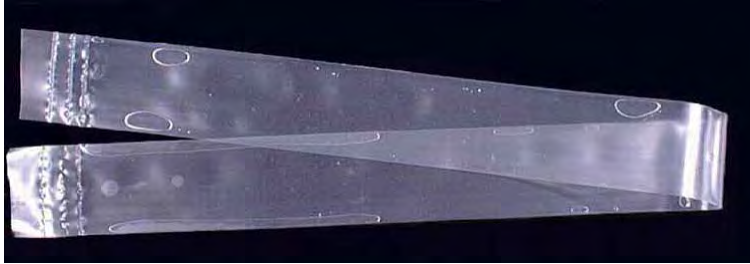


## The Potential of POCIS and SPMD Passive Samplers to Measure Pesticides in California Surface Waters

**Appendix 1.** Photograph of the SPMD sampler, containing triolein lipid, which was used in this study.



**Appendix 2.** Photograph of the POCIS sampler, containing HLB sorbent, which was used in this study.



**Appendix 3.** Photographs of the laboratory POCIS calibration experiment fiber-glass tanks and set-up.



**Appendix 4.** Photograph of the urban field site in Folsom, CA (Folsom 1).



**Appendix 5.** Photograph of the agricultural field site in Salinas, CA.



**Appendix 6.** Mass transitions of each compound analyzed by LC-MS/MS.

Compound	RT (min)	Mass	MRM Transitions (m/z)	Quant. Ion	MRM Mode
2,4D	14.4	209.2	209.2 → 160.7 209.2 → 124.8	160.7	-
Azoxystrobin	16.4	403.9	403.9 → 372 403.9 → 344	372	+
Boscalid	16.6	344.9	344.9 → 272 344.9 → 105.1	272	+
Carbaryl	14.1	202	202 → 145.1 202 → 127	145.1	+
OH-chlorothalonil	19.2	237.9	237.9 → 112 237.9 → 174.8	112	-
Dimethoate	10.8	230	230 → 199.1 230 → 125	199.1	+
Diuron	14.5	233	233 → 160.1 233 → 133.1	160.1	+
Imidacloprid	10.4	256	256 → 209 256 → 175.2	209	+
Malathion	17.2	330.8	330.8 → 127 330.8 → 125	127	+
MCPA	14.4	188.6	188.6 → 140.9 188.6 → 105.1	140.9	-
Methomyl	8.6	163	163 → 188 163 → 106	TIC	+
Myclobutanil	16.3	289	289 → 125.1 289 → 232.9	125.1	+
Oryzalin	17.3	338.7	338.7 → 78 338.7 → 281	78	-
Prometon	11.9	226.1	226.1 → 142.2 226.1 → 184.3	142.2	+
Simazine	12.3	202.1	202.1 → 132.2 202.1 → 124.2	132.2	+
Triclopyr	22.9	256.5	256.5 → 80.2 256.5 → 96.8	80.2	-

*RT = retention time; MRM = multiple reaction monitoring. Quant. ion is the quantifying ion.*

**Appendix 7.** Retention times, quantifying and qualifying ions used in the GC-MS selected ion monitoring (SIM) program. *Color code: Grey (POCIS compounds), red (found in both samplers), clear (SPMD compounds) and yellow (additional compounds for analysis).*

Target compounds in order of sampler type	Sampler	RT (min)	Quant. ion	Qual. Ion	IDL (ng/sample)
Fipronil	POCIS	16.48	366.9	212.9, 368.9	0.85
Fipronil desulfinyl	POCIS	14.82	388.1	333.1, 389.9	2.6
Fipronil amide	POCIS	19.34	384.9	254.9, 368	2.7
Fipronil sulfide	POCIS	16.25	350.9	254.9, 419.9	3
Fipronil sulfone	POCIS	17.58	382.9	212.8, 255.0, 384.9	3.4
Diazinon	Both	13.85	137.1	179.2, 304.1	2.5
Bifenthrin	SPMD	20.1	181.1	165.1, 166.1	5.1
Chlorpyrifos	SPMD	15.76	196.9	198.9, 313.9	2.2
Cyhalothrin, isomer 1 of 2	SPMD	20.89	181.1	197.0, 198.8	3.4
Cyhalothrin, isomer 2 of 2	SPMD	21.07	181.1	197.0, 198.8	3.4
Cyfluthrin isomer, 1 of 4	SPMD	22.41	163	199.0, 226.0	4.9
Cyfluthrin isomer, 4 of 4	SPMD	22.6	163	199.0, 226.0	4.9
Cypermethrin isomer, 1 of 4	SPMD	22.74	163	164.9, 181.0	4.5
Cypermethrin isomer, 4 of 4	SPMD	22.94	163	164.9, 181.0	4.5
Dacthal	SPMD	15.86	300.9	298.9, 331.9	0.94
Deltamethrin, isomer 1 of 2	SPMD	24.34	253	181.0, 251.0	4
Deltamethrin, isomer 2 of 2	SPMD	24.58	253	181.0, 251.0	4
Esfenvalerate, isomer 1 of 2	SPMD	23.68	167	125.0, 181.0, 225.0	4.8
Esfenvalerate, isomer 2 of 2	SPMD	23.92	167	125.0, 181.0, 225.0	4.8
Fenpropathrin	SPMD	20.29	181.1	125.1, 265.1	2.3
Metolachlor	SPMD	15.73	162.2	238.1, 240.1	3.3
Oxyfluorfen	SPMD	17.81	252	299.9, 361.2	1.9
Pendimethalin	SPMD	16.41	252.1	162.0, 253.0	1.9
cis-Permethrin	SPMD	21.9	183.1	163.1, 165.0	2.8
trans-Permethrin	SPMD	22.03	183.1	163.1, 165.0	3.6
Piperonyl butoxide (PBO)	SPMD	19.61	176.1	177.1	2.5
Prometryn	SPMD	15.18	241.2	184.1, 226.2	1.8
Propyzamide	SPMD	13.79	172.9	174.9, 255.1	2.4
Pyraclostrobin	SPMD	23.79	132.1	164.2	5.2
Tebuconazole	SPMD	15.5	125	126.9, 250.0	3
Trifluralin	SPMD	12.44	306.1	264.1	1.7
Alachlor	SS	14.96	160.2	188.2, 237.1	2.3
d12-Chrysene	IS	20.24	240.1	236.1, 241.2	N/A
d12-Perylene	IS	23.4	264.1	132.2, 260.1, 265.1	N/A
<sup>13</sup> C-cis-Permethrin	PRC	21.9	189.2	163.1, 165.0	2.4

RT = retention time. RT is based on a new 30 m column before column maintenance. For compounds with more than two isomers, only the first and the last RT are included in the table, but all isomers were included in analysis. Quant. and qual. ions are the quantifying and qualifying ions, respectively. IDL = instrument detection limit, calculated as 3x standard deviation across 7 repeat injections and given in units of ng/sample, i.e., ng/L water or ng/passive sampler. IS= internal standard; PRC = performance reference compound; SS = surrogate standard.

**Appendix 8a.** Pesticide water concentrations in the lab calibration study from Day 0 to Day 14 (before renewal).

*Color code: Purple columns represent concentrations at spike. Clear columns represent concentrations between spikes.*

Target pesticide	D0 (ng/L)	D1 (ng/L)	D3 (ng/L)	D3 (ng/L)	D5 (ng/L)	D7 (ng/L)	D7 (ng/L)	D10 (ng/L)	D10 (ng/L)	D14 (ng/L)
2,4-D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Azoxystrobin	1835 (708)	2209 (561)	1732 (183)	1765 (109)	1776 (154)	2186 (186)	2455 (158)	2256 (291)	2043 (302)	1378 (293)
Boscalid	1925 (999)	2320 (488)	1858 (76)	1808 (580)	1716 (218)	2023 (151)	2254 (39)	2187 (427)	2137 (153)	1431 (178)
Carbaryl	1544 (682)	1177 (417)	201 (18)	2548 (164)	547 (10)	ND	2992 (732)	29 (38)	3249 (681)	45 (78)
Chlorothalonil	692 (44)	627 (140)	626 (50)	1136 (60)	1355 (60)	1152 (49)	1829 (86)	1238 (874)	1640 (300)	1904 (68)
OH-chlorothalonil	ND	ND	ND	ND	39 (34)	19 (32)	10 (12)	713 (1119)	15 (26)	48 (52)
Diazinon	ND	ND	ND	1131 (225)	1082 (6.9)	1061 (123)	ND	36 (2.5)	160 (0.00)	40 (0.77)
Dimethoate	ND	ND	35 (61)	1155 (103)	1132 (299)	1528 (232)	37 (64)	ND	246 (49)	ND
Diuron	2005 (622)	2164 (778)	2109 (383)	2045 (541)	2085 (256)	2273 (448)	2180 (144)	2178 (753)	2548 (708)	1925 (210)
Fipronil	ND	ND	ND	250 (21)	187 (8.8)	175 (25)	ND	ND	20 (0.00)	ND
Fipronil amide	ND	169 (97)	180 (15)	2654 (58)	2344 (168)	2265 (480)	46 (15)	55 (11)	860 (200)	127 (11)
Fipronil desulfinyl	807 (42)	610 (56)	846 (86)	2257 (79)	1983 (29)	1865 (136)	683 (69)	297 (29)	1520 (200)	577 (24)
Fipronil sulfide	ND	517 (77)	568 (15)	2275 (70)	1943 (59)	1916 (133)	33 (25)	82 (5.8)	1150 (100)	425 (43)
Fipronil sulfone	543 (90)	1411 (92)	1446 (120)	2105 (54)	1922 (93)	1922 (198)	248 (12)	780 (48)	620 (0.00)	735 (32)
Imidacloprid	946 (369)	1208 (285)	1419 (30)	1366 (25)	1443 (210)	1609 (294)	1578 (59)	1356 (361)	1484 (160)	1597 (246)
Malathion	ND	49 (18)	ND	1318 (107)	524 (73)	364 (50)	ND	ND	435 (72)	162 (3)
MCPA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methomyl	337 (262)	494 (181)	498 (326)	398 (130)	629 (137)	682 (149)	623 (69)	471 (289)	718 (123)	517 (114)
Myclobutanil	1646 (659)	1653 (374)	1548 (141)	1538 (68)	1568 (117)	1664 (354)	1737 (20)	1840 (193)	1939 (170)	1481 (283)
Oryzalin	ND	459 (179)	1030	939 (106)	1595 (335)	1418 (116)	198 (16)	1091 (482)	146 (21)	1110 (123)
Prometon	2056 (975)	2265 (863)	2074 (250)	1821 (314)	1977 (182)	2282 (629)	1975 (237)	1994 (406)	1417 (269)	1506 (372)
Simazine	2935 (1531)	3158 (1302)	2538 (213)	2442 (380)	2756 (185)	2879 (735)	3305 (778)	3386 (700)	2142 (432)	2203 (630)
Triclopyr	2651 (238)	2234 (64)	2436 (110)	2580 (166)	2267 (209)	2220 (315)	2145 (184)	4916 (4934)	1765 (169)	1654 (114)

*D# denotes day of sampling. Three replicate water samples (1 L) were sampled at 18 time points throughout the 28-day experiment to monitor the exposure solution at time of spiking and between renewals (twice weekly). Each value represents the average (standard deviation). ND = non-detect (includes compounds <3x blank).*

**Appendix 8b.** Pesticide water concentrations in the lab calibration study from Day 14 (after renewal) to Day 28.

*Color code: Purple columns represent concentrations at spike, clear columns represent concentrations between spikes and the blue column represents the time-weighted average water concentrations.*

Target pesticide	D14 (ng/L)	D17 (ng/L)	D17 (ng/L)	D21 (ng/L)	D21 (ng/L)	D24 (ng/L)	D24 (ng/L)	D28 (ng/L)	TWA (ng/L)
2,4-D	ND	ND	ND	ND	ND	ND	ND	ND	ND
Azoxystrobin	1631 (32)	1773 (286)	1907 (312)	1960 (141)	2162 (67)	1315 (352)	1457 (140)	1033 (190)	1800
Boscalid	1856 (290)	1789 (380)	1655 (416)	2345 (224)	2252 (122)	1906 (412)	1998 (987)	1091 (245)	1902
Carbaryl	2424 (260)	129 (42)	2930 (928)	196 (8)	2047 (80)	303 (14)	1533 (163)	124 (14)	1229
Chlorothalonil	1890 (1100)	2134 (37)	2020 (479)	1571 (295)	1990 (118)	787 (39)	1233 (10)	1304 (70)	1466
OH-chlorothalonil	193 (232)	83 (37)	147 (219)	ND	ND	ND	ND	ND	72
Diazinon	100 (0.00)	22 (0.58)	150 (21)	101 (1.4)	167 (27)	36 (5.4)	71 (22)	ND	212
Dimethoate	94 (83)	ND	186 (59)	ND	37 (6)	ND	ND	ND	218
Diuron	2314 (258)	2132 (514)	2593 (710)	2138 (198)	2457 (97)	1338 (167)	1888 (173)	1072 (164)	2074
Fipronil	ND	ND	ND	ND	ND	ND	ND	ND	30
Fipronil amide	610 (100)	55 (1.5)	742 (56)	263 (15)	449 (23)	ND	158 (23)	ND	577
Fipronil desulfinyl	1350 (100)	323 (22)	1542 (105)	824 (9.0)	1356 (24)	170 (15)	999 (90)	186 (4.9)	993
Fipronil sulfide	980 (100)	96 (6.4)	1142 (50)	707 (7.7)	899 (35)	ND	649 (56)	31 (0.70)	742
Fipronil sulfone	890 (100)	1142 (50)	1017 (31)	1246 (47)	688 (25)	185 (21)	260 (53)	169 (0.27)	896
Imidacloprid	1501 (172)	1521 (140)	1482 (239)	2290 (30)	2791 (131)	1575 (161)	2005 (173)	1278 (107)	1619
Malathion	554 (34)	ND	526 (96)	ND	359 (64)	ND	46 (50)	ND	232
MCPA	234 (405)	ND	ND	ND	ND	ND	ND	ND	12
Methomyl	812 (126)	709 (241)	592 (148)	974 (42)	910 (65)	354 (184)	640 (188)	433 (43)	618
Myclobutanil	1852 (216)	1910 (130)	1723 (469)	2424 (90)	2527 (110)	2059 (304)	2285 (168)	2074 (120)	1890
Oryzalin	272 (21)	1521 (316)	451 (104)	921 (169)	114 (13)	955 (116)	22 (21)	1144 (265)	753
Prometon	1601 (433)	1762 (426)	1883 (427)	2629 (82)	2568 (80)	1990 (357)	2334 (207)	2097 (236)	2004
Simazine	2349 (446)	2712 (576)	2386 (596)	3267 (106)	3271 (152)	2772 (154)	2888 (155)	2679 (233)	2764
Triclopyr	1876 (491)	1617 (118)	1484 (69)	ND	ND	ND	ND	134 (67)	1513

*D# denotes day of sampling. Three replicate water samples (1 L) were sampled at 18 time points throughout the 28-day experiment to monitor the exposure solution at time of spiking between renewals (twice weekly). TWA = time-weighted average concentration for the 28 d sampling period, based on all measured concentrations in Appendices 8a and b. ND = non-detect (includes compounds <3x blank).*

**Appendix 9.** Average pesticide amounts measured in POCIS sorbent during the lab calibration study.

Target pesticide	D1 (ng per sampler)	D3 (ng per sampler)	D5 (ng per sampler)	D7 (ng per sampler)	D10 (ng per sampler)	D14 (ng per sampler)	D17 (ng per sampler)	D21 (ng per sampler)	D24 (ng per sampler)	D28 (ng per sampler)
2,4-D	117 (2.5)	47 (13)	63 (7)	78 (4.6)	83 (11)	94 (39)	114 (53)	112 (79)	38 (16)	44 (63)
Azoxystrobin	ND	ND	ND	ND	40 (16)	54 (38)	165 (21)	25 (2.9)	21 (3.5)	15 (1.2)
Boscalid	ND	ND	ND	26 (4.2)	86 (22)	109 (70)	216 (38)	180 (37)	146 (14)	123 (21)
Carbaryl	ND	ND	ND	ND	ND	22 (24)	40 (3.5)	42 (16)	26 (21)	12 (4.7)
Chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OH-chlorothalonil	ND	ND	17 (15)	87 (2.5)	152 (44)	169 (97)	368 (84)	502 (59)	275 (85)	158 (43)
Diazinon	ND	ND	24 (2.6)	62 (2.4)	197 (23)	238 (42)	348 (21)	333 (16)	289 (94)	160 (16)
Dimethoate	ND	ND	15 (5.3)	37 (5.8)	27 (8.6)	27 (15)	42 (20)	21 (7)	15 (1.5)	ND
Diuron	ND	ND	ND	ND	43 (45)	59 (65)	176 (23)	152 (31)	46 (43)	43 (18)
Fipronil	ND	ND	18 (0.54)	39 (4.4)	56 (2.2)	69 (3.6)	49 (4.3)	49 (1.7)	41 (9.2)	52 (3.5)
Fipronil amide	73.2 (11)	140 (9.0)	492 (74)	742 (39)	708 (42)	758 (249)	990 (166)	1062 (28)	899 (89)	1205 (64)
Fipronil desulfinyl	ND	33 (2.0)	111 (20)	246 (23)	388 (17)	502 (177)	689 (88)	835 (36)	905 (93)	1228 (146)
Fipronil sulfide	ND	ND	39 (7.9)	98 (9.1)	292 (13)	334 (133)	508 (48)	540 (32)	586 (26)	744 (135)
Fipronil sulfone	ND	ND	47 (7.4)	103 (8.8)	306 (12)	339 (135)	527 (50)	579 (27)	588 (33)	773 (78)
Imidacloprid	139 (67)	45 (26)	101 (33)	139 (4)	159 (83)	195 (129)	406 (73)	222 (41)	156 (41)	117 (39)
Malathion	ND	ND	ND	ND	ND	ND	10 (2.7)	10 (1.2)	12 (6.4)	ND
MCPA	130 (2.7)	49 (23)	67 (10)	99 (6.5)	110 (14)	105 (42)	108 (60)	111 (77)	40 (11)	55 (80)
Methomyl	66 (3.6)	41 (36)	70 (10)	73 (14)	71 (13)	68 (19)	70 (13)	118 (88)	190 (147)	127 (52)
Myclobutanil	27 (8.7)	29 (25)	63 (23)	96 (17)	172 (37)	179 (111)	427 (102)	397 (40)	270 (69)	256 (33)
Oryzalin	ND	ND	ND	ND	22 (9.5)	27 (20)	88 (13)	124 (25)	88 (24)	81 (6.6)
Prometon	98 (8.5)	19 (17)	67 (8.4)	128 (35)	145 (17)	176 (125)	321 (89)	212 (62)	146 (42)	79 (6.9)
Simazine	55 (20)	18 (17)	74 (38)	64 (12)	110 (28)	172 (140)	277 (52)	208 (53)	109 (31)	55 (16)
Triclopyr	ND	ND	ND	152 (110)	509 (245)	719 (252)	ND	829 (92)	1483 (291)	1203 (158)

*D# denotes day of sampling. Three replicate POCIS were sampled at ten time points throughout the 28-day experiment. Concentrations represent the average (standard deviation) amount of pesticide measured in the sampler sorbent. ND = non-detect (includes compounds <3x blank).*



**Appendix 10.** Pesticide detections in Folsom composite water samples during the summer calibration study (July 2013).

Target pesticide	D0	D1	D3	D5	D7	D10	D14	D17	D21	D24	D28	Freq. (%)
2,4-D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Azoxystrobin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Boscalid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Carbaryl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Chlorothalonil	ND	ND	ND	ND	ND	+	+	ND	ND	ND	ND	28
OH-chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diazinon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Dimethoate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diuron	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil	ND	ND	ND	+	ND	ND	+	+	+	+	+	55
Fipronil amide	+	+	+	+	+	+	+	+	+	+	+	100
Fipronil desulfinyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	+	ND	9
Fipronil sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil sulfone	+	+	+	+	+	+	+	+	+	+	+	100
Imidacloprid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Malathion	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
MCPA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Methomyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Myclobutanil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Oryzalin	ND	ND	ND	ND	ND	ND	+	+	ND	ND	ND	18
Prometon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Simazine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Triclopyr	+	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9

*POCIS target compounds listed here. SPMD compounds were not detected in POCIS during this deployment. D# denotes day of sampling. Water was sampled by an ISCO autosampler. Three 1 L replicates of the composite samples were sampled at eleven time points throughout the 28-day sampling period. Freq. refers to water detection frequency. ND = non detect (includes compounds <3x blank). + means the compound was detected above the reporting limit (Table 1) in all replicates. Compounds with potential for calibration (>50% water detection and detection in POCIS) are highlighted with blue font.*

**Appendix 11.** Pesticide detections in POCIS during the Folsom summer calibration study (July 2013).

Target pesticide	D1	D3	D5	D7	D10	D14	D17	D21	D24	D28	Water freq. (%)
2,4-D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Azoxystrobin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Boscalid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Carbaryl	ND	ND	ND	ND	ND	+	+	+	ND	+	0
Chlorothalonil	ND	ND	ND	ND	ND	+	ND	ND	ND	ND	28
OH-chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diazinon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Dimethoate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diuron	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil	ND	ND	ND	ND	ND	+	ND	+	+	+	55
Fipronil amide	ND	ND	ND	+	+	+	+	+	+	+	100
Fipronil desulfinyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9
Fipronil sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil sulfone	ND	ND	ND	ND	ND	+	ND	+	+	+	100
Imidacloprid	ND	ND	ND	ND	ND	+	+	ND	ND	ND	0
Malathion	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
MCPA	ND	ND	ND	ND	ND	ND	ND	+	+	+	0
Methomyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Myclobutanil	ND	ND	ND	ND	ND	ND	+	+	ND	+	0
Oryzalin	ND	ND	ND	ND	ND	+	+	+	+	+	18
Simazine	ND	ND	ND	ND	+	+	+	+	ND	+	0
Prometon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Triclopyr	ND	+	ND	ND	ND	ND	+	+	ND	ND	9

POCIS target compounds listed here. SPMD compounds were not detected in POCIS during this deployment. D# denotes day of sampling. Three replicate POCIS were sampled at ten time points throughout the 28-day sampling period. Water freq. refers to detection frequency in composite water samples collected simultaneously (n=11). ND = non-detect (includes compounds <3x blank). + means the compound was detected above the reporting limit (Table 1) in all replicates. Compounds with potential for calibration (>50% water detection and detection in POCIS) are highlighted with blue font.

**Appendix 12.** Pesticide detections in Salinas composite water samples during the summer calibration study (August 2013).  
*Color code: grey (POCIS compounds) and white (SPMD compounds).*

Target pesticide	D0	D1	D3	D5	D7	D10	D14	D17	D21	D24	D28	Freq. (%)
2,4-D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Azoxystrobin	+	+	+	+	+	+	+	+	+	+	+	100
Boscalid	+	+	+	+	+	+	+	+	+	+	+	100
Carbaryl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
OH-chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diazinon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Dimethoate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diuron	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	+	9
Fipronil amide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil desulfinyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil sulfone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Imidacloprid	+	+	+	+	+	+	+	+	+	+	+	100
Malathion	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
MCPA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Methomyl	+	+	+	+	+	+	+	+	+	+	+	100
Myclobutanil	+	+	+	+	+	+	+	+	+	+	+	100
Oryzalin	ND	ND	ND	+	ND	ND	ND	ND	ND	ND	+	18
Prometon	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Simazine	+	+	ND	ND	+	ND	ND	ND	ND	ND	ND	27
Triclopyr	+	+	ND	ND	ND	ND	ND	ND	ND	ND	ND	18
Dacthal	+	+	+	+	+	+	+	+	+	+	+	100
Prometryn	+	+	+	+	+	+	+	+	+	+	+	100
Propyzamide	+	+	+	+	+	+	+	+	+	+	+	100
Tebuconazole	ND	ND	ND	+	+	ND	+	ND	+	+	+	55

*D# denotes day of sampling. Water was sampled by an ISCO autosampler. Three 1 L replicates of the composite samples were sampled at eleven time points throughout the 28 day sampling period. Freq. refers to water detection frequency. ND = non-detect (includes compounds <3x blank). + means the compound was detected above the reporting limit (Table 1) in all replicates. Compounds with potential for calibration (>50% water detection and detection in POCIS) are in blue font. SPMD compounds with potential for calibration are included in this table.*

**Appendix 13.** Pesticide detections in POCIS and SPMDs during the Salinas summer calibration study (August 2013).  
*Color code: grey (POCIS compounds) and white (SPMD compounds).*

Target pesticide	D1	D3	D5	D7	D10	D14	D17	D21	D24	D28	Water freq. (%)
2,4-D	+	+	+	+	+	+	+	+	+	+	0
Azoxystrobin	ND	ND	+	+	+	+	+	+	+	+	100
Boscalid	ND	+	+	+	+	+	+	+	+	+	100
Carbaryl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
OH-chlorothalonil	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Diazinon	ND	ND	ND	ND	ND	ND	ND	ND	ND	+	0
Dimethoate	ND	ND	ND	ND	+	+	+	+	+	ND	0
Diuron	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil	ND	ND	ND	ND	+	+	+	+	+	+	9
Fipronil amide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil desulfinyl	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Fipronil sulfone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Imidacloprid	+	+	+	+	+	+	+	+	+	+	100
Malathion	ND	ND	ND	ND	ND	+	ND	ND	ND	+	0
MCPA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
Methomyl	+	+	+	+	+	ND	ND	ND	+	ND	100
Oryzalin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18
Prometon	ND	ND	ND	ND	ND	ND	ND	ND	+	ND	0
Simazine	ND	ND	ND	+	+	+	+	+	+	+	27
Triclopyr	+	+	+	ND	ND	+	ND	ND	ND	ND	18
Myclobutanil	+	+	+	+	+	+	+	+	+	+	100
Dacthal	ND	ND	+	+	+	+	+	+	+	+	100
Prometryn	+	+	+	+	+	+	+	+	+	+	100
Propyzamide	+	+	+	+	+	+	+	+	+	+	100
Tebuconazole	ND	ND	+	+	+	+	+	+	+	+	55

*D# denotes day of sampling. Three replicate POCIS were sampled at ten time points throughout the 28-day sampling period. Water freq. refers to detection frequency in composite water samples collected simultaneously (n=11). ND = non-detect (includes compounds <3x blank). + means the compound was detected above the reporting limit (Table 1) in all replicates. Compounds with potential for calibration (>50% water detection and detection in POCIS) are in blue font. Only SPMD compounds with potential for calibration are included in this table (white).*

**Appendix 14.** Pesticide detections in Folsom during the spring deployment (Feb-Mar 2013).  
*Color code: grey (POCIS compounds) and white (SPMD compounds).*

Target pesticide	Water D0	Water D7	Water D14	Water D21	Water D28	Freq. (%)	POCIS D28	SPMD D28
2,4-D	ND	ND	ND	ND	ND	0	+	
Azoxystrobin	ND	ND	ND	ND	ND	0	ND	
Boscalid	ND	ND	ND	ND	ND	0	ND	
Carbaryl	ND	ND	ND	ND	ND	0	ND	
Chlorothalonil	ND	+	ND	ND	ND	20	ND	
OH-chlorothalonil	ND	ND	ND	ND	ND	0	ND	
Diazinon	ND	ND	ND	ND	ND	0	ND	
Dimethoate	ND	ND	ND	ND	ND	0	ND	
Diuron	ND	ND	ND	ND	ND	0	ND	
Fipronil	+	ND	+	+	+	80	+	
Fipronil amide	+	ND	+	ND	+	60	+	
Fipronil desulfinyl	+	ND	+	ND	+	60	+	
Fipronil sulfide	ND	ND	ND	ND	ND	0	+	
Fipronil sulfone	+	ND	+	ND	+	60	+	
Imidacloprid	ND	ND	ND	+	+	40	+	
Malathion	ND	ND	ND	ND	ND	0	ND	
MCPA	ND	ND	ND	ND	ND	0	ND	
Methomyl	ND	ND	ND	ND	ND	0	ND	
Myclobutanil	ND	ND	ND	ND	ND	0	ND	
Oryzalin	ND	ND	ND	ND	ND	0	ND	
Prometon	ND	ND	ND	ND	ND	0	ND	
Simazine	ND	ND	+	ND	+	40	+	
Triclopyr	ND	ND	ND	ND	ND	0	+	
Bifenthrin	ND	ND	ND	ND	ND	0		ND
Chlorpyrifos	ND	ND	ND	ND	ND	0		+
Cyfluthrin	ND	ND	ND	ND	ND	0		ND
Cyhalothrin	ND	ND	ND	ND	ND	0		+
Cypermethrin	ND	ND	ND	ND	ND	0		+
Dacthal	ND	ND	ND	ND	ND	0		+
Deltamethrin	ND	ND	ND	ND	ND	0		ND
Esfenvalerate	ND	ND	ND	ND	ND	0		ND
Fenpropathrin	ND	ND	ND	ND	ND	0		ND
Metolachlor	ND	ND	ND	ND	ND	0		ND
Oxyfluorfen	ND	ND	ND	ND	ND	0		ND
PBO*	ND	ND	+	+	ND	40	+	+
Pendimethalin	+	ND	+	+	+	80	+	+
Permethrin	ND	ND	ND	ND	ND	0		+
Prometryn	ND	ND	ND	ND	ND	0		ND
Propyzamide	ND	ND	ND	ND	ND	0		ND
Pyraclostrobin	ND	ND	ND	ND	ND	0		ND
Tebuconazole	ND	ND	ND	+	+	40	+	ND
Trifluralin	ND	ND	ND	ND	ND	0		ND

*D# denotes day of sampling. For water, 3 replicate 1 L grab samples were collected at each time point. Freq. refers to detection (+) frequency of grab sampling. For POCIS and SPMD, 3 replicate samplers were collected after 28 d deployment. ND = non-detect (includes compounds <3x blank). + = detected above the reporting limit (Table 1) in all replicates.. (All GC compounds (Table1) were screened for in SPMDs). SPMD compounds are only noted in the POCIS column if detected.*

**Appendix 15.** Pesticide detections in Salinas during the spring deployment (Apr 2013).  
*Color code: grey (POCIS compounds) and white (SPMD compounds).*

Target pesticide	Water D0	Water D7	Water D14	Water D21	Water D28	Freq. (%)	POCIS D28	SPMD D28
2,4-D	ND	ND	ND	ND	ND	0	+	
Azoxystrobin	ND	+	+	+	+	80	+	
Boscalid	+	+	+	+	+	100	+	
Carbaryl	ND	ND	ND	ND	ND	0	ND	
Chlorothalonil	ND	ND	ND	ND	ND	0	ND	
OH-chlorothalonil	ND	ND	ND	ND	ND	0	ND	
Diazinon	ND	ND	ND	ND	ND	0	ND	
Dimethoate	ND	ND	ND	ND	ND	0	ND	
Diuron	+	+	+	+	ND	80	+	
Fipronil	ND	ND	ND	ND	ND	0	ND	
Fipronil amide	ND	ND	ND	ND	ND	0	ND	
Fipronil desulfinyl	ND	ND	ND	ND	ND	0	+	
Fipronil sulfide	ND	ND	ND	ND	ND	0	ND	+
Fipronil sulfone	ND	ND	ND	+	ND	20	ND	
Imidacloprid	ND	+	ND	+	+	60	+	
Malathion	ND	ND	ND	+	ND	20	+	
MCPA	ND	ND	ND	ND	ND	0	ND	
Methomyl	ND	ND	ND	ND	ND	0	ND	
Myclobutanil	+	+	+	+	+	100	+	
Oryzalin	ND	ND	ND	ND	ND	0	ND	
Prometon	ND	ND	ND	ND	ND	0	ND	
Simazine	ND	ND	ND	ND	ND	0	ND	
Triclopyr	ND	ND	ND	ND	ND	0	ND	
Bifenthrin	ND	ND	ND	ND	ND	0		+
Chlorpyrifos	+	+	+	ND	+	80		+
Cyfluthrin	ND	ND	ND	ND	ND	0		+
Cyhalothrin	ND	ND	ND	ND	ND	0		+
Cypermethrin	ND	ND	ND	ND	ND	0		+
Dacthal	+	+	+	+	+	100	+	+
Deltamethrin	ND	ND	ND	ND	ND	0		ND
Esfenvalerate	ND	ND	ND	ND	ND	0		ND
Fenpropathrin	ND	ND	ND	ND	ND	0		+
Metolachlor	ND	ND	ND	ND	ND	0	ND	ND
Oxyfluorfen	+	+	+	+	+	100	+	+
PBO*	+	+	+	+	+	100		+
Pendimethalin	ND	ND	+	ND	ND	20		ND
Permethrin	ND	ND	ND	ND	ND	0		+
Prometryn	ND	+	+	+	+	80	+	ND
Propyzamide	+	+	+	+	+	100	+	+
Pyraclostrobin	+	+	+	+	+	100		+
Tebuconazole	ND	ND	ND	ND	ND	0		ND
Trifluralin	ND	ND	ND	+	ND	20	+	+

*D# denotes day of sampling. For water, 3 replicate 1 L grab samples were collected at each time point. Freq. refers to detection (+) frequency of grab sampling. For POCIS and SPMD, 3 replicate samplers were collected after 28 d deployment. ND = non-detect (includes compounds <3x blank). + = detected above the reporting limit (Table 1) in all replicates. (All GC compounds (Table 1) were screened for in SPMDs). SPMD compounds are only noted in the POCIS column if detected.*

**Appendix 16.** Pesticide detections in Folsom during the fall deployment (Oct 2013).  
*Color code: grey (POCIS compounds) and white (SPMD compounds).*

Target pesticide	Water D0	Water D7	Water D14	Water D21	Water D28	Freq. (%)	POCIS D28	SPMD D28
2,4-D	ND	ND	ND	ND	ND	0	+	
Azoxystrobin	ND	ND	ND	ND	ND	0	ND	
Boscalid	ND	ND	ND	ND	ND	0	ND	
Carbaryl	ND	ND	ND	ND	ND	0	ND	
Chlorothalonil	ND	ND	ND	ND	ND	0		
OH-chlorothalonil	ND	ND	ND	ND	ND	0	ND	
Diazinon	ND	ND	ND	ND	ND	0	ND	
Dimethoate	ND	ND	ND	ND	ND	0	ND	
Diuron	ND	ND	ND	ND	ND	0	ND	
Fipronil	+	ND	ND	ND	ND	20	+	
Fipronil amide	+	+	+	+	ND	80	+	
Fipronil desulfinyl	ND	ND	ND	ND	ND	0	+	
Fipronil sulfide	ND	ND	ND	ND	ND	0	ND	
Fipronil sulfone	+	+	+	+	ND	80	ND	
Imidacloprid	ND	ND	ND	ND	ND	20	ND	
MCPA	ND	ND	ND	ND	ND	0	ND	
Malathion	ND	ND	+	ND	ND	20	ND	
Methomyl	ND	ND	ND	ND	ND	0	ND	
Myclobutanil	ND	ND	ND	ND	ND	0	ND	
Oryzalin	ND	ND	ND	ND	ND	0	ND	
Prometon	ND	ND	ND	ND	ND	0	ND	
Simazine	ND	ND	ND	ND	ND	0	ND	
Triclopyr	ND	+	ND	ND	ND	20	+	
Bifenthrin	ND	ND	ND	ND	ND	0		+
Chlorpyrifos	ND	ND	ND	ND	ND	0		ND
Cyfluthrin	ND	ND	ND	ND	ND	0		ND
Cyhalothrin	ND	ND	ND	ND	ND	0		ND
Cypermethrin	ND	ND	ND	ND	ND	0		ND
Dacthal	ND	ND	ND	ND	ND	0		ND
Deltamethrin	ND	ND	ND	ND	ND	0		ND
Esfenvalerate	ND	ND	ND	ND	ND	0		ND
Fenpropathrin	ND	ND	ND	ND	ND	0		ND
Metolachlor	ND	ND	ND	ND	ND	0		ND
Oxyfluorfen	ND	ND	ND	ND	ND	0		ND
PBO*	ND	ND	ND	ND	ND	0		ND
Pendimethalin	ND	ND	ND	ND	ND	0		ND
Permethrin	ND	ND	ND	ND	ND	0		+
Prometryn	ND	ND	ND	ND	ND	0		ND
Propyzamide	ND	ND	ND	ND	ND	0		ND
Pyraclostrobin	ND	ND	ND	ND	ND	0		ND
Tebuconazole	ND	ND	ND	ND	ND	0	+	ND
Trifluralin	ND	ND	ND	ND	ND	0		ND

*D# denotes day of sampling. For water, 3 replicate 1 L grab samples were collected at each time point. Freq. refers to detection (+) frequency of grab sampling. For POCIS and SPMD, 3 replicate samplers were collected after 28 d deployment. ND = non-detect (includes compounds <3x blank). + = detected above the reporting limit (Appendix 1) in all replicates. (All GC compounds (Table 1) were screened for in SPMDs). SPMD compounds are only noted in the POCIS column if detected.*

**Appendix 17.** Pesticide detections in Salinas during the fall deployment (Oct 2013).  
*Color code: grey (POCIS compounds) and white (SPMD compounds).*

Target pesticide	Water D0	Water D7	Water D14	Water D21	Water D28	Freq. (%)	POCIS D28	SPMD D28
2,4-D	ND	ND	ND	ND	ND	0	+	
Azoxystrobin	+	+	+	+	+	100	+	
Boscalid	+	+	+	+	+	100	+	
Carbaryl	ND	ND	ND	ND	ND	0	ND	
Chlorothalonil	ND	ND	ND	ND	ND	0	ND	
OH-chlorothalonil	ND	ND	ND	ND	ND	0	+	
Diazinon	ND	ND	ND	ND	ND	0	ND	
Dimethoate	+	+	+	+	ND	80	+	
Diuron	+	+	+	+	+	100	+	
Fipronil	ND	ND	+	+	+	60	+	
Fipronil amide	ND	ND	ND	ND	ND	0	ND	
Fipronil desulfinyl	ND	ND	+	+	+	60	+	
Fipronil sulfide	ND	ND	ND	ND	ND	0	ND	+
Fipronil sulfone	ND	ND	ND	ND	+	20	ND	
Imidacloprid	+	+	+	+	+	100	+	
Malathion	ND	ND	+	ND	ND	20	ND	
MCPA	ND	ND	ND	ND	ND	0	ND	
Methomyl	ND	ND	ND	ND	ND	0	ND	
Myclobutanil	+	+	+	+	+	100	+	
Oryzalin	ND	+	+	+	ND	60	ND	
Prometon	ND	ND	+	+	ND	40	ND	
Simazine	+	ND	+	ND	+	60	+	
Triclopyr	ND	ND	ND	ND	ND	0	ND	
Bifenthrin	ND	ND	ND	ND	ND	0		+
Chlorpyrifos	ND	ND	ND	ND	ND	0		+
Cyfluthrin	ND	ND	ND	ND	ND	0		ND
Cyhalothrin	ND	ND	ND	ND	ND	0		+
Cypermethrin	ND	ND	ND	ND	ND	0		ND
Dacthal	+	+	+	+	+	100	+	+
Deltamethrin	ND	ND	ND	ND	ND	0		ND
Esfenvalerate	ND	ND	ND	ND	ND	0		ND
Fenpropathrin	ND	ND	ND	ND	ND	0		ND
Metolachlor	ND	ND	ND	ND	ND	0		ND
Oxyfluorfen	+	+	+	ND	+	80		+
PBO*	ND	+	+	+	+	80		+
Pendimethalin	+	ND	+	ND	ND	40		ND
Permethrin	ND	ND	ND	ND	ND	0		+
Prometryn	+	+	+	+	+	100	+	ND
Propyzamide	+	+	ND	+	+	80		+
Pyraclostrobin	ND	+	+	ND	ND	40		ND
Tebuconazole	ND	ND	ND	ND	ND	0		ND
Trifluralin	ND	ND	ND	ND	ND	0		ND

*D# denotes day of sampling. For water, 3 replicate 1 L grab samples were collected at each time point. Freq. refers to detection (+) frequency of grab sampling. For POCIS and SPMD, 3 replicate samplers were collected after 28 d deployment. ND = non detect (includes compounds <3x blank). + = detected above the reporting limit (Table 1) in all replicates. (All GC compounds (Table 1) were screened for in SPMDs). SPMD compounds are only noted in the POCIS column if detected.*