APPENDIX C. COLLECTION FORMS AND FIELD NOTES

Wind Ward environmental LLC

GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no.

Date: 8/8/05 Location: X:

Start/Stop time: 0900/1500 Y:

Sampling Method: Benthic Sledge Sample ID: G166

Weather: Clear, Sunny, warm Crew: H. Andersen, T. Do, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
1 0900	X: 47 34.066	N. mendicus:		Depth = 60 ft
~~0842~~	Y: 122 20.939	~~A. gausapata:~~	6 Olivella	Cable out = 180 ft
	47° 34.076	A. compacta:		
0906	122° 20.894	Others:		
2 0949	X: 47° 34.070	N. mendicus:		Water depth = 50 ft start
	Y: 122° 20.933	~~A. gausapata:~~ Olivella	6	Cable set = 200 ft
0945	47° 34.109	A. compacta:		Water depth = 31 ft end
	122° 20.954	Others:	2	
3 1025	X: 47° 34.070	N. mendicus:		Water depth = 59 ft @ start
	Y: 122° 20.934	~~A. gausapata:~~ Olivella	3	Cable set = 220 ft
1030		A. compacta:		Water depth = Not recorded @ end
		Others:		Snagged on wood
4 1045	X: 47°34.071	N. mendicus:		Water depth = 64 ft @ start
	Y: 122° 20.926	~~A. gausapata:~~ Olivella	2	Cable set = 220 ft
1049	47° 34.071	A. compacta:		Water depth = 50 ft @ end
	122° 20.879	Others:	1	
5 1118	X: 47° 34.068	N. mendicus:		Water depth = 60 ft @ start
	Y: 122° 20.939	~~A. gausapata:~~ Olivella	2	Cable set = 220 ft
1120	47° 34.115	A. compacta:		Water depth = 40 ft @ end
	122° 21.003	Others:	3	
6 1229	X: 47° 34.669	N. mendicus:		Water depth = 58 ft @ start
	Y: 122° 20.940	A. gausapata:		Cable set = 220 ft
1230	47° 34.088	A. compacta:		Water depth = 36 @ end
	122° 20.870	Others:	1	Snagged on rope
7 1254	X: 47° 34.074	N. mendicus:		Water depth = 51 ft @ start
	Y: 122° 20.934	A. gausapata:	27	Cable set = 220 ft
1258	47° 34.105	A. compacta:		Water depth = 35 @ end
	122° 20.849	Others:		
8 1352	X: 47° 34.065	~~N. mendicus:~~ Olivella	1	Water depth = 50 ft @ start
	Y: 122° 20.926	A. gausapata:	2	Cable set = 220 ft
1356	47° 34.015	A. compacta:		Water depth = 48 ft @ end
	122° 20.894	Others:	3	
9 1418	X: 47° 34.068	N. mendicus:		Water depth = 50 ft @ start
	Y: 122° 20.930	A. gausapata:	28	Cable set = 220 ft
1423	47° 34.018	A. compacta:		Water depth = 26 ft @ end
	122° 20.954	Others:	3 2	
10 1455	X: 47° 34.073	~~N. mendicus:~~ Olivella	6	Water depth = 50 ft @ start
	Y: 122° 20.936	A. gausapata:		Cable set = 220 ft
1500	47° 34.007	A. compacta:		Water depth = 46 ft @ end
	122° 20.857	Others:	2	
		N. mendicus	1	

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no.

Date: 8/9/05 Location: X:

Start/Stop time: 1205 / Y:

Sampling Method: Benthic Sledge Sample ID: G17b

Weather: Clear, sunny, warm Crew: H. Andersen, Thai Do, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
1 1205	X: 47° 34.081	N. mendicus:		Water depth = 30 ft @ start
	Y: 122° 20.752	A. gausapata:	1	Cable set = 150 ft
1208	47° 34.090	A. compacta:		Water depth = 35 ft @ end
	122° 20.812	Others:	1	
2 1229	X: 47° 34.083	N. mendicus:		Water depth = 30 ft @ start
	Y: 122° 20.752	A. gausapata:		Cable set = 150 ft
1231	47° 34.100	A. compacta:		Water depth = 27 ft @ end
	122° 20.802	Others:		
3 1246	X: 47° 34.080	N. mendicus:		Water depth = 28 ft @ start
	Y: 122° 20.754	A. gausapata:	6	Cable set = 150 ft
1249	47° 34.049	A. compacta:		Water depth = 36 ft @ end
	122° 20.771	Others:	1	
4 1312	X: 47° 34.082	N. mendicus:	3	
	Y: 122° 20.757	A. gausapata:	5	Water depth = 26 ft @ start
1314	47° 34.035	A. compacta:		Cable set = 150 ft
	122° 20.794	Others:	3	Water depth = 40 ft @ end
5 1335	X: 47° 34.080	N. mendicus:		Water depth = 30 ft @ start
	Y: 122° 20.752	A. gausapata:		Cable set = 150 ft
1337	47° 34.048 043	A. compacta:		Water depth = 36 ft @ end
	122 20.315 793	Others:		
6 1357	X: 47° 34.080	N. mendicus:		Water depth = 39 ft @ start
	Y: 122° 20.757	A. gausapata:		Cable set = 150 ft
1400	47° 34.048	A. compacta:		Water depth = 36 ft @ end
	122° 20.804	Others:		
7 1423	X: 47° 34.081	N. mendicus:		Water depth = 30 ft @ start
	Y: 122° 20.753	A. gausapata:	~~12~~ 4	Cable set = 150 ft
1425	47° 34.039	A. compacta:		Water depth = 40 ft @ end
	122° 20.787	Others:		
8 1458	X: 47° 34.083	N. mendicus:	2	Water depth = ft @ start
	Y: 122° 20.758	A. gausapata:		Cable set = 150 ft
1500	47° 34.049	A. compacta:		Water depth = 36 ft @ end
	122° 20.786	Others:	5	
9	X:	N. mendicus:		
	Y:	A. gausapata:		
		A. compacta:		
		Others:		
10	X:	N. mendicus:		
	Y:	A. gausapata:		
		A. compacta:		
		Others:		

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no. 04-08-06-21

Date: 8/10/05 Location: X:

Start/Stop time: 0740 Y:

Sampling Method: Benthic Sledge Sample ID: G17b Cont'd

Weather: Low morning clouds, cool, light wind Crew: H. Andersen, T. Do, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
9 0746	X: 47° 34.080	*N. mendicus:*		Water depth = 38 ft @ start
	Y: 122° 20.758	*A. gausapata:*		Cable set = 150 ft
0744	47° 34.125	*A. compacta:*		Water depth = 26 ft @ end
	122° 20.742	Others:	1	
10 0814	X: 47 34.080	*N. mendicus:*		Water depth = 31 ft @ start
	Y: 122° 20.750	*A. gausapata:*		Cable set = 150 ft
0817	47° 34.075	*A. compacta:*		Water depth = 41 ft @ end
	122° 20.801	Others:	1	
3 0835	X: 47° 33.918	*N. mendicus:*		Water depth = 53 ft @ start
	Y: 122° 20.871	*A. gausapata:*	43	Cable set = 220 ft
0839	47° 33.863	*A. compacta:*		Water depth = 47 ft @ end
	122° 20.868	Others:	3	
4	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
5	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
6	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
7	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
8	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
9	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
10	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no. 04-08-06-21

Date: 8/10/05 Location: X:

Start/Stop time: 0835/1351 Y:

Sampling Method: Benthic Sledge Sample ID: G186

Weather: Low morning clouds, cool, light wind Crew: H. Andersen, T. Do, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
1 0835	X: 47° 33.918	N. mendicus:		Water depth = 53 ft @ start
	Y: 122° 20.871	A. gausapata:	3	Cable set: 220 ft
0839	47° 33.863	A. compacta:		Water depth = 47 ft @ end
	122° 20.868	Others:	3	
2 0917	X: 47° 33.924	N. mendicus:		Water depth = 42 ft @ start
	Y: 122° 20.879	A. gausapata:	5	Cable set = 180 ft
0920	47° 33.949	A. compacta:		Water depth = 48 ft @ end
	122° 20.890	Others:	2	
3 0951	X: 47° 33.913	N. mendicus:		Water depth = 47 ft @ start
	Y: 122° 20.862	A. gausapata:	16	Cable set = 170 ft
0956	47° 33.951	A. compacta:		Water depth = 53 ft @ end
	122° 20.848	Others:	5	
4 1025	X: 47° 33.921	N. mendicus:	2	Water depth = 41 ft @ start
	Y: 122° 20.868	A. gausapata:	21	Cable set: 140 ft
1030	47° 33.954	A. compacta:		Water depth = 48 ft @ end
	122° 20.886	Others:	4	
5 1103	X: 47° 33.922	N. mendicus:	1	Water depth = 51 ft @ start
	Y: 122° 20.870	A. gausapata:	13	Cable set = 180 ft
1107	47° 33.958	A. compacta:		Water depth = 50 ft @ end
	122° 20.870	Others:	4	
6 1135	X: 47° 33.919	N. mendicus:		Water depth = 56 ft @ start
	Y: 122° 20.866	A. gausapata:	2	Cable set = 170 ft
1138	47° 33.970	A. compacta:		Water depth = 52 ft @ end
	122° 20.861	Others:	4 3	
7 1216	X: 47° 33.917	N. mendicus:	1	Water depth = 46 ft @ start
	Y: 122° 20.868	A. gausapata:	9	Cable set = 170 ft
1219	47° 33.921	A. compacta:		Water depth = 42 ft @ end
	122 20.806	Others:	9	
8 1247	X: 47° 33.917	N. mendicus:		Water depth = 45 ft @ start
	Y: 122° 20.870	A. gausapata:	11	Cable set: 170 ft
1250	47° 33.896	A. compacta:		Water depth = 35 ft @ end
	122° 20.809	Others:	5	
9 1313	X: 47 33.923	N. mendicus:		Water depth = 45 ft @ start
	Y: 122 20.865	A. gausapata:	42	Cable set = 170 ft
1315	47° 33.880	A. compacta:		Water depth = 42 ft @ end
	122° 20.847	Others:	13	
10 1348	X: 47° 33.920	N. mendicus:		Water depth = 44 ft @ start
	Y: 122° 20.865	A. gausapata:		Cable set = 170 ft
1351	47° 33.930	A. compacta:		Water depth = 40 ft @ end
	122° 20.809	Others:	15	

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no. 04-08-06-21

Date: 8/10/05 Location: X:

Start/Stop time: 1418/1522 Y:

Sampling Method: Benthic Sledge Sample ID: G196

Weather: Overcast, light wind, warm Crew: H. Andersen, T. Do, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
1 1418	X: 47° 33.505	*N. mendicus:*		Water depth = 22ft @ start
	Y: 122° 20.708	*A. gausapata:*	17	Cable set = 70 ft
1419	47° 33.482	*A. compacta:*		Water depth = 16 ft @ end
	122° 20.718	Others:		
2 1425	X: 47° 33.510	*N. mendicus:*	1	Water depth = 21 ft @ start
	Y: 122° 20.707	*A. gausapata:*	32	Cable set = 80 ft
1427	47° 33.479	*A. compacta:*		Water depth = 16 ft @ end
	122° 20.728	Others:		
3 1439	X: 47° 33.507	*N. mendicus:*		Water depth = 31 ft @ start
	Y: 122° 20.703	*A. gausapata:*	16	Cable set = 70 ft
1500	47° 33.521	*A. compacta:*		Water depth = 35 ft @ end
	122° 20.657	Others:	2	
4 1508	X: 47° 33.508	*N. mendicus:*		Water depth = 28 ft @ start
	Y: 122° 20.711	*A. gausapata:*	9	Cable set = 90 ft
1509	47° 33.538	*A. compacta:*		Water depth = 37 ft @ end
	122° 20.694	Others:	1	
5 1521	X: 47° 33.508	*N. mendicus:*	1	Water depth = 28 ft @ start
	Y: 122° 20.711	*A. gausapata:*	28	Cable set = 90 ft
1522	47° 33.532	*A. compacta:*		Water depth = 29 ft @ end
	122° 20.714	Others:		
6	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
7	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
8	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
9	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
10	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no. 04-08-06-21

Date: 8/11/05 Location: X:

Start/Stop time: 0720 / 0901 Y:

Sampling Method: Benthic Sledge Sample ID: T. Doi, K. Hurley, A. Rodriguez

Weather: Overcast, cool Crew: G196

Tow #	Coordinates	Number of Gastropods		Comments
1	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
2	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
3	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
4	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
5	X:	*N. mendicus:*		
	Y:	*A. gausapata:*		
		A. compacta:		
		Others:		
6 0725	X: 47° 33.507	*N. mendicus:*		Water depth: 18 ft @ start
	Y: 122° 20.712	*A. gausapata:*		Cable set = 90 ft
0726	47° 33.532	*A. compacta:*		Water depth = 37 ft @ end
	122° 20.716	Others:		
7 0746	X: 47° 33.508	*N. mendicus:*		Water depth = 24 ft @ start
	Y: 122° 20.716	*A. gausapata:*		Cable set = 90 ft
0748	47° 33.482	*A. compacta:*		Water depth = 31 ft @ end
	122° 20.684	Others:		
8 0815	X: 47° 33.508	*N. mendicus:*		Water depth = 27 ft @ start
	Y: 122° 20.702	*A. gausapata:*		Cable set = 90 ft
0816	47° 33.502	*A. compacta:*		Water depth = 42 ft @ end
	122° 20.667	Others:	7	
9 0840	X: 47° 33.509	*N. mendicus:*		Water depth = 28 ft @ start
	Y: 122° 20.722	*A. gausapata:*		Cable set = 100 ft
0842	47° 33.494	*A. compacta:*		Water depth = 35 ft @ end
	122° 20.669	Others:	2	
10 0858	X: 47° 33.518	*N. mendicus:*		Water depth = 21 ft @ start
	Y: 122° 20.723	*A. gausapata:*		Cable set = 100 ft
0901	47° 33.493	*A. compacta:*		Water depth = 28 ft @ end
	122° 20.698	Others:	5	

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no. 04-08-06-21

Date: 8/11/05 Location: X:

Start/Stop time: 0939 / 1407 Y:

Sampling Method: Benthic Sledge Sample ID: G206

Weather: Overcast, cool Crew: T. Do, R. Hurley, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
1 0939	X: 47° 33.398	N. mendicus:		Water depth = 34 ft @ start
	Y: 122° 20.526	A. gausapata:	3	Cable set = 120 ft
0941	47° 33.399	A. compacta:		Water depth = 36 ft @ end
	122° 20.464	Others:	2	
2 1017	X: 47° 33.417	N. mendicus:		Water depth = 42 ft @ start
	Y: 122° 20.459	A. gausapata:		Cable set = 120 ft
1019	47° 33.402	A. compacta:		Water depth = 30 ft @ end
	122° 20.508	Others:	22	
3 1044	X: 47° 33.359	N. mendicus:	1	Water depth = 32 ft @ start
	Y: 122° 20.518	A. gausapata:	3	Cable set! 120 ft
1047	47° 33.402	A. compacta:		Water depth = 34 ft @ end
	122° 20.522	Others:	58	
4 1118	X: 47° 33.391	N. mendicus:		Water depth = 36 ft @ start
	Y: 122° 20.487	A. gausapata:		Cable set = 120 ft
1120	47° 33.408	A. compacta:		Water depth = 32 ft @ end
	122° 20.553	Others:	16	
5 1223	X: 47° 33.399	N. mendicus:		Water depth = 33 ft @ start
	Y: 122° 20.517	A. gausapata:	8	Cable set = 120 ft
1225	47° 33.~~390~~ 390	A. compacta:		Water depth = 28 ft @ ~~st~~ end
	122° 20.553	Others:		
6 1251	X: 47 33.418	N. mendicus:		Water depth = 35 ft @ start
	Y: 122 20.489	A. gausapata:		Cable set = 120 ft
1253	47° 33.399	A. compacta:		Water depth = 28 ft @ end
	122° 20.523	Others:	50	
7 1325	X: 47° 33.386	N. mendicus:		Water depth = 30 ft @ start
	Y: 122° 20.502	A. gausapata:	65	Cable set = 120 ft
1327	47° 33.408	A. compacta:		Water depth = 31 ft @ end
	122° 20.527	Others:		
8 1348	X: 47° 33.383	N. mendicus:		Water depth = 28 @ start
	Y: 122° 20.507	A. gausapata:		Cable set = 120 ft
1350	47° 33.404	A. compacta:		Water depth = 28 ft @ end
	122° 20.222	Others:		
9 1357	X: 47° 33.422	N. mendicus:		Water depth = 40 ft @ start
	Y: 122° 20.495	A. gausapata:		Cable set = 120 ft
1359	47° 33.349	A. compacta:		Water depth = 30 ft @ end
	122° 20.514	Others:		
10 1405	X: 47° 33.401	N. mendicus:		Water depth = 31 ft @ start
	Y: 122° 20.513	A. gausapata:	19	Cable set = 120 ft
1407	47° 33.403	A. compacta:		Water depth = 35 ft @ end
	122° 20.554	Others: Olivella	2	
		Moon Snail	1	

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GASTROPOD FIELD COLLECTION FORM

Project Name: Gastropod Imposex Study Project no.

Date: 8/9/05 Location: X:

Start/Stop time: 0745/1108 Y:

Sampling Method: Benthic Sledge Sample ID: G215

Weather: Low morning clouds, cool, light wind Crew: H. Andersen, T. Do, A. Rodriguez

Tow #	Coordinates	Number of Gastropods		Comments
1 0746	X: 47° 33.078	N. mendicus:		Water depth = 18 ft @ start
	Y: 122° 20.504	A. gausapata:		Cable set = 150 ft
0747	47° 33.104	A. compacta:		Water depth = 40 ft @ end
	122° 20.445	Others:	3	
2 0808	X: 47° 33.082	N. mendicus:		Water depth = 17 ft @ start
	Y: 122° 20.506	A. gausapata:		Cable set = 150 ft
0809	47° 33.100	A. compacta:		Water depth = 43 ft @ end
	122° 20.435	Others:		
3 0828	X: 47° 33.077	N. mendicus:		Water depth = 16 ft @ start
	Y: 122° 20.507	A. gausapata:	1	Cable set = 150 ft
0831	47° 37.119	A. compacta:		Water depth = 48 ft @ end
	122° 20.462	Others:		
4 0854	X: 47° 33.079	N. mendicus:		Water depth = 16 ft @ start
	Y: 122° 20.505	A. gausapata:	#	Cable set = 150 ft
0857	47° 33.053	A. compacta:		Water depth = 41 ft @ end
	122° 20.440	Others: Olivella	1	
5 0910	X: 47° 33.076	N. mendicus:		Water depth = 15 ft @ start
	Y: 122° 20.505	A. gausapata:		Cable set = 150 ft
0913	47° 33.071	A. compacta:		Water depth = 41 ft @ end
	122° 20.432	Others: Olivella	1	
6 0932	X: 47° 33.075	N. mendicus:		Water depth = 14 ft @ start
	Y: 122 20.504	A. gausapata:	4	Cable set = 150 ft.
0935	47° 33.055	A. compacta:		Water depth = 41 ft. @ end
	122° 20.442	Others:		
7 0958	X: 47° 33.091	N. mendicus:		Water depth = 25 ft @ start
	Y: 122° 20.500	A. gausapata:	4	Cable set = 150 ft
1000	47° 33.059	A. compacta:		Water depth = 36 ft @ end
	122° 20.456	Others:		
8 1026	X: 47° 33.091	N. mendicus:		Water depth = 26 ft @ start
	Y: 122° 20.495	A. gausapata:		Cable set = 150 ft
1029	47° 33.115	A. compacta:		Water depth = 41 @ end
	122° 20.448	Others:	1	
9 ~~1047~~	X: 47° 33.073	N. mendicus:		Water depth = 11 ft @ start
1047	Y: 122° 20.508	A. gausapata:	1	Cable set = 150 ft
	47° 33.067	A. compacta:		Water depth = 45 ft @ end
1051	122° 20.449	Others:		
10 1104	X: 47 33.073	N. mendicus:		Water depth = 11 ft @ start
	Y: 122° 20.508	A. gausapata:		Cable set = 150 ft
1108	47° 33.080	A. compacta:		Water depth = 41 ft @ end
	122° 20.435	Others:		

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830 Head to station G166
842 1st tow attempt aborted because the cable needed to be marked every 10 ft
0900 1st tow @ station G166
start 47° 34.066 Water depth ≈60 ft
122° 20.932 Cable out = 180 ft
0906 Complete 1st tow 1.5 minute
47° 34.076
122° 20.894
6 ~~A. glaucasepta~~ olivella sp (AM) collected
0944 2nd tow @ G166b begins
47° 34.070 Cable set = 200 ft
122° 20.933 Water depth = 50 ft
0945 Complete 2nd tow 1.5 minute
47° 34.109
122° 20.954
Water depth = 31 ft
6 ~~A. glaucasepta~~ olivella sp (AR) & 2 misc. others collected

8/8/05 A. RODRIQUEZ

1025 3rd tow @ station G166 begins
47° 34.070 Cable set = 220 ft
122° 20.934 Water depth = 59 ft
1030 Sledge gets snagged on the bottom and we had to move off station to get out of the way for a Hanson barge. ~~to~~ AR
1 Minute tow, end coordinates not recorded
3 ~~A. glaucasepta~~ olivella sp (AR) collected
1047 4th tow @ station G166 begins
47° 34.071 Water depth = 64 ft
122° 20.926 Cable set = 220 ft
1049 Complete 4th tow @ 1.5 minute
47° 34.071 Water depth = 50 ft
122° 20.879
2 ~~A. glaucasepta~~ olivella sp (HE) & 2 (CR) 1 misc. other collected
1118 5th tow @ station G166 begins
47° 34.068 Water depth = 60 ft
122° 20.939 Cable set = 220 ft
1120 Complete 5th tow @ 2 minutes
43° 34.115 Water depth = 40 ft
122° 21.003
3 other gastropod species & 2 ~~A. glaucasepta~~ olivella sp (RE) collected

8/8/05 A. Rodriguez

1200 Lunch break
1226 Head to Station G166 for 6th tow
1228 Arrive @ station G166
1229 Begin tow6 47°34.669 122°20.940
1230 Sledge is snagged at bottom on rope
Cable set = 220ft Water depth = 58 ft
Complete 6th tow, water depth = 36 ft
47° 34.088
122° 20.870
1 other gastropod specie collected
1254 Arrive @ 7th tow location
1255 Begin 7th tow @ G166
47° 34.074 Water depth = 51 ft depth
122° 20.934 Cable set = 220 ft
1258 Complete 7th tow @ 1.5 minute
47° 34.105
122° 20.849
Water depth = 35 ft @ end
27 A. gausapta collected
1352 8th Tow begins, water depth: 50ft
Cable set = 220 ft
47° 34.065
122° 20.926
1356 Complete 8th tow Water depth = 48ft @ end

8/8/05 A. Rodriguez

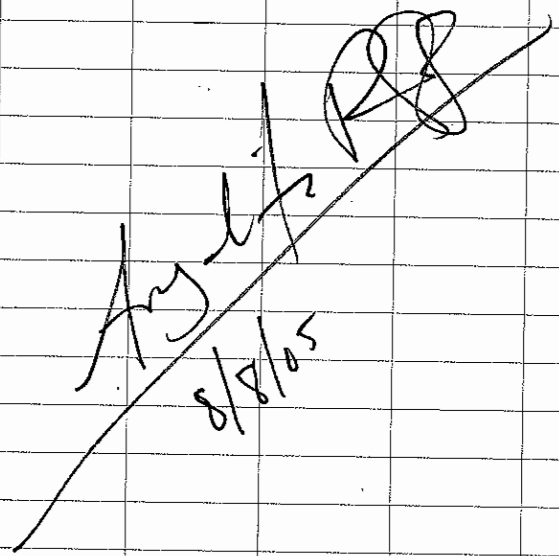
Coordinates for End of 8th tow
2 minute tow
47° 34.015
122° 20.894
4 Olivella sp, 2 A. gausapta & 3 other gastropod species Collected
1418 Begin 9th tow, waterdepth = 50ft
47° 34.068
122° 20.930
1423 2 minute tow, Complete 9th tow
47° 34.018
122° 20.954
Water depth = 26 ft @ end
28 A. gausapta & 2 other gastropod species collected
1455 Begin 10th tow, water depth = 50 ft
47° 34.073
122° 20.936
Cable set = 220 ft
1500 Complete 10th tow, water depth = 46 ft
2 minute tow
47° 34.007
122° 20.857

8/8/05 — A. Rodriguez

Tow 10 species collected:
6 Olivella, 2nd 1 N. mendicus
& 2 other gastropod species

1532 Unload boat at Harbor Island Marina

1600 Arrive at UW to hand deliver samples to Dr. Alan Kolan



8/9/05 — A. Rodriguez

0730 Arrive at Harbor Island Marina and load boat with supplies
Crew: Helle Andersen
Thai Do
Angelita Rodriguez
Dave Mullins (Boat driver)
Weather: Low morning clouds & cool
Gastropod Imposex Study
location G21b

0740 Arrive at location G21b
47° 33.078 Water depth = 18ft
122° 20.504 Cable set = 150 ft

0746 1st tow begins @ G21b

0747 Complete 1st tow, water depth = 40ft
47° 33.104
122° 20.445

0806 2nd tow begins, (3) Photos taken
47° 33.082 Water depth = 17 ft
122° 20.506 Cable set = 150 ft

0809 Complete 2nd tow @ 1.5 minute
47° 33.100 Water depth = 43ft
122° 20.435
Ø Gastropods Collected

8/9/05 A. Rodriguez

0828 3rd tow location
47° 33.077
122° 20.507
0830 3rd tow begins
Water depth 16 ft
Cable set = 150 ft
0831 Complete 3rd tow @ 1 minute
47° 33.119 Water depth = 48 ft
122° 20.462
1 A. gausapata collected

0854 4th tow location
47° 33.079 Water depth = 16 ft
122° 20.505 Cable set = 150 ft
0857 Complete 4th tow @ 1 minute
47° 33.053 Water depth = 41 ft
122° 20.440
Photos taken, 1 gastropod (olivella) collected
910 5th tow
47° 33.076 Water depth = 15 ft
122° 20.505 Cable set = 150 ft
913 Complete 5th tow @ 1 minute
47° 33.071 Water depth = 41 ft
122° 20.432

8/9/05 A. Rodriguez

0932 6th tow
47° 33.055 075 Water depth = 14 ft
122° 20.442 = 304
0935 Complete 6th tow @ 1 minute
47° 33.055 Water depth = 41 ft
122° 20.442
4 A. gausapata collected
0958 7th tow
47° 33.091 Water depth = 25 ft
122° 20.502 Cable set = 150 ft
0959 Begin 8th tow
1000 Complete 7th tow @ 1 minute
47° 33.059 Water depth = 36 ft
122° 20.456
4 A. gausapata collected
1026 8th tow
47. 33.091 Water depth = 6 ft
122 20.495 Cable set = 150 ft
1028 Begin 8th tow
1029 Complete 8th tow @ 1 minute
47° 33.115 Water depth = 41 ft
122° 20.448
1 Moon snail collected

8/9/05 A. Rodriguez

1047 Arrive @ 9th tow location

1050 Begin 9th tow
47° 33.073 Water depth=11 ft
122° 20.508 Cable set=150 ft

1051 Complete 9th tow @ 1 minute
47° 33.067 Water depth=45 ft
122° 20.449
1 A. gausapata collected

1104 10th tow
47° 33.073 Water depth=11 ft
122° 20.508 Cable set=150 ft

1108 Complete 10th tow @ 1 minute
47° 33.080 Water depth=41 ft
122° 20.435
Ø Gastropods collected

1130 Lunch break

1205 Arrive @ station G17b
47° 34.081 Water depth=30 ft
122° 20.752 Cable set=150 ft

1207 Begin 1st tow @ G17b

1208 Complete 1st tow @ 1 minute
47° 34.090 Water depth=35 ft
122° 20.812
1 A. gausapata & 1 other gastropod collected

8/9/05 A. Rodriguez

1229 2nd tow, G17b Water depth=30 ft
47 34.083 Cable set=150 ft
122 20.752

1231 Begin 2nd tow Photo taken

1232 Complete 2nd tow
47°34.100 Water depth=27 ft
~~11~~ 122° 20.802
Tow line was snagged; sledge filled with litter, rocks, woody debris and mud & shell fragments algae.
Ø gastropods collected

1246 3rd tow, G17b
47° 34.080 Water depth=28 ft
122° 20.754 Cable set=150 ft

1248 Begin 3rd tow

1249 Sledge gets snagged on bottom; sledge full of mud

Complete 3rd tow Water depth=36 ft
6 A. gausapata & 1 other collected

1312 Tow 4 begin
47°34.082 Water depth=26 ft
122° 20.758 Cable set=150 ft

8/9/05 A. Rodriguez

1314 Complete 4th tow @ 1.5 minute
47° 34.035 Water depth = 40 ft
122° 20.794
Mud, coarse/med sand with shell fragments & wood debris
Total of 11 gastropods collected

1335 5th tow begins
47° 34.080 Water depth = 30 ft
122° 20.752 Cable set = 150 ft

1337 Complete 5th tow @ 1 minute
47° 34.0483 Water depth = 36 ft
122° 20.793
Mud, fine sand, matted fishing line
0 gastropods collected

1357 6th tow begins
47° 34.080 Water depth = 39 ft
122° 20.757 Cable set = 150 ft

1400 Complete 6th tow @ 1 minute
47° 34.048 water depth = 36 ft
122° 20.804
Mud, silt, algae 0 gastropods collected

1423 7th tow
47° 34.081 Water depth = 30 ft
122° 20.753 Cable set = 150 ft

8/9/05 A. Rodriguez

1425 Complete 7th tow @ 1 minute
47° 34.039 water depth = 40 ft
122° 20.787
Mud, some gravel, sand, mussel fragments
4 A. gausapata collected

1458 8th Tow
47° 34.083 Water depth = 33 ft
122° 20.758 Cable set = 150 ft

1500 Complete 8th tow @ 1 minute
47° 34.049 Water depth = 36 ft
122° 20.786
Mud, gravel
Total gastropods collected = 5
Will continue & finish station 6 7b on 8/10

1531 Head back to Harbor Island

1600 Arrive at UW to hand deliver samples

Angeli R
8/9/05

8/10/05 GASTROPOD IMPOSEX A. Rodriguez

0730 Arrive at Harbor Island Marina & load boat
Crew: Helle Andersen
Thai Do
Angelita Rodriguez
Dave Mullins
Weather: Low morning clouds, cool, light wind

0740 9th tow @ station G17b Cont'd
47 34.080 Water depth = 38ft
122° 20.758 Cable set = 150 ft
Yesterday (8/9/05) towed S/SW direction but due to a barge we are towing in a N to W direction

0744 47°34.125 Water depth = 26ft
122° 20.742
Complete 9th tow @ G17b
1 minute tow, mud, gravel, algae
1 other gastropod species collected

0814 10th tow @ G17b
47° 34.080 Water depth = 31 ft
122° 20.750 Cable set = 150 ft

0816 Begin 10th tow, photos taken

8/10/05 A. Rodriguez

0817 Complete 10th tow @ G17b
47° 34.075 Water depth = 41ft
122° 20.801
1 minute tow, mud, rock, algae, wood debris
1 Other gastropod species collected

0834 Head to station G18b

0835 Arrive at station G18b
47° 33.918 Water depth = 53ft
122° 20.871 Cable set = 220ft

0837 Begin 1st tow

0838 Complete 1st tow @ 1 minute
47° 33.863 Water depth = 47 ft
122° 20.868
Mud, sand
3 A. pansapota & 3 other gastropod species

0917 2nd tow
47° 33.924 Water depth = 42ft
122° 20.879 Cable set = 180ft

0919 2nd tow begins

0920 Complete 2nd tow @ 45 seconds
47° 33.949 Water depth = 40ft
122° 20.890

8/10/05 A. Rodriguez

Station G18b Tow 2

5 A. gansapta & 2 other gastropod species collected

0954 3rd tow

47° 33.913 Water depth = 47 ft

122° 20.862 Cable set = 170 ft

0955 3rd tow begins

0956 Complete 3rd tow @ 45 seconds

47° 33.951 Water depth = 53 ft

122° 20.848 Mostly mud

16 A. gansapata & 5 other gastropods collected

1025 4th Tow

47° 33.921 Water depth = 41 ft

122° 20.868 Cable set = 140 ft

1030 Complete 4th tow @ 45 seconds

47° 33.954 Water depth = 48 ft

122° 20.886 Mostly mud

Total = 27 gastropods collected

1037 Spoke to Kathy about the progress of the gastropod collection & imposex preliminary results from Dr. Alan Kohn

1103 5th tow begins

47° 33.922 122° 20.870

8/10/05 A. Rodriguez

1107 47° 33.958 Water depth 50 ft

122° 20.870 Mud

Complete 5th @ 45 seconds

Total collected = 18 gastropods

1135 6th tow

47° 33.919 Water depth = 50 ft

122° 20.866 Cable set = 170 ft

1138 Complete 6th tow @ 45 seconds

47° 33.978 Water depth = 52 ft

122° 20.861 Mud, filamentous algae

Total collected = 5 gastropods

1155 Lunch break

1216 7th tow

47° 33.917 Water depth: 46 ft

122° 20.868 (AB) Cable set = 170 ft

1219 Complete tow 7th @ 45 seconds

47° 33.921 Water depth: 42 ft

122° 20.806 Mud

Total collected = 19 gastropods

1247 8th tow

47° 33.917 Water depth = 45 ft

122° 20.870 Cable set = 170 ft

8/10/05 A. Rodriguez

1250 Complete 8th tow @ 45 seconds
47° 33.896 Water depth = 35ft
122° 20.809 Mud
Total collected = 16 gastropods

1313 9th tow begins
47° 33.923 Water depth = 45ft
122° 20.865 Cable set = 170 ft

1315 Complete 9th tow @ 1.5 minute
47° 33.880 Water depth = 42ft
122° 20.847 Mud
Total collected: 55 gastropods

1348 10th tow begins
47° 33.920 Water depth = 44ft
122° 20.865 Cable set = 170 ft

1351 Complete 10th tow @ 45 seconds
47° 33.930 water depth = 40ft
122° 20.809 Mud
Stop collecting A. gausapata because we have exceeded the required limit of 100 specimen
Total collected = 15 other gastropods

8/10/05 A. Rodriguez

1418 1st tow @ station G196
47° 33.505 Water depth = 22ft
122° 20.708 Cable set = 70 ft

1419 Complete 1st tow @ 45 seconds
47° 33.482 Water depth = 16ft
122° 20.718 17 A. gausapata collected

1425 2nd tow @ 196
47° 33.510 Water depth = 21ft
122° 20.707 Cable set = 80ft

1427 Complete 2nd tow @ 45 seconds
47° 33.479 Water depth = 16ft
122° 20.728 Mud, clay, silt
14 AR2 Total collected = 33 gastropods

1459 3rd tow @ 196
47° 33.507 Water depth = 31ft
122° 20.703 Cable set = 70 ft

1500 Complete 3rd tow
47° 33.521 Water depth = 35ft
122° 20.657
Total collected = 18 gastropods

1508 4th tow @ 196
47° 33.508 Water depth = 28ft
122° 20.711 Cable set = 90ft

1509 Complete 4th tow @ 45 seconds

8/10/05 A. Rodriguez

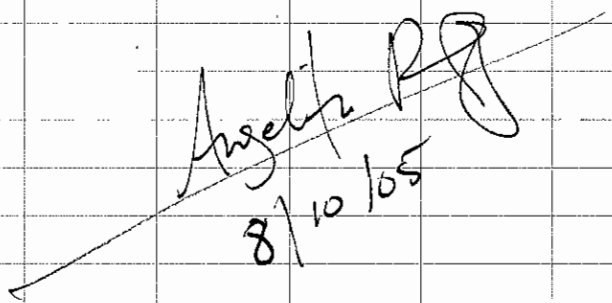
4th tow: 47° 33.538
122° 20.694
Water depth = 37 ft
Total collected = 10 gastropods

1521 5th tow @ 196
47°.33.508
122° 20.711

1522 Complete 5th tow, Water depth=29 ft
47° 33.532
122° 20.714
45 second tow
Total collected = 29 gastropods

1545 Arrive to Harbor Island Marina to unload samples

1630 Arrive at UW to hand deliver samples



8/11/05 A. Rodriguez

0700 Arrive at Harbor Island Marina & load boat
Crew: Thai Do
Kathleen Hurley
Angelita Rodriguez
Dave Mullins
Weather: Low morning clouds, overcast, cool
Gastropod Imposex Study

0720 Head to location 196
Continue towing @ location 196 & begin with tow 6

0725 47° 33.507 Water depth=18ft
122° 20.712 Cable set = 90 ft

~~0726~~ 0726 AR Begin tow 6

0726 Complete tow @ 45 seconds
47° 33.532 Water depth=37ft
122° 20.703 Mud
Observed ~ 10 A. gausapata but did not collect because the required collection limit of 100 was exceeded on 8/10/05

8/11/05 A. Rodriguez

0746 7th tow begin @ G196
47° 33.508 Water depth = 24 ft
122° 20.710 Cable set = 90 ft
0748 Complete 7th tow @ 45 seconds
47° 33.482
122° 20.684
Water depth = 31 ft
Mud, silt
23 A. augasapata observed
0815 47° 33.508 Water depth = 27 ft
122 20.702 Cable set = 90 ft
Begin 8th tow @ G196
0816 Complete 8th tow @ 45 seconds
47° 33.502 Mud
122 20.667
Water depth = 42 ft
Collected 7 other gastropods, observed 37 A. gausapata
0840 Begin 9th @ G196
47° 33.509 water depth: 28 ft
122 20.722 Cable set: 100 ft
842 47° 33.494 Water depth: 35 ft
122° 20.669 Mud
Complete 9th tow @ 45 seconds
Collected 2 other gastropods observed 11 A. gausapata

8/11/05 A. Rodriguez

0858 47° 33.518 10th tow
122 20.723
Water depth = 21 ft Cable set = 100 ft
Begin 10th tow @ G196
0901 Complete 10th tow @ 45 seconds
47° 33.493
122° 20.698
Water depth = 28 ft
Collected 5 other gastropods
Observed 52 A. gausapata
0935 Head to station G20b
1st tow @ G20b
0939 47° 33.398
122° 20.526
Water depth = 34 ft
Cable set = 120 ft

0941 Complete 1st tow @ 45 seconds
47 33.399 Mud, silt, clay
122 20.464
Water depth = 36 ft
Collected 3 A. gausapata &
2 other gastropods

8/11/85 — A. Rodriguez

1017 2nd tow @ G20b
47° 33.417
122° 20.459
Water depth = 42 ft, Cable set = 120 ft

1019 Complete 2nd tow @ 30 seconds
47° 33.402
122° 20.508
Water depth = 30 ft
Collected 22 other gastropods

1044 3rd tow @ G20b
47° 33.359
122° 20.518
Water depth = 32 ft
Cable set = 120 ft

1047 Complete 3rd tow ~~@ G20b~~ (A12) @ 30 seconds
47° 33.402 Mud, sand (fine)
122° 20.522
Water depth = 34 ft
Total Collected = 61 gastropods

1118 4th tow @ G20b, Photos taken
47° 33.391
122° 20.487
Water depth = 36 ft, Cable set = 120 ft

8/11/85 — A. Rodriguez

1120 Complete 4th tow @ 45 seconds
47° 33.408
122° 20.553
Water depth = 32 ft

1155 Lunch break

1223 5th tow @ G20b
47° 33.399
122° 20.517
Water depth = 33 ft
Cable set = 120 ft

1225 Complete 5th tow @ 30 seconds
47° 33.390 Mud
122° 20.553
Water depth = 28 ft
Total Collected = 8 A. gausapata

1251 6th tow @ G20b
47° 33.418
122° 20.489
Water depth = 35 ft
Cable set = 120 ft

1253 Complete 6th tow @ 30 seconds
47° 33.399
122° 20.523

8/11/05 A. Rodriguez

1350 Complete 8th tow @ 30 second
47° 33.404
122° 20.222
Water depth = 28 ft
Total collected = Ø

1357 9th tow @ G20b
47° 33.422
122° 20.495
Water depth = 40 ft
Cable set = 120 ft

1359 Completed 9th tow @ 30 seconds
47° 33.399
122° 20.514
Water depth = 30 ft
Total Collected = Ø

1405 10th tow @ G20b
47° 33.401
122° 20.513
Water depth = 31 ft
Cable set = 120 ft

8/11/05 A. Rodrigues

1407 Complete 10th tow @ 30 seconds
470 33.403
122° 20.554
Water depth = 35 ft
Total collected = 22 gastropods
Observed 17 other gastropods

1445 Head back to Harbor Island Marina

1458 Unload boat

1539 Hand deliver samples to UW, Alan Kohn

1630 Arrive @ office and demob supplies & equipment

Angelita 8/11/05