APPENDIX C. COLLECTION FORMS AND FIELD NOTES



2005 Gastropod imposex study results

Wind/Ward GASTROPOD FIELD COLLECTION FORM Gastropod Imposer Study Project Name: Project no. 8/8/05 Date: Location: X: 0900/1500 Start/Stop time: Y: Sampling Method: Benthic Sledge Sample ID: G166 Crew. H. Andersen, T. Do, A, Radriguez Weather: Clear, Sunny, Warm Tow # Coordinates Number of Gastropods Comments 1 0900 X: 47 34.08 N. mendicus; Depth = 6 att 0842 Y: 122 20.939 A_gausapata:-6 Olivella Cable out =180ft 47° 34.076 122° 20.894 A. compacta: 0906 Others: 2 0944 X: 47 34.070 N. mendicus: Water depth = 50 ff Start A. gausapata Oficella 6 Y: 122°20.933 Cuble set = 200 ft 47° 34.109 122° 20.954 X: 47° 34.070 0945 A. compacta: Water depth = 3/ff end 2 Others: N. mendicus: 31025 Water depth = 59 ft c start Y: 122° 20.934 A. gausapata: 0/ivella 3 Cuble sef = 220 ft Water dap th = Not recorded C end Snagged on wood 10 30 A. compacta: Others: 4 1045 X: 47º34.071 N. mendicus: Water depth = 64 ft e start A gausapata Olivella Z Y: 122° 20.926 Cuble set: 220ft 470 34.071 A. compacta: 1049 Water depth = 50ft c end 122° 20.879 5/118 X: 47° 34.068 Others: Water depth 2 60He start N. mendicus: Y: 122° 20.939 A gausapata olivella 2 Cable set = 220ft 47°34.115 122°21.003 Water depth = 40ft Ø A. compacta: 1120 end Others: 3 61229 X: 47° 34.669 Y: 122° 20.940 N. mendicus: Water depth = 58 ft c start Cuble set = 220 ft A. gausapata: Water depth = 36 @ eno 47° 34.088 122° 20.870 1230 A. compacta: Others: Snagged on rope Water depth = 51 ff estart X: 470 34.074 N. mendicus: 7 1254 A. gausapata: Cable set = 220 ft Y: 1220 20.934 27 Water depth = 35 47 34.105 A. compacta: e end 1258 1220 20.849 Others: N-mendicusi- Olivella Water depth = 50ft C start 81352 X: 47 34.065 Y: 122° 20.926 A. gausapata: Gable set= 220 ft 47 34.015 1356 A. compacta: Water depth = 48 ft & end 122. 20.894 3 Others: 91418 X: 4734.068 N. mendicus: Water depth 250 ft c start Y: 122° 20.930 47° 34.018 A. gausapata: 2 B Caple set = 220ft Water depth = 26 ft @ end 27 A. compacta: 122° 20.954 X: 47° 34.073 Y: 122° 20.936 \$ 2 Others: Water depth = 50 ft e start 10 1455 N-mondicus Olivella 6 Cable set = 220 f A. gausapata: 47 034.007 A. compacta: 1500 Water depth = 46 H @ end

Others:

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2005 Gastropod Imposex Study July 28, 2005 Page 23

Wind/Ward GASTROPOD FIELD COLLECTION FORM Gastropod Imposex Study 8/9/05 Project Name: Project no. X: Date: Location: 1205 Start/Stop time: Y: Sampling Method: Benthic Sledge Sample ID: GI7b Crew: H. Andersen Thai Do, A. Rodrig us Weather: <u>Clear, sunny</u> Warm Tow # Coordinates Number of Gastropods Comments X: 47° 34.081 Water depth = 30ff C start 1 1205 N. mendicus: Y: 122° 20. 752 1208 47° 34.090 122° 20. 812 2 1229 X: 47° 34.083 cuble set= 150ft A. gausapata. Water depth = 35 ft @ end 1208 A. compacta: Others: Water depth= 30 ft estart N. mendicus: Cuble set = 150 ft Y: 122° 20.752 A. gausapata: Water depth = 27 ft. c end 47. 34.100 1231 A. compacta: 122° 20,802 X: 47° 34.080 Others: Water depth = 28 ft@ start 3 1246 N. mendicus: Y: 122° 20.754 A. gausapata: 6 Cuble set = 150 ft 47 34.049 Water depth = 36 ft @ end A. compacta: 1249 122° 20,771 X: 47° 34,082 Others: 4 1312 N. mendicus: 3 Water dap th = 26 ft@ start Cable set = 150 ft Y: 1220 20.754 A. gausapata: z 470 34. 035 1314 A. compacta: Water depth = 40 ft @ end 3 122° 20.794 Others: 51335 X: 47 34.080 Water dep th = 30 ft @ start N. mendicus: Cable set = 150 ft Y: 121° 20.752 A. gausapata: Water depth=36 ft @ end 47° 34.048 043 A. compacta: 1337 122 20.315-793 Others: 61357 × 47° 34.080 Water depth = 39ft @ start N. mendicus: Y 122° 20.757 A. gausapata: Cable set = 150 ft 47° 34.048 172° 20.804 X: 47° 34.081 Water depth=36ft e ena 1400 A. compacta: Others: 7 1423 Nater depth = 30 ft @ start N. mendicus: Y: 122° 20.753 Cuble set = 150ft A. gausapata: 47° 34.039 122° 20.787 Water depth = 40 ft e end 1425 A. compacta: Others: Water depth: ft e start 8 1458 X: 47° 34.083 2 N. mendicus: Y: 122° 20.758 47° 34.049 122° 20.786 Sable set = 150 ft A. gausapata: 1500 Water depth = 36 ft c end A. compacta: 5 Others: 9 N. mendicus: X: Y: A. gausapata: A. compacta:

Lower Duwamish Waterway Group

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X:

Y:

Others:

N. mendicus:

A. gausapata: A. compacta: Others:

> 2005 Gastropod Imposex Study July 28, 2005 Page 23

FINAL

Wind	Ward Spironmental LLC GASTROPOD FI	ELD COL	LECTION FORM
Project Name:	Gastropod Imposex Study	Project no.	04-08-06-21
Date:	8/10/05	Location:	Х:
Start/Stop time:	0740		Y:
Sampling Method:	Benthic Sledge	Sample ID:	GI7b Cont'd
Weather: Low	morning clouds, cool, light wind	Crew:	H. Andersen, T. Do, A. Rodriguez_

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Tow #	Coordinates	Number of	Gastropods	Comments
9 07%	X: 47° 34.080	N. mendicus:	n	Water depth = 38 Ft@ start
	Y: 122° 20 758	A. gausapata:		Cable set = 150 ft Water dipth = 26 ft c end
0744	470 34.125	A. compacta:		Water depth = 26 ft @ end
	1220 20.742	Others:	1	
0814	X: 47 34.080	N. mendicus:		Water depth = 31 ft e start Cable set: 150 ft
	Y: 122" 20, 750	A. gausapata:		Cable set: 150 ft
0817	47° 34.075	A. compacta:		Water depth: 41 ft @ and
	122° 20.801	Others:	1	
30835	X: 47° 33.918	N. mendicus:		Water depth = 53 ft & start Cuble set = 220 ft Water depth = 47 ft & end
	Y: 1220 20,871	A. gausapata:	K 3	Cubie sot = 220 ft
0839	47" \$3.863	A. compacta:		Water depth=47 ff c 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:		
	an na mang baga aki na tanang manang manang mang bagan pang barang manang manang mang barang barang barang bar	Others:		
6	X:	N. mendicus:		
	Y:	A. gausapata:		
	1	A. compacta:		
	19-1	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:		
10	ν.	Others:		
10	X:	N. mendicus:		
	Y:	A. gausapata:		
		A. compacta:		
	······································	Others:		

Lower Duwamish Waterway Group

2005 Gastropod Imposex Study FINAL July 28, 2005 Page 23

Wind/Ward **GASTROPOD FIELD COLLECTION FORM** Gastropod Imposox Study Project Name: Project no. 04-08-06-21 8/10/05 Date: Location: X: 0835/1351 Start/Stop time: Y: Sampling Method: Ben thic Spage Sample ID: GIBb Weather: Low morning clouds, cool, light wind Crew: H. Andersen T. Do, A. Ridriguez Tow # Coordinates Number of Gastropods Comments Water depth = 53ftc start 10835 X: 47° 33.918 N. mendicus: Y: 122° 20.871 A. gausapata: 3 Cable set = 220ft Water depth= 47 ft c end 0839 47° 33. 863 A. compacta: 122° 20.868 20917 X: 47° 33.924 3 Others: N. mendicus: Water depth = 42 ft a start 5 Y: 122° 20.879 A. gausapata: Cable set= 180ft 47° 33.949 122° 20.890 X:47° 33.913 0920 A. compacta: Water depth - 48 ft & end 2 Others: Water depth= 47 ft e start 3 6954 N. mendicus: Cable set = 170 ft Y: 122° 20.862 A. gausapata: 16 0956 4733,951 A. compacta: Water depth - 53 ft @ end 122 20.848 Others: X: 47°33.921 N. mendicus: 2 Water depth = 41 ft@start 41025 Cable set: 140 FF Y: 122° 20, 868 A. gausapata: 21 47° 33.954 122° 20.886 X: 47° 33.922 A. compacta: Water depth = 48 ft @ end 1030 Others: 4 5 1163 N. mendicus: Water dupth = 51ftc start Y:122° 20.870 A. gausapata: Cable set = 190 ft 13 47° 33.958 122° 20.870 A. compacta: Water depth = 50 ft c end 1107 Others: 4 X: 47° 33.919 N. mendicus: Water depth= 50 ft estart 6/135 Y: 122º 20.866 2 Cable set = 170 ft A. gausapata: 47° 33.970 122° 20.861 X:47° 33.917 Water depth = 52 ftc end 1138 A. compacta: Others: 43 7/2/6 N. mendicus: Water depth = 46 ft & start 9 Y: 122° 20.868 A. gausapata: Cable set= 170 ft 47° 33.921 A. compacta: Water depth = 42 ft e end 1219 122 20.806 X:47 33.917 9 Others: Water depth = 45 Ft @ stert 81247 N. mendicus: Cable set : 170 ft Y:122° 20.870 A. gausapata: 11 47° 33.896 1250 Water depth = 35 ft cend A. compacta: 1220 20.809 Others: 5 water depth = 45 ft @ start X: 47 33.923 N. mendicus: 9/*3*13 Y: 122 20.865 A. gausapata: 42 Cuble Set = 170 ft Water depth = 42 ft e end 1315 47" 33.880 A. compacta: 1220 20,847 13 Others: X: 47° 33.920 Y: 122° 20,865 Water depth = 44 ff c start 10/**39**8 N. mendicus: Cable set= 170 A. gausapata: 1351 470 29 33.930 A. compacta: Water depth = 40 122° 20,809 15 Others:

2005 Gastropod Imposex Study July 28, 2005 Page 23

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39 12

FINAL

Wind Ward **GASTROPOD FIELD COLLECTION FORM** Gastropod Imposex Study 8100/05 04-08-06-21 Project Name: Project no. X: Date: Location: 14181 1522 Start/Stop time: Y: Sampling Method: Benthic Sledge G196 Sample ID: Weather: Overcast, light wind, warm Crew: H. Andersen, T. Do, 4. Radriquez

Tow #	Coordinates	Number of	Gastropods	Comments
1 1418	X: 47º 33.505	N. mendicus:		Water depth = 22ft C start
	Y: 1220 20.708	A. gausapata:	17	Water clapth = 22ft C start Cable set = 70 ft Water depth = 16 ft @ end
1419	470 33.482	A. compacta:		Water depth=16 ft @ end
	122° 20.718	Others:		
2/475	X: 47° 33.510	N. mendicus:	1.	Water depth = 21 ft c start Cable set = 80 ft
	Y: 122° 20.707	A. gausapata:	32	(able set = 80 ft
1427	470 33.479	A. compacta:		Water depth = 16 ft and
	1220 20.728	Others:		
31439	X: 47° 33, 507	N. mendicus;		Water depth = 31 ffc start Cuble set = 70 ft
	Y: 122° 20. 703	A. gausapata:	16	Cuble set: 70 ft
1500	470 33.521	A. compacta:		Water depth = 35 Ft c end
	122° 20.657	Others:	2	
4 1508	X: 47º 33. 508	N. mendicus:		Water depth = 28ff e start
	Y:1220 20,711	A. gausapata:	9	Water depth = 28ft e start Cable set= 90ff
1509	47° 33.538	A. compacta:		Water depth = 37 ft C end
	1220 20,694	Others:	1	
5 1521	X: 47° 33.508	N. mendicus:	1	Water depth = 28ft e start Cable set = 90 ft Water depth = 29 ft & end
	Y: 122° 20.711	A. gausapata:	28	Cable set= 90 ft
1522	47033.532	A. compacta:		Water depth=29 ft & end
	1220 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 bound and the second second of the second	A. compacta:		
	<u>ب</u> د	Others:		

Lower Duwamish Waterway Group

2005 Gastropod Imposex Study July 28, 2005 Page 23

FINAL

Wind	Ward GASTROPOD		LECTION FORM
Project Name:	Gastropod Imposex Study	Project no.	04-08-06-21
Date:	8/11/05	Location:	Х:
Start/Stop time:	0720 10901		Y:
Sampling Method:	Bentinic Stedge	Sample ID:	T. Do, K. Hurley, A. Rodriguez G 196
Weather: Over co	st, copl	Crew:	G 196

Tow #	Coordinates	Number of C	Sastropods	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: 18ft C start Cable set = 90ft Water depth=37ft @ end
	Y: 122° 20.712	A. gausapata:		Caple set = 90 ft
0726	47° 33 532	A. compacta:		Water depth= 37ff @ end
	1220 20.716	Others:		
70746	X: 47° 33. 508	N. mendicus:		Water depth = 24 ft @ start
	Y: 1220 20.716	A. gausapata:		Water depth = 24 ft @ start Cable set = 90 ft
0748	47.33.482	A. compacta:	•	Water depth = 31 ft o end
	122° 20.684	Others:		
80815	X: 47° 33, 508	N. mendicus:		Water depth = 27 ft c start
	Y: 122° 20. 702	A. gausapata:		Water depth = 27 ft c start Cable set = 90 ft
0816	470 33.502	A. compacta:	·	Water depth = 42 ft C end
annon an ann an Ar Maralan an Anna	122° 20.667	Others:	7	•
90840	X: 47 33. 509	N. mendicus:		Water depth = 28ft e start
	Y:1220 20.722	A. gausapata:		Cable set = 100 ft
0842	470 33. 494	A. compacta:		Water depth= 28ft e start Cable set = 100ft Water depth= 35ft e end
	1220 20.669	Others:	1	
10 085B	X: 470 33.518	N. mendicus;		Water depth = 21ft c start Cable set = 100 ft Water depth = 28ft c end
	Y:122° 20.723	A. gausapata:		Cable set= 100 ft
0901	47033.493	A. compacta:		Water depth = 28 ft C end
	1220 20. 698	Others:	5	

2005 Gastropod Imposex Study FINAL July 28, 2005 Page 23

Wind Ward **GASTROPOD FIELD COLLECTION FORM** Gastropod Imposer Study 8/11/05 Project Name: Project no. 04-08-06-21 X: Date: Location: 0989 / 1407 Start/Stop time: Y: Benthic Sledge Sample ID: <u>G205</u> Sampling Method: Crew: T. Do, R. Hurley, A. Rodriguez Over cast, cool Weather:

Tow #	Coordinates	Number of	Gastropods	Comments
1 0939	X:47°33.398	N. mendicus:		Water depth: 34ft @ start
	Y:1220 20,526	A. gausapata:	3	Cable set= 120 ft
0941	47° 33. 399	A. compacta:		Water depth = 36 ft e end
	122° 20.464	Others:	2	an a
2/0/7	X: 47° 33.417	N. mendicus:		Water depth = 42 ft c start
	Y: 122"20. 459	A. gausapata:		CA512 8+= 120 Ft
1019	470 33.402	A. compacta:		Water depth=30ft c end
	122° 20.508	Others:	22	
3 1044	X: 47° 33.359	N. mendicus;	1	Water depth = 32ft c start
	Y: 122° 20.518	A. gausapata:	3	Cable set = 120 ft
1047	470 33.402	A. compacta:		Water depth = 34 ft c end
	122° 20.522	Others:	58	
4 1118	X: 47° 33.391	N. mendicus:		Water depth : 36 ft c start
	Y: 122° 20. 487	A. gausapata:		Cable set= 120 ft
/120	470 33.408	A. compacta:		Water depth = 32 ft c end
	122° 20.553	Others:	16	
5/223		N. mendicus:	1	Water depth = 33 ft c start
	Y: 1220 20.517	A. gausapata:	8 .	Cable set = 120 ft
1225	47 33. 390 390	A. compacta:		Water depth: 28 ft C st end
	122° 20.553	Others:		•
61257	X: 47 33.418	N. mendicus:		Water depth = 35 ft @ start Cable set = 120 ft
	Y:122 20.489	A. gausapata:		Cable set = 120 ft
1253	47033.399	A. compacta:		Water depth = 2B + + @ end
	122° 20.523	Others:	50	
71325	X: 47"33.386	N. mendicus:		Water depth= 30 ft estart
	Y: 122 20. 50 2	A. gausapata:	165	Cable set = 120 ft
1327	47° 33.40B	A. compacta:		Water depth = 31 ft e end
	1220 20.527	Others:		
8 1348	X: 47° 33.383	N. mendicus:		Water depth = 28 c start Cable set - 120 ft
	Y: 1220 20.507	A. gausapata:		Cable set: 120 ft
1350		A. compacta:		Water depth = 28 ft & end
	122° 20.222	Others:		•
9 1357	X: 470 33.422	N. mendicus:		Water depth = 40 ft c start
	Y: 122° 20.495	A. gausapata:		Cable set= 120ft
1359	470 33.399	A. compacta:		Water depth = 30 ftc end
-	1220 20.514	Others:		
10 J405	X: 47" 33.401	N. mendicus:		Water depth=31 ftc start
and the second second	Y: 122° 20, 513	A. gausapata:	19	Cable set = 120 ft
M07	47° 33.403	A. compacta:		Water depth = 35ft c end
	122° 20.554	Others: Olivella	2	

Moon Snail

Lower Duwamish Waterway Group

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2005 Gastropod Imposex Study July 28, 2005 FINAL Page 23

82

48

13 \$

Wind Ward GASTROPOD FIELD COLLECTION FORM Project Name: <u>Gastropod Imposex Study</u> Project no. Date: <u>8/9/05</u> Location: X: 0745/1108 Start/Stop time: Y: Benthic Sledge Sample ID: G215 Sampling Method: Weather: Low morning clouds, cool, lightwind Crew. H. Andersen, T. Do, A. Radriguez

Tow #	Coordinates	Number of 0	Gastropods	Comments
10746	X: 47° 33. 078	N. mendicus:	aan ah	Water depth = 18ff @ start
	Y: 1220 20.504	A. gausapata:		Cable s. += 150ft
0747	47033.104	A. compacta:		Water depth= 40 ft@ end
	122° 20. 445'	Others:	3	7
20808	X: 47° 13. 082	N. mendicus:		Water depth = 17 ft @ start
	Y: 122° 20.506	A. gausapata:		Challe set-150ft
0809	47°33.100	A. compacta:		Water dep th = 43 ft a end
	122° 20.435	Others:		
3 0828	X: 47" 33. 077	N. mendicus:		Water depth = 16 ft a start
	Y: 122" 20.507	A. gausapata:	1	luble set = 150ft
0831	47.37.119	A. compacta:		Water depth = 48 ft @ end
	122 00.462	Others:		•
4 08 54	X: 470 33.079	N. mendicus:		Water depth = 16 ft C start
	Y:1220 20.505	A. gausapata:	*	Cable set = 150 ft
0857	47033.053	A. compacta:		Water depth=41 ft o end
	122° 20.440	Others: <i>Olivella</i>	1	
5 D910	X: 47°33.076	N. mendicus:		Water deptt= 15Ft @ start
	Y: 122° 20.505	A. gausapata:		Cabloset= 150 ft
0913	47° 33.071	A. compacta:		water depth = 41 Ft a end
	122° 20.432	Others: Oliveda	1	*
6 0132	X: 47 33.075	N. mendicus:		Water dept = 14ft @ stant
	Y: 172 20,504	A. gausapata:	<u> </u>	Carle set = 150GL.
0935	47.33.055	A. compacta:		Water dept = 41 ft. Card
	122° 20. 442	Others:		•
7 0953	X: 47º 33.091	N. mendicus:	Olympicate a second a second country of the second s	Water depth= 25 ff @ start
	Y: 122° 20. 500	A. gausapata:	식	Cable set = 150 ft
1000	470 33.059	A. compacta:		Water depth = 36 ft @ encod
	1220 20.456	Others:		
8 1026	X: 47° 33.091	N. mendicus:	A 1975 /	Water depth= 26 ff @ start
	Y: 122° 20.495	A. gausapata:		Cable set = 150 ft
1029		A. compacta:		Water depths 41 @ and
	122° 20.448	Others:		
9 +0 47	X: 47° 33.073	N. mendicus:	**************************************	Water depth = 11 ft & start
1047	Y: 122° 20,508	A. gausapata:		Cable set = 150 ft
•.	470 33.067	A. compacta:		Water depth=45 ff & end
1051	122° 20.449	Others:	4 .	/
10 1104	X: 47 33.073	N. mendicus:	.*	Water depth = 11 fte start
	Y:122° 20. 50B	A. gausapata:	and a company proves provide the state of a spin of a providence of the state of the spin of a spin of a spin of the spin of t	Cuble set = 150 ft
1108	47° 33.080	A. compacta:	Manifestation and the state of the base of a manufacture of the state	Water depth = 41 ft c end
	122° 20,435	Others:		

FINAL 2005 Gastropod Imposex Study July 28, 2005 Page 23

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A. M Panpi Bay	
2 3/2/05 ANGIE RODRIQUE 462.00 Awiners	
P/P/05 46200 Awines	
	1025 Brd tow & station G166 begins
700 MET AT PUE OFFICE	47° 34.070 Cuble set= 220Ft
PHELEGO LIMST 175225	1220 20.934 Water depth= 59Ft
730 AT HUMBON DSCAND MURI	us 1030 Slodge gets snagged on the bottom
LONDED BONT	and we had to move off station
800 Navigation set-up	to get out of the way for a
830 Head to station G16b	Minson barge. to AR
842 1st tow attempt aborted bacquie the	
cable needed to be manked every	1 Minate for end coordinates not recorded 3. 4. gainsapta Collected
10 F4	1047 4th tw @ station G166 begins
0900 254 tow @ station 6/66	470 34.071 Water depth= 64 the
start 47:34 066 Water depth =60ft.	122" 20.926 Cable set = 220 ft
122° 20, 932 Cable out = 180ft	1049 Complete 4th two e 1.5 minute
0 906 Complete 1st for 1.5 minute	470 34.071 Water depth=50ft
47 34,076	
122° 20.894	12.2° 20.879 2 A Olivellasp (He). ER 2 A gamsonpta & 21 Misc. other
6 A. Gausapate Collected	Collected
0944 2nd try a Gillab begins	1118 5th for a station G166 begins
47° 34.070 Cable set = 200 Ff.	47° 34.068 Water depth = 60ff
1220 20.933 Water depth 250 ft	
0945 - Complete 2nd for 1.5 minute	1120 Complete Sthe tow @ 2 minutes
47. 34. 109	43°34.115 Water depth= 40f+
122* 20.954	1770 - 1 0 0 2
Water depth = 31 ft.	3 0 the gastropod spaces & ZA-gan septem Ce
6 4 generapoter 2 Misc others collected	Collected

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4 8/8/0	<u></u>	A. Pody	iquez_	8/8/05			A. Rodri	guez
1200	Leinch preak		·	· · · · · · · · · · · · · · · · · · ·	Coordinates	for End	of Bth.	frw
1226	Head to Star	ion GIGB for	6 the forme		2 minute.			
1278	Arrive c stati		• •		47.34.015			
1229	Begin torub 47°	34.669 122°20.9	40		1220 20.89%	1		
1230	Sledge is share	ged at bo bts	m on rope		\$ plivelle	50.2	& yayse	. n ta
. <u></u>	able set = 220F	Water depth = 587	<u>4</u> (· .	i 3 other	gastrop	and spec	1 cycs
	Completie 646 ;	ton, water dep	H = 36. Af		Collected	2		
	475+34.088			1418	Begin 9	tow, we	terdept	6=50
	122° 20. 870	-			470 34.06	8	/	
	1 other gast	ropod specie co	llected		122° 20, 93	30		
12.54	Arrive : 6 7th	tru bratin		1423	2 minute	for com	plete 4	the for
1255	Begin 7th tru				47.34.0,			
	47: 34.074	Water-depth = 51	H depth.	•	122° 20.95	74 .		
	122° 20.934	Cable set = 220;	A '	·	Water dep			
1258	Complete 7th In	1 0 1.5 minut	~e		28 4 gau	sapta \$1	2 other g	astroy
	47- 34.105				Species Col	lected	Ű	ſ
	122° 20. 849	· · · · ·		1455-	Begin 10th	ton, water	depth=	50 ff
	Water depth = 34	Et c end			47.34.0	73	· ·	
	27 A. gausap	ta collected.			122° 20.9.			
1352	8th Ton begins ,		4		Cable set			
····	Cable Set = 22	<u>, F+</u>	<u> </u>	1500	Complete 1	ot tow, u	ater des	oth:46
	47° 34.065			[2 minute +	W		
	122° 20. 926			 	47034.007	2		
1356	Complete 8th +	ow water dept	h=48Ft		122° 20.857			
•	a and			-				

8/8/05 A.Rodniguez Tow 10 species collected: 6 Olivella, 2the 1 N. mendicus \$ 2 other gastropod species Unload boat at Harbor Island 1532 Maring Arrive at UN to hand deliver samples 1600 to Dr. Alay Koly

8/9/05 A. Rodriguez 0730 Arrive at Harbor Island Maring and load boat with supplies Crew: Helle Andersen Thai Do Angelita Rodriguez Dave Mullins (Boat driver) Weather: Low morning clouds + Cool Gastropod Imposer Study location GZIL 0740 Arrive at location G21b 47° 33. 078 Water depth= 18f4 122° 20. 504 Cable set = 150 ft 0746 1st for begins @ 6216 0747 Complete 1st ton, water depth=40ft 470 33.104 122° 20.445 2nd tow begins, (3) Photos taken 47° 33.082 Water depth: 17ft 0806 122° 20.506 Cuble set = 150 Ft Complete End tow C 1.5 minute 47° 33.100 Water depth=434 0809 Water depth= 43ft 1220 20.435 & Gustropods Collected

8/9/05	A. Rodriguez			A. Rodrign
0828 3rd tow loca	tion	0932	6th tow (17° 33. 055 0	
47° 33.077			122 20.442	75 Water depth=
122° 20.507			122 20.442	304
0830 3rd ton be		0935		a nume
Water desth			47° 33.055	Water depth=4
Cublo set = 1			122° 20.442	1 11 1 1
	d tow & I munute		4 17. gausap	to collected
470 33.119	Water depth = 48f4	0958	Fth tow	
1020 6.460			47*33.091	Water depth =
1 17 gaus ap	ta collected		172° 20.500	Lable set=150 f.
		0959	Begin the to	
0854 4th tow loca		1000	Complete # th	tow cluimate
	Water depth = 16ff			Water depth= 36.
122 20.505	Cuble set=150 H		122° 20.456	
0857 Complete 44	tro @ I minute		4 A. gausapa	ta collected
470 33.053	Water dep th = 41ft	1026	8th for	
122° 20.440	(Olivella)		47.33.091	Unterclupii2677
Thotos taken	, I gastro pod collected			able set = 150 f+
410 5th tow		/028	Begin 8th to	
47° 33.076	Water depth = 15ff	1029	Complete 8 th +	on c / minute
	Cable set = 150 Ft		470 33.115	Water depth: 41 f.
913 Complete 5th H			122° 20.448	
470 33.071	Water depth = 41ft		1 Moon snail	collected
122° 20.432	· · · · _ · _ · _			

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10 8/9/0	A. Rodriguez	8/9/05		A. Rodviguez
1047	Arrive a 9th tow location	1229	2nd ton, G176	A: Rodviguez Water depth=30ft Cableset = 150ft
	····		47 34.083	Cableset = 150ft
1050	Begin 9th tow		122 20.752	
	47° 33.073 Water depth= 11 F1	[23]	Begun Ind TTh	1 Photo taken
	122° 20.508 Cable set= 150 ft	/232	Complete 2nd v	tw Water depth=27f
1051	Complete 9th tow & I minute		47 34.100	Water depth=27f;
	47° '33.067 Water depth = 45++ 122 20.449		17 122 20.802	
	122 20.999		Tow line was si	nagged; sledge
1104	1 A. gausapata collected	<u>`</u>	filled with lif	ter rocks woody
110.	10 th the (120 22 072 11 h 1 h 11 h		debris and mu	d'éskell fragments.
	47° 33.073 Water depth=11ff		algae.	
108	122° 20.508 Cable set= 150 ff	· · · · · · · · · · · · · · · · · · ·	D gastropeds o	c.//ected
/100	Complete 10th tow & Invincte	1246		
	470 33.080 Water depth=41ft 122° 20.435		77 37.080	Water depth = 28ft Cable set = 158ft J
		12 110	Dec. 0. 754	Cable set= 130F+
1130	Ø Grastropods collected	1248	Segen and The	and on hattered.
1205	Anrive @ Station G176	1249	Shalo Fill of m	nged m bittom; ud
	47° 34. 081 Water depth= 30ft		spage tull of m	1 Maters de Mar 3/6
	122° 20.752 Cable set=150ft		la A DAULTA	Water depth: 36ft s' 1 other Collected
1207	Begin 1st for a G176		() IT. yun sap tin	
1208	Complete 1st tow @ I minute	1312	Tow 4 begin	
. –	47° 34.090 Water depth=35ft	-	47 * 34.082	Water deoth=26ft
N 0 1014 bee	47° 34.090 Water depth=35ft 122° 20.812		(22° 20. 757	Water depth=26ff Gable set=158ff
	1 A. gausapata & 1 other gastropod collected			

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12 8/9/0	A. Rodriguez	8/9/05 A. Redriguez 13
314	Complete 4th ton C 1.5 minute	1425 Complete 7th for e Inniente 47034.039 Water deptG=40ft 122° 20.787
	47° 34.035 Water depth = 40 ft 122° 20.794	122° 20.787
	Mud, coarse/med sand with shell	Mud some gravel, sand mussel fragma
	Fragments 3 wood debris	B # 2/A. gausapata collected
	Total of 11 gastropods collected	1458 8th Tow
1335	5th ton begins	47° 34.083 Water depth= 33ft
	47° 34.080 Water depth = 30 ff	122° 20. 758 Cuble set = 150 ft
	122° 20.752 Lable set= 150 ff	1500 Complete 8th tow c 1 minute
1337	Complete 5th for @ 1 minute 47° 34.0483 Water depth = 36 ft 122° 20.375-793	470 34,049 Water dept4 = 36ft
	4 7 34.0483 Water depth = 38 ++	122 20.786
		Mud, gravel
	Mud fine sand, matted tishing line	Total gastro pode collected = 5 Will continue & finish station G176 n. 8/10
1357	O gastropods collected 6th ton begins	1531 Hend Each to Harbor Island
	47° 34.080 Water depth=39ft	
· · · · · · · · · · · · · · · · · · ·	122° 20.757 Cable set= 15874	1600 Arrive at UW to hand deliver
1400	Complete 6th ton C Inimite	Samanlas
	47 34.048 water depth = 36 ft	
	122° 20. 804	
	Mud, silt, algae & gastropods collected	freed
1423	7th tow	1
	47°34.081 Water depth=30ft 122°20.753 Cable set= 50ft	mer 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	122° 20.753 Cable set= 50ft	

14 8/10/05	GASTROPOD MAPOSEX A. Rodinguez	8/10/05 0817 Complete 10th ton @ G176 47° 34.075 Water depth= 4/fd
0730	Arrive at Harbor Island Maring	· 0817 Complete 10th ton @ G176
10000000	2 load boat	470'34.075 Water depth= 41fs
1	& load boat Ovew: Helle Anderson	122° 20.801
	Thai Do	I minute tow, mud, rock, algae, wood
	Thei Do Angelitz Lodriguez	alebris
-	Dave Mullins	1 Other gastroped species alkete
	Weather: Low morning clouds,	
· ·	cool, light wind	0834 Head to station 6186
0740	9th tow a station GI76 Cont'd	0835 Arrive at station G18b
	47 34.080 Water depth = 38ft	47 33.918 Water depth = 534
	47 34.080 Water dupth = 38ft 122° 20. 758 Cable set = 150 ft	122° 20.871 Cable set: 220ft
	Yesterday (8/9/05) towed 5/5a direction	n 0837 Begin 1st tow
	but due to a barge we are towing	0838 Complete 1st tow @ / minute
	in a Nto W direction	0838 Complete 1st tow @ / minute 470 33.863 Water depth=47ft
		122° 20.868
0744	47°34.125 Water depth = 26ft	Mind. sand
	122° 20. 742	3 A. prusaprta 3 3 other
	Complete 9th tow e G17b	gastropod species
	1 minute for, mud, gravel, algae	0917 2nd tow
	1 other gastropod species collected	47° 33.924 Water depth = 42ft
. 0814_	10 th for C G176	47° 33.924 Water depth =42fi 122° 20.879 Gable set =180f4
	47° 34.080 Water dup 11=3/ ft	0919 and tow begins
	10 th tow c G176 47° 34.080 Water dupth=3/ff 127° 20,750 Cable set=150 ff	0920 Complete 2nd tow @ 45 seconds 47° 33.949 Water depth = 48+
0816	Begin 10th tow, photos taken	47° 33.949 Water depth = 48+
		122° 20.890

16 8/10/05 Station G185 Tow 2 5 tation G185 Tow	8/10/05 A. Rodwiguer
Station G186 Tow 2	8/10/05 1107 47°33.958 Water deptiso ft
species collected	122° 20. 870 Mud Complete 5th c 45 seconds
0954 3rd tow	Total collected= 18 gastropuds
47° 33.913 Water depth=47 A 122° 20.862 Cable set = 170 At	1135 6th trn
0955 3rd ton begins	47° 33-919 Water depth= 50++
0956 Complete 3rd tow C 45 seconds 47° 33,951 Whater dupthe = 53 ft	122° 20.866 Cable set = 170 ft 1138 Complete 6th tow C 45 seconds
47° 33.951 Water dupth = 53 ft 122° 20.848 Mosthy mind	47° 33.978 Water depth=524 122° 20. 861 Mud, filamentous algae
16 H. gausapate 3 5 other	122° 20. 861 Mud, filamentous algae
Jastropods collected 1225 \$the Tow	Total collected = 5 gastropods 1155 Lunch break
43° 33.921 Water depth = 41f4 122° 20.868 Cable set = 140 ft	1216 7th tow
1030 Complete 4th tow C 45 seconds	47° 33.917 Wester depth: 46ft
47 33.954 Water depth=48++	122° 20.868 868 Coble set= 170 ft
122° 20.886 Mostlynud Total= 27 gastropods collected	1219 Complete tow 2th C 45 seconds 47033.921 Water depth: 42ft
1037 Spoke to kathy about the progress	47°33.921 Water depth: 42 ft 122° Zo. 806 Mud
of the gastropod collection & imposex preliminary results from or Alau Kohn	1247 Bth tow
	47033.917 water depth= 45ft
1103 544 tow begins 47° 33.922 122° 20.870	122° 20.870 Gable set=170+7

18 8/10/2	Complete 8 th ton e 45 seconds 47° 33,896 Water depth= 35ft	8/4/	A. Rodniguez
1250	Complete 8 th ton e 45 seconds	14 18	5 A. Rodniguez 1st for e station G196
2	47° 33.896 Water depth=35ft		47° 33.505 Water depth= 27ft
	122° 20.809 Mind Total collected = 16 gastropods		47° 33.505 Water depth=zzff 122° 20.708 Cable set= 70 ff
·	Total collected = 16 gastropods	1419	Complete 1st tow a 45 seconds
			476 33.482 Water depth = 16ff
1313	9th tow begins		122° Zu. 718 17 A. gausapata collected
· · ·	47° 33.923 Water depth=45ff	1425	2nd ton @ 196
	122° 20.865 Cable set = 170 ft	•	47° 33.510 Water depth=21 ft
1315	Complete 9th for C 1. Suinate]	122° 20.707 Cable set = 80ft
	470 33.880 Water denth = 42 ft	1427	Complete 2400 C 45 seconds
Martin Control of Cont	47° 33.880 Water depth = 42 ft 122° 20.847 Mind		47° 33.479 Water depth=16Ft
**************************************	Total collected: 55 gastropods		122° 20. 728 Mud, clay, si 14
/ 3 48	10th tow begins	H-m	
· · · · · · · · · · · · · · · · · · ·	10 44 tow begins 47° 33. 920 Water depth: 44ft	1459	Total Collected: 33 gastropods Brd for @ 195
a manual 20 min and 20	122° 20.865 Cable set = 170 ft	[470 33.507 Water dep th= 31A
1351	Complete 10th ton @ 45 seconds	ļ	122° 20. 703 Cable set = 70 ff
	470 33.930 Water depth = 40ff	1500	Complete 3rd tow
	470 33.930 Water depth = 40ft 122° 20.809 Mind		47° 33,521 Water depth= 35ff 182° 20.657
	Stop Collecting A. gausapata because		182° 20.657
	we have exceeded the required limit		Total collected = 18 gastropods
	of 100 specimen	1508	4th tow c 196
	Total collected: 15 other gastrop ods		470 33. 508 Water depth: 28 ft
N. 		4	122° 20.711 Cab: set= 90 ft
		1589	Complete 4th for C 45 seconds
· ·		1	
		• }	

20 B 10 05 8/11/05 A. Rodriguez Arvive at Harbor Island Maring A. Rodriguez 4th tow: 47 . 33.538 0700 122° 20.694 3 load boat Water depth = 37 ft Crew: Thai Do Kathleen Hunley Total collected = 10 gastropods Angelita Rodriguez 1521 5th for @ 196 47.33.508 Dave Mullins 1220 20.711 Weather: Low morning clouds, Complete Sth tru, Water depth 29 ft 1522 overcest wol 47 33.532 Gastropod Imposer Study 1220 20,714 0720 Head to location 195 Continue toneing c location 195 45 second ton Total collected = 29 gastropods 5 begin with tow 6 1545 Arrive to Harbor Island 0725 42:32.507 Water depth=18ft 0726 Beain In 1 Water depth=18ft Marina to unload samples Begin toub 1630 Arrive at UW to hand deliver 0726 Complete tow C 45 seconds Samples 47° 33.532 Water depth= 37ft 122° 20.703 Mud Observed ~ 10 A. gausapate but did not collect because the required Collection limit of 100 was exceeded -10 0ª on 8/10/05

22 8/11/05 Hi Rod	riguez Blillos	A.	23 Rodviguez
8/11/05 Hi Pool 0746 7th ton begin c G 196	0858 .	A. 17° 33. 518 10+4-	too (
47° 33.508 Water dept	= 24 ff [1	12 20.723	
122° 20.710 Cable set=		lepth = 21ft Cable:	set=100ff
0748 Complete 7th tow C 45 seco	ds ·	Begin 10th for C	GIAP
470 33.482		complete 10th for	e 45 seconds
122° 20.684		17° 33. 493	
Water depth = 31 ft	1	22°20, 1, 98	
Mind, sil+		Water depth = 28Ft	
23 A augasapata observed	· · · · ·	ollected 5 other g	astropools
0815 47° 33 508 Water depth:	27ft 0	berred 52 A.g.	ausapata
122 20.702 Cable set=9	oft 0935	Head to station G2	06
Begin 8th for a G19b		1st for a Gizo	6
0816 Complete 3th tow @ 45 seco	nds 0939	47033.358	
47° 33.502 Mmd		22° 20.526	
122 20 667	1	Water dupth = 34 +	:4
Water depth = 42 ft		Cable set= 120ft	
0840 Bergin 9th C G196	nusapata 1 0941 (complete 1st for C 45	seconds
47"33.509 Water deth: 28. 127 20.722 Cable set. K	4	17 33. 399 M	
127 20.722 Gble set - K	o ft 1:	22 20.464	/ / /
342 470 33. 494 Vaturdyth: 35	47	Water depth = 36ft	
122° 20.669 Mind		Collected 3 A. gaus	apata i
Complete 9th tow C 45 seco	nds	2 other gastropod	\$
Collected 2 other gastropod \$ observed	1) A gausspota	<i>, - , -</i>	
	, <u> </u>		

8/4/05 A. Rodriguez: 1120 Complete 4th tow @ 45 seconds 8/11/85 A. Rodriguez 8/4/05 2nd tow @ G20b 1017 47° 33.417 470 33.408 122 20.459 1220 20.553 Water depth = 32 ft Ŷ Water depth = 42 ft, Cable set = 120ft 1155 Lunch break 1019 Complete 2nd tow C 30 seconds 470 33.402 1223 5th tow CG206 120 20.508 Water depth = 30ft 47° 33.399 Collected 22 after gastropods 122° 20 517 Water depth = 33 ft 1044 3rd tow c G20b Cable set = 120 ft 1225 Complete 5th towe 30 seconds 47° 33.359 And 1220 20.518 470 33 390 Water depth = 32ft 1220 20.553 Cable set: 120 ft 1047 Complete 3rd towe 6200 c 30 seconds Water depth = 28ft Total Collected= 8 A. gausapata 47° 33.402 Mud, rand (fine) 6th for CG20b 1220 20.522 1251 Water depth = 34ft 47° 33.41B Total collected = 61 gastropods 122° 20.489 Water dep th = 35fg 1118 4th tow e G206, Photos taken 470 33.391 Cable set = ROF+ 1253 Complete 6th ton @ 30 seconds 1220 20.487 Water depth = 36 ff, Cable set. 120 ft 470 33.399 122 20. 523

8/11/05			A. 0	27 olriguez
1350	Complete	8th ton	C 30 se	ond
	47 0 33. 4			
7.1.1	122° 20.2	22		
	Water o	lep +4 = 21	384	
	Total 6	Hected:	= Ø	
	041			
357	9th tow)	
	470 33.4		P(1,1/	
	122° 20.4			
1088. at	Water dep	th = 70+.	F	NN
12 60	Cable set:			
1359	Completed		e sosec	onds
	47° 33. 34			
,	122° 20. 51		<u>CL</u>	
	Water d	epth - Jo	<u>77</u>	
	Total Co.	lected -	Ø	
1405	10th tow	@C.2010		
1 [05	47° 33. 4			
	122° 20.5			
		lepth = 31	4	
*****	Cable se	+=120+	4	

1407 Complete 10th tow c 30 seconds 170 33.403 29 8/11/05 122° 20.554 Water depth = 35 ft Total Collected = 22 gastropods Observed 17 other gastropods Head back to Harbor Island 1445 Marina 1458 Unload boat 1539 Hand deliver samples to UW, Alan Kohn 1630 Arrive @ office and demob Supplies & equipment gelita