

Table S1. Candidate models and ranking for Dungeness crab abundance between 2012 and 2016 in Elkhorn Slough.

| Candidate models | df | AIC _c | ΔAIC _c | AIC _ω |
|------------------------|----|------------------|-------------------|------------------|
| ~otter density + year | 5 | 425.4 | 0 | 0.6 |
| ~otter density * year | 6 | 427.5 | 2.1 | 0.21 |
| ~otter density | 4 | 427.7 | 2.3 | 0.19 |
| ~year | 4 | 444.6 | 19.2 | <0.001 |
| ~distance ² | 4 | 481.9 | 56.5 | <0.001 |
| ~other crab abundance | 4 | 482.1 | 56.7 | <0.001 |

Table S2. Candidate models and ranking for Dungeness crab size between 2012 and 2016 in Elkhorn Slough.

| Candidate models | df | AIC _c | ΔAIC _c | AIC _ω |
|------------------------|----|------------------|-------------------|------------------|
| ~otter density + year | 4 | 1334.9 | 0 | 0.56 |
| ~year | 3 | 1336.6 | 1.7 | 0.24 |
| ~otter density * year | 5 | 1337 | 2.1 | 0.2 |
| ~otter density | 3 | 1372.9 | 38 | <0.001 |
| ~distance ² | 3 | 1385.9 | 51 | <0.001 |

Table S3. Candidate models and ranking for Dungeness crab abundance in 2016 in Elkhorn Slough.

| Candidate model | df | AIC _c | ΔAIC _c | AIC _ω |
|--|----|------------------|-------------------|------------------|
| ~otter density * distance ² | 6 | 333.8 | 0 | 0.417 |
| ~otter density * distance ² + habitat + distance ² | 7 | 335.3 | 1.6 | 0.19 |
| ~otter density + distance ² | 5 | 335.8 | 2 | 0.153 |
| ~otter density * distance ² + otter density * habitat + distance ² | 8 | 336 | 2.2 | 0.14 |
| ~otter density + distance ² + habitat | 6 | 337.3 | 3.5 | 0.072 |
| ~otter density + distance ² + otter density * habitat | 7 | 339.2 | 5.4 | 0.027 |
| ~otter density | 4 | 350.2 | 16.4 | <0.001 |
| ~otter density + habitat | 5 | 352.1 | 18.3 | <0.001 |
| ~distance ² + habitat | 5 | 352.1 | 18.4 | <0.001 |
| ~otter density * habitat | 6 | 353.7 | 19.9 | <0.001 |
| ~distance ² | 4 | 366.6 | 32.8 | <0.001 |
| ~habitat | 4 | 378.5 | 44.7 | <0.001 |
| ~other crab abundance | 4 | 399.6 | 65.8 | <0.001 |

Table S4. Candidate models and ranking for Dungeness crab size in 2016 in Elkhorn Slough.

| Candidate model | df | AIC _c | ΔAIC _c | AIC _w |
|--------------------------|----|------------------|-------------------|------------------|
| ~otter density * habitat | 5 | 856.5 | 0 | 0.54 |
| ~otter density + habitat | 4 | 858.1 | 1.5 | 0.25 |
| ~otter density | 3 | 858.3 | 1.8 | 0.22 |
| ~habitat | 3 | 882.7 | 26.1 | <0.001 |

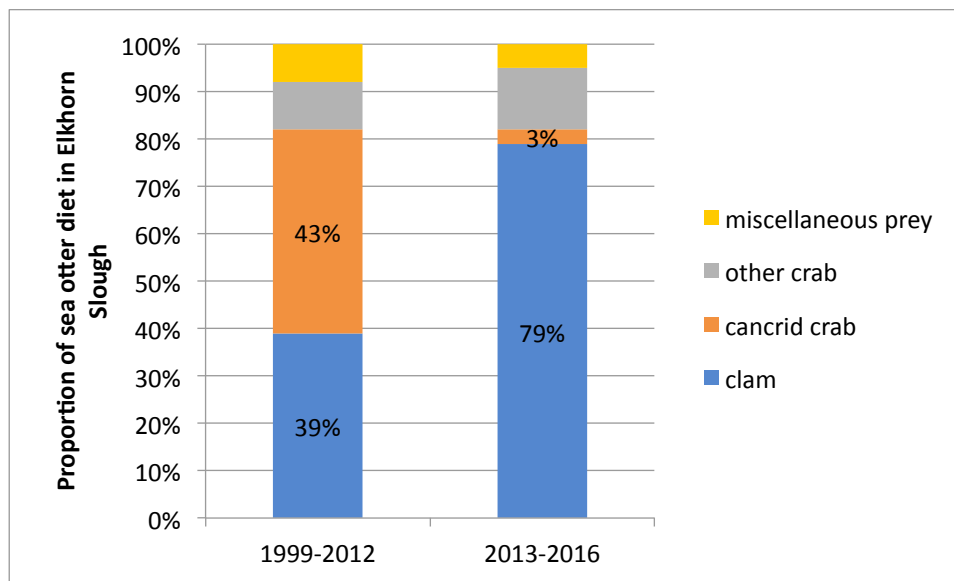


Fig. S1. Prey composition from sea otter diet observations during two study periods. Percentages are shown for the two main prey items during the first study period. Data from 1999-2012 are from Hughes et al. (2013) and 2013-2016 are USGS unpublished data.

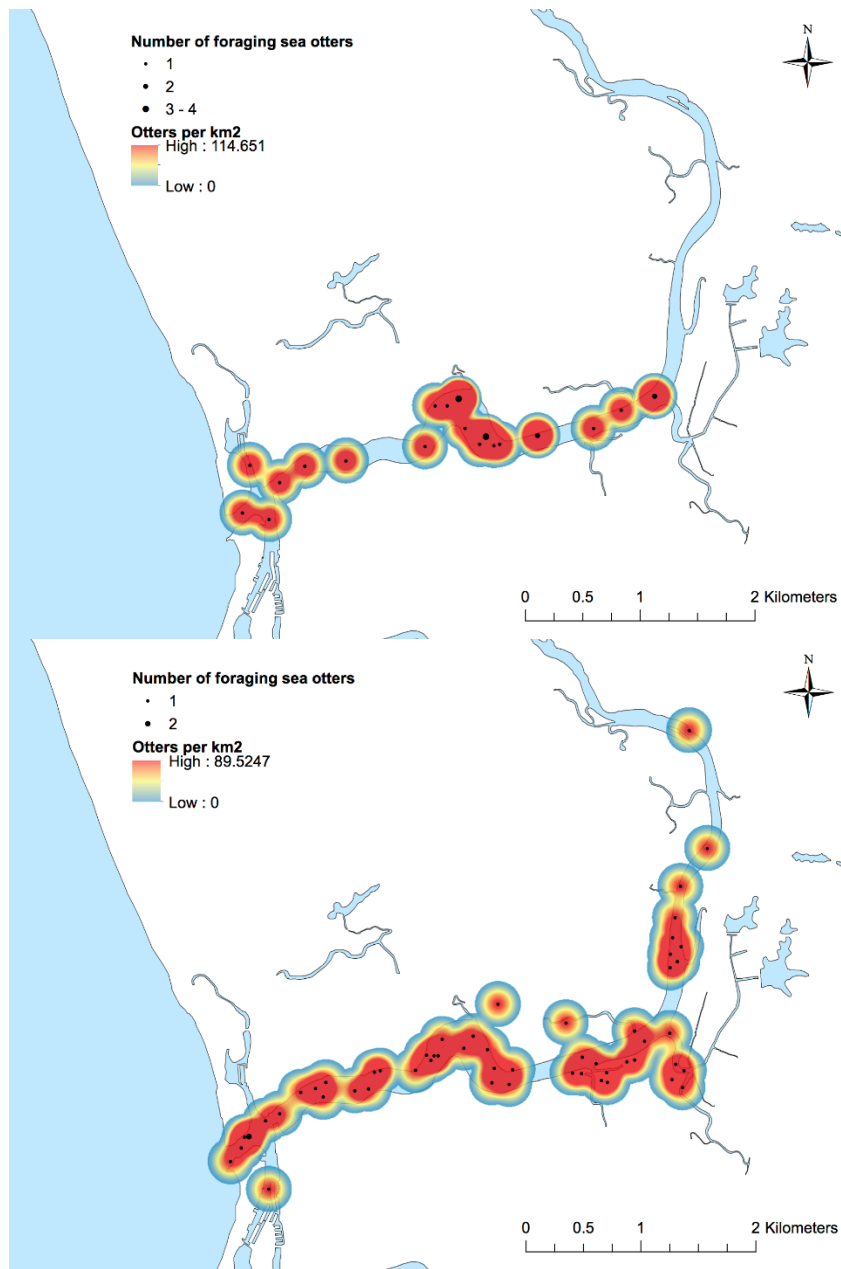


Fig. S2. Foraging sea otter kernel density estimation based on annual census data from 2012 (top) and 2016 (bottom).