

Washington State Department of Health Office of Shellfish and Water Protection

Annual Growing Area Review

PREPARED BY: Lawrence Sullivan, Public Health Advisor
AREA: Burley Lagoon
YEAR ENDING: December 31, 2008
CLASSIFICATION: Approved, Conditionally Approved, Restricted

Activities in the Growing Area in Current 2008

The Burley Lagoon commercial shellfish growing area was sampled twelve times during 2007 in accordance with the NSSP systematic random sampling criteria. The conditionally approved area was in open status during seven of these sample events. The conditionally approved portion of Burley Lagoon was closed a total of 31 days due to rainfall. The 'approved' portion of the growing area was closed for 7 days due to extremely heavy rainfall. Burley Lagoon was also closed for 7 days due to a sewage spill from the Purdy shopping center. A portion of the growing area was reclassified from Approved to Conditionally Approved following a comprehensive review of pollution conditions and marine water quality data. A drogoue study was completed in September 2008 to better understand water circulation patterns in the growing area.

Analytical Results Of Water Samples

Table #1 summarizes the results of the most recent 30 water samples collected from the 'approved' portion of the area. Stations #334 is threatened and stations #335 and #343 are in concerned status due to elevated bacteria levels. Individual sampling results for stations #334 are shown in Tables #3.

Table #2 summarizes the results of the most recent 30 samples collected from the 'conditionally approved' portion of the area. Table #2 shows that all stations pass the water quality standard, however, stations #331, #337, and #339 are threatened and stations #333, #336, #340 and #342 in the conditionally approved area are of concerned status. Individual sampling results for stations #331, #337, and #339 are shown in Tables #4, #5, and #6 respectively.

Change In Actual Pollution Sources That Impact The Growing Area

We currently have no information indicating that the area has new sources of pollution.

Classification Status

- Well within the classification standards
- Meets standards, but some concerns
- Meets standards, but threatened with downgrade in classification
- Fails to meet current classification standards

Remarks and Recommendations

Pollution source identifications should continue in the area.

Management Plan Evaluation:

1. Have all parties involved complied with the conditions of the management plan.....Yes
2. Has reporting been adequate to manage the conditional area.....Yes
3. Does the area consistently meet approved area criteria when it is open for harvest... Yes
4. Has a field inspection of critical pollution sources been conducted.....Yes

TABLE 1

SUMMARY OF MARINE WATER DATA (SRS)

Growing Area: **BURLEY LAGOON**

Classification: **Restricted,Approved**

From **05/01/2006** To **12/04/2008**

FECAL COLIFORM ORGANISMS/100 ML

Station Number	Classification	Number of Samples	Range	Geometric Mean	Est. 90th Percentile	Meets Std.
694	Restricted	30	1.7 - 920.0	17.2	117.0	No
334	Approved	30	1.7 - 79.0	7.1	33.0	Yes
335	Approved	30	1.7 - 70.0	5.1	23.0	Yes
343	Approved	30	1.7 - 49.0	4.6	20.0	Yes
344	Approved	30	1.7 - 46.0	5.5	19.0	Yes

All tides information is presented

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

† All samples have been verified.

TABLE 2

SUMMARY OF MARINE WATER DATA (SRS)

Growing Area: **BURLEY LAGOON**

Classification: **Conditionally Approved**

From **02/03/2005** To **09/03/2008**

FECAL COLIFORM ORGANISMS/100 ML

Rainfall Information is **Day 0** for 4 days prior between **0.00** and **0.49**

Station Number	Classification	Number of Samples	Range	Geometric Mean	Est. 90th Percentile	Meets Std.
331	Conditionally Approved	30	1.7 - 79.0	7.7	34.0	Yes
333	Conditionally Approved	30	1.7 - 49.0	5.1	20.0	Yes
336	Conditionally Approved	31	1.7 - 33.0	6.1	20.0	Yes
337	Conditionally Approved	31	1.7 - 49.0	7.6	33.0	Yes
338	Conditionally Approved	31	1.7 - 33.0	4.7	18.0	Yes
339	Conditionally Approved	31	1.7 - 130.0	8.3	40.0	Yes
340	Conditionally Approved	31	1.7 - 350.0	6.7	29.0	Yes
342	Conditionally Approved	31	1.7 - 49.0	6.8	27.0	Yes

All tides information is presented

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

† All samples have been verified.

TABLE 3**SUMMARY OF SHELLFISH GROWING AREAS
WATER QUALITY STUDY RESULTS**Growing Area: **BURLEY LAGOON**Sampling Station Number: **334**Classification: **Approved**

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
05/01/2006	09:12	Ebb	49	10	22
06/15/2006	08:17	Ebb	33	16	29
07/25/2006	08:43	Ebb	6.8	16	30
08/17/2006	12:29	Flood	7.8	17	29
09/27/2006	08:32	Flood	2	13	30
10/12/2006	11:08	Flood	4.5	12	30
12/14/2006	12:07	Flood	79	7	16
01/08/2007	09:19	Flood	17	8	22
02/12/2007	09:41	Ebb	11	7	10
03/15/2007	12:08	Flood	4.5	7	15
04/09/2007	11:21	Ebb	4.5	11	24
05/08/2007	10:42	Ebb	7.8	14	24
07/09/2007	12:14	Flood	2	13	30
07/23/2007	12:46	Flood	13	18	28
08/20/2007	11:03	Flood	11	17	25
09/17/2007	11:27	Flood	2	15	28
10/03/2007	11:14	Flood	49	12	24
11/01/2007	12:09	Flood	1.7	11	27
01/08/2008	10:49	Ebb	17	5	7
02/13/2008	10:42	Ebb	4	5	16
03/12/2008	10:33	Ebb	2	7	28
04/14/2008	13:04	Flood	2	9	28
05/13/2008	11:40	Flood	2	10	28
06/11/2008	12:35	Flood	17	13	28
07/23/2008	10:16	Ebb	12	18	29
08/06/2008	11:14	Ebb	3.3	13	29
09/03/2008	10:54	Ebb	1.7	14	30
10/06/2008	12:31	Flood	6.8	13	29
11/04/2008	11:58	Ebb	70	12	29
12/04/2008	13:08	Flood	1.7	10	30

Number of Samples: 30

Range: 1.7 - 79

Geometric Mean: 7.1

Estimated 90th Percentile: 33

† All samples have been verified.

TABLE 4

**SUMMARY OF SHELLFISH GROWING AREAS
WATER QUALITY STUDY RESULTS**

Growing Area: **BURLEY LAGOON**

Sampling Station Number: **331**

Classification: **Conditionally Approved**

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
02/03/2005	10:34	Flood	17	7	20
03/17/2005	08:52	Flood	1.7	8	27
06/16/2005	12:20	Flood	7.8	14	29
07/13/2005	10:17	Flood	7.8	18	25
08/11/2005	12:40	Ebb	33	17	30
09/08/2005	10:50	Ebb	11	15	30
10/20/2005	08:37	Flood	11	12	29
01/25/2006	10:24	Flood	2	7	29
02/23/2006	11:37	Flood	2	6	25
04/20/2006	08:59	Flood	6.8	9	12
06/15/2006	08:47	Ebb	33	16	29
07/31/2006	09:08	Flood	79	18	28
08/17/2006	13:13	Flood	13	17	29
09/27/2006	09:08	Flood	49	13	28
10/12/2006	11:35	Flood	4.5	12	30
02/12/2007	09:45	Ebb	33	7	5
05/08/2007	10:16	Ebb	2	13	25
07/09/2007	11:21	Flood	1.7	13	30
07/23/2007	12:17	Flood	17	17	29
09/17/2007	10:59	Flood	2	15	28
11/01/2007	11:35	Flood	2	11	28
01/08/2008	10:25	Ebb	49	5	15
02/13/2008	10:14	Ebb	7.8	5	19
03/12/2008	10:08	Ebb	2	7	28
04/14/2008	12:30	Flood	2	9	26
05/13/2008	11:10	Flood	4	10	28
06/11/2008	12:05	Flood	7.8	13	28
07/23/2008	09:43	Flood	13	17	29
08/06/2008	10:57	Ebb	4.5	13	29
09/03/2008	10:26	Ebb	13	14	30

Number of Samples: 30

Geometric Mean: 7.7

Range: 1.7 - 79

Estimated 90th Percentile: 34

† All samples have been verified.

TABLE 5

**SUMMARY OF SHELLFISH GROWING AREAS
WATER QUALITY STUDY RESULTS**

Growing Area: **BURLEY LAGOON**

Sampling Station Number: **337**

Classification: **Conditionally Approved**

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
02/03/2005	10:26	Flood	4	7	25
03/17/2005	08:43	Flood	2	8	27
06/16/2005	12:12	Flood	7.8	15	29
07/13/2005	10:07	Flood	4.5	18	26
08/11/2005	12:46	Ebb	13	17	29
09/08/2005	10:31	Ebb	4.5	15	29
10/20/2005	08:28	Flood	7.8	12	25
01/25/2006	10:16	Flood	9.3	6	22
02/23/2006	11:27	Flood	1.8	6	25
04/20/2006	08:51	Flood	11	9	20
06/15/2006	08:35	Ebb	46	16	31
07/31/2006	08:55	Flood	2	17	28
08/17/2006	13:00	Flood	4.5	17	29
09/27/2006	08:59	Flood	6.8	13	29
10/12/2006	11:28	Flood	1.8	13	30
02/12/2007	10:06	Ebb	23	8	6
05/08/2007	10:26	Ebb	49	14	24
07/09/2007	11:43	Flood	1.8	14	28
07/23/2007	12:28	Flood	33	17	27
08/20/2007	10:43	Flood	49	17	23
09/17/2007	11:11	Flood	27	15	28
11/01/2007	11:53	Flood	1.7	11	30
01/08/2008	10:34	Ebb	33	5	20
02/13/2008	10:26	Ebb	7.8	6	7
03/12/2008	10:18	Ebb	1.7	7	22
04/14/2008	12:41	Flood	7.8	9	26
05/13/2008	11:17	Flood	2	10	28
06/11/2008	12:16	Flood	49	13	27
07/23/2008	09:55	Ebb	17	18	28
08/06/2008	11:04	Ebb	4.5	13	29
09/03/2008	10:34	Ebb	4.5	14	30

Number of Samples: 31

Geometric Mean: 7.6

Range: 1.7 - 49

Estimated 90th Percentile: 33

† All samples have been verified.

TABLE 6**SUMMARY OF SHELLFISH GROWING AREAS
WATER QUALITY STUDY RESULTS**Growing Area: **BURLEY LAGOON**Sampling Station Number: **339**Classification: **Conditionally Approved**

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
02/03/2005	10:22	Flood	4.5	7	25
03/17/2005	08:41	Flood	2	8	26
06/16/2005	12:08	Flood	4	15	28
07/13/2005	10:02	Flood	22	18	26
08/11/2005	12:49	Ebb	7.8	17	29
09/08/2005	10:24	Ebb	23	15	29
10/20/2005	08:24	Flood	4.5	12	29
01/25/2006	10:15	Flood	7.8	7	22
02/23/2006	11:23	Flood	2	7	25
04/20/2006	08:48	Flood	4.5	9	20
06/15/2006	08:30	Ebb	33	16	29
07/31/2006	08:47	Flood	23	18	28
08/17/2006	12:57	Flood	2	17	29
09/27/2006	08:56	Flood	1.7	13	30
10/12/2006	11:21	Flood	1.7	12	30
02/12/2007	10:03	Ebb	11	7	5
05/08/2007	10:34	Ebb	70	14	22
07/09/2007	11:52	Flood	4.5	17	26
07/23/2007	12:36	Flood	17	18	27
08/20/2007	10:46	Flood	17	17	23
09/17/2007	11:14	Flood	17	15	24
11/01/2007	11:55	Flood	1.7	11	30
01/08/2008	10:37	Ebb	130	5	12
02/13/2008	10:28	Ebb	23	5	5
03/12/2008	10:20	Ebb	1.7	7	22
04/14/2008	12:46	Flood	1.7	9	27
05/13/2008	11:22	Flood	23	10	26
06/11/2008	12:19	Flood	33	13	27
07/23/2008	09:58	Ebb	33	17	28
08/06/2008	11:05	Ebb	7.8	15	29
09/03/2008	10:37	Ebb	4.5	15	30

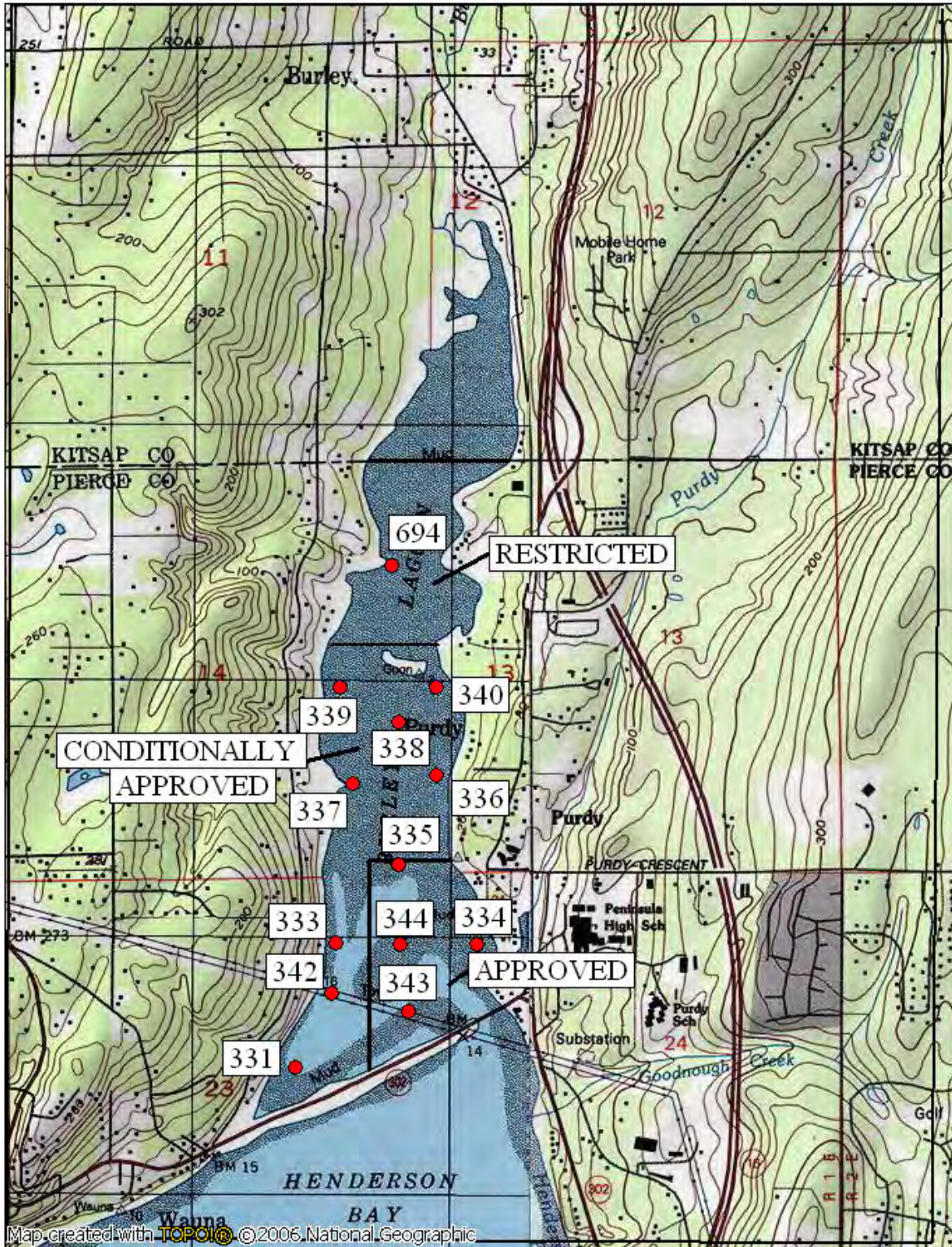
Number of Samples: 31

Geometric Mean: 8.3

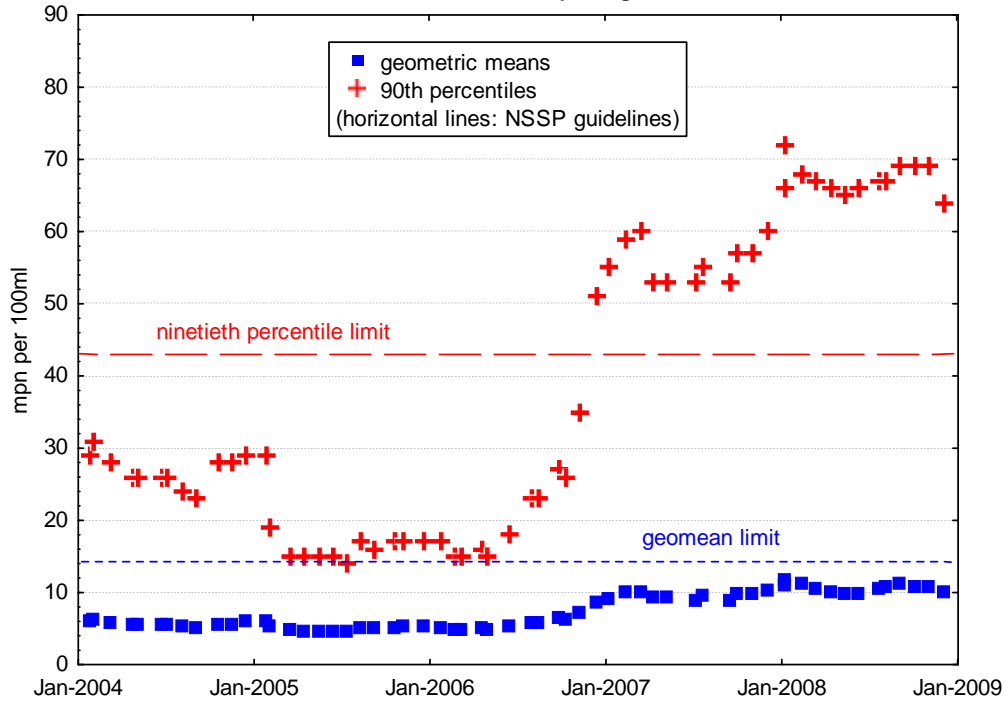
Range: 1.7 - 130

Estimated 90th Percentile: 40

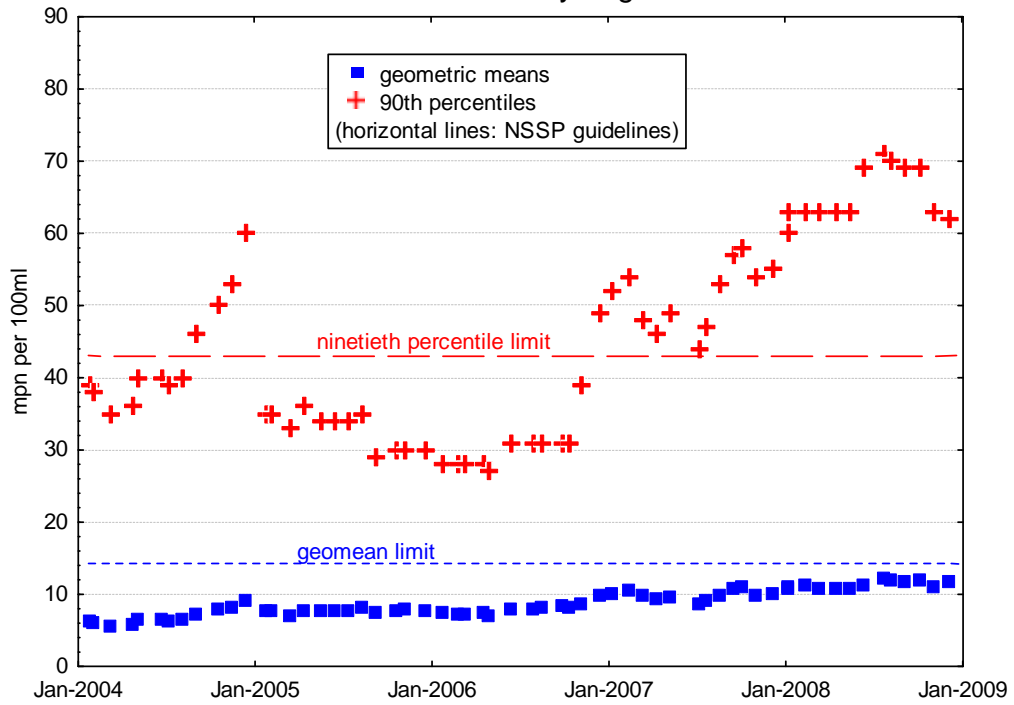
BURLEY LAGOON 06/23/08



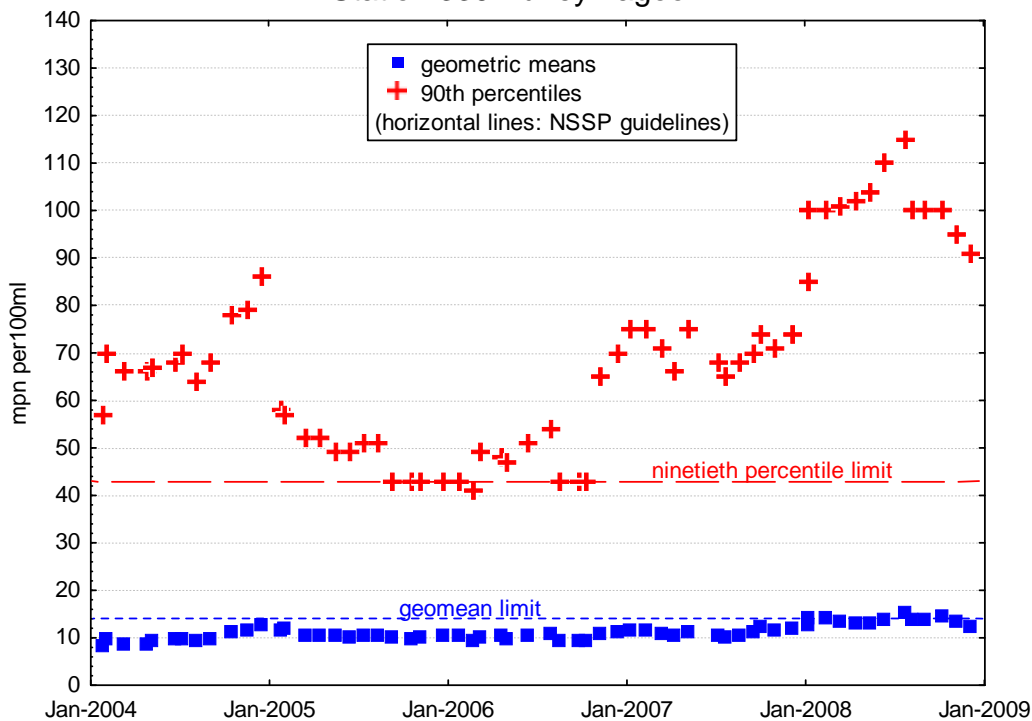
Station 331 Burley Lagoon



Station 337 Burley Lagoon



Station 339 Burley Lagoon



Station 344 Burley Lagoon

