

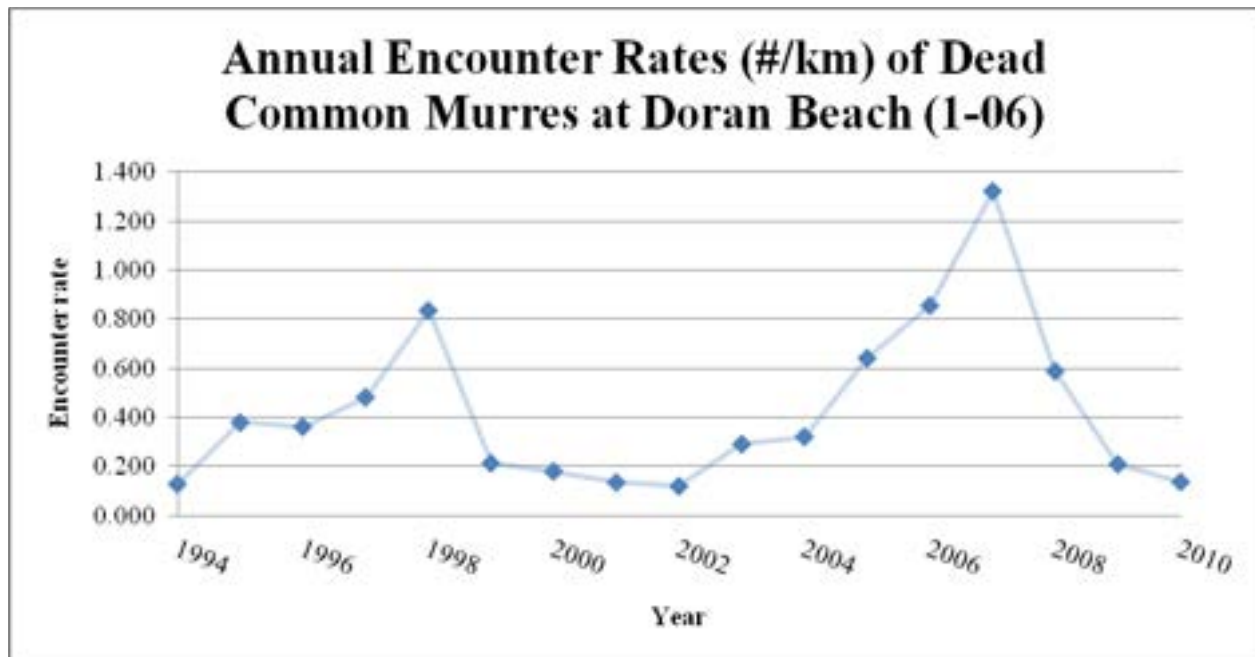
Doran Beach, 1-06, Sonoma County



Doran Beach Oct 2010 (left), Apr 2011 (right). Note the seasonal change: an increased amount of beach wrack (algae) deposited on the beach.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Doran Beach (1-06), 1994-2011 (number of surveys= 392)			
California Sea Lion	0.066	Common Murre	0.419
Otariid (unidentified)	0.018	Western Gull	0.145
Northern Elephant Seal	0.017	Western Grebe	0.136





Highest rates of dead bird deposition on Doran Beach:

A. Common Murre *Uria aalge*
0.419 individuals/km

B. Western Gull *Larus occidentalis*
0.145 individuals/km

C. Western Grebe *Aechmophorus occidentalis*
0.136 individuals/km

Photo credit: GFNMS/FMSA

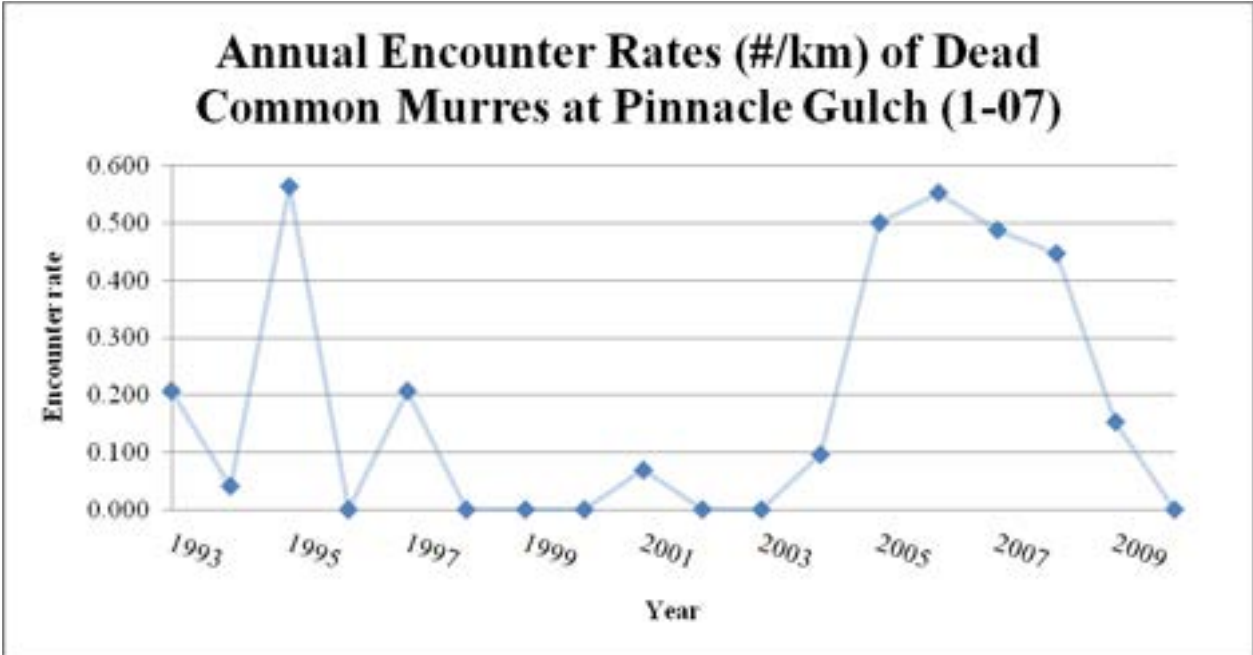
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Doran Beach (1-06), 1994-2011 (number of surveys= 392)			
Harbor Seal	0.134	Dunlin	22.310
California Sea Lion	0.101	Sanderling	12.264
Gray Whale	0.007	Surf Scoter	9.779

Pinnacle Gulch, 1-07, Sonoma County



Pinnacle Gulch May 2010 (left), Jan 2011 (right). Note the seasonal change: increased erosion and exposure of rocks.
 Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Pinnacle Gulch (1-07), 1993-2011 (number of surveys= 188)			
California Sea Lion	0.097	Common Murre	0.219
Harbor Seal	0.022	Western Gull	0.071
Otariid (unidentified)	0.017	Brandt's Cormorant	0.068





Highest rates of dead bird deposition on Pinnacle Gulch:

A. Common Murre *Uria aalge*
0.219 individuals/km

B. Western Gull *Larus occidentalis*
0.071 individuals/km

C. Brandt's Cormorant *Phalacrocorax penicillatus*
0.068 individuals/km

Photo credit: GFNMS/FMSA

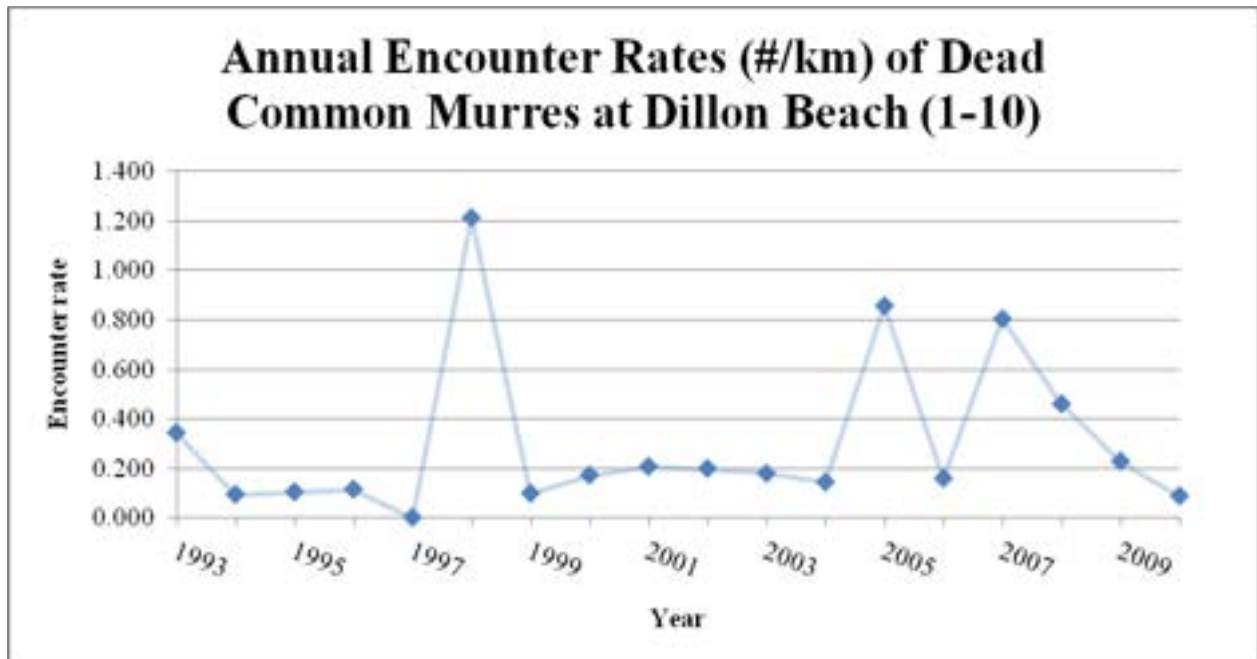
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Pinnacle Gulch (1-07), 1993-2011 (number of surveys= 188)			
Harbor Seal	0.521	Surf Scoter	8.898
California Sea Lion	0.100	Brown Pelican	5.817
Pinniped (unidentified)	0.019	Western Gull	5.683

Dillon Beach, 1-10, Marin County



Dillon Beach Jul 2007.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common marine mammal and bird species at Dillon Beach (1-10), 1993-2011 (number of surveys= 376)			
California Sea Lion	0.021	Common Murre	0.338
Harbor Seal	0.007	Western Gull	0.070
Pinniped (unidentified)	0.007	Northern Fulmar	0.061
Phocid (unidentified)	0.002		





Highest rates of dead bird deposition on Dillon Beach:

A. Common Murre *Uria aalge*
0.338 individuals/km

B. Western Gull *Larus occidentalis*
0.070 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.061 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Dillon Beach (1-10), 1993-2011 (number of surveys= 376)			
Harbor Seal	0.274	Sanderling	37.362
California Sea Lion	0.192	Dunlin	25.496
Pinniped (unidentified)	0.014	Marbled Godwit	18.069

Point Reyes Beach A, 1-14, Marin County



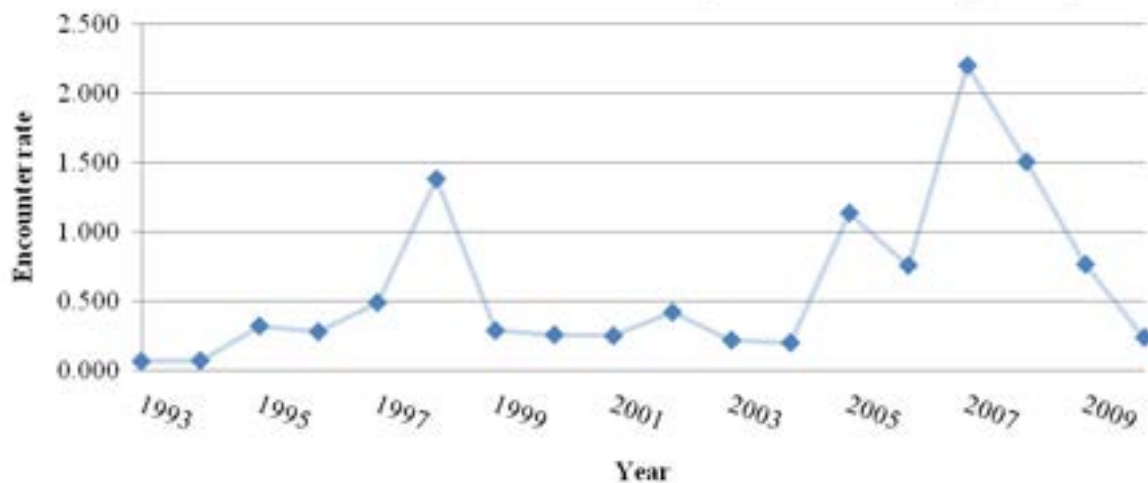
Point Reyes Beach A Mar 2007 (left), Oct 2007 (right). Note the seasonal change: increased erosion and exposure of rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three dead marine mammal and bird species at Point Reyes Beach A (1-14), 1993-2011 (number of surveys= 397)

California Sea Lion	0.063	Common Murre	0.662
Harbor Seal	0.021	Northern Fulmar	0.588
Northern Elephant Seal	0.011	Western Gull	0.113

Annual Encounter Rates (#/km) of Dead Common Murres at Point Reyes Beach A (1-14)





Highest rates of dead bird deposition on Point Reyes Beach A:

A. Common Murre *Uria aalge*
0.662 individuals/km

B. Western Gull *Larus occidentalis*
0.588 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.113 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Point Reyes Beach A (1-14), 1993-2011 (number of surveys= 397)

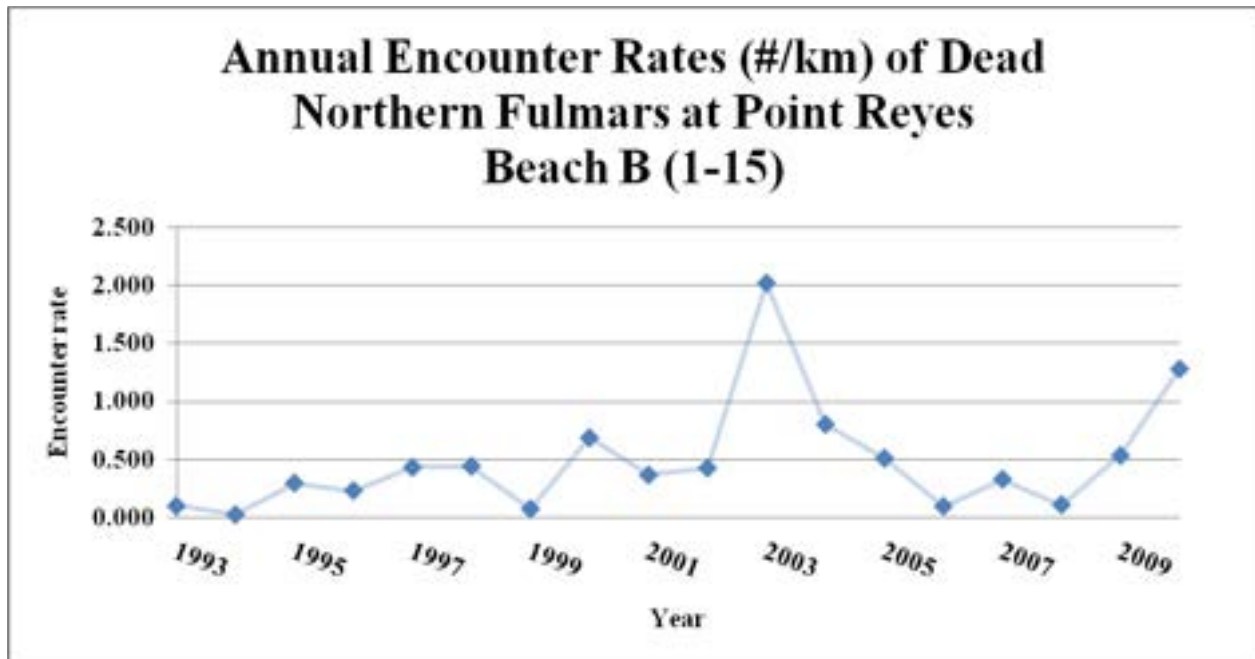
California Sea Lion	0.110	Sanderling	34.520
Cetacean (unidentified)	0.068	Brown Pelican	5.817
Harbor Seal	0.261	California Gull	12.157

Point Reyes Beach B, 1-15, Marin County



Point Reyes Beach B Feb 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Point Reyes Beach B (1-15), 1993-2011 (number of surveys= 387)			
California Sea Lion	0.052	Northern Fulmar	0.487
Harbor Seal	0.013	Common Murre	0.399
Otariid (unidentified)	0.009	Cassin's Auklet	0.060





Highest rates of dead bird deposition on Point Reyes Beach B:

A. Northern Fulmar *Fulmarus glacialis*
0.487 individuals/km

B. Common Murre *Uria aalge*
0.399 individuals/km

C. Cassin's Auklet *Ptychoramphus aleuticus*
0.060 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Point Reyes Beach B (1-15), 1993-2011 (number of surveys= 387)			
California Sea Lion	0.143	Least Sandpiper	29.684
Harbor Porpoise	0.189	Sanderling	21.812
Harbor Seal	0.051	Western Sandpiper	16.277

Point Reyes Beach C, 1-16, Marin County

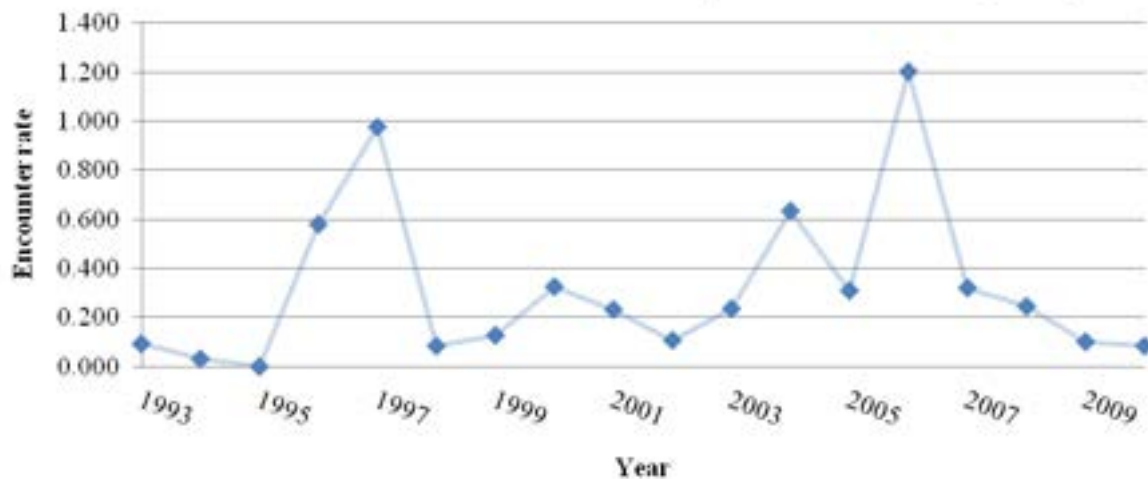


Point Reyes Beach C Dec 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Point Reyes Beach C (1-16), 1993-2011 (number of surveys= 225)

California Sea Lion	0.054	Common Murre	0.305
Harbor Seal	0.008	Northern Fulmar	0.294
Otariid (unidentified)	0.007	Western Gull	0.042

Annual Encounter Rates (#/km) of Dead Common Murres at Point Reyes Beach C (1-16)





Highest rates of dead bird deposition on Point Reyes Beach C:

A. Common Murre *Uria aalge*
0.305 individuals/km

B. Northern Fulmar *Fulmarus glacialis*
0.294 individuals/km

C. Western Gull *Larus occidentalis*
0.042 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Point Reyes Beach C (1-16), 1993-2011 (number of surveys= 225)			
California Sea Lion	0.069	Brown Pelican	6.997
Gray Whale	0.015	Surf Scoter	5.675
Harbor Seal	0.012	Sanderling	5.045

Drakes Beach West, 2-03, Marin County



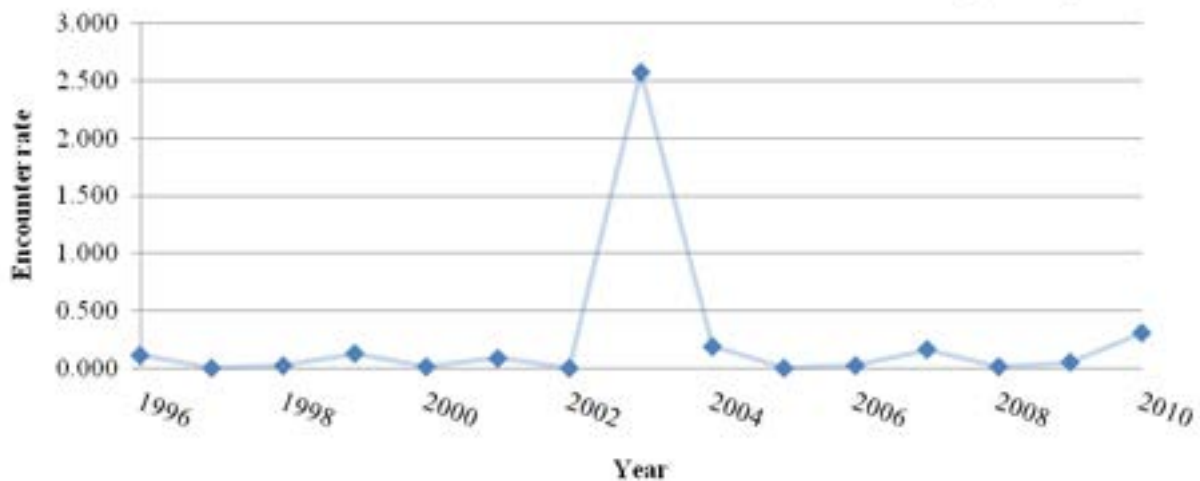
Drakes Beach West Aug 2010 (left), Apr 2011 (right). Note the seasonal change: increased erosion and exposure of rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Drakes Beach West (2-03), 1996-2011 (number of surveys= 379)

California Sea Lion	0.055	Northern Fulmar	0.232
Harbor Seal	0.018	Common Murre	0.096
Pinniped (unidentified)	0.013	Brandt's Cormorant	0.045

Annual Encounter Rates (#/km) of Dead Northern Fulmars at Drakes Beach West (2-03)





Highest rates of dead bird deposition on Drakes Beach West:

A. Northern Fulmar *Fulmarus glacialis*
0.232 individuals/km

B. Common Murre *Uria aalge*
0.096 individuals/km

C. Brandt's Cormorant *Phalacrocorax penicillatus*
0.045 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Drakes Beach West (2-03), 1996-2011 (number of surveys= 379)			
Northern Elephant Seal	3.556	Surf Scoter	22.708
Harbor Seal	1.138	Sanderling	14.320
Harbor Porpoise	0.054	Western Gull	13.637

Drakes Beach East, 2-04, Marin County



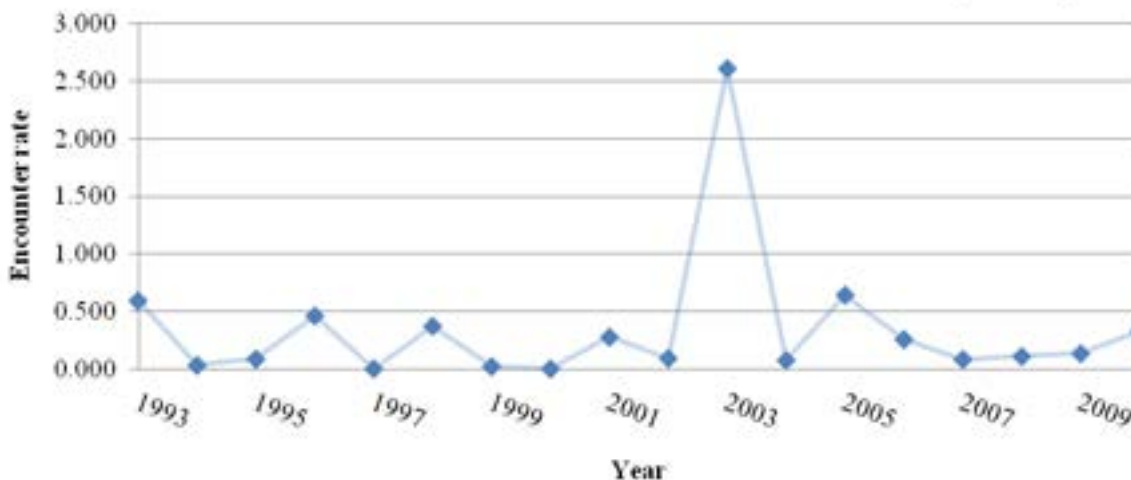
Drakes Beach East Aug 2009 (left), Apr 2011 (right). Note the seasonal change: increased erosion and exposure of rock shelf.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Drakes Beach East (2-04), 1993-2011 (number of surveys= 234)

Harbor Seal	0.068	Northern Fulmar	0.308
California Sea Lion	0.041	Common Murre	0.219
Northern Elephant Seal	0.009	Western Gull	0.082

Annual Encounter Rates (#/km) of Dead Northern Fulmars at Drakes Beach East (2-04)





Highest rates of dead bird deposition on Drakes Beach East:

A. Northern Fulmar *Fulmarus glacialis*
0.308 individuals/km

B. Common Murre *Uria aalge*
0.219 individuals/km

C. Western Gull *Larus occidentalis*
0.082 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Drakes Beach East (2-04), 1993-2011 (number of surveys= 234)			
Harbor Seal	16.518	Western Gull	22.147
California Sea Lion	0.076	Sanderling	11.953
Northern Elephant Seal	0.032	Brown Pelican	11.943

Limantour Beach West, 2-05, Marin County

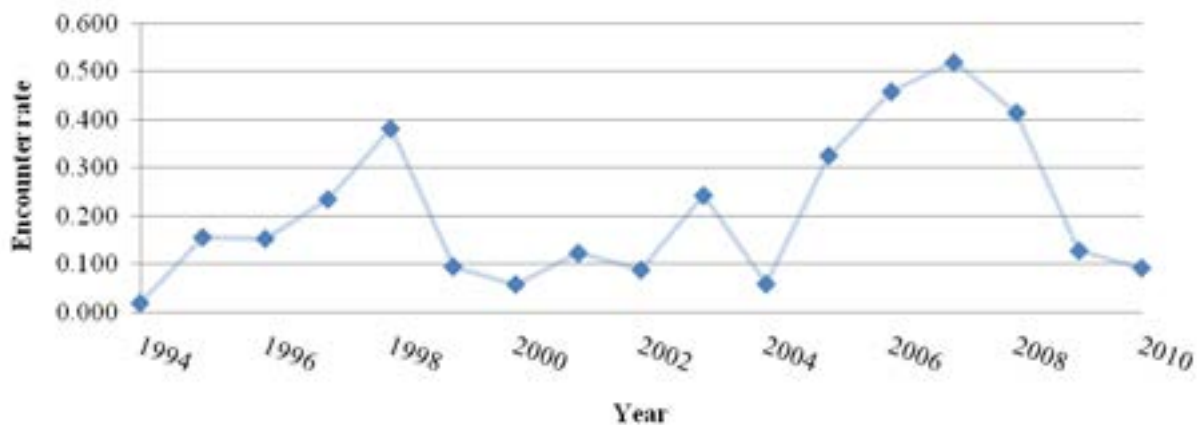


Limantour Beach West Aug 2010 (left), Jan 2011 (right). Note the seasonal change: presence of dunes.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Limantour Beach West (2-05), 1994-2011 (number of surveys= 440)

Harbor Seal	0.036	Common Murre	0.215
California Sea Lion	0.022	Northern Fulmar	0.199
Northern Elephant Seal	0.005	Western Gull	0.063

Annual Encounter Rates (#/km) of Dead Common Murres at Limantour Beach West (2-05)





Highest rates of dead bird deposition on Limantour Beach West:

A. Common Murre *Uria aalge*
0.215 individuals/km

B. Northern Fulmar *Fulmarus glacialis*
0.199 individuals/km

C. Western Gull *Larus occidentalis*
0.063 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Limantour Beach West (2-05), 1994-2011 (number of surveys= 440)			
Harbor Seal	15.969	Sanderling	19.671
Northern Elephant Seal	0.063	Western Sandpiper	9.758
California Sea Lion	0.058	Least Sandpiper	8.530

Limantour Beach East, 2-06, Marin County

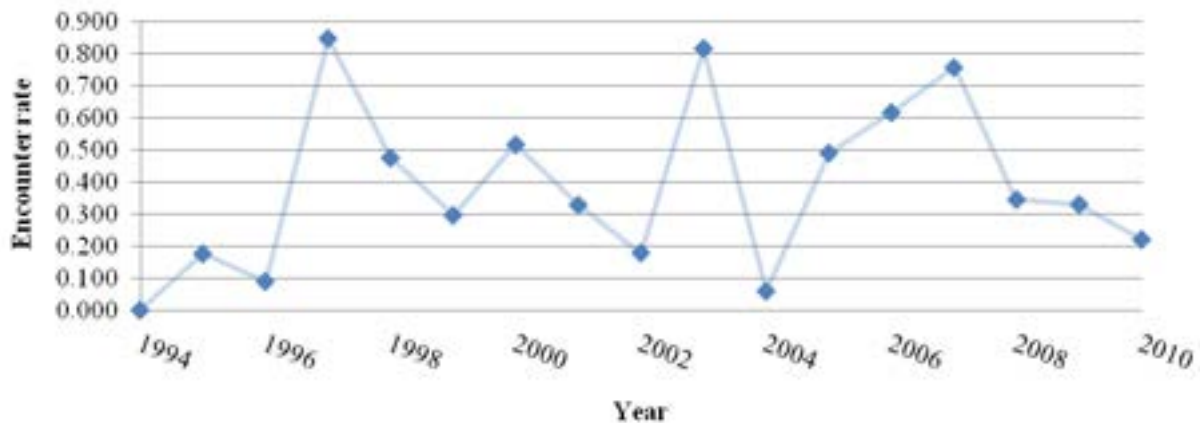


Limantour Beach East Jul 2010 (left), Jan 2011 (right). Note the seasonal change: increased stream flow.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Limantour Beach East (2-06), 1994-2011 (number of surveys= 291)

California Sea Lion	0.029	Common Murre	0.398
Harbor Seal	0.012	Northern Fulmar	0.257
Northern Elephant Seal	0.005	Western Gull	0.080

Annual Encounter Rates (#/km) of Dead Common Murres at Limantour Beach East (2-06)





Highest rates of dead bird deposition on Limantour Beach East:

A. Common Murre *Uria aalge*
0.398 individuals/km

B. Northern Fulmar *Fulmarus glacialis*
0.257 individuals/km

C. Western Gull *Larus occidentalis*
0.080 individuals/km

Photo credit: GFNMS/FMSA

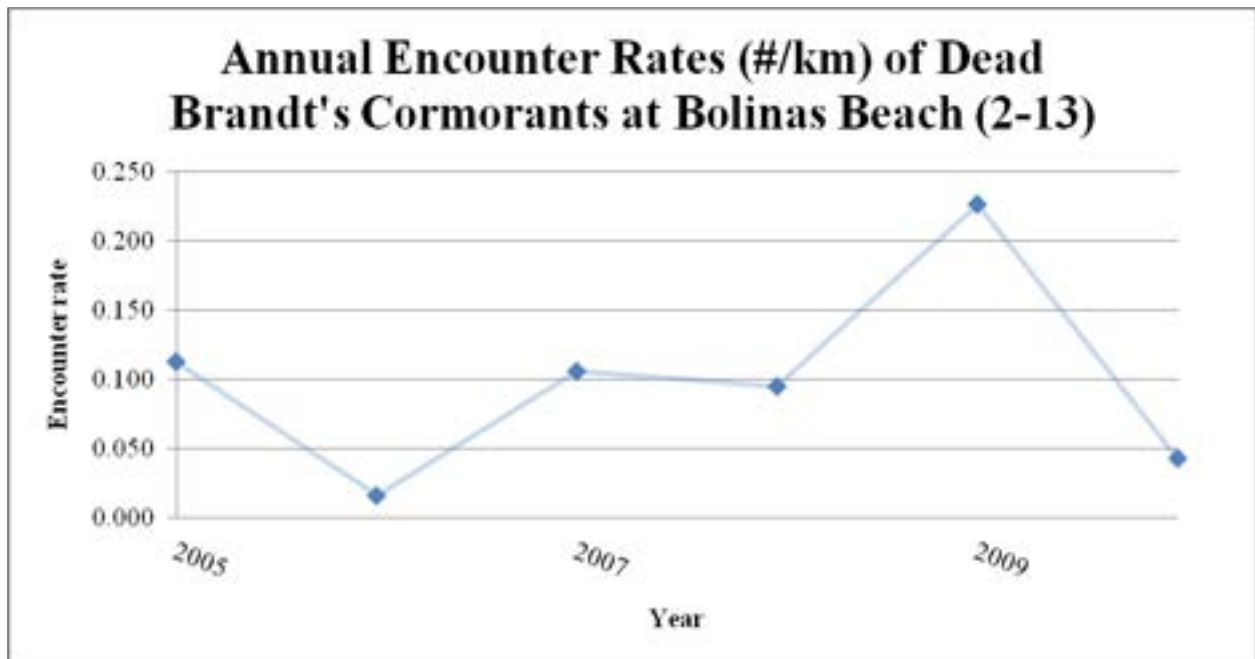
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Limantour Beach East (2-06), 1994-2011 (number of surveys= 291)			
Harbor Seal	0.549	Surf Scoter	16.712
California Sea Lion	0.156	Brown Pelican	13.100
Harbor Porpoise	0.044	Sanderling	11.759

Bolinas Beach, 2-13, Marin County



Bolinas Beach May 2010 (left), Mar 2011 (right). Note the seasonal change: increased erosion and exposure of rocks.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Bolinas Beach (2-13), 2005-2011 (number of surveys= 108)			
California Sea Lion	0.044	Brandt's Cormorant	0.117
Harbor Seal	0.037	Common Murre	0.092
Otariid (unidentified)	0.007	Western Grebe	0.039





Highest rates of dead bird deposition on Bolinas Beach:

A. Brandt's Cormorant *Phalacrocorax penicillatus*
0.117 individuals/km

B. Common Murre *Uria aalge*
0.092 individuals/km

C. Western Grebe *Aechmophorus occidentalis*
0.039 individuals/km

Photo credit: GFNMS/FMSA

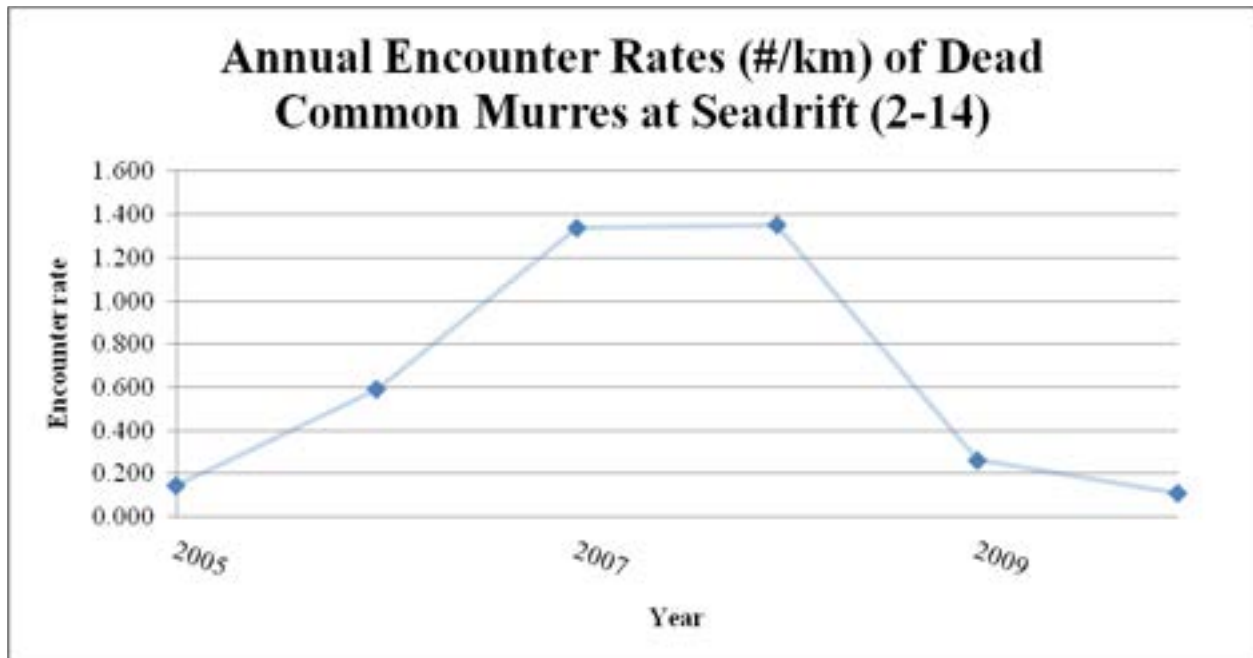
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Bolinas Beach (2-13), 2005-2011 (number of surveys= 108)			
Harbor Seal	3.027	Western Gull	24.442
California Sea Lion	0.073	Brown Pelican	21.210
Cetacean (unidentified)	0.042	Brant	18.560

Seadrift, 2-14, Marin County



Seadrift Aug 2010 (left), Sep 2010 (right). Note subtle deposition.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Seadrift (2-14), 2005-2011 (number of surveys= 129)			
California Sea Lion	0.021	Common Murre	0.522
Otariid (unidentified)	0.004	Brandt's Cormorant	0.219
Harbor Seal	0.002	Western Grebe	0.119
Humpback Whale	0.002		
Phocid (unidentified)	0.002		
Pinniped (unidentified)	0.002		
Steller Sea Lion	0.002		





Highest rates of dead bird deposition on Seadrift:

A. Common Murre *Uria aalge*
0.522 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.219 individuals/km

C. Western Grebe *Aechmophorus occidentalis*
0.119 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Seadrift (2-14), 2005-2011 (number of surveys= 129)

Harbor Seal	0.240	Brown Pelican	5.181
Marine Mammal (unidentified)	0.022	Caspian Tern	3.364
California Sea Lion	0.017	Western Gull	2.953

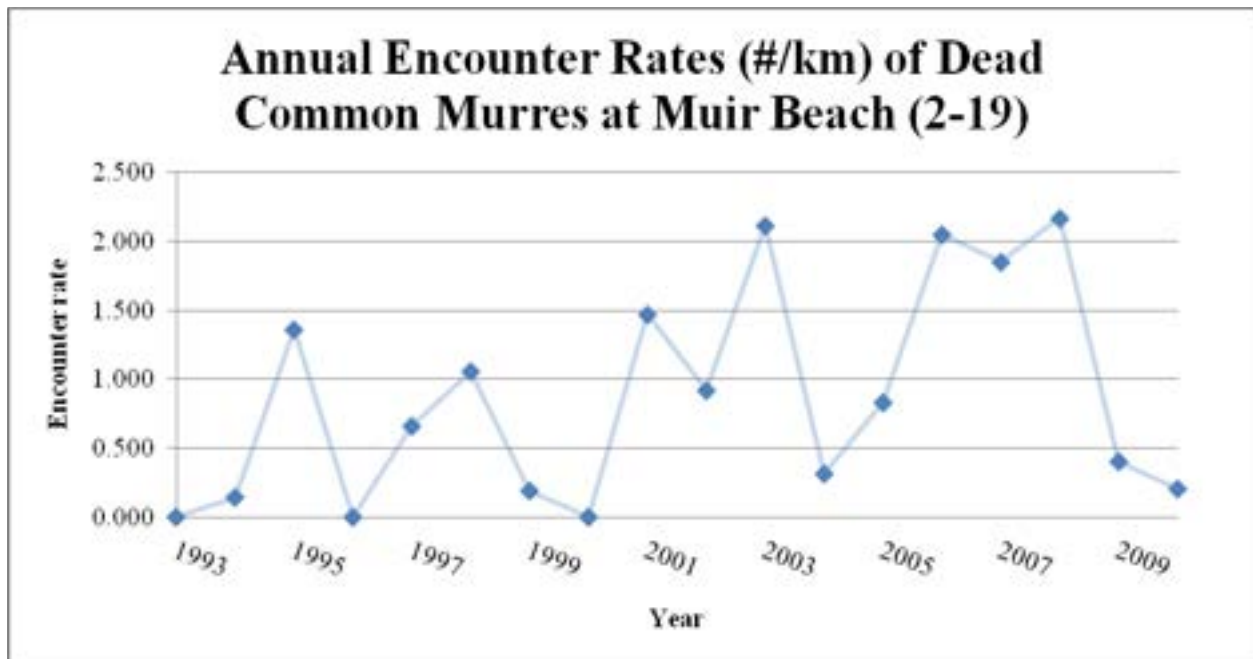
Muir Beach, 2-19, Marin County



Muir Beach Aug 2010 (left), Jan 2011(right). Note the seasonal change: increased erosion and exposure of rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Muir Beach (2-19), 1993-2011 (number of surveys=396)			
California Sea Lion	0.097	Common Murre	0.923
Harbor Seal	0.032	Brandt's Cormorant	0.359
Gray Whale	0.008	Western Gull	0.197





Highest rates of dead bird deposition on Muir Beach:

A. Common Murre *Uria aalge*
0.923 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.359 individuals/km

C. Western Gull *Larus occidentalis*
0.197 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Muir Beach (2-19), 1993-2011 (number of surveys= 396)			
Harbor Seal	0.169	Brown Pelican	12.492
Harbor Porpoise	0.117	Surf Scoter	8.552
California Sea Lion	0.064	Brandt's Cormorant	11.746

Rodeo Beach, 2-23, Marin County



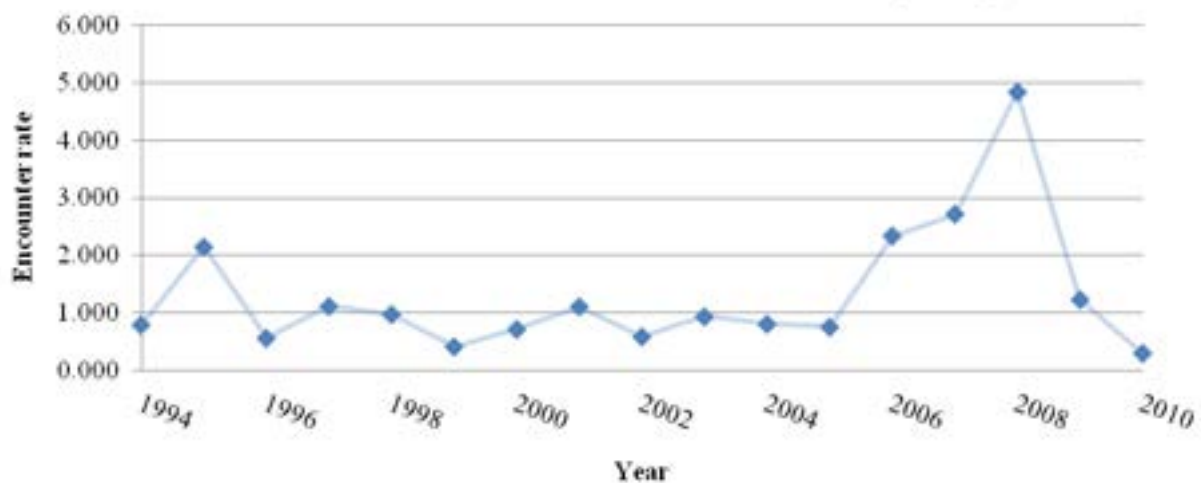
Rodeo Beach Sep 2010 (left), Jan 2010 (right). Note seasonal closure of lagoon and water seeping out from under the sand berm.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Rodeo Beach (2-23), 1994-2011 (number of surveys= 454)

California Sea Lion	0.099	Common Murre	1.281
Harbor Seal	0.014	Brandt's Cormorant	0.415
Steller Sea Lion	0.009	Western Gull	0.270

Annual Encounter Rates (#/km) of Dead Common Murres at Rodeo Beach (2-23)





Highest rates of dead bird deposition on Rodeo Beach:

- A. Common Murre *Uria aalge* 1.281 individuals/km
- B. Brandt's Cormorant *Phalacrocorax penicillatus* 0.415 individuals/km
- C. Western Gull *Larus occidentalis* 0.270 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Rodeo Beach (2-23), 1994-2011 (number of surveys= 454)

Harbor Seal	0.094	Brown Pelican	78.035
California Sea Lion	0.090	Western Gull	19.728
Harbor Porpoise	0.057	Sooty/Short-tailed Shearwater	17.811

Kirby Cove, 2-30, Marin County

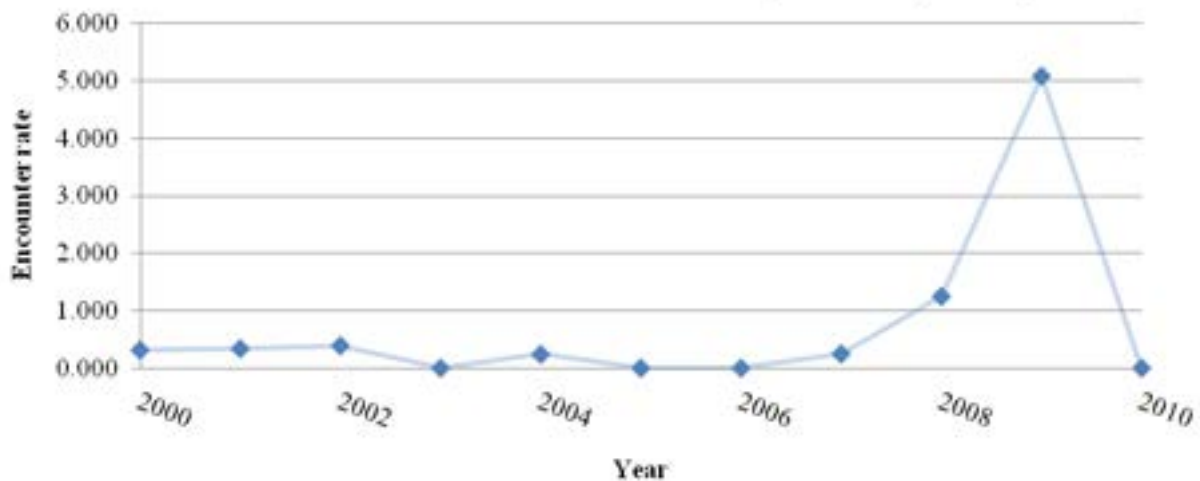


Kirby Cove May 2007 (left), Apr 2011(right). Note the stability of the beach over four years.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Kirby Cove (2-30), 2000-2011 (number of surveys=212)

California Sea Lion	0.067	Brandt's Cormorant	0.896
Otariid (unidentified)	0.017	Common Murre	0.490
		Western Gull	0.135

Annual Encounter Rates (#/km) of Dead Brandt's Cormorants at Kirby Cove (2-30)





A



B



C

Highest rates of dead bird deposition on Kirby Cove:
 A. Brandt's Cormorant *Phalacrocorax penicillatus*
 0.896 individuals/km
 B. Common Murre *Uria aalge*
 0.490 individuals/km
 C. Western Gull *Larus occidentalis*
 0.135 individuals/km
 Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Kirby Cove (2-30), 2000-2011 (number of surveys= 212)			
Harbor Seal	3.531	Surf Scoter	24.963
California Sea Lion	0.183	Western Gull	13.506
		Western Grebe	10.825

Baker Beach, 3-02, San Mateo County



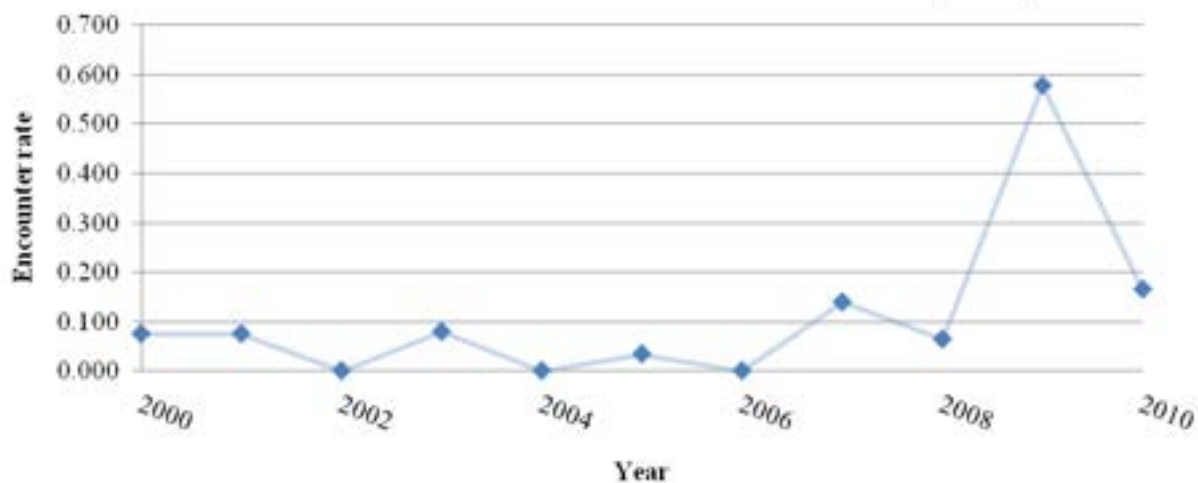
Baker Beach Mar 2010 (left), Apr 2010 (right). Note rapid deposition and burial of culvert over four week period.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Baker Beach (3-02), 2000-2011 (number of surveys= 279)

Harbor Seal	0.009	Brandt's Cormorant	0.114
Pinniped (unidentified)	0.009	Western Grebe	0.060
California Sea Lion	0.006	Common Murre	0.051
Otariid (unidentified)	0.003		
Harbor Porpoise	0.003		

Annual Encounter Rates (#/km) of Dead Brandt's Cormorants at Baker Beach (3-02)





Highest rates of dead bird deposition on Baker Beach:

A. Brandt's Cormorant *Phalacrocorax penicillatus*
0.114 individuals/km

B. Western Grebe *Aechmophorus occidentalis*
0.060 individuals/km

C. Common Murre *Uria aalge*
0.051 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Baker Beach (3-02), 2000-2011 (number of surveys= 279)

California Sea Lion	0.128	Western Gull	10.090
Pinniped (unidentified)	0.094	Western Grebe	6.310
Cetacean (unidentified)	0.091	Sanderling	5.423

China Beach, 3-04, San Mateo County

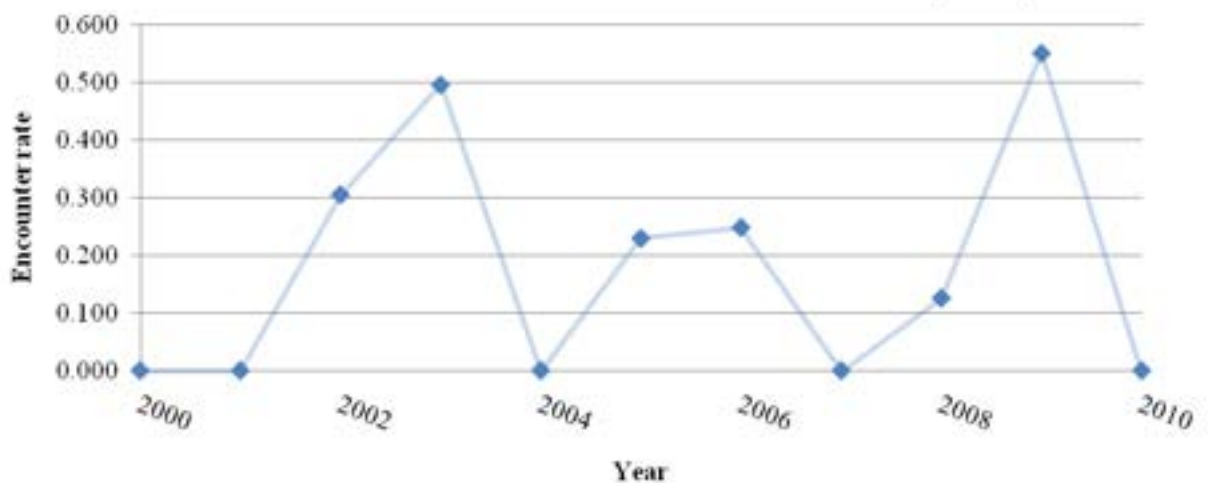


China Beach May 2011.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead bird species at China Beach (3-04), 2000-2011 (number of surveys= 114)

Brandt's Cormorant	0.184
Common Murre	0.084
Western Gull	0.067

Annual Encounter Rates (#/km) of Dead Brandt's Cormorants at China Beach (3-04)





Highest rates of dead bird deposition on China Beach:

A. Brandt's Cormorant *Phalacrocorax penicillatus*
0.184 individuals/km

B. Common Murre *Uria aalge*
0.084 individuals/km

C. Western Gull *Larus occidentalis*
0.067 individuals/km

Photo credit: GFNMS/FMSA

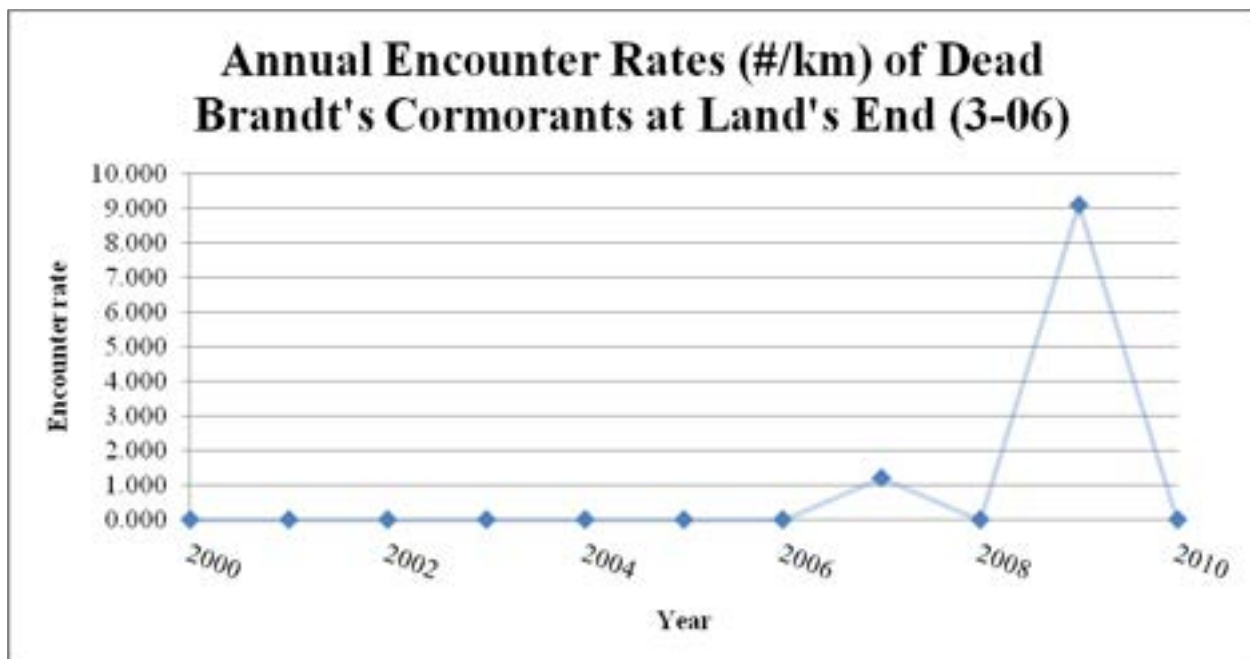
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at China Beach (3-04), 2000-2011 (number of surveys= 114)			
Harbor Porpoise	0.540	Heermann's Gull	41.646
Bottlenose Dolphin	0.491	Western Gull	39.655
California Sea Lion	0.360	Brown Pelican	28.680

Land's End, 3-06, San Mateo County



China Beach May 2011.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Land's End (3-06), 2000-2011 (number of surveys= 187)			
Harbor Seal	0.039	Brandt's Cormorant	1.370
California Sea Lion	0.039	Common Murre	0.235
Gray Whale	0.039	Brown Pelican	0.078
Steller Sea Lion	0.039		





Highest rates of dead bird deposition on Land's End:

A. Brandt's Cormorant *Phalacrocorax penicillatus*
1.370 individuals/km

B. Common Murre *Uria aalge*
0.235 individuals/km

C. Brown Pelican *Pelecanus occidentalis*
0.078 individuals/km

Photo credit: GFNMS/FMSA

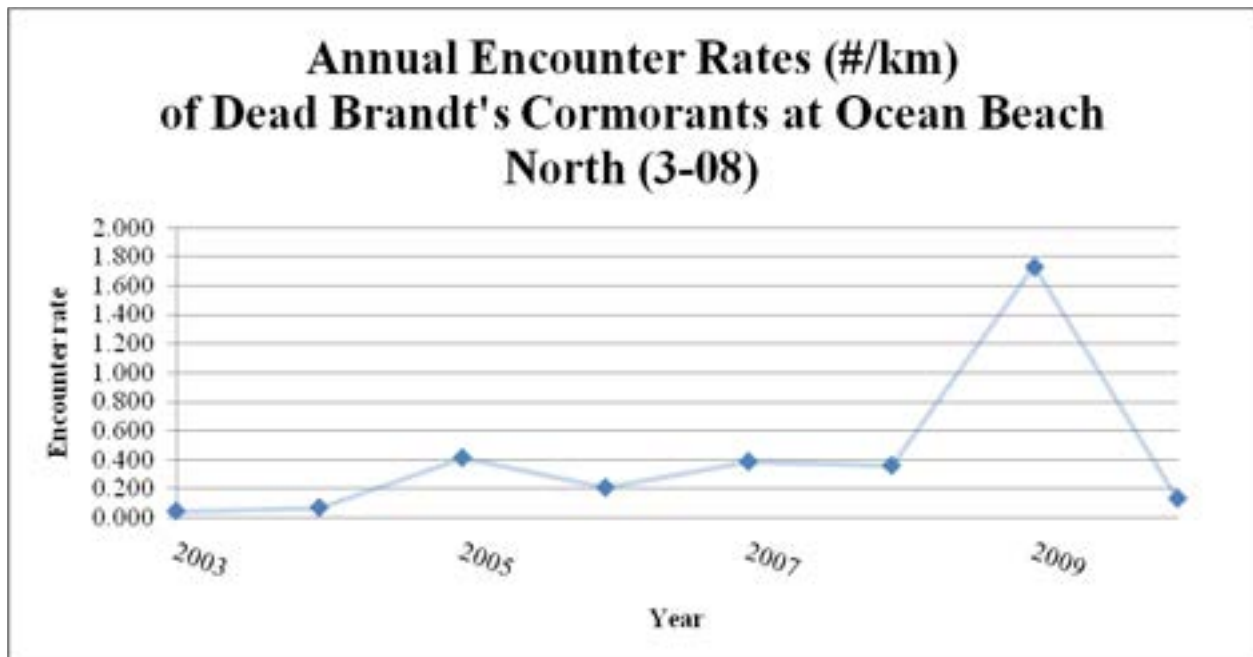
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Land's End (3-06), 2000-2011 (number of surveys= 187)			
Harbor Seal	21.552	Brandt's Cormorant	209.551
California Sea Lion	1.378	Brown Pelican	137.889
Bottlenose Dolphin	0.804	Surf Scoter	74.342

Ocean Beach North, 3-08, San Mateo County



Ocean Beach North Oct. 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Ocean Beach North (3-08), 2003-2011 (number of surveys= 148)			
California Sea Lion	0.036	Brandt's Cormorant	0.416
Northern Elephant Seal	0.009	Western Gull	0.224
Otariid (unidentified)	0.004	Common Murre	0.187
Marine Mammal (unidentified)	0.004		
Northern Fur Seal	0.004		





Highest rates of dead bird deposition on Ocean Beach North:

A. Brandt's Cormorant *Phalacrocorax penicillatus*
0.416 individuals/km

B. Western Gull *Larus occidentalis*
0.224 individuals/km

C. Common Murre *Uria aalge*
0.187 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Ocean Beach North (3-08), 2003-2011 (number of surveys= 148)			
California Sea Lion	0.966	Heermann's Gull	38.280
Pinniped (unidentified)	0.447	Western Gull	28.286
Harbor Seal	0.004	Brown Pelican	15.314

Ocean Beach Central, 3-09, San Mateo County

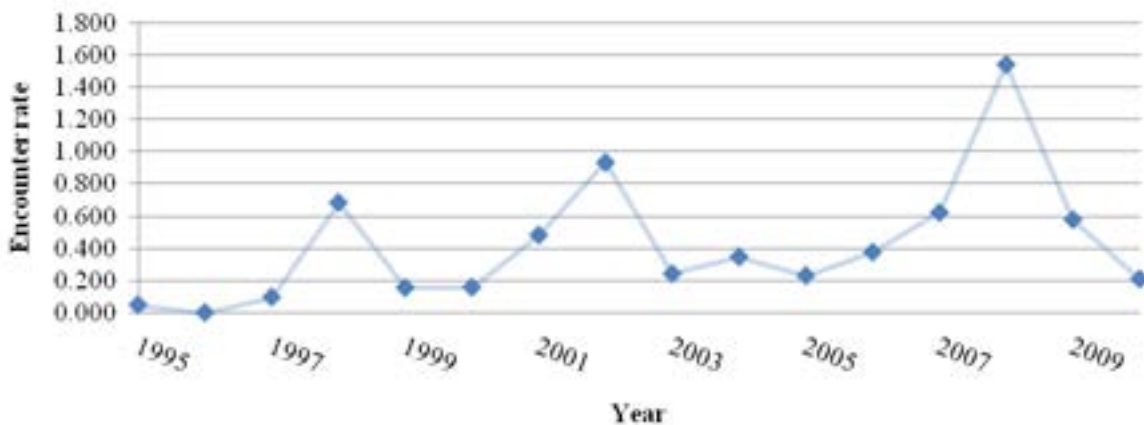


Ocean Beach Central Aug 2009.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Ocean Beach Central (3-09), 1995-2011 (number of surveys= 369)

California Sea Lion	0.073	Common Murre	0.429
Northern Elephant Seal	0.018	Brandt's Cormorant	0.263
Pinniped (unidentified)	0.016	Northern Fulmar	0.207

Annual Encounter Rates (#/km) of Dead Common Murres at Ocean Beach Central (3-09)





Highest rates of dead bird deposition on Ocean Beach Central:

A. Common Murre *Uria aalge*
0.429 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.263 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.207 individuals/km

Photo credit: GFNMS/FMSA

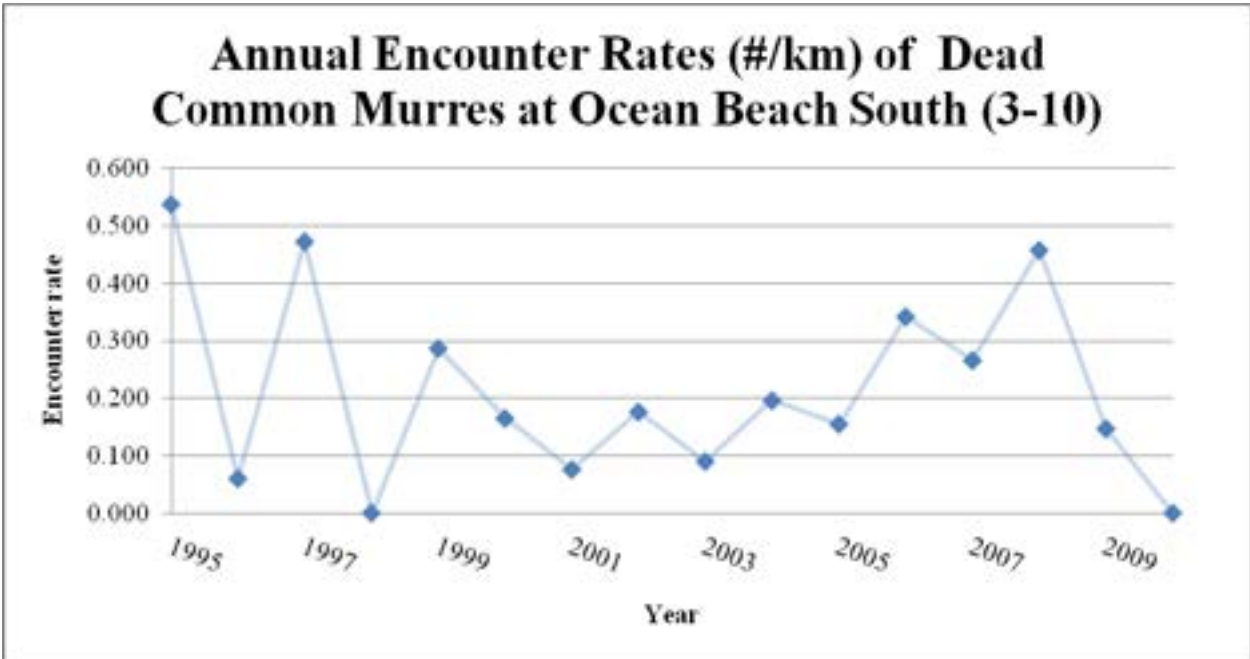
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Ocean Beach Central (3-09), 1995-2011 (number of surveys= 369)			
Cetacean (unidentified)	0.028	Sanderling	57.017
Bottlenose Dolphin	0.022	Western Gull	25.741
California Sea Lion	0.018	Heermann's Gull	20.808

Ocean Beach South, 3-10, San Mateo County



Ocean Beach South Sep 2007.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Ocean Beach South (3-10), 1995-2011 (number of surveys= 288)			
California Sea Lion	0.058	Common Murre	0.240
Pinniped (unidentified)	0.017	Western Gull	0.087
Northern Elephant Seal	0.008	Brandt's Cormorant	0.079





Highest rates of dead bird deposition on Ocean Beach South:

A. Common Murre *Uria aalge*
0.240 individuals/km

B. Western Gull *Larus occidentalis*
0.087 individuals/km

C. Brandt's Cormorant *Phalacrocorax penicillatus*
0.079 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Ocean Beach South (3-10), 1995-2011 (number of surveys= 288)			
Cetacean (unidentified)	0.080	Sanderling	35.958
California Sea Lion	0.060	Willet	25.170
Gray Whale	0.012	Sooty Shearwater	14.157

Thornton Beach North, 3-11, San Mateo County



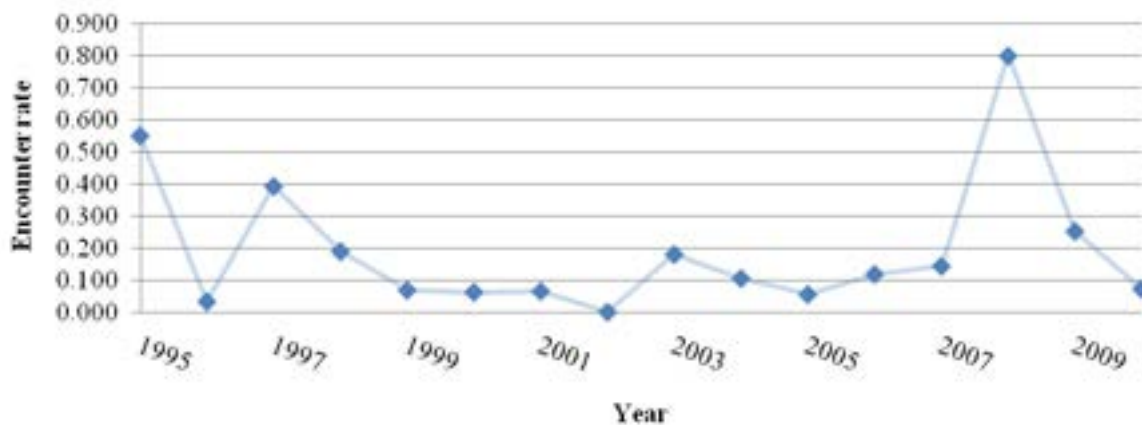
Thornton Beach North Sep 2010 (left), Mar 2011 (right). Note the seasonal change: increased erosion and exposure of rocks

.Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Thornton Beach North (3-11), 1995-2011 (number of surveys= 326)

California Sea Lion	0.076	Common Murre	0.188
Harbor Seal	0.022	Brandt's Cormorant	0.133
Otariid (unidentified)	0.008	Northern Fulmar	0.079

Annual Encounter Rates (#/km) of Dead Common Murres at Thornton Beach North (3-11)





Highest rates of dead bird deposition on Thornton Beach North:

A. Common Murre *Uria aalge*
0.188 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.133 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.079 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Thornton Beach North (3-11), 1995-2011 (number of surveys= 326)			
California Sea Lion	0.076	Sanderling	10.994
Harbor Seal	0.022	Willet	10.459
Otariid (unidentified)	0.008	Surf Scoter	5.718

Sharp Park, 3-15, San Mateo County



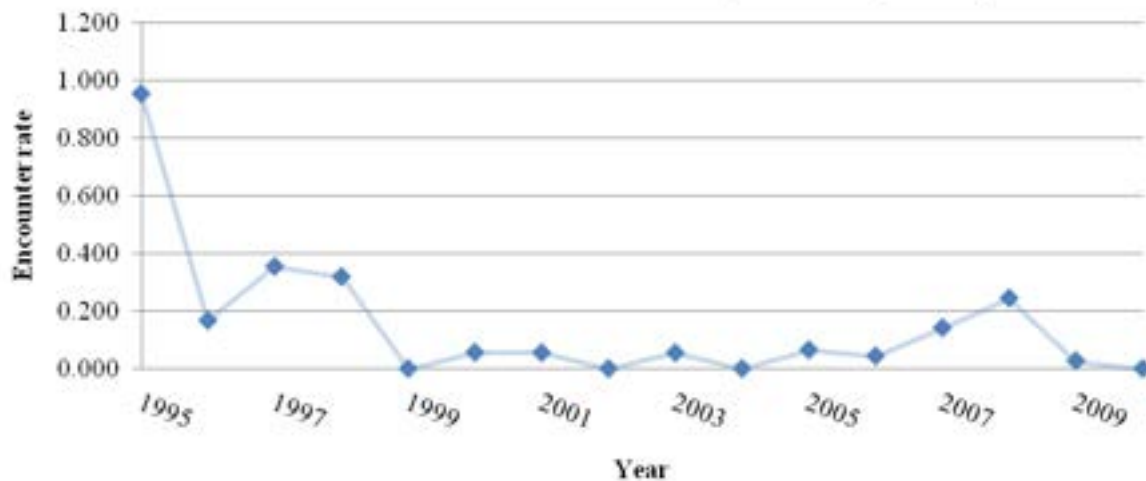
Sharp Park Jul 2010 (left), May 2011 (right). Note the seasonal change: increased erosion and exposure of rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Sharp Park (3-15), 1995-2011 (number of surveys= 345)

California Sea Lion	0.137	Common Murre	0.188
Harbor Porpoise	0.033	Northern Fulmar	0.148
Harbor Seal	0.019	Brandt's Cormorant	0.122
Otariid (unidentified)	0.019		

Annual Encounter Rates (#/km) of Dead Common Murres at Sharp Park (3-15)





Highest rates of dead bird deposition on Sharp Park:

A. Common Murre *Uria aalge*
0.188 individuals/km

B. Northern Fulmar *Fulmarus glacialis*
0.148 individuals/km

C. Brandt's Cormorant *Phalacrocorax penicillatus*
0.122 individuals/km

Photo credit: GFNMS/FMSA

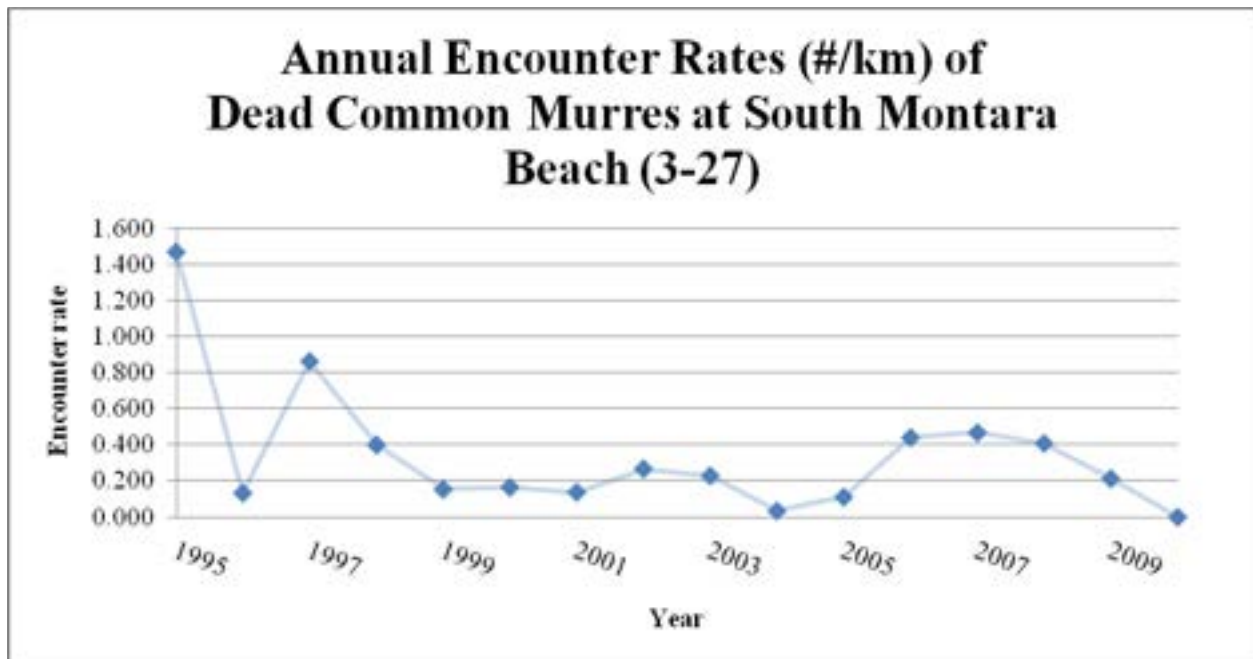
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Sharp Park (3-15), 1995-2011 (number of surveys= 345)			
California Sea Lion	0.058	Rock Dove	32.335
Harbor Seal	0.018	Heermann's Gull	16.372
Cetacean (unidentified)	0.016	Surf Scoter	13.243

South Montara Beach, 3-27, San Mateo County



South Montara Beach Aug 2010 (left), Feb 2011 (right). Note seasonal change: deposition of sand.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at South Montara Beach (3-27), 1995-2011 (number of surveys= 347)			
California Sea Lion	0.049	Common Murre	0.269
Otariid (unidentified)	0.013	Brandt's Cormorant	0.142
Harbor Seal	0.005	Northern Fulmar	0.134
Pinniped (unidentified)	0.005		
Sea Otter	0.005		





Highest rates of dead bird deposition on South Montara Beach:

A. Common Murre *Uria aalge*
0.269 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.142 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.134 individuals/km

Photo credit: GFNMS/FMSA

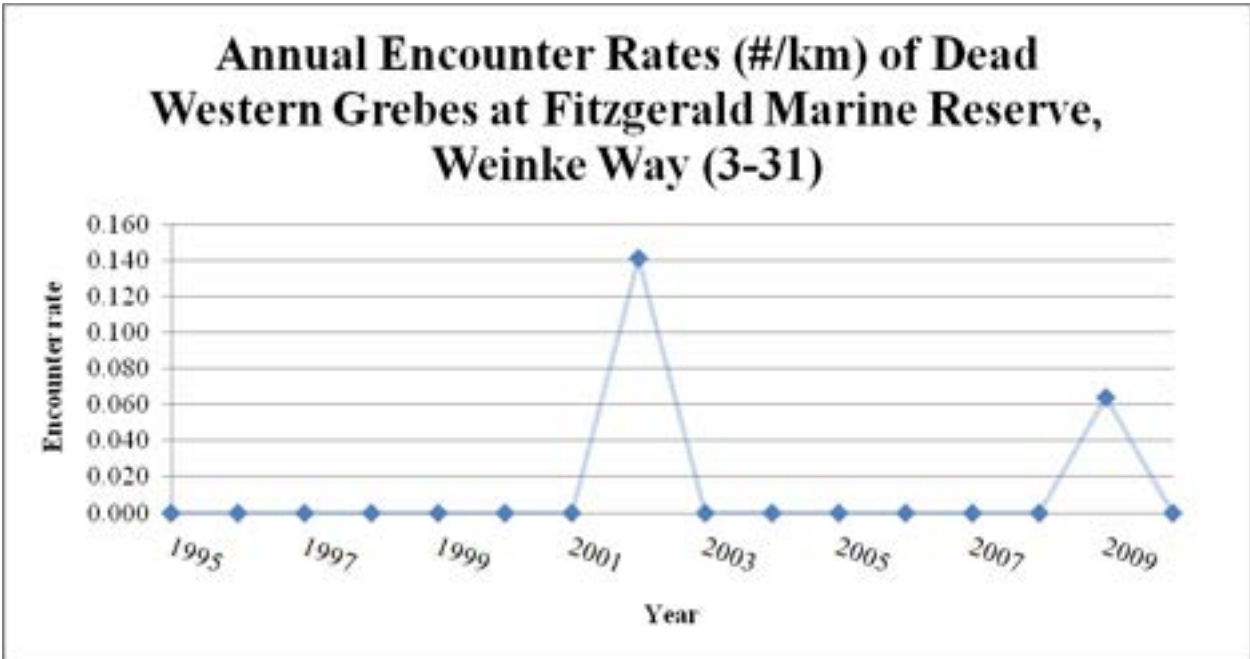
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at South Montara Beach (3-27), 1995-2011 (number of surveys= 347)			
Harbor Seal	0.284	Western Gull	14.228
Harbor Porpoise	0.142	Brown Pelican	13.742
California Sea Lion	0.130	Heermann's Gull	12.663

Fitzgerald Marine Reserve, Weinke Way, 3-31, San Mateo County



Fitzgerald Marine Reserve, Weinke Way Oct 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Fitzgerald Marine Reserve, Weinke Way (3-31), 1995-2011 (number of surveys= 257)			
California Sea Lion	0.049	Western Grebe	0.012
Harbor Seal	0.030	Brown Pelican	0.006
Northern Elephant Seal	0.018	Common Murre	0.006
		Rhinoceros Auklet	0.006





Highest rates of dead bird deposition on Fitzgerald Marine Reserve, Weinke Way:

- | | |
|---|----------------------|
| A. Western Grebe <i>Aechmophorus occidentalis</i> | 0.012 individuals/km |
| B. Brown Pelican <i>Pelecanus occidentalis</i> | 0.006 individuals/km |
| C. Common Murre <i>Uria aalge</i> | 0.006 individuals/km |
| D. Rhinoceros Auklet <i>Cerorhinca monocerata</i> | 0.006 individuals/km |

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Fitzgerald Marine Reserve, Weinke Way (3-31), 1995-2011 (number of surveys= 257)

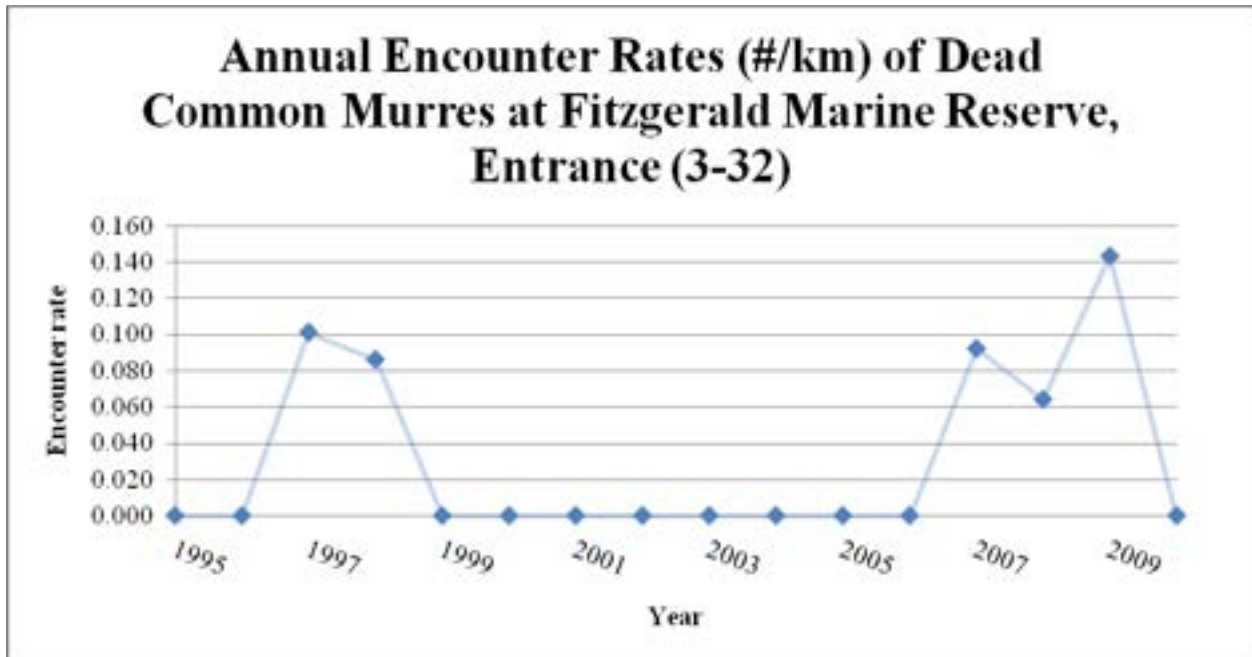
California Sea Lion	0.175	Western Gull	33.249
Harbor Seal	0.067	Brandt's Cormorant	12.643
Gray Whale	0.039	Brown Pelican	11.302

Fitzgerald Marine Reserve, Entrance, 3-32, San Mateo County



Fitzgerald Marine Reserve, Entrance Oct 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Fitzgerald Marine Reserve, Entrance (3-32), 1995-2011 (number of surveys= 268)			
California Sea Lion	0.053	Common Murre	0.039
Steller Sea Lion	0.005	Northern Fulmar	0.029
		Western Grebe	0.029
		Brandt's Cormorant	0.024





Highest rates of dead bird deposition on Fitzgerald Marine Reserve, Entrance:

- A. Common Murre *Uria aalge* 0.039 individuals/km
- B. Northern Fulmar *Fulmarus glacialis* 0.029 individuals/km
- C. Western Grebe *Aechmophorus occidentalis* 0.029 individuals/km
- D. Brandt's Cormorant *Phalacrocorax penicillatus* 0.024 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Fitzgerald Marine Reserve, Entrance (3-32), 1995-2011 (number of surveys= 268)			
Harbor Seal	4.759	Western Gull	35.913
California Sea Lion	0.121	Brown Pelican	15.058
Gray Whale	0.049	Sanderling	10.058

Fitzgerald Marine Reserve, Distillery, 3-33, San Mateo County



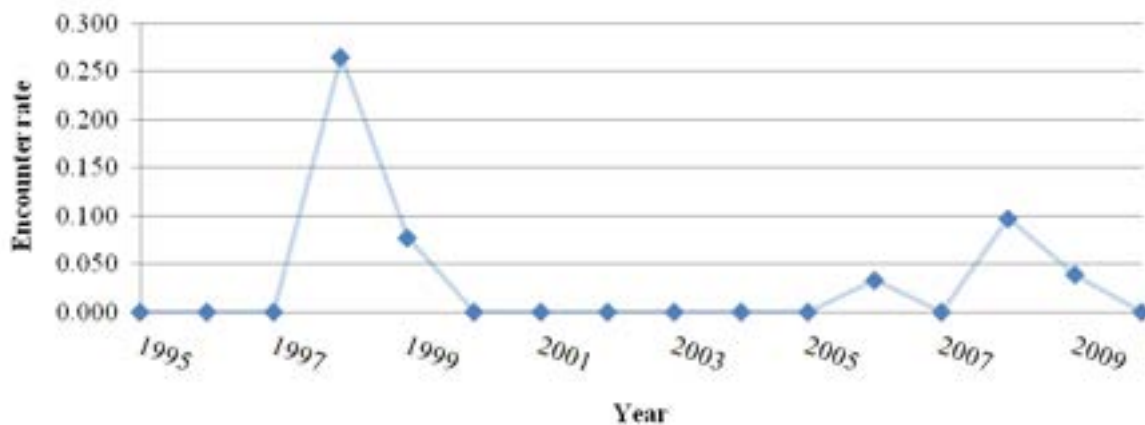
Fitzgerald Marine Reserve, Distillery Apr 2009 (left), Aug 2010 (right). Note the seasonal change: increased amount of deposited sand and mud covering rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Fitzgerald Marine Reserve, Distillery (3-33), 1995-2011 (number of surveys= 241)

California Sea Lion	0.080	Common Murre	0.032
Harbor Seal	0.007	Western Gull	0.025
Otariid (unidentified)	0.007	Western Grebe	0.014
Northern Elephant Seal	0.004		

Annual Encounter Rates (#/km) of Dead Common Murres at Fitzgerald Marine Reserve, Distillery (3-33)





Highest rates of dead bird deposition on Fitzgerald Marine Reserve, Distillery:

A. Common Murre *Uria aalge*
0.032 individuals/km

B. Western Gull *Larus occidentalis*
0.025 individuals/km

C. Western Grebe *Aechmophorus occidentalis*
0.014 individuals/km

Photo credit: GFNMS/FMSA

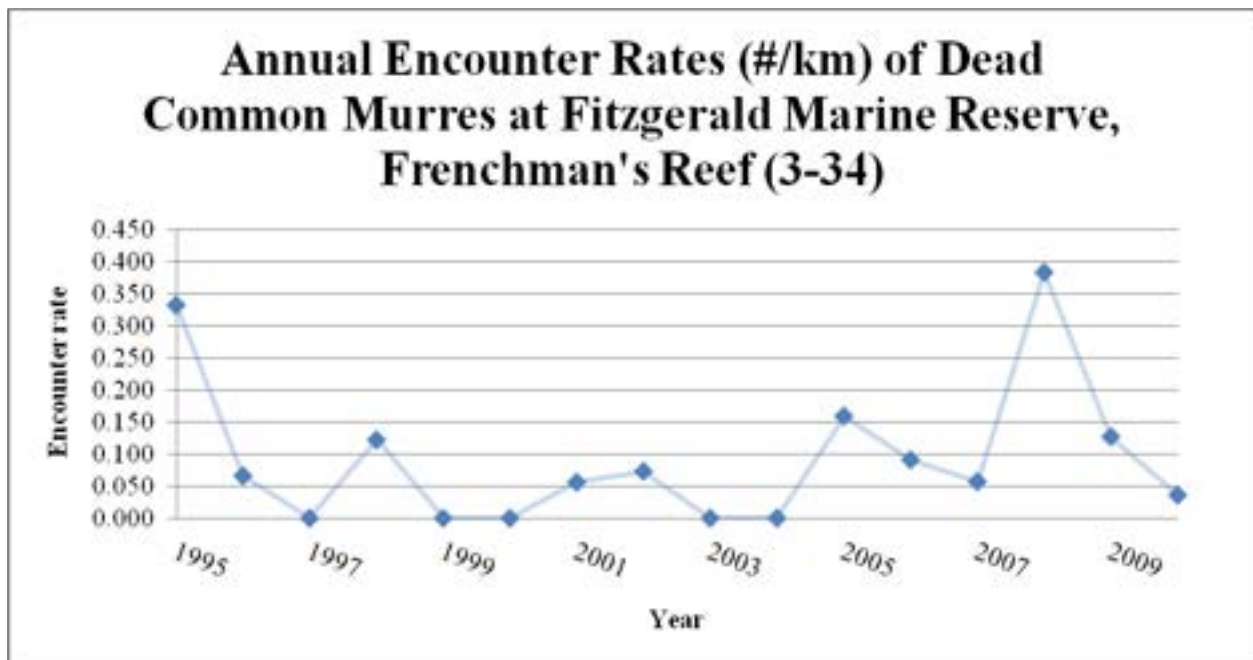
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Fitzgerald Marine Reserve, Distillery (3-33), 1995-2011 (number of surveys= 241)			
Harbor Seal	32.160	Western Gull	40.057
California Sea Lion	0.136	Sanderling	28.870
Sea Otter	0.066	Brown Pelican	17.220

Fitzgerald Marine Reserve, Frenchman's Reef, 3-34, San Mateo County



Fitzgerald Marine Reserve, Frenchman's Reef Jun 2010 (left), Jul 2010 (right). Note rapid deposition and burial of rock in foreground over four week period.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Fitzgerald Marine Reserve, Frenchman's Reef (3-34), 1995-2011 (number of surveys= 243)			
California Sea Lion	0.054	Common Murre	0.105
Harbor Seal	0.019	Brandt's Cormorant	0.025
Pinniped (unidentified)	0.006	Western Grebe	0.025
		Brown Pelican	0.016
		Northern Fulmar	0.016





Highest rates of dead bird deposition on Fitzgerald Marine Reserve, Frenchman's Reef:

A. Common Murre *Uria aalge*
0.105 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.025 individuals/km

C. Western Grebe *Aechmophorus occidentalis*
0.025 individuals/km

D. Brown Pelican *Pelecanus occidentalis*
0.016 individuals/km

E. Northern Fulmar *Fulmarus glacialis*
0.016 individuals/km

Photo credit: GFNMS/FMSA



Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Fitzgerald Marine Reserve, Frenchman's Reef (3-34), 1995-2011 (number of surveys= 243)			
Harbor Seal	21.056	Western Gull	28.313
Sea Otter	0.220	Brown Pelican	19.027
California Sea Lion	0.053	Glaucous-winged Gull	11.447

Pillar Point/Maverick's, 3-35, San Mateo County



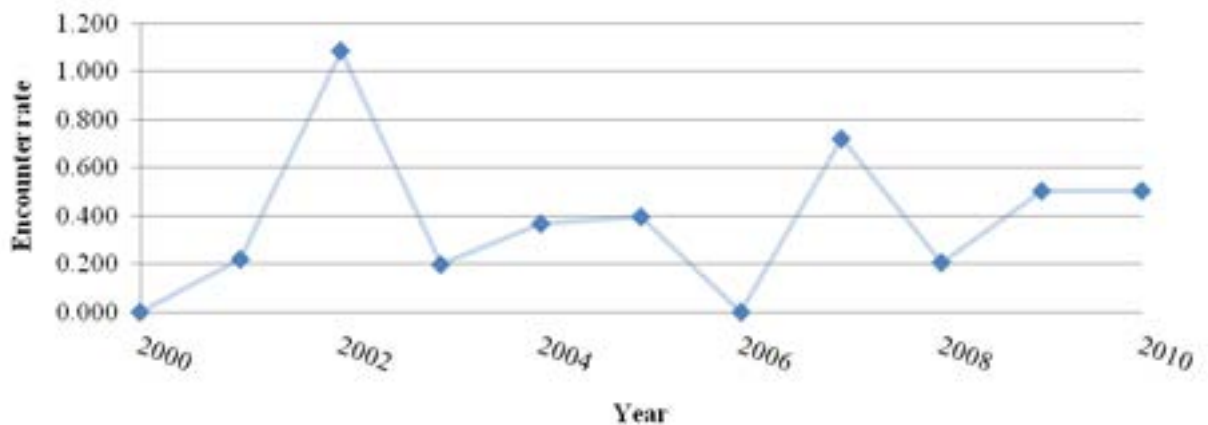
Pillar Point/Maverick's Jul 2010 (left), Mar 2011 (right). Note the seasonal change: increased deposition and coverage of rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Pillar Point/Maverick's (3-35), 2000-2011 (number of surveys= 207)

California Sea Lion	0.564	Brandt's Cormorant	0.405
Harbor Seal	0.094	Common Murre	0.378
Cetacean (unidentified)	0.027	Northern Fulmar	0.108

Annual Encounter Rates (#/km) of Dead Brandt's Cormorants at Pillar Point/Maverick's (3-35)





Highest rates of dead bird deposition on Pillar Point/Maverick's:

A. Brandt's Cormorant *Phalacrocorax penicillatus*
0.405 individuals/km

B. Common Murre *Uria aalge*
0.378 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.108 individuals/km

Photo credit: GFNMS/FMSA

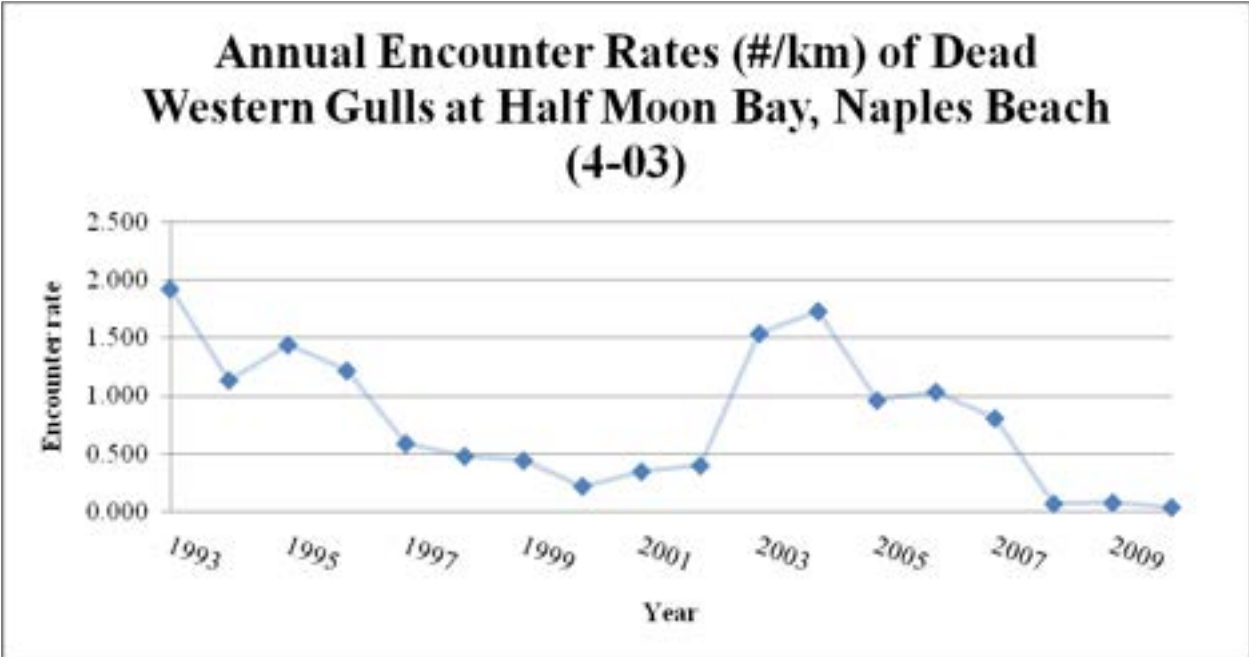
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Pillar Point/Maverick's (3-35), 2000-2011 (number of surveys= 207)			
Harbor Seal	13.045	Sanderling	63.294
California Sea Lion	4.899	Brown Pelican	62.771
Pinniped (unidentified)	0.859	Western Gull	14.911

Half Moon Bay, Naples Beach, 4-03, San Mateo County



Half Moon Bay, Naples Beach Dec 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Half Moon Bay, Naples Beach (4-03), 1993-2011 (number of surveys= 286)			
California Sea Lion	0.180	Western Gull	0.639
Northern Elephant Seal	0.018	Common Murre	0.470
Harbor Seal	0.014	Western Grebe	0.194





Highest rates of dead bird deposition on Half Moon Bay, Naples Beach:

A. Western Gull *Larus occidentalis*
0.639 individuals/km

B. Common Murre *Uria aalge*
0.470 individuals/km

C. Western Grebe *Aechmophorus occidentalis*
0.194 individuals/km

Photo credit: GFNMS/FMSA

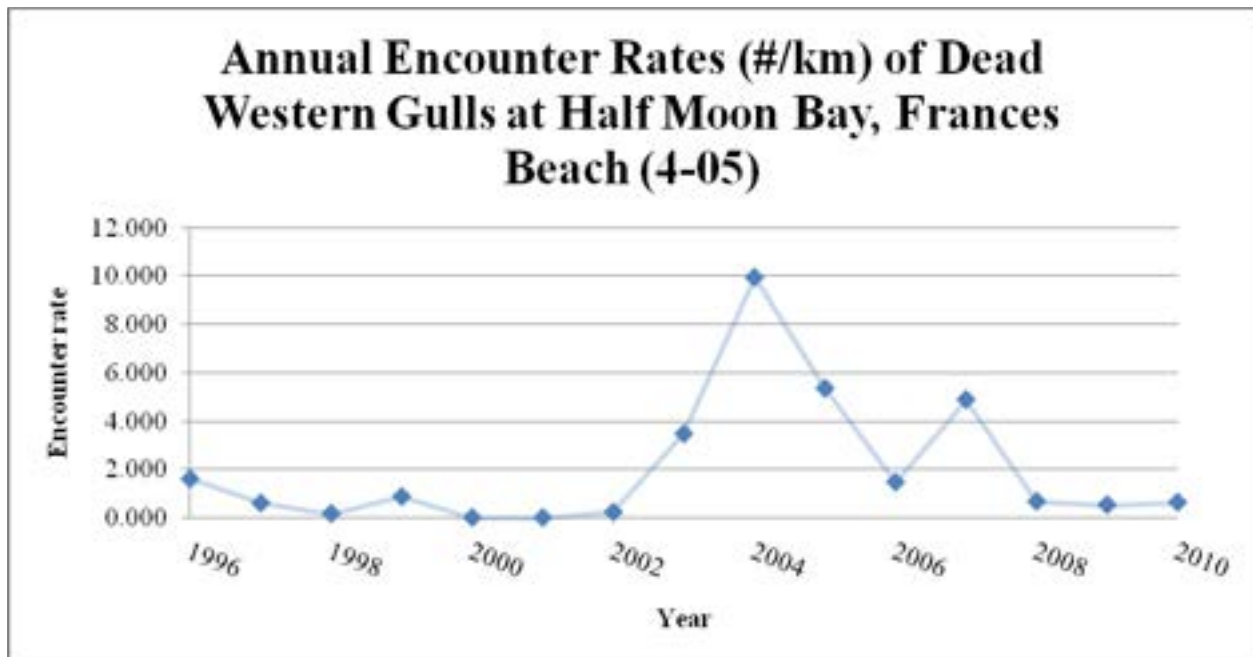
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Half Moon Bay, Naples Beach (4-03), 1993-2011 (number of surveys= 286)			
Harbor Seal	0.229	Western Gull	24.473
California Sea Lion	0.138	Heermann's Gull	17.875
Harbor Porpoise	0.116	Brown Pelican	11.469

Half Moon Bay, Frances Beach, 4-05, San Mateo County



Half Moon Bay, Frances Beach Nov 2010.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Half Moon Bay, Frances Beach (4-05), 1996-2011 (number of surveys= 262)			
California Sea Lion	0.177	Western Gull	2.151
Northern Elephant Seal	0.046	Glaucous-winged Gull	1.515
Otariid (unidentified)	0.026	Common Murre	0.535





Highest rates of dead bird deposition on Half Moon Bay, Frances Beach:

A. Western Gull *Larus occidentalis*
2.151 individuals/km

B. Glaucous-winged Gull *Larus glaucescens*
1.515 individuals/km

C. Common Murre *Uria aalge*
0.535 individuals/km

Photo credit: GFNMS/FMSA

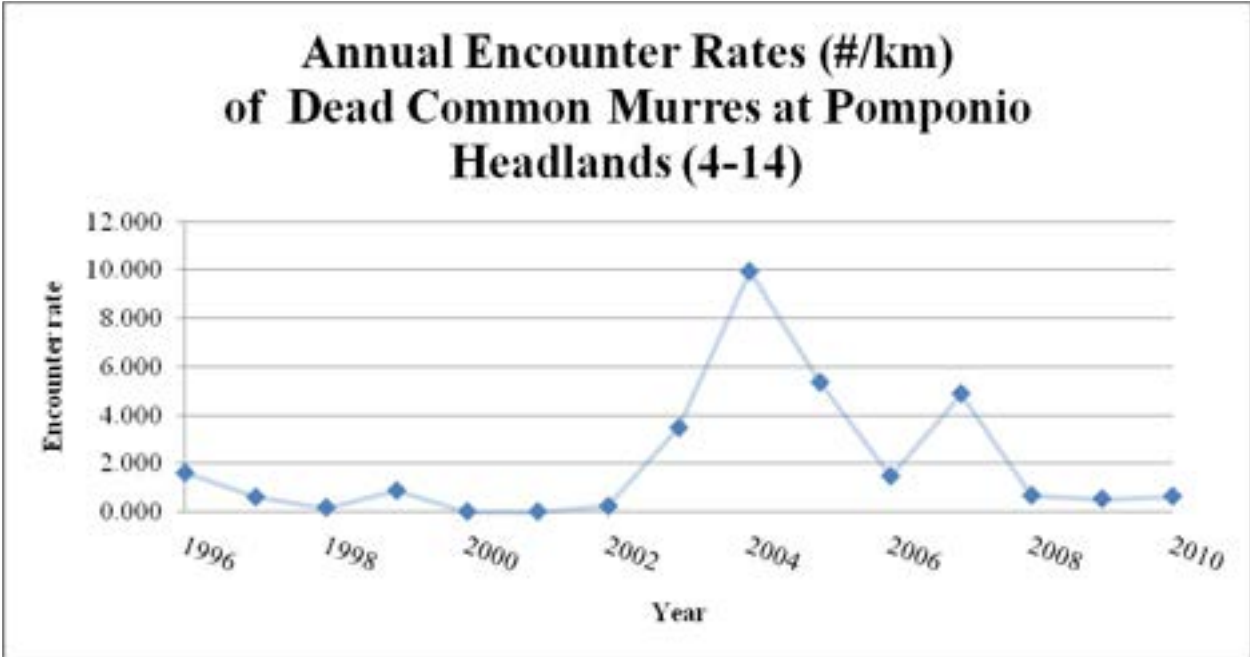
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Half Moon Bay, Frances Beach (4-05), 1996-2011 (number of surveys= 262)			
Harbor Porpoise	0.288	Western Gull	278.895
Harbor Seal	0.276	California Gull	137.817
California Sea Lion	0.155	Glaucous-winged Gull	68.480

Pomponio Headlands, 4-14, San Mateo County



Pomponio Headlands Oct. 2009 (left), Aug 2010 (right). Note increased erosion.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Pomponio Headlands (4-14), 1993-2011 (number of surveys= 231)			
California Sea Lion	0.069	Common Murre	0.423
Otariid (unidentified)	0.022	Northern Fulmar	0.192
Sea Otter	0.013	Brandt's Cormorant	0.140





Highest rates of dead bird deposition on Pomponio Headlands:

A. Common Murre *Uria aalge*
0.423 individuals/km

B. Northern Fulmar *Fulmarus glacialis*
0.192 individuals/km

C. Brandt's Cormorant *Phalacrocorax penicillatus*
0.140 individuals/km

Photo credit: GFNMS/FMSA

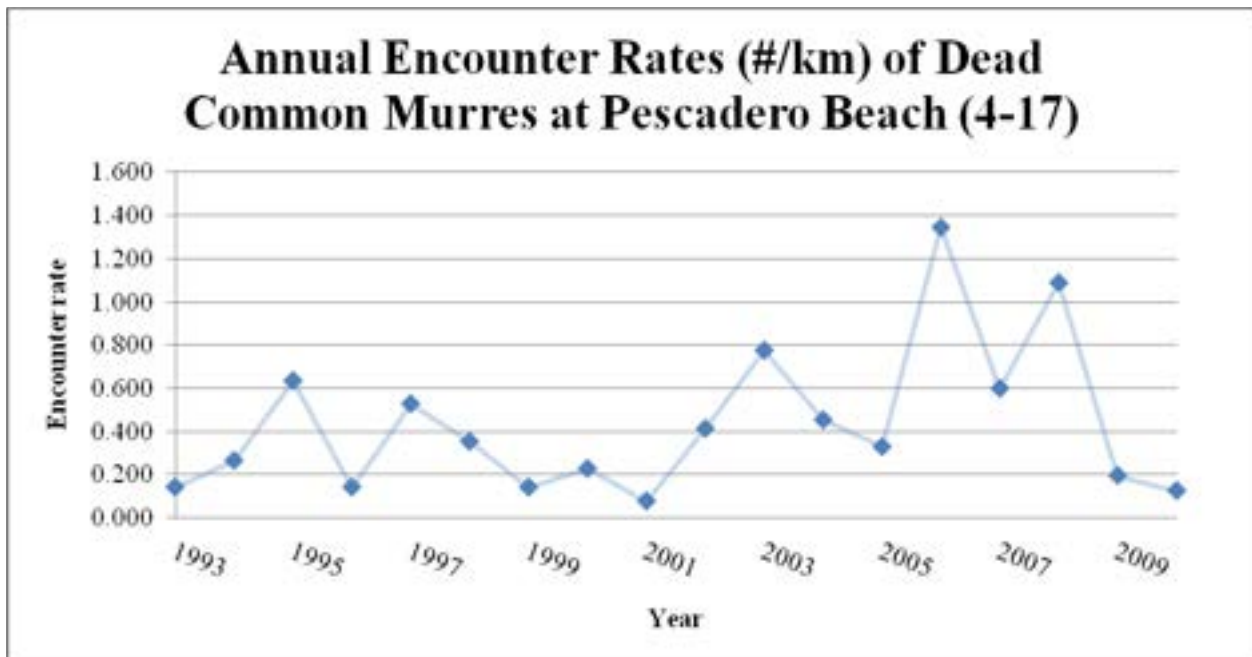
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Pomponio Headlands (4-14), 1993-2011 (number of surveys= 231)			
California Sea Lion	0.336	Heermann's Gull	39.685
Pinniped (unidentified)	0.076	Sanderling	36.626
Harbor Porpoise	0.033	Surf Scoter	19.067

Pescadero Beach, 4-17, San Mateo County



Pescadero Beach Oct 2009 (left), Feb 2011 (right). Note change in the outflow of Pescadero Creek.
 Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Pescadero Beach (4-17), 1993-2011 (number of surveys= 418)			
California Sea Lion	0.108	Common Murre	0.477
Harbor Seal	0.043	Northern Fulmar	0.256
Northern Elephant Seal	0.020	Western Gull	0.108





Highest rates of dead bird deposition on Pescadero Beach:

A. Common Murre *Uria aalge*
0.477 individuals/km

B. Northern Fulmar *Fulmarus glacialis*
0.256 individuals/km

C. Western Gull *Larus occidentalis*
0.108 individuals/km

Photo credit: GFNMS/FMSA

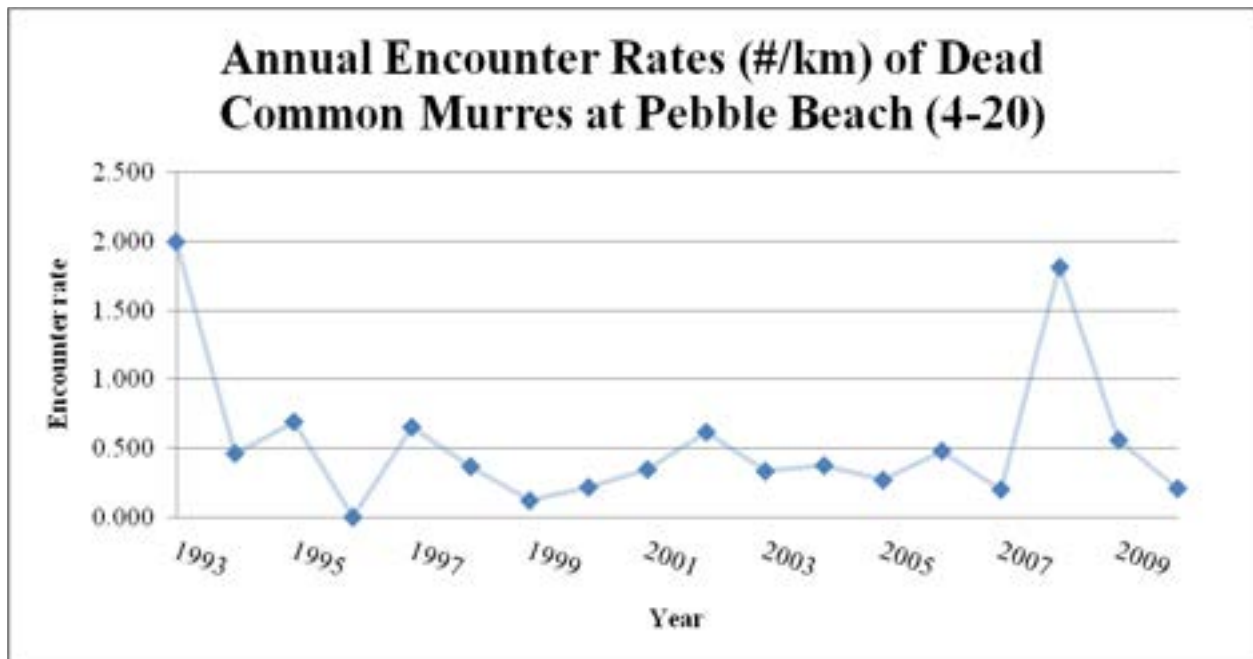
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Pescadero Beach (4-17), 1993-2011 (number of surveys= 418)			
Harbor Seal	3.993	Sanderling	31.584
California Sea Lion	0.068	Heermann's Gull	30.041
Marine Mammal (unidentified)	0.035	Western Gull	22.177

Pebble Beach, 4-20, San Mateo County



Pebble Beach May 2010 (left), Nov 2010 (right). Note subtle erosion.
 Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Pebble Beach (4-20), 1993-2011 (number of surveys= 254)			
California Sea Lion	0.056	Common Murre	0.102
Harbor Seal	0.019	Brandt's Cormorant	0.046
Otariid (unidentified)	0.007	Northern Fulmar	0.032





Highest rates of dead bird deposition on Pebble Beach:

A. Common Murre *Uria aalge*
0.102 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.046 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.032 individuals/km

Photo credit: GFNMS/FMSA

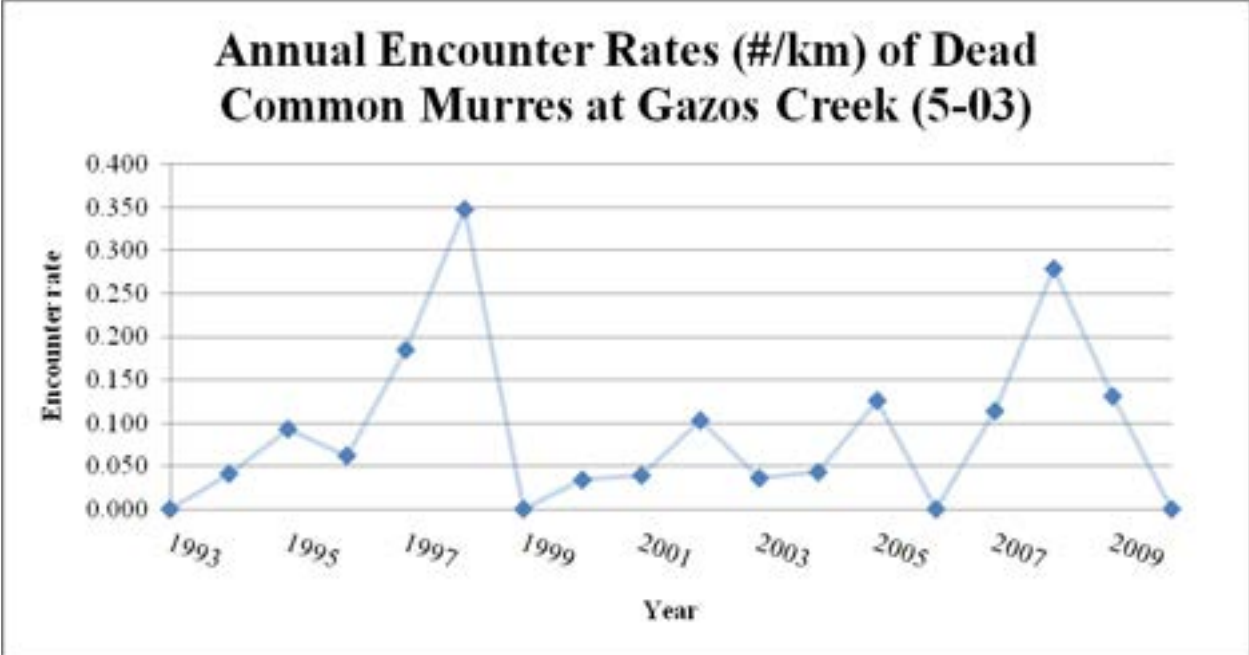
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Pebble Beach (4-20), 1993-2011 (number of surveys= 254)			
Harbor Seal	26.068	Western Gull	25.141
California Sea Lion	0.480	Brandt's Cormorant	17.990
Sea Otter	0.030	Brown Pelican	15.213

Gazos Creek, 5-03, San Mateo County



Gazos Creek Aug 2010 (left), Feb 2011 (right). Note the seasonal change: a decreased amount of beach wrack (eel grass) deposited on the beach.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Gazos Creek (5-03), 1993-2011 (number of surveys= 385)			
California Sea Lion	0.125	Common Murre	0.303
Northern Elephant Seal	0.027	Western Gull	0.093
Otariid (unidentified)	0.020	Northern Fulmar	0.068





Highest rates of dead bird deposition on Gazos Creek:

A. Common Murre *Uria aalge*
0.303 individuals/km

B. Western Gull *Larus occidentalis*
0.093 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.068 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Gazos Creek (5-03), 1993-2011 (number of surveys= 385)			
Harbor Seal	0.454	Western Gull	31.951
California Sea Lion	0.165	Brown Pelican	23.036
Cetacean (unidentified)	0.098	California Gull	20.370

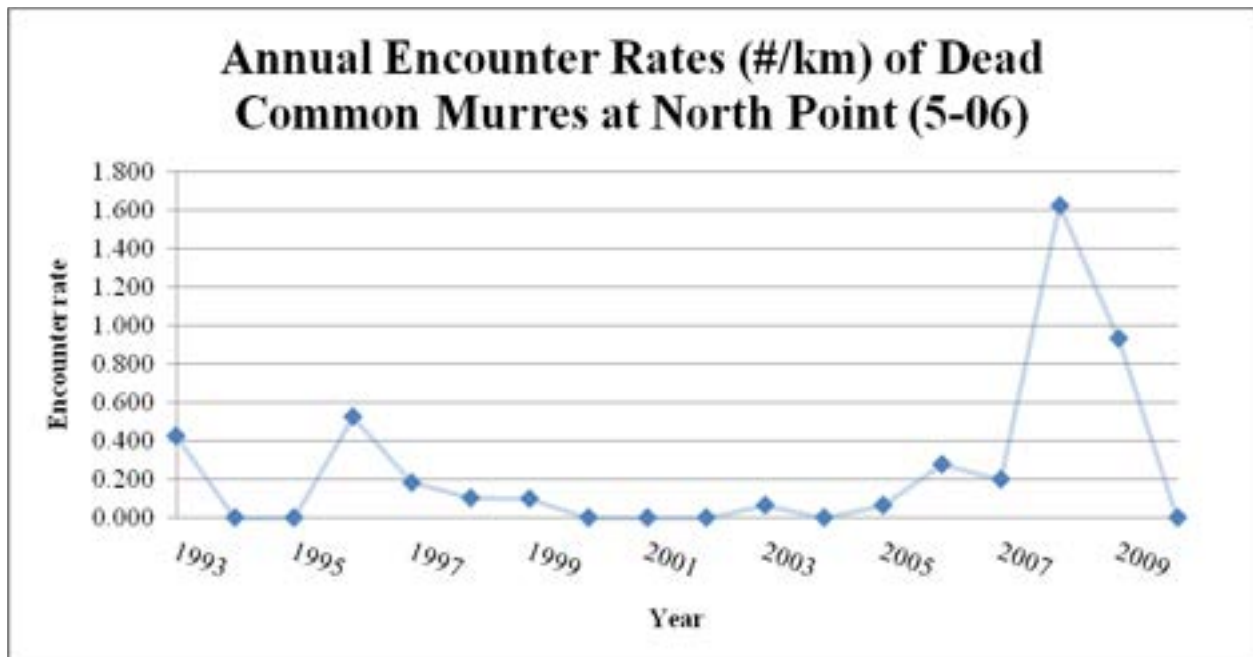
North Point, 5-06, San Mateo County



North Point Aug 2010 (left), May 2011 (right). Note the seasonal change: increased erosion and exposure of rocks.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at North Point (5-06), 1993-2011 (number of surveys= 244)			
Northern Elephant Seal	0.393	Common Murre	0.289
California Sea Lion	0.371	Brandt's Cormorant	0.096
Otariid (unidentified)	0.040	Northern Fulmar	0.065





Highest rates of dead bird deposition on North Point:

A. Common Murre *Uria aalge*
0.289 individuals/km

B. Brandt's Cormorant *Phalacrocorax penicillatus*
0.096 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.065 individuals/km

Photo credit: GFNMS/FMSA

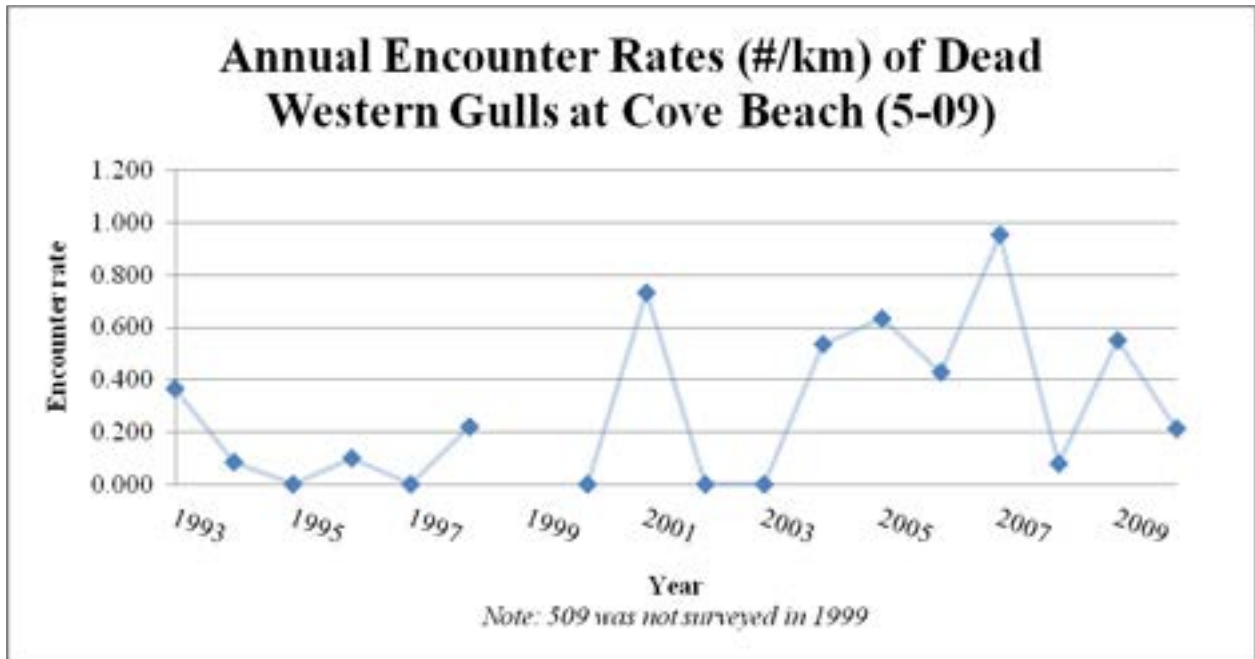
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at North Point (5-06), 1993-2011 (number of surveys= 244)			
Northern Elephant Seal	174.883	Sanderling	28.871
Harbor Seal	2.710	Brown Pelican	26.980
Sea Otter	0.567	Western Gull	7.685

Cove Beach, 5-09, San Mateo County



Cove Beach Jun 2010 (left), Apr 2011 (right). Note the seasonal change: creek widening and increased run-off.
 Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Cove Beach (5-09), 1993-2011 (number of surveys=207)			
California Sea Lion	0.222	Western Gull	0.365
Northern Elephant Seal	0.177	Common Murre	0.251
Otariid (unidentified)	0.086	Northern Fulmar	0.142





Highest rates of dead bird deposition on Cove Beach:

A. Western Gull *Larus occidentalis*
0.365 individuals/km

B. Common Murre *Uria aalge*
0.251 individuals/km

C. Northern Fulmar *Fulmarus glacialis*
0.142 individuals/km

Photo credit: GFNMS/FMSA

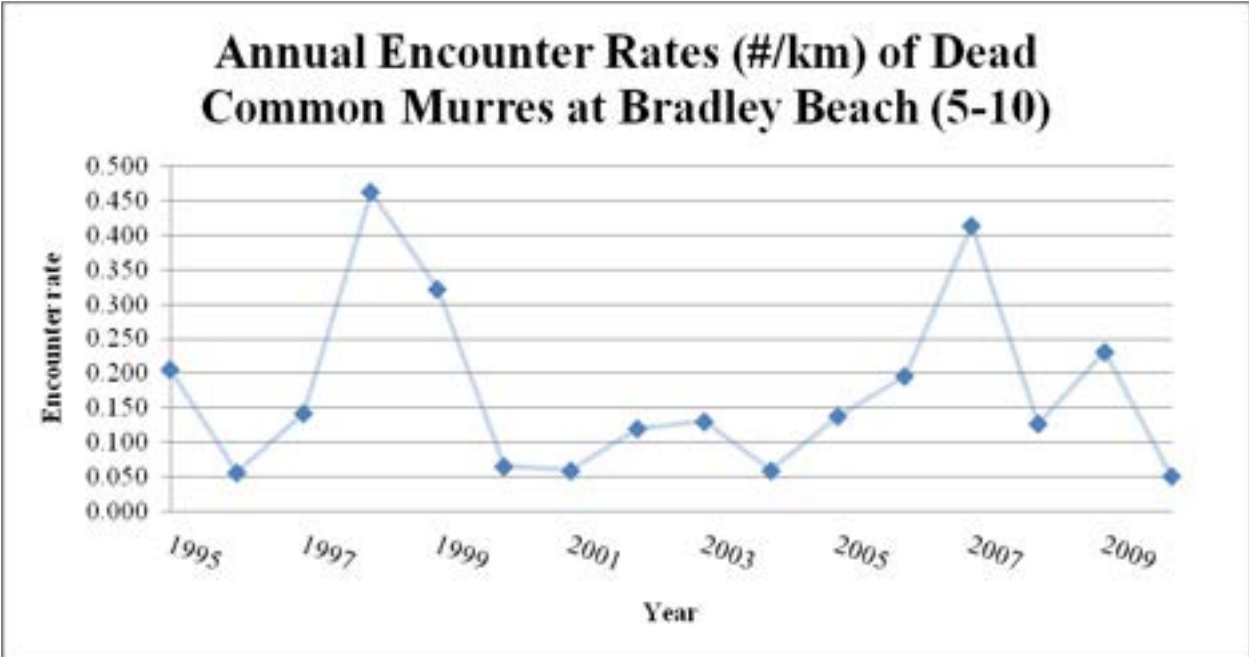
Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Cove Beach (5-09), 1993-2011 (number of surveys= 207)			
Northern Elephant Seal	0.832	Brown Pelican	48.070
Sea Otter	0.256	Western Gull	38.936
Cetacean (unidentified)	0.063	Heermann's Gull	14.559

Bradley Beach, 5-10, San Mateo County



Bradley Beach Aug 2010 (left), Apr 2011 (right). Note the seasonal change: increased erosion and exposure of rocks.
 Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Bradley Beach (5-10), 1995-2011 (number of surveys= 273)			
California Sea Lion	0.263	Common Murre	0.180
Northern Elephant Seal	0.155	Glaucous-winged Gull	0.131
Otariid (unidentified)	0.047	Western Gull	0.121





Highest rates of dead bird deposition on Bradley Beach:

A. Common Murre *Uria aalge*
0.180 individuals/km

B. Glaucous-winged Gull *Larus glaucescens*
0.131 individuals/km

C. Western Gull *Larus occidentalis*
0.121 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Bradley Beach (5-10), 1995-2011 (number of surveys= 273)			
Sea Otter	0.333	Western Gull	26.992
California Sea Lion	0.215	Brown Pelican	23.785
Northern Elephant Seal	0.169	Surf Scoter	13.544

Bolinas Lagoon, Dipsea Road, 6-01, San Mateo County

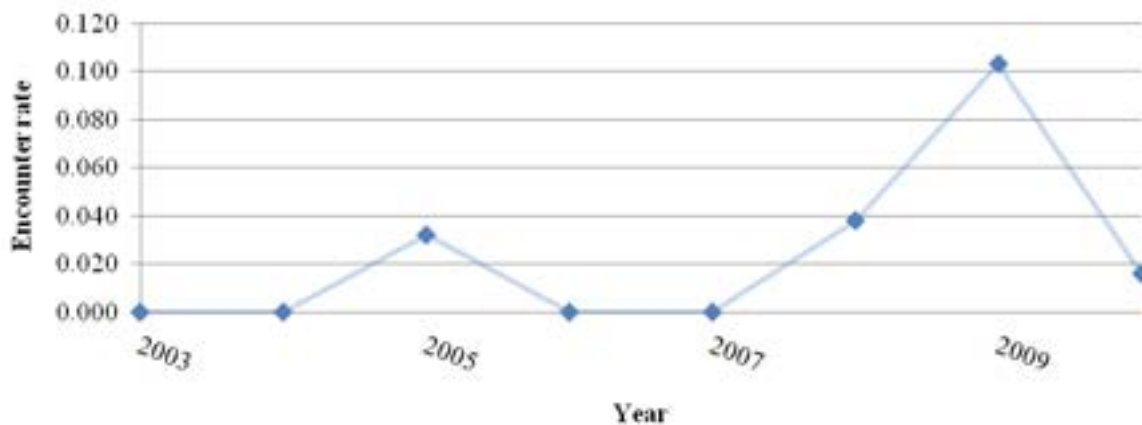


Bolinas Lagoon, Dipsea Road Oct 2010 (left), Apr 2011 (right). Note seasonal change.
Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Bolinas Lagoon, Dipsea Road (6-01), 2003-2011 (number of surveys= 160)

Harbor Seal	0.233	Western Grebe	0.035
Otariid (unidentified)	0.131	Western Gull	0.032
Phocid (unidentified)	0.064	Common Murre	0.029

Annual Encounter Rates (#/km) of Dead Western Grebes at Bolinas Lagoon, Dipsea Road (6-01)





Highest rates of dead bird deposition on Bolinas Lagoon, Dipsea Road:

A. Western Grebe *Aechmophorus occidentalis*
0.035 individuals/km

B. Western Gull *Larus occidentalis*
0.032 individuals/km

C. Common Murre *Uria aalge*
0.029 individuals/km

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Bolinas Lagoon, Dipsea Road (6-01), 2003-2011 (number of surveys= 160)			
Harbor Seal	28.120	Brown Pelican	29.297
California Sea Lion	0.003	Marbled Godwit	23.432
		American Wigeon	21.174

Brazil Beach, 7-01, San Mateo County



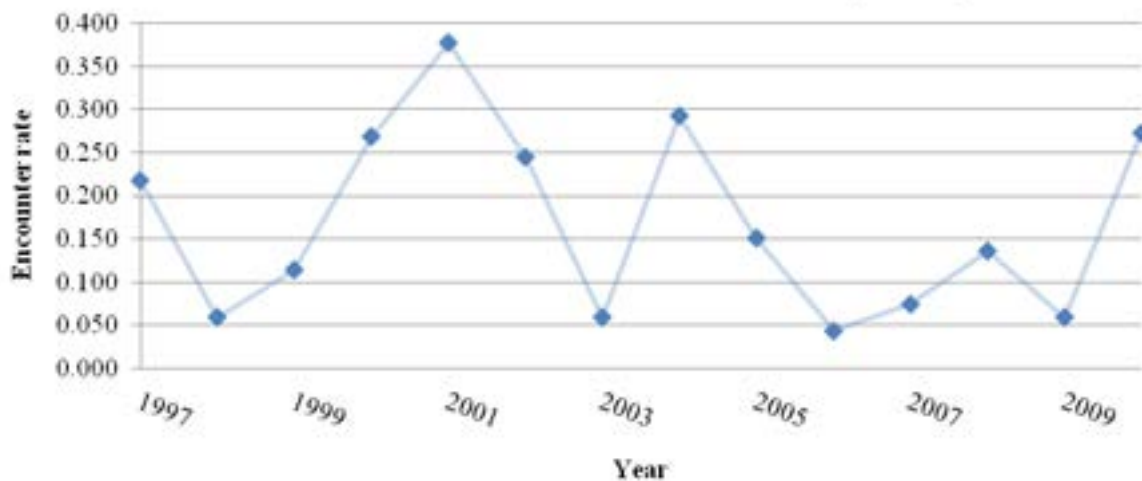
Brazil Beach Aug 2010 (left), Apr 2010 (right). Note the seasonal change: an increased amount of beach wrack (eel grass) deposited on the beach.

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Brazil Beach (7-01), 1997-2011 (number of surveys=167)

Harbor Seal	0.038	Western Gull	0.152
California Sea Lion	0.008	Common Murre	0.081
Otariid (unidentified)	0.004	Surf Scoter	0.058
		Glaucous-winged Gull	0.058

Annual Encounter Rates (#/km) of Dead Western Gulls at Brazil Beach (7-01)





Highest rates of dead bird deposition on Brazil Beach:

- | | |
|--|----------------------|
| A. Western Gull <i>Larus occidentalis</i> | 0.152 individuals/km |
| B. Common Murre <i>Uria aalge</i> | 0.081 individuals/km |
| C. Surf Scoter <i>Melanitta perspicillata</i> | 0.058 individuals/km |
| D. Glaucous-winged Gull <i>Larus glaucescens</i> | 0.058 individuals/km |

Photo credit: GFNMS/FMSA

Cumulative encounter rates (#/km) for the three most common live marine mammal and bird species at Brazil Beach (7-01), 1997-2011 (number of surveys= 167)

Harbor Seal	21.530	Marbled Godwit	114.635
Pinniped (unidentified)	0.028	Dunlin	98.945
California Sea Lion	0.011	Sanderling	54.889

Tomasini Creek Beach, 7-06, San Mateo County

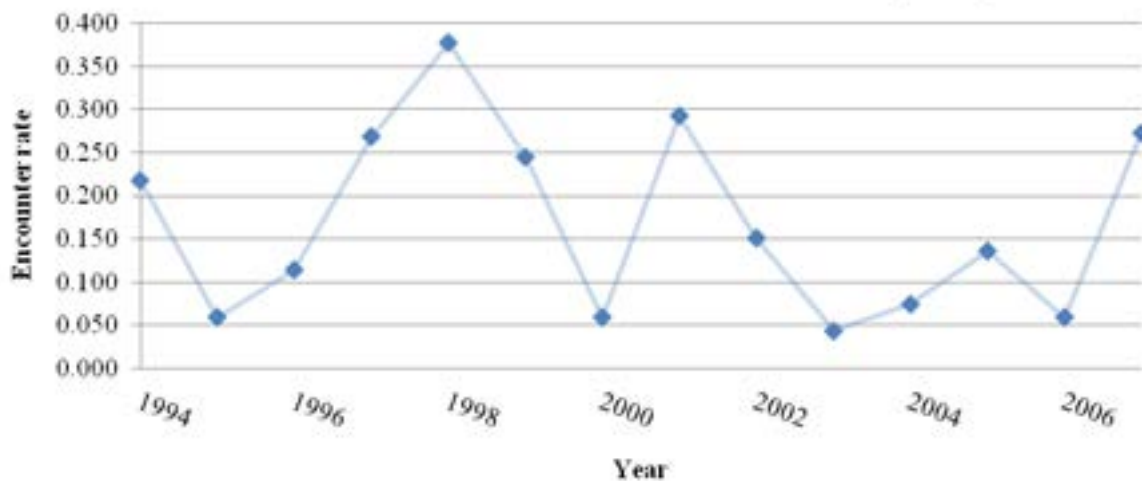


Tomasini Creek Beach Aug 2010 (left), Dec 2010 (right). Note the seasonal change: an increased amount of beach wrack (eel grass) deposited on the beach.
Photo credit: GFNMS/FMSA

**Cumulative encounter rates (#/km) for the three most common dead marine mammal and bird species at Tomasini Creek Beach (7-06), 1994-2011
(number of surveys= 307)**

California Sea Lion	0.002	Surf Scoter	0.049
Harbor Seal	0.001	Common Murre	0.025
		Western Grebe	0.025
		Glaucous-winged Gull	0.013

Annual Encounter Rates (#/km) of Dead Surf Scoters at Tomasini Creek Beach (7-06)





Highest rates of dead bird deposition on Tomasini Creek Beach:

- | | |
|---|----------------------|
| A. Surf Scoter <i>Melanitta perspicillata</i> | 0.049 individuals/km |
| B. Western Grebe <i>Aechmophorus occidentalis</i> | 0.025 individuals/km |
| C. Common Murre <i>Uria aalge</i> | 0.025 individuals/km |
| D. Glaucous-winged Gull <i>Larus glaucescens</i> | 0.013 individuals/km |

Photo credit: GFNMS/FMSA