through the filter housing and exit it without water seeping out where the housing components are threaded together. Sometimes this requires tightening the housing to seal it and stop the leakage. If seepage out the sides occurs, tighten the housing and flush the housing with 20 ml of water over the side. No unfiltered water should enter the sample bottle.

Field data sheet: This is an important record of the time, weather, field measurements and anything unusual observed on station.

Problems to avoid:

- Make sure the anchor gets set so the boat doesn't drift.
- The 1 liter bottle needs to be tightly clasped by the hose clamps- it's slippery and if not tight can pop loose and drift away.
- Set the dipstick cork gently into the bottle so that it will pull free easily and not pull the bottle loose.
- When processing the dissolved nutrient sample, hold the housing as it can fall off the syringe and it sinks like a stone.

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- If the propeller stirs up mud, wait for it to settle or drift off before collecting data.
- If you need to bail any water from the boat, do it after you collect the data and the samples unless it's an emergency.
- If the depth sounder gives out, use the Secchi disk to measure total depth. It is marked in $\frac{1}{4}$ meter intervals with the meter intervals indicated by dots for each meter depth.
- Always bring a life jacket.