

WESTERN GRAY WHALE ADVISORY PANEL  
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**Overview of 2009 Field Season Weather Conditions**  
Submitted by: SEIC

# Overview of 2009 Field Season Weather Conditions

This report provides a summary of weather conditions observed during the vessel and shore-based surveys throughout the 2009 field season.

## 1. Vessel Surveys

In 2009, opportunistic and systematic vessel-based surveys were conducted from the "Akademik Oparin" research vessel in the Sakhalin shelf waters from July 5 to September 28. The following tables and figures are based on the Oparin MMO data records, and show the percentage breakdown of sea state (Beaufort scale) and visibility (km) during this period.

Table 1. Sea state (Beaufort scale) for each month, and averaged across all months. The average total hours per day, and the standard deviation, that the MMOs were on watch is also shown.

<b>Sea State</b>	<b>All Months (%)</b>	<b>July (%)</b>	<b>August (%)</b>	<b>September (%)</b>
0	6.3	10.9	3.9	3.6
1	30.8	41.8	30.2	18.5
2	31.7	23.7	35.8	36.3
3	23.4	21.2	23.3	26.0
4	6.2	2.5	5.8	11.2
5	1.7	0.0	1.0	4.4
Average Effort (Hours per day)	16.3	18.0	16.2	14.7
StDev Effort (Hours per day)	1.5	0.0	1.0	0.6

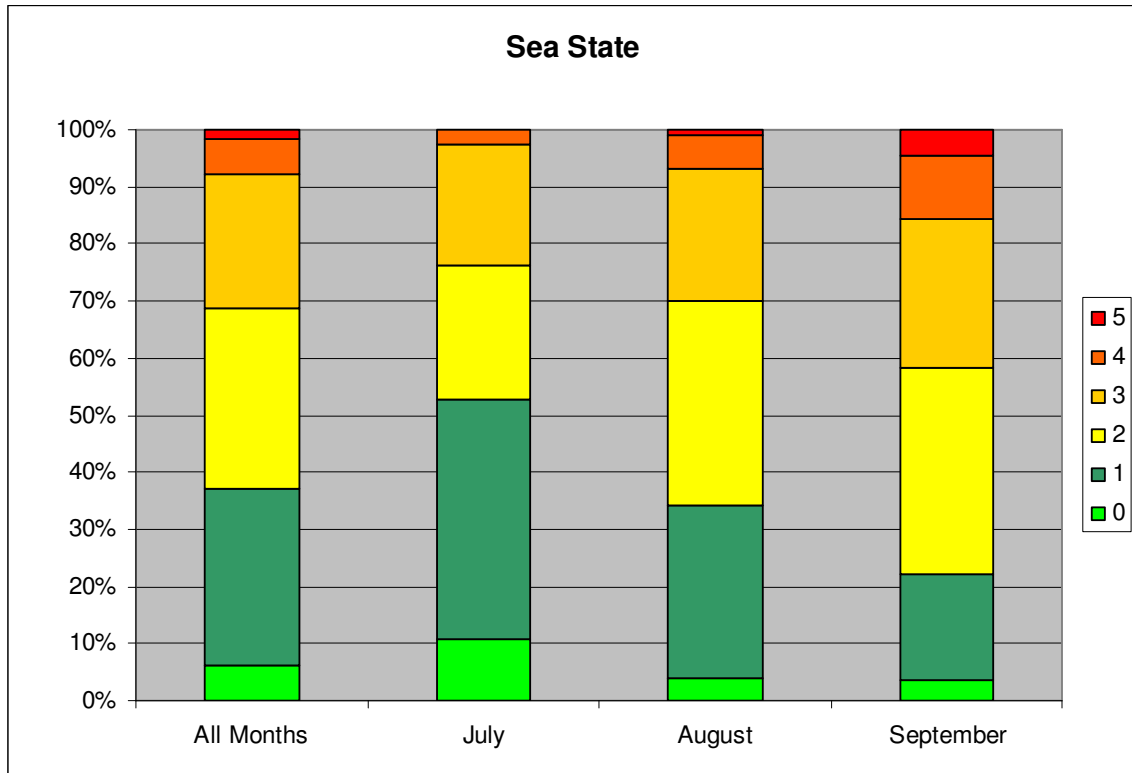


Figure 1. Sea state (Beaufort scale) for each month, and averaged across all months.

Table 2. Visibility (km)

Visibility (km)	All Months	July (%)	August (%)	September (%)
<1	39.1	52.7	32.7	30.7
1	3.9	1.6	5.8	4.4
2	3.2	2.3	3.7	3.6
3	5.4	3.3	7.0	6.1
4	2.4	1.4	4.5	1.0
5	4.7	2.3	5.8	6.3
6	4.3	2.3	6.0	4.9
7	0.8	1.2	0.6	0.5
8	15.9	10.9	17.1	20.4
9	2.1	6.0	16.9	22.1
>=10	18.1	16.0	32.7	30.7

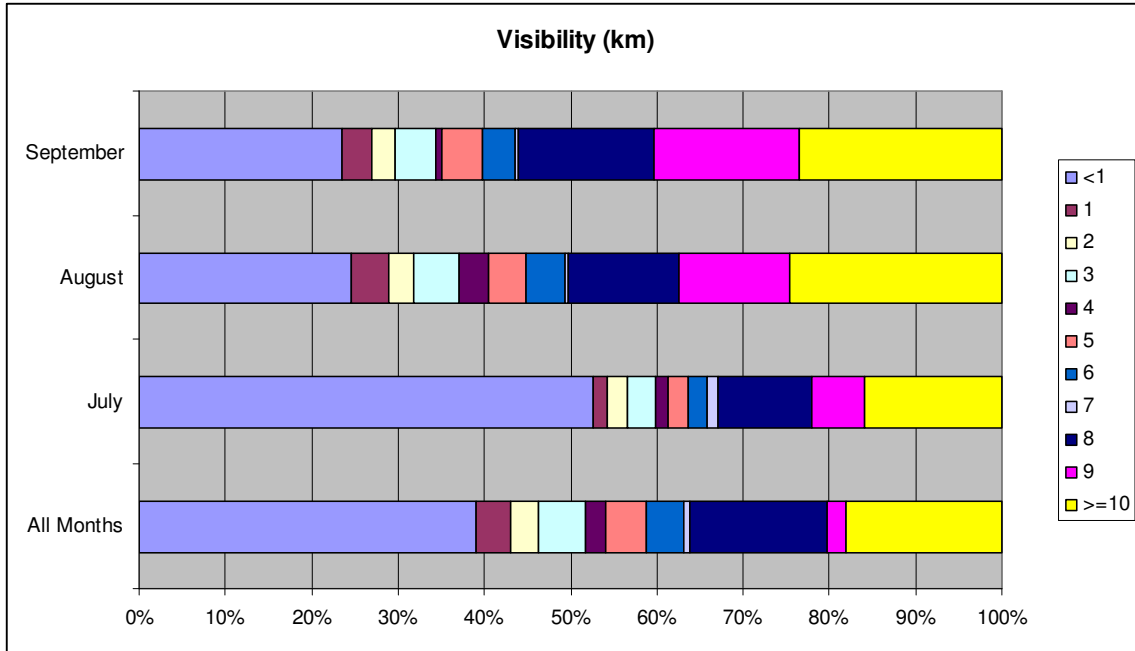


Figure 2. Visibility (km)

The above figures and tables suggest that favourable sea state conditions, i.e., less than 4, in the Sakhalin shelf waters occur the majority of the time. However, visibility is frequently (approximately 40% of the time) very low (<1 km).

## 2. Shore-based Distribution Surveys

In 2009, shore-based distribution surveys were conducted in the Piltun area from June 26 to September 28. The following tables and graphs show the day percentage breakdown of different types of weather during this period. Please note that some days have multiple kinds of bad weather conditions (e.g. fog, high sea state, precipitation and strong wind), so the sum over the types of the bad weather may be more than the total number of bad weather days.

Table 3. Breakdown of the shore-based survey weather. Good weather days are those during which surveys at all distribution stations for the North (8 stations) or the South (5 stations) were conducted. The numbers in parentheses show the percentage of days in the month having that specific weather condition.

		Good weather days (full surveys)	Bad weather days (partial or no surveys)	Bad weather breakdown			
				Fog	Strong wind	Precipitation	High Sea State
June	North	0 (0.0%)	6	6 (100.0%)	0	0	0
	South	1 (16.7%)	5	5 (83.3%)	0	1 (16.7%)	0
July	North	2 (6.5%)	29	30(96.8%)	3 (9.7%)	3 (9.7%)	6 (19.4%)
	South	5 (16.1%)	26	28 (90.3%)	0	3 (9.7%)	4 (12.9%)
August	North	6 (19.4%)	25	16 (51.6%)	1 (3.2%)	6 (19.4%)	8 (25.8%)
	South	10 (32.3%)	21	14 (45.2%)	2 (6.5%)	6 (19.4%)	5 (16.1%)
Sept.	North	8 (29.6%)	19	11 (40.7%)	5 (18.5%)	7 (25.9%)	7 (25.9%)
	South	9 (32.1%)	19	9 (32.1%)	6 (21.4%)	7 (25.0%)	7 (25.0%)
All months	North	16 (16.8%)	79	57 (60.0%)	9 (9.5%)	16 (16.8%)	21 (22.1%)
	South	25 (26.0%)	71	51 (53.1%)	8 (8.3%)	16 (16.7%)	16 (16.7%)

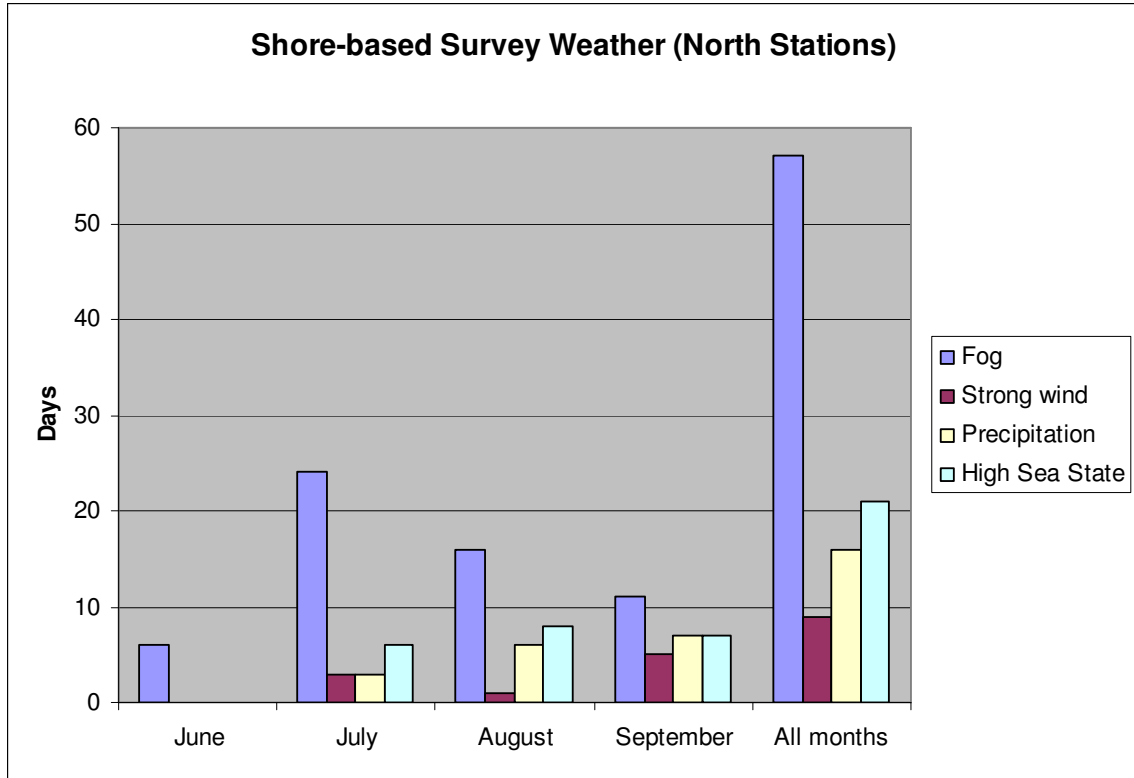


Figure 3. Number of bad weather days (North stations)

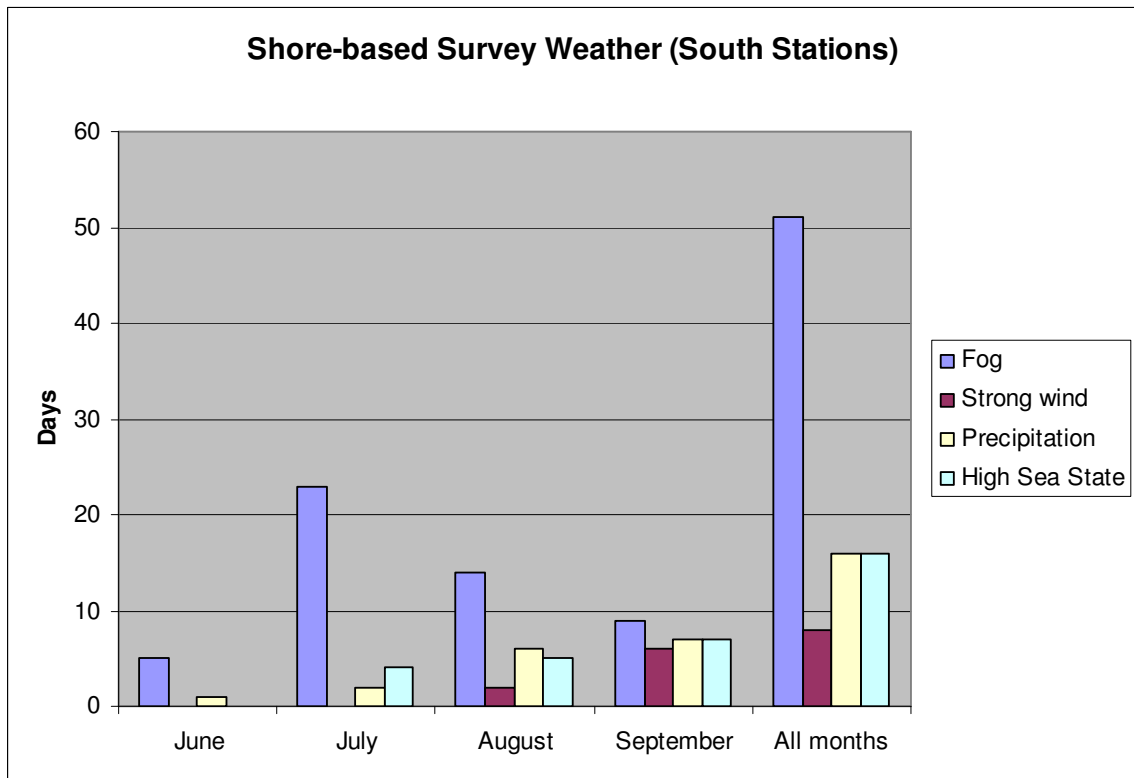


Figure 4. Number of bad weather days (South stations)

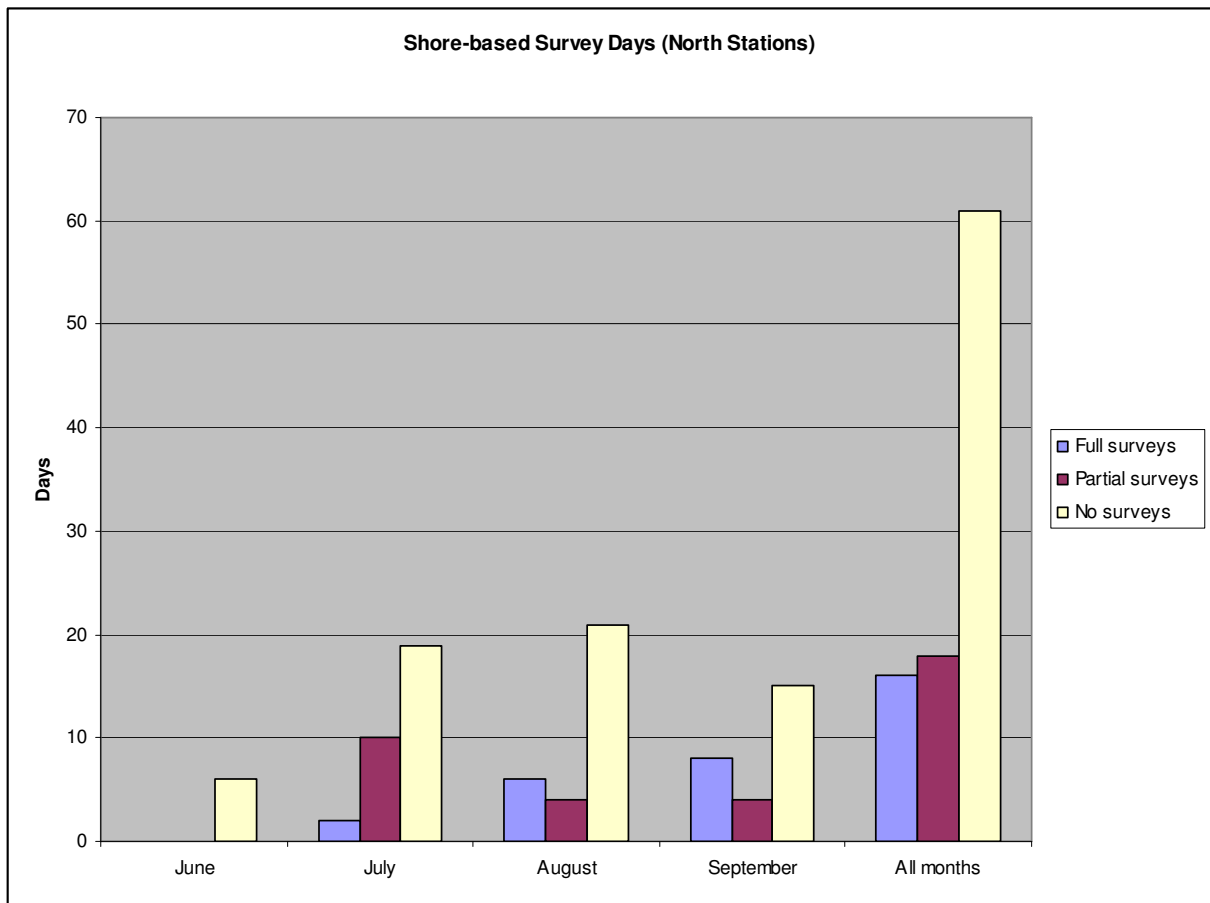


Figure 5. Survey days (North Stations)

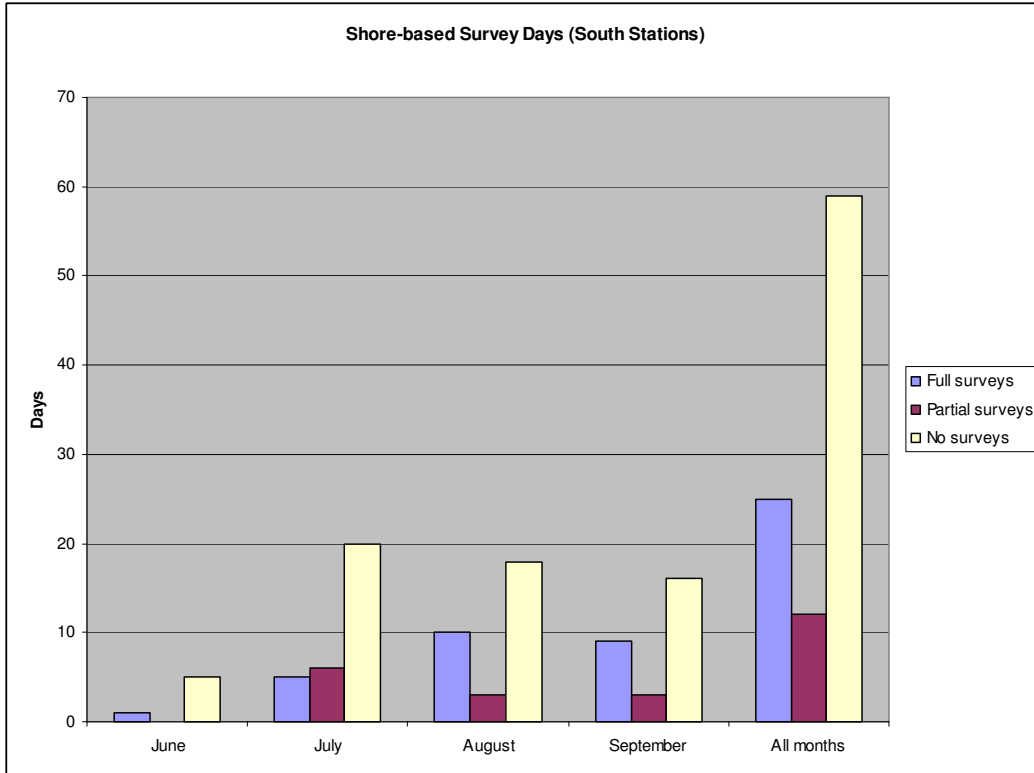


Figure 6. Survey days (South Stations)

The above tables and figures seem to indicate a high amount of unfavourable weather conditions for shore-based distribution surveys. This is especially evident in the beginning of the season during the months of June and July; however, the visibility conditions seem to improve towards the end of the season. The biggest obstacle to the surveys is fog that occurs around 55% of the time, followed by high sea state at approximately 20% of the time.