

## **Proposal to conduct a Rainfall Study of the Cousins River**

### **Submitted to DMR and the Shellfish Advisory Council by the Town of Freeport Shellfish Commission and the Town of Yarmouth in partnership with Katahdin Laboratories**

The Cousins River, located between the towns of Freeport and Yarmouth has historically been a very productive shellfish resource for harvesters from both towns.

The river is currently classified as Conditionally Restricted. In the past, the river was classified as Conditionally Approved based on rainfall and the proper functioning of the Yarmouth Wastewater Treatment. As of the Fall of 2006, the river was downgraded to Conditionally Restricted status.

According to DMR's Area Biologist survey (*see Appendix 1*) the standing clam crop on the banks of the river (which includes Whistler's Cove) is estimated to be in the vicinity of 2055 bushels, a harvest worth approximately \$155,000 at today's average prices (\$75/bushel). According to Spinney Creek Inc.'s estimates (*see Appendix 1B*), the standing crop is much larger: Based on their survey Spinney Creek Inc. estimates that there are 4,000 bushels of marketable clams on Yarmouth's 4.5 acres alone, a harvest worth \$300,000 (Freeport has an additional 33.3 acres of productive flats on the Cousins River). If harvestable, this resource would benefit the holders of 57 commercial licenses plus the holders of 200 recreational licenses issued by the towns of Freeport and Yarmouth (*see Appendix 2*). In addition, an oyster farm operates at the mouth of the river and currently relays all of its product to an approved location off of Little Moshier Island.

The Cousins River has 7 sampling stations located on both sides of the river (*see map, Appendix 3*). The stations located on the northern part of the river, closest to Route 1 and Interstate 295, have over the years yielded higher scores than those closer to the mouth of the river (southern end). The P90 for the northernmost station (WI51) is currently running at 158 CFU/100 ml; Stations located halfway down the river (WI53 and WI54) range in the vicinity of 70-80 CFU/100ml; The mouth of the river is testing clean, with P90s at stations WI55, WI55.2 and WI55.5 hovering from 6 to 18 CFU/100 ml. (P90 values for Approved Status in the river's stations range from 31 to 36 CFU/100 ml. Stations WI 55 and WI 55.2 do not have 30 data points yet) (*see Appendix 4*).

The oyster operation at the mouth of the river has over the last year accumulated data that points to rainfall as the culprit for the deterioration of the water quality in the Cousins River. During the relay process, both seawater and shellfish meats are tested on a weekly basis. Consistently, elevated scores in the shellfish meats show a correlation to elevated precipitation in the area (Yarmouth Sewer Treatment Plant) and in the river's watershed area (NOAA Weather Station at Pineland Farms) (*see Appendix 5*).

Based on this information, local shellfish harvesters are submitting this rainfall study proposal with one goal in mind: To assess the impact of various rainfall amounts on the quality of the river's waters and its shellfish resources. The steps to accomplish this goal are as follows:

After each rainfall event that accumulates 0.5 inches or more in the span of 96 hours, seawater and shellfish meats will be collected at stations WI53, WI54 and WI55.5 a day (24 hrs) after the precipitation stops, and on days 3, 5 and 7 after the rainfall event. Once a bell curve can be established and the peak in the pollution plume is identified, the testing days may possibly be switched to days 1, 2, 3 and 5 after the precipitation occurs- or the testing pattern that makes most sense to more closely monitor this “plume.”

These samples will be analyzed at a laboratory certified under NSSP guidelines. This project’s partner laboratory is Katahdin Laboratories, in Scarborough. Katahdin has already submitted an application for certification by DMR.

Samples will be collected by samplers who have been trained by ME DMR.

The duration of the study will depend on the rainfall patterns and precipitation amounts while the study is being conducted. The study will be completed once a consistent pattern is identified and the variables for rainfall amounts, water quality deterioration, and length of time necessary for the water to return to background levels can be predicted with “safe” accuracy. Those conducting the study will stay in close touch with DMR’s Water Quality Division staff and with the FDA Regional Specialist for Maine, throughout the duration of the study. DMR and the FDA will evaluate the data collected on an ongoing basis. In the event that these two entities decide that enough data has been collected to determine whether a predictable correlation can be established between precipitation amounts and water quality in the river, a portion of the river (possibly the area to the south of station W53) may be open to the harvest of shellfish under certain conditions (for example, a pre-determined portion of the river may close after any rainfall event of X” or more in Y hrs. and may re-open to shellfish harvest after Z days). In other words, the study will end when enough evidence is collected to determine whether it is safe -or whether it is not- to re-classify a portion of the Cousins River to Conditionally Approved for rainfall.

*Appendix 1: Standing Clam Crop in Yarmouth and Freeport.*

**Yarmouth Clam Resources**

Clam Flat	Acreage	Bushels/Acre	Standing Crop	% Legal	Last Surveyed
Causeway North	5.3	63.6	336	63	'98
Cousins River	4.5	257.6	1,155	31	'07
Lanes Island	6.3	74.9	469	72	'08
Middle Ground	7.2	65.2	1,889	65	'99
Potato Cove	5.8	130.1	755	65	'06
Sea Meadows East	2.3	55.8	128	16	'04
Sea Meadows West	4.8	54.6	264	39	'07
Whites Cove	7.5	158.3	1,187	62	'99
<b>Totals</b>	43.7		6,185		
<b>Means</b>		141.5		57	

**Freeport Clam Resources**

Clam Flat	Acreage	Bushels/Acre	Standing Crop	% Legal	Last Surveyed
Bartol Island East	11.0	50.5	557	77.7	'07
Bartol Island West	12.6	48.6	614	53.3	'07
Bowman Island	5.9	24.9	146	65.2	'05
Brickyard Cove	12.9	95.1	1,224	54.2	'06
Celia's Cove	23.4	63.5	1,490	66.2	'07
Collin's Cove	26.4	164.1	4,338	89.1	'07
Cousin River	12.4	40.6	504	64.2	'06
Flying Point East	15.9	6.5	103	89.7	'06
Flying Point West	10.8	23.4	253	76.7	'06
Goose Cove	9.7	55.1	532	39.3	'06
Hilda's Cove	11.5	60.5	695	73.6	'06
Little River	21.1	56.4	1,192	86.4	'06
Pettingill Cove	37.5	34.5	1,292	50.4	'07
Powers Cove Bar	10.3	14.7	152	63.9	'07
Raspberry Cove	15.6	20.3	318	17.5	'06
Recompense Cove	23.9	44.1	1,055	67.1	'06
Sandy Beach	18.2	24.8	450	82.6	'07
Spar Cove	13.1	61.2	802	87.8	'07
Staple's Cove	12.0	40.7	487	56.8	'07
Whistlers Cove	20.9	18.8	393	72.5	'05
Winslow Park	29.4	29.0	855	60.5	'05
<b>Totals</b>	414.5		19,678		
<b>Means</b>		47.5		73.2	

Source: DMR Area Biologist Don Card

***Appendix 1B: Spinney Creek Shellfish Inc.'s Depuration Proposal for the Cousins River.***

**Growing Areas of Concern**  
**The Cousins River**

*Recent Landings Fall 2006 to Winter 2007*

**Harvest**

<b>Date</b>	<b>Pounds</b>	<b>Bushels</b>
11/28/06	3140	63
11/29/06	2751	55
11/30/06	3084	62
12/1/06	3210	64
12/3/06	3352	67
12/14/06	2881	58
12/16/06	2710	54
12/17/06	2479	50
12/27/06	2562	51
12/28/06	2074	41
12/29/06	2916	58
12/30/06	2309	46
1/2/07	1934	39
1/9/07	2233	45
1/10/07	2318	46
1/12/07	2280	46
1/14/07	2759	55
1/14/07	2116	42
1/25/07	1533	31
<b>Total</b>	<b>48641</b>	<b>973</b>

*General Condition of the Cousins River*

There is a very significant population of clams in the Cousins River. In 30 years of Cousins River depuration harvester experience, this resource has never looked as good. The depuration crew authorized representatives estimate 4,000 bushels of readily harvestable product with a large base of seed clams as well. They report that the Cousins River is a fast growing area and that these clams, if not harvested, will become too big for market and potentially die off.

We further propose an annual quota of 2000 bushels/year to be harvested from the Cousins River to protect this resource from over harvest. This would ensure a responsible harvest of the current estimated 4000 bushels over a two-year period. This quota can be reviewed at any time to increase or decrease this annual quota depending upon better information, the changing condition of the resource, and progress with the abatement efforts.

*Appendix 2: Number of Shellfish Licenses issued by Yarmouth and Freeport*

**Yarmouth**

Resident Commercial	5	\$200
Nonresident Commercial	1	\$400
Resident Recreational	**	\$20
Nonresident Recreational	*	\$40
Senior Res. Recreational	**	\$0
Senior Nonres. Rec.	*	\$0
Res. Neutral Rec. 3 Day	**	\$30

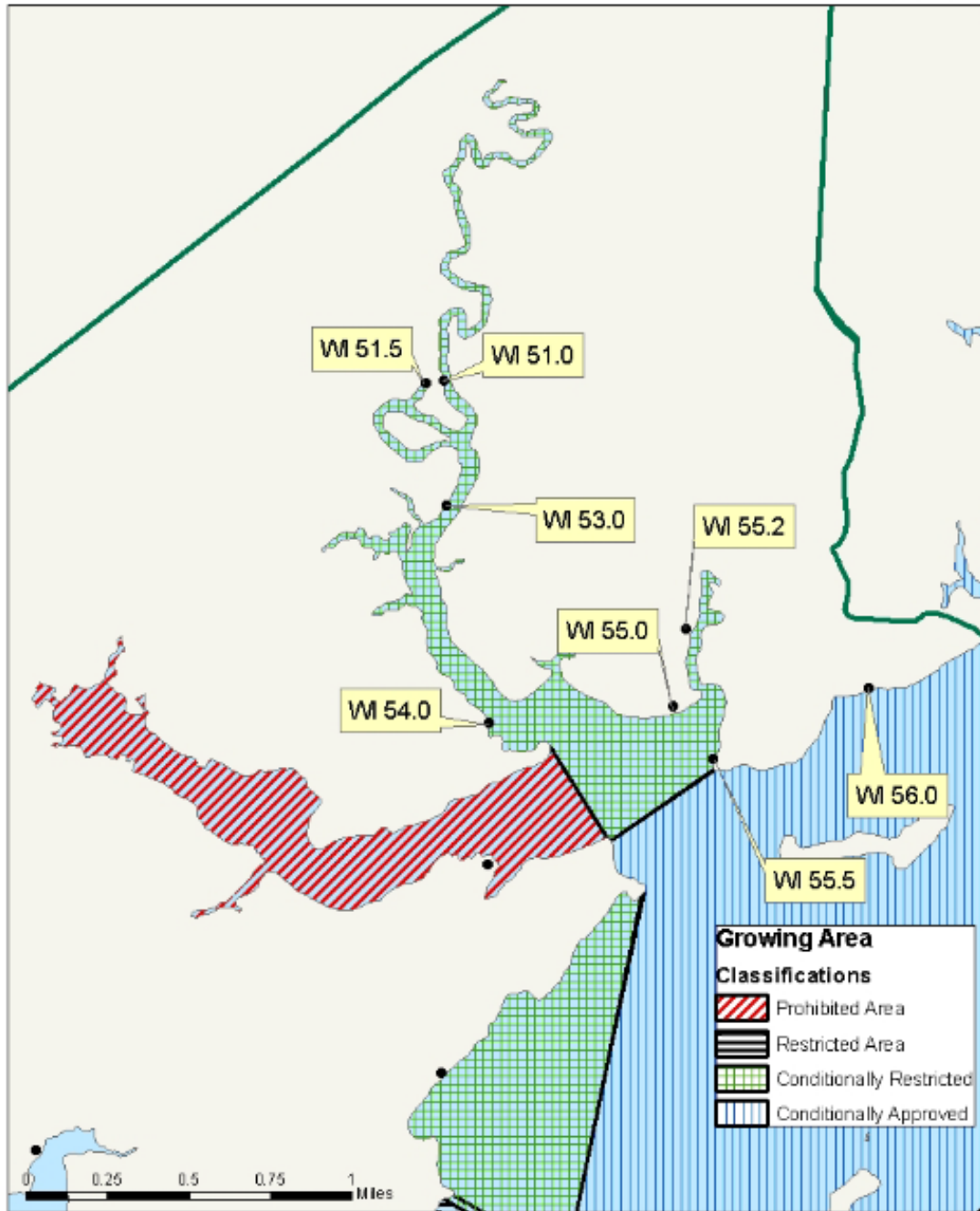
**Freeport**

Resident Commercial	45	\$200
Nonresident Commercial	6	\$400
Resident Recreational	180	\$10
Nonresident Recreational	20	\$20

Appendix 3: Cousins River Area Map with Sampling Stations



Maine Department of Marine Resources  
Growing Area WI - Cousins River



**Appendix 4: Fecal Coliform Geometric Mean and Percent Variability for Sampling Stations on the Cousins River**

**MAINE DEPARTMENT OF MARINE RESOURCES**

As of: **July 03, 2008**

Fecal Coliform Geometric Mean and Percent Variability

**For the Years 2002 Through 2008** - (01/01 - 12/31) ( - )

Excludes Dates: 05/01/07

Status = Open and Closed Stations

Strategy = Both Random and Extra

Excludes Flood Data

Excludes Inactive Stations

**Samples Limited to Latest 30**

Salinity >= 0 ‰

STATION	CLASS	COUNT	MFCNT	GEO_MEAN	P90	APPD_STD	RESTR_STD
WI051.00	CR	30	22	10.4	158.4	35	192
WI051.50	New	13	13	4.0	17.8		
WI053.00	CR	30	21	6.4	70.7	36	196
WI054.00	CR	30	22	7.3	82.5	35	192
WI055.00	New	14	14	2.8	6.3		
WI055.20	New	14	14	5.1	18.5		
WI055.50	CA	30	23	4.8	18.2	34	188
WI056.00	CA	30	22	3.9	12.1	35	192

**Appendix 5: Table Correlating Rainfall Events with Seawater and Meat Scores  
Collected at the Mouth of the Cousins River (near Station W55) for the Period April  
29- July 8, 2008.**

Source: Maine Oyster Inc. Relay Program

**April**

Date	Rainfall at NOAA Station - Pineland Farms	Rainfall at Yarmouth WWTP	Shellfish Meat Scores - Cousins River	Seawater Scores - Cousins River
1	0.18	0.29		
2	0	0.25		
3	0			
4	0.54			
5	0.03	0.63		
6	0			
7	0			
8	0			
9	0			
10	0			
11	0.04			
12	0.32	0.34		
13	Trace	0.06		
14	0			
15	0			
16	0			
17	0			
18	0			
19	0			
20	0			
21	0			
22	0			
23	Trace			
24	Trace			
25	0			
26	0			
27	0.02			
28	1.09			
29	2.25	2.98	330	<2
30	Trace	0.67		

**May**

Date	Rainfall at NOAA Station - Pineland Farms	Rainfall at Yarmouth WWTP	Shellfish Meat Scores - Cousins River	Seawater Scores - Cousins River
1	0			
2	0			
3	0.12			
4	0.55	0.25		
5	0	0.35		
6	0		170	<2
7	Trace			
8	0.01	0.04		
9	0			
10	0			
11	0			
12	0			
13	0		20	2
14	0			
15	0			
16	Trace			
17	0.02	0.02		
18	Trace	0.01		
19	0			
20	0		<18	<2
21	Trace			
22	Trace			
23	0.01			
24	0	0.03		
25	0			
26	Trace			
27	0		78	<2
28	0			
29	0			
30	0			
31	0.38	0.13		

## June

Date	Rainfall at NOAA Station - Pineland Farms	Rainfall at Yarmouth WWTP	Shellfish Meat Scores - Cousins River	Seawater Scores - Cousins River
1	0	0.32		
2	0			
3	0.01		20	8
4	0.25	0.03		
5	0.04	0.30		
6	0.12	0.10		
7	0	0.06		
8	0			
9	0			
10	Trace		130	<2
11	0.16	0.20		
12	0			
13	0			
14	0			
15	0.39	0.15		
16	0.04	0.24		
17	0.12	0.13	490	50
18	0.01	0.13		
19	Trace			
20	0.06			
21	0.13			
22	0.24	0.17		
23	0.24	0.38		
24	0.28	0.11	20	20
25	0	0.80		
26	0.02			
27	1.49	0.02		
28	0.03	0.02		
29	0.24	0.31		
30	0.01	0.21	490	82

## July

Date	Rainfall at NOAA Station - Pineland Farms	Rainfall at Yarmouth WWTP	Shellfish Meat Scores - Cousins River	Seawater Scores - Cousins River
1	0.02			
2	0			
3	Trace			
4	Trace			
5	0			
6	0			
7	0			
8	0		45	<2
9	0.17			
10	0			
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				