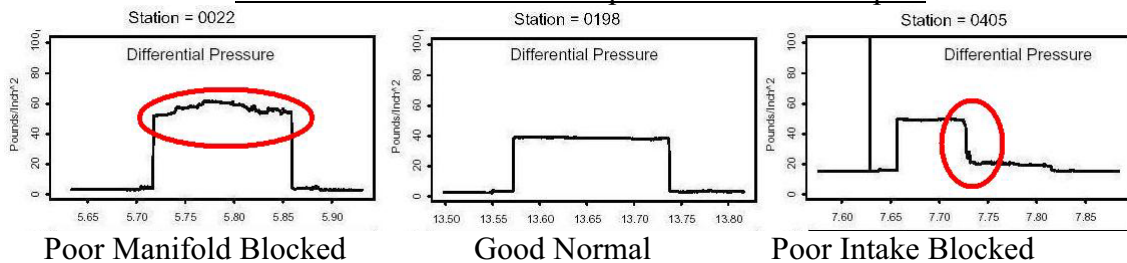


## APPENDIX C2. Analyses of tows with poor dredge performance in the 2002 NEFSC clam survey.

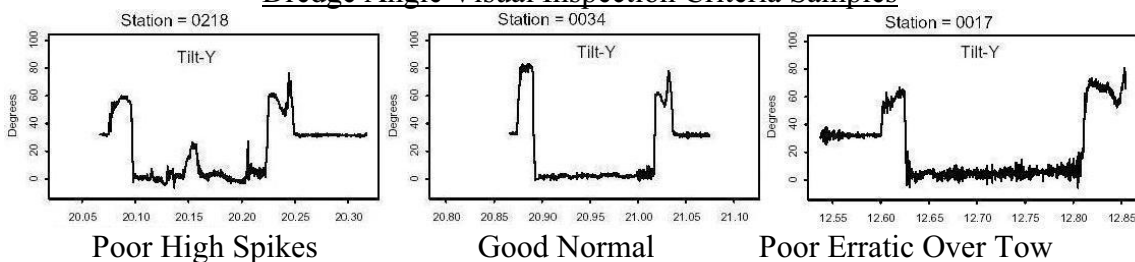
The review of the Survey Sensor Pack (SSP) data from the 2005 clam survey showed a significant number survey tows with anomalies that would likely affect the performance of the survey dredge. These anomalies in 2005 were mostly with problems in the manifold pressure in addition to several tows that had erratic towing angles. The number of 2005 survey tows deemed to have poor dredge performance by the proposed evaluation criteria (see Appendix C3) was approximately 8% of the total number of survey stations reviewed.

To see if the anomalies present in the 2005 survey were a unique situation or a continuation of an inherit inconsistency with the NMFS survey dredge, a review of the SSP data from the 2002 clam survey was undertaken. Because of time constraints and the limited number of survey station data plots available, this review was limited to a visual inspection of the data plots. The visual criteria used to judge a tow to have either “good” or “poor” dredge performance is the same as was used to perform a preliminary grading of the 2005 SSP data. In general the manifold pressure and fore/aft tilt angle plots were the parameters reviewed for significant deviations from normal values. Sample plots are shown below.

### Manifold Pressure Visual Inspection Criteria Samples



### Dredge Angle Visual Inspection Criteria Samples



## Summary of Results (for APPENDIX C2. )

The review of 2002 survey SSP data showed that similar anomalies found in 2005 survey were also found in the 2002 survey in addition to a problem with early shutoff of the dredge pump before the completion of the tow. The summary of the anomalies is shown below for both the 2002 and 2005 surveys.

<u>Description</u>	<u>2002 Survey</u>	<u>2005 Survey</u>
Total # of DE2 Survey Stations	556	433
Total # of Stations Tows Reviewed	213	399
Total # of Stations Labeled Good	181	366
% of Total Stations Reviewed	85.0%	91.7%
Total # of Stations Labeled Poor for Any Reason	32	33
% of Total Stations Reviewed	15.0%	8.3%
Total # of Stations Labeled for Intake Blockage	11	22
% of total Stations Reviewed	5.2%	5.5%
Total # of Stations Labeled Poor for Manifold Blockage	1	10
% of total Stations Reviewed	0.5%	2.5%
Total # of Stations Labeled Poor for Dredge Angle	0	2
% of total Stations Reviewed	0.0%	0.5%
Total # of Stations Labeled Poor for Early Pump Shutoff	20	0
% of total Stations Reviewed	9.4%	0.0%

In general the results show that the NMFS survey dredge is likely to experience a significant number of poor tows during any given survey from a number of possible reasons that affect either manifold pressure or fore and aft dredge running angle. From survey to survey, however, the predominate reason for a poor tow can vary. For example, the 2005 survey had a high number of poor tows due to manifold blockage compared to the 2002 survey. This was from an intake screen failure in 2005 on the dredge pump which allowed small stones to lodge in the manifold nozzles. In 2002, the predominate problem was the dredge pump being shutoff early which did not happen in 2005.

The list of poor tows for the 2002 tows from the tows reviewed is below. As pointed out elsewhere, many of the tows with poor gear performance would have been omitted from use in the stock assessment due to standard haul or gear condition criteria or were nonrandom tows used for special purposes.

2002 Clam Survey Bad Tow List									
STATION	STRATUM	Surfclam Region	Catch N Surfclams	Catch N Quahogs	Bad Tow Reason				
					Manifold Blockage	Intake Blockage	Excessive Dredge Angle	Early Pump Shutoff	
4	35	OTH	0	30		X			
32	29	LI	0	11				X	
42	89	NNJ	187	0		X			
44	89	NNJ	149	0		X			
45	89	NNJ	83	1		X			
52	89	NNJ	93	0				X	
76	88	NNJ	133	0		X			
82	88	NNJ	24	0				X	
90	21	NNJ	0	0				X	
101	21	NNJ	0	0				X	
103	21	NNJ	0	0				X	
105	21	NNJ	0	0				X	
106	21	NNJ	0	0				X	
111	21	NNJ	0	0				X	
118	21	NNJ	0	0				X	
125	21	NNJ	0	0				X	
137	21	NNJ	0	0				X	
140	21	NNJ	0	0				X	
141	21	NNJ	0	0				X	
218	22	OTH	2	39		X			
250	18	OTH	0	2		X			
254	13	DMV	38	0				X	
278	13	DMV	60	0		X			
360	9	DMV	35	2				X	
368	9	DMV	108	0				X	
382	19	OTH	0	28	X				
386	23	OTH	0	66		X			
394	26	OTH	0	16		X			
458	41	SNE	0	301		X			
496	60	OTH	0	416				X	
498	60	OTH	0	107				X	
506	61	GBK	0	1039				X	