

## Supporting Information

Schiebelhut et al.

**Table S1** List of sites and sample sizes used in genetic analyses. Pre-SSWD adults were collected from Aug 2012 – May 2013, post-SSWD adults were collected in Jan 2014 (site K) and Dec 2014 – May 2015, and <1-year-old recruits were collect from Dec 2013 – May 2014.

Site Code	Site	County	Latitude	Longitude	Pre-SSWD Adults	Post-SSWD Adults	<1-yr Recruits
A	Arena Cove	Mendocino	38.918	-123.721	9	10	*
B	Moat Creek	Mendocino	38.880	-123.675	10	1	*
C	Iversen Point	Mendocino	38.848	-123.647	10	2	*
D	Serenisea	Mendocino	38.798	-123.573	10	10	*
E	Del Mar	Sonoma	38.741	-123.508	9	4	3
F	Sculpture Point	Sonoma	38.700	-123.443	10	10	*
G	Fisk Mill Cove	Sonoma	38.597	-123.351	4	10	5
H	Phillips Gulch	Sonoma	38.587	-123.342	10	10	*
I	Windermere Point	Sonoma	38.525	-123.268	10	9	*
J	Twin Coves	Sonoma	38.459	-123.146	10	10	*
K	Bodega Reserve	Sonoma	38.317	-123.073	3	7	16
L	Bodega Head	Sonoma	38.303	-123.053	10	9	*
M	McClures Beach	Marin	38.182	-122.966	10	10	50
N	Lifeboat House	Marin	37.997	-122.979	10	10	32
O	Palomarin	Marin	37.931	-122.750	10	10	*
P	Duxbury Reef	Marin	37.893	-122.707	7	4	*
<b>Totals</b>					142	126	106

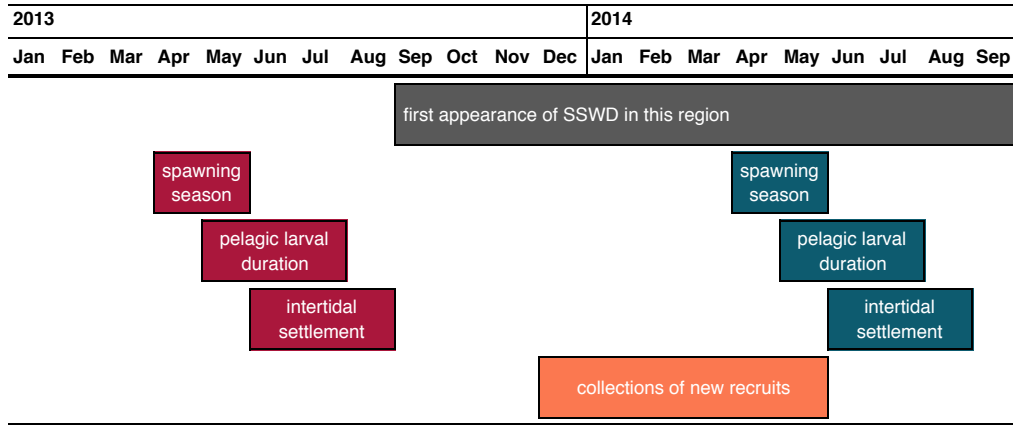
\* Site surveyed but no specimens found to collect for genetic analysis.

**Table S2** Ecological survey data—*P. ochraceus* densities (per m<sup>2</sup>) by geographic location (additional details in Table S1) and date.

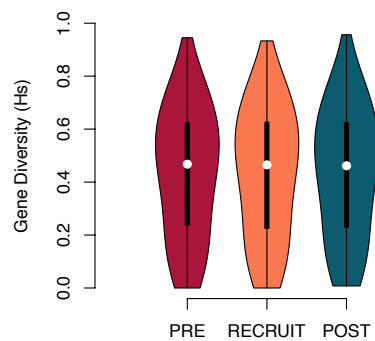
Site	Pre-SSWD			Post-SSWD			
	Date	Recruits	Adults	Date	Recruits	Date	Adults
A	18/Oct/2012	0	*	02/Dec/2013	0	17&18/May/2015	†
B	17/Oct/2012 & 09/Dec/2012	0	0.012	30/Dec/2013	0	05/Dec/2014	0
C	16/Dec/2012	0	0.012	02/Jan/2014	0	22/Dec/2014	0
D	15/Dec/2012	0	0.036	28/Jan/2014	0	19/May/2015	0.021
E	15/Nov/2012	0	0.059	01/Dec/2013	0.127	04/Dec/2014	0.004
F	17/Nov/2012	0	0.023	29/Jan/2014	0	06/Dec/2014	0.004
G	16/Nov/2012	0	0.034	03/Jan/2014	0.171	19/Apr/2015	0.030
H	14/Dec/2012	0	0.039	30/Jan/2014	0	19/Jan/2015	0.019
I	12/Nov/2012	0	0.003	05/Dec/2013	0	18/Jan/2015	0.003
J	13/Dec/2012	0	0.017	31/Jan/2014	0	20&23/Dec/2014	0.006
K	16/Oct/2012	0	*	04/Jan/2014	0.962	20/Apr/2015	†
L	12/Dec/2012	0	0.017	04/Dec/2013	0	07/Dec/2014	0.005
M	27/May/2013	0.033	0.047	01/Feb/2014	3.784	20/May/2015	0.017
N	10/Dec/2012	0.069	0.270	15/May/2014	1.375	21/May/2015	0.060
O	11/Dec/2012	0	0.061	29/Dec/2013	0	21/Jan/2015	0.006
P	14/Nov/2012	0	0.010	03/Dec/2013	0	20/Jan/2015	0.001

\* No data collected.

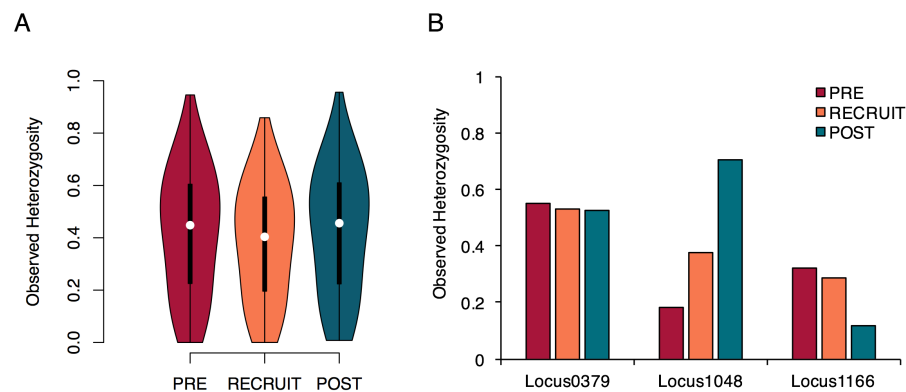
† No paired data available so data not shown.



**Fig. S1 Timeline of main reproductive stages for the pre- and post- adults and onset of SSWD for *P. ochraceus*.** Spawning can occur from late March–May in Central California (26, 27)—slightly later to the north, e.g. May–early June in Oregon (29) and late spring on San Juan Island (28)—and have a pelagic duration of 6–8 weeks (30, 31), which would lead to intertidal settlement in approximately June–August. Recruits in this study would have been spawned by the pre-SSWD population of *P. ochraceus*.

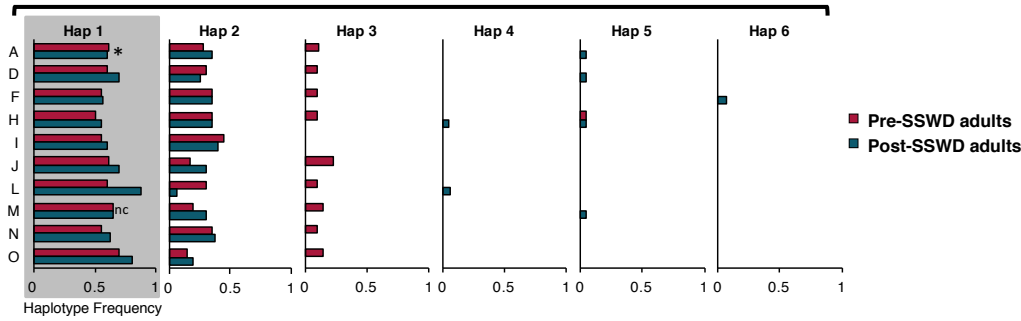


**Fig. S2 Overall gene diversity ( $H_s$ ) for pre-SSWD adults, post-SSWD adults, and recruits.** Violin plot using all loci.

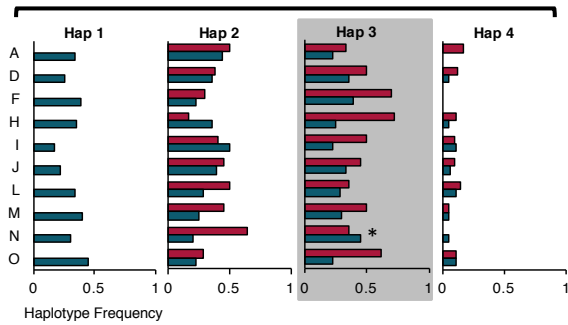


**Fig. S3 Observed heterozygosity in pre- and post-SSWD adult *P. ochraceus* and recruits for (A) a violin plot of all 1,225 loci and (B) bar graph for outlier loci (identified by BayeScan).**

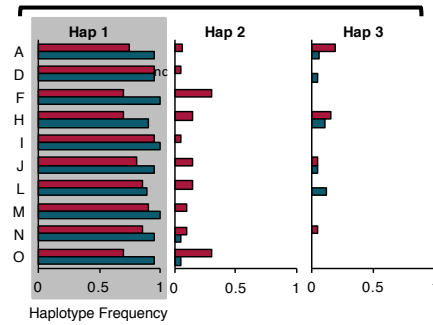
### Locus0379



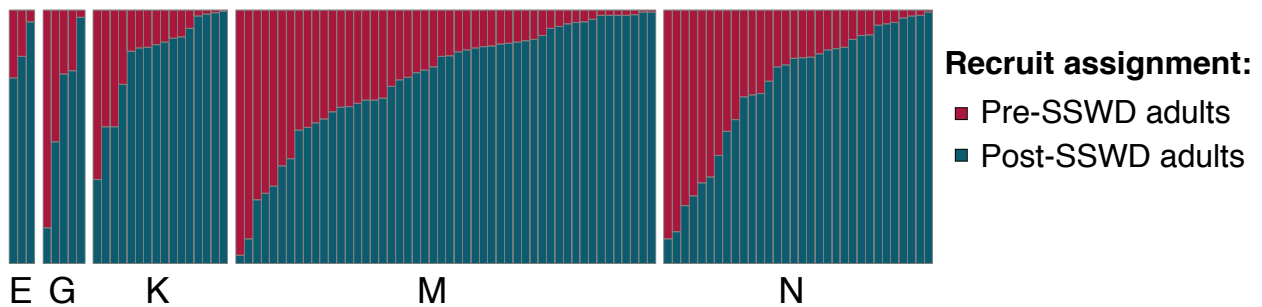
### Locus1048



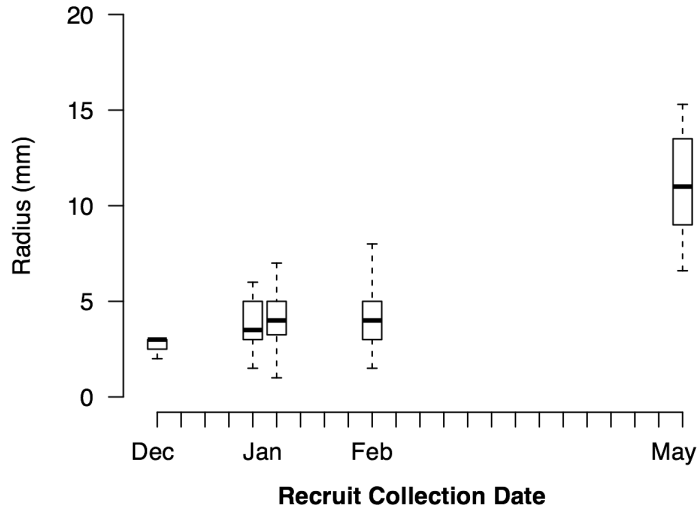
### Locus1166



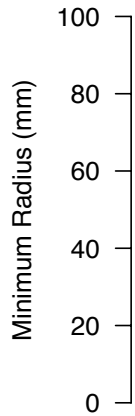
**Fig. S4 Consistent change in allele frequency from pre- to post-SSWD adults across geographic locations** for all haplotypes in the putatively selected outlier loci identified in BayeScan (FDR = 0.10). Gray shading indicates most common haplotype (Fig. 4) for each locus. For most common haplotype \* indicated direction of allele frequency change differs from other geographic locations. Only sites with *P. ochraceus* samples of  $n \geq 9$  for both pre- and post-SSWD included (Table S1, Fig. 1).



**Fig. S5 Assignment of <1-yr *P. ochraceus* juveniles to pre- or post-SSWD adults.** Letters represent geographic sites from where juveniles were collected (Table S1, Fig. 1). Each column corresponds to a single juvenile, with the proportion of the column colored corresponding to the posterior probability of assignment of that individual to pre- or post-SSWD adults.



**Fig. S6 Recruit sizes by date.** See Table S2 for geographic location (E, G, K, M and N) and specific date and Table S1 for sample sizes. The distribution of sizes through time suggests a settlement period in summer–fall. The black bar represents the median, the box represents the interquartile range, and the whiskers represent the maximum or minimum value within  $Q1 - 1.5 \times IQR$  and  $Q3 + 1.5 \times IQR$ .



**Fig. S7 Minimum radius of *P. ochraceus* observed during the initial survey year (2012-13).** The black bar represents the median minimum radius across sites, the box represents the interquartile range, and the whiskers represent the maximum or minimum value within  $Q1 - 1.5 \times IQR$  and  $Q3 + 1.5 \times IQR$ . Outliers fall outside this range. Across all geographic sites except for two (sites M and N, Fig. 1) the minimum radius per site was greater than 40 mm.

#### Other Supporting Information Files

Dataset S1 (XLSX)

Dataset S2 (XLSX)