

Attachment #4: Assumptions and Calculations for mortality estimates

1. After calculating the predicted mortality from a research activity (e.g. aerial survey), the estimate needs to be rounded to a whole number because that number represents dead animals, which can only be accounted for by whole numbers.
 - a. All numbers should be rounded up to the nearest whole number. Numbers of dead animals cannot be rounded down because they represent a probability of mortality multiplied by a number of animals actually exposed (or permitted). While the probability of mortality may be low, once multiplied by a number of animals, the resultant number is either zero, one, or greater than one. (When you roll a die, the probability of getting any of the six numbers is 1/6, but no matter how many times you roll, you can't get a 2.3.)
 - b. The rounding should occur by activity, not after summing the fractional mortality for all activities in a single permit or across all permits. The way the tables are presented in the EIS, the risk of mortality from one activity is independent of the risk of mortality from another. Thus if you calculate that 0.2 animals would die during surveys and 2.4 would die during capture, that's a total of 4 (1 + 3) mortalities, not 3 (0.2 + 2.4 = 2.6 rounded to 3).
2. Permit tables need to be adjusted to match the assumptions used in calculating predicted mortality. For example, if the mortality for a given activity was calculated assuming 10% of the 10,000 animals surveyed were pups, then the permit holder cannot survey more than 1000 pups.
 - a. If it is not possible to determine in advance of the survey how many animals surveyed would be pups, or it is not possible after the survey to determine how many were pups, then the permit needs to be less specific (i.e. "all ages") and the mortality calculations need to be done using the conservative assumption that all animals are pups.
3. If the assumptions made in the calculations do not match the information in the applications but are based on additional information from the applicant, we need supplementary information from the applicants for the record. That needs to be a written correspondence from the applicant.
 - a. If the assumptions were not based on information from the applicants, NMFS needs to document why it would change a permit holders request and under what statutory or regulatory provision it has authority to do so.
4. Some of NMML's calculations do not appear to account for all the repeat takes for activities performed more than once. For example, under aerial survey on their spreadsheet the footnote indicates "maximum numbers expected to be taken, inclusive of potential for some to be taken multiple times." Yet in the "Frequency" column they indicate the activity would only be performed once. This method of math does not account for multiple takes per individual.

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- a. While it may not be reasonable to assume that all animals would be exposed to every survey, there is no way of knowing which ones are not. Thus the conservative way to calculate predicted mortality is to assume all animals are exposed every time.
- b. In the case of captures, it is not clear how the “frequency” could equal 1 when the footnote indicates “inclusive of recaptures” which, according to the application, would be as many as 4 per animal. That would make the frequency 5.

Estimated mortality due to research activities, Northern fur seal EPS

Application/permit	Permit year		
	1	2	3
NPUMMRC #715-1883	6.03407	0	0
NPUMMRC #715-1884	1.96112	1.96112	1.96112
ASLC #881-1893	11.39	11.39	11.39
St. Paul #1118-1881	0.2728	0.2728	0.2728
St. George #1119-1882	0.2405	0.2405	0.2405
Insley #1045-1713	0.10775	0.10775	0.10775
NMML #782-1708	48.57683	48.57683	48.57683
NPUMMRC #715-1885 (for SSL research)	0.10296	0.10296	0.10296
NMML #782-1889 (for SSL research)	0.4347	0.4347	0.4347
Total	69.12073	63.08666	63.08666

		Unobserved	0.0001	0						
Permanent mark/hot branding	non-pups	0 Observed	0	0						
		Unobserved	0.0001	0						
"Low risk" procedures	pups	0 Observed	0	0						
		Unobserved	0.0001	0						
	non-pups	0 Observed	0	0						
		Unobserved	0.0001	0						
"Med risk" procedures	pups	0 Observed	0	0						
		Unobserved	0.0002	0						
	non-pups	0 Observed	0	0						
		Unobserved	0.0002	0						
"Elevated risk" procedures	pups	0 Observed	0	0						
		Unobserved	0.001	0						
	non-pups	0 Observed	0	0						
		Unobserved	0.001	0						
				Total	0.10296	0.10296	0.10296	0.10296	0.10296	

EIS Activity	Permitted activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Comments										
									1	2	3	4	5											
Incidental effects due to researcher presence in view of animals																								
Aerial survey	pups	0	Alert	0.01	0	0	0	0	0	0	0	0												
													Enter water	0.0001	0.001	0	0	0	0	0				
														Injured	0.00005	0.05	0	0	0	0	0			
	non-pups	0	Alert	0.01	0	0	0	0	0	0	0	0	0											
														Enter water	0.0005	0.0001	0	0	0	0	0			
															Injured	0.00001	0.02	0	0	0	0	0		
On land catwalks, tripods, cliffs	Task 1a	pups	6500	Alert	0.05	0	1	0	0	0	0	0	0											
														Enter water	0.0001	0.001	1	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	
															Injured	0.00005	0.05	1	0.01625	0.01625	0.01625	0.01625	0.01625	0.01625
	Task 1a	non-pups	17750	Alert	0.05	0	1	0	0	0	0	0	0	0										
															Enter water	0.0005	0.0001	1	0.008875	0.008875	0.008875	0.008875	0.008875	0.008875
																Injured	0.00001	0.02	1	0.00355	0.00355	0.00355	0.00355	0.00355
	Task 1c	pups	1000	Alert	0.05	0	1	0	0	0	0	0	0	0										
															Enter water	0.0001	0.001	1	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
																Injured	0.00005	0.05	1	0.0025	0.0025	0.0025	0.0025	0.0025
	Task 1c	non-pups	1875	Alert	0.05	0	1	0	0	0	0	0	0	0										
															Enter water	0.0005	0.0001	1	0.0009375	0.0009375	0.0009375	0.000938	0.000938	0.0009375
																Injured	0.00001	0.02	1	0.000375	0.000375	0.000375	0.000375	0.000375
Incidental effects due to researcher presence among animals																								
Activities involving pup roundups	Task 1eiv	pups	6600	Observed	0.00001	0	1	0.066	0.066	0.066	0.066	0.066	0.066											
														Alert	1	0	1	0	0	0	0	0		
															Enter water	0.01	0.001	1	0.066	0.066	0.066	0.066	0.066	
	Task 1eiv	non-pups	3465	Alert	1	0	1	0	0	0	0	0	0	0										
															Enter water	0.8	0.0001	1	0.2772	0.2772	0.2772	0.2772	0.2772	
																Injured	0.0005	0.02	1	0.03465	0.03465	0.03465	0.03465	0.03465
Activities involving clearing rookery/haulout	Task 1bii	pups	215775	Observed	0.00001	0	1	2.15775	2.15775	2.15775	2.15775	2.15775	2.15775											
														Alert	1	0	1	0	0	0	0	0		
															Enter water	0.05	0.0001	1	1.078875	1.078875	1.078875	1.078875	1.078875	
	Task 1bii	non-pups	97475	Alert	1	0	1	0	0	0	0	0	0	0										
															Enter water	0.9	0.0001	1	8.77275	8.77275	8.77275	8.77275	8.77275	
																Injured	0.0001	0.02	1	0.19495	0.19495	0.19495	0.19495	0.19495
	Task 3a	pups	1500	Observed	0.00001	0	1	0.015	0.015	0.015	0.015	0.015	0.015	0.015										
															Alert	1	0	1	0	0	0	0	0	
																Enter water	0.05	0.0001	1	0.0075	0.0075	0.0075	0.0075	0.0075
	Task 3a	non-pups	1500	Alert	1	0	1	0	0	0	0	0	0	0										
															Enter water	0.9	0.0001	1	0.135	0.135	0.135	0.135	0.135	
																Injured	0.0001	0.02	1	0.003	0.003	0.003	0.003	0.003
Incidental disturbance during captures in breeding season	Task 3biv	pups	4160	Alert	1	0	1	0	0	0	0	0	0											
														Enter water	0.001	0.001	1	0.00416	0.00416	0.00416	0.00416	0.00416		
															Injured	0.001	0.05	1	0.208	0.208	0.208	0.208	0.208	
	Task 3biv	non-pups	3467	Alert	1	0	1	0	0	0	0	0	0	0										
															Enter water	0.01	0.0001	1	0.003467	0.003467	0.003467	0.003467	0.003467	
																Injured	0.001	0.02	1	0.06934	0.06934	0.06934	0.06934	0.06934
Incidental disturbance during captures outside of breeding season	Task 1evii	pups	8400	Alert	1	0	1	0	0	0	0	0	0											
														Enter water	0.05	0.0001	1	0.042	0.042	0.042	0.042	0.042		
															Injured	0.0005	0.05	1	0.21	0.21	0.21	0.21	0.21	
	Task 1evii	non-pups	7000	Alert	1	0	1	0	0	0	0	0	0	0										
															Enter water	0.2	0.0001	1	0.14	0.14	0.14	0.14	0.14	
																Injured	0.0001	0.02	1	0.014	0.014	0.014	0.014	0.014
Task 3bii	pups	4200	Alert	1	0	1	0	0	0	0	0	0	0											
														Enter water	0.05	0.0001	1	0.021	0.021	0.021	0.021	0.021		
															Injured	0.0005	0.05	1	0.105	0.105	0.105	0.105	0.105	

		Unobserved	0.0002	0
"Elevated risk" procedures	pups	0 Observed	0	0
		Unobserved	0.001	0
	non-pups	0 Observed	0	0
		Unobserved	0.001	0

Total 48.576829 48.576829 48.57683 48.57683 48.576829

- 1) Assumed all takes for activity occurring only with animals from EP stock
- 2) Assumed that 130 of 150 non-pups (86.7%) were from EP stock and 20 from San Miguel Island. 130 nonpups includes all animals in subcategory "70 of 150" and 75% (or 60) of the remaining 80 animals.
- 3) Assumed that 86.7% (see previous footnote) of incidental takes were from EP stock.
- 4) Assumed that 50% of incidental takes from EP stock for this activity accountable to (first) captures in breeding season, and 50% accountable to (second) captures outside of breeding season.
- 5) Assumed that all animals in subcategory "70 of 150" were from EP stock
- 6) Permit allows the use of isoflurane (chemical anesthesia) and valium (chemical sedation). Calculations based on higher mortality rate for capture/chemical anesthesia (inhalable agent).
- 7) Permit allows the use of valium (chemical sedation). Because physical restraint is required for sedated animals throughout the entire handling period, calculations are based on mortality rates for "Capture/physical restraint" as well a

EIS Activity	Permitted activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Comments
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey		pups	0	Alert	0.01	0		0						
				Enter water	0.0001	0.001								
				Injured	0.00005	0.05								
		non-pups	0	Alert	0.01	0		0						
				Enter water	0.005	0.0001								
				Injured	0.00001	0.02								
On land catwalks, tripods, cliffs		pups	0	Alert	0.05	0		0						
				Enter water	0.0001	0.001								
				Injured	0.00005	0.05								
		non-pups	0	Alert	0.05	0		0						
				Enter water	0.005	0.0001								
				Injured	0.00001	0.02								
Incidental effects due to researcher presence among animals														
Activities involving pup roundups		pups	0	Observed		0.00001		0						
				Alert	1	0								
				Enter water	0.01	0.001								
		non-pups	0	Injured	0.001	0.05		0						
				Alert	1	0								
				Enter water	0.8	0.0001								
		Injured	0.0005	0.02		0								
Activities involving clearing rookery/haulout		pups	0	Observed		0.00001		0						
				Alert	1	0								
				Enter water	0.05	0.0001								
		non-pups	0	Injured	0.0005	0.05		0						
				Alert	1	0								
				Enter water	0.9	0.0001								
		Injured	0.0001	0.02		0								
Incidental disturbance during captures in breeding season		pups	0	Alert	1	0		0						
				Enter water	0.001	0.001								
				Injured	0.001	0.05								
		non-pups	0	Alert	1	0		0						
				Enter water	0.01	0.0001								
				Injured	0.001	0.02								
Incidental disturbance during captures outside of breeding season	Instrumentation	pups	50	Alert	1	0	1	0	0	0	0	0		
				Enter water	0.05	0.0001	1	0.00025	0.00025	0.00025	0.00025	0.00025		
				Injured	0.0005	0.05	1	0.00125	0.00125	0.00125	0.00125	0.00125		
		non-pups	125	Alert	1	0	1	0	0	0	0	0		
				Enter water	0.2	0.0001	1	0.0025	0.0025	0.0025	0.0025	0.0025		
				Injured	0.0001	0.02	1	0.00025	0.00025	0.00025	0.00025	0.00025		
Capture/restraint effects														
Capture/physical restraint	Instrumentation	pups	0	Observed		0		0						
				Unobserved		0.001								
		non-pups	10	Observed	1	0.004	2	0.08	0.08	0.08	0.08	0.08		
				Unobserved	1	0.0001	2	0.002	0.002	0.002	0.002	0.002		
		non-pups	5	Observed	1	0.004	1	0.02	0.02	0.02	0.02	0.02		
				Unobserved	1	0.0001	1	0.0005	0.0005	0.0005	0.0005	0.0005		
Capture/chemical anesthesia (inhalable agent-isoflurane)	non-pups	0	Observed		0.004		0							
			Unobserved		0.0001									
Capture/chemical anesthesia (injectable)	non-pups	0	Observed		0.01		0							
			Unobserved		0.001									
Capture/chemical sedation (injectable-eg valium)	non-pups	0	Observed		0		0							
			Unobserved		0.0001									
Intentional lethal take or permanent removal		pups	0	Observed		1	1	0						
				Unobserved		1	1	0						
Handling effects: estimated increased risk														
Procedure-animals														

Permanent mark/hot-cold branding	pups	0 Unobserved	1	0.002	0					
	non-pups	0 Unobserved	1	0.0001	0					
"Low risk" procedures	pups	0 Unobserved	1	0.0001	0					
	Instrumentation non-pups	10 Unobserved	1	0.0001	1	0.001	0.001	0.001	0.001	0.001
"Med risk" procedures	pups	0 Unobserved	1	0.0002	0					
	non-pups	0 Unobserved	1	0.0002	0					
"Elevated risk" procedures	pups	0 Unobserved	1	0.001	0					
	non-pups	0 Unobserved	1	0.001	0					
Procedure-animals										
Capture/transport/captivity effects										
Transport/holding/release	pups	0 Observed								
		Unobserved								
	non-pups	0 Observed		0	0					
		Unobserved		0.0001	0					
Permanent mark/hot branding	non-pups	0 Observed		0	0					
		Unobserved		0.0001	0					
"Low risk" procedures	pups	0 Observed		0	0					
		Unobserved		0.0001	0					
	non-pups	0 Observed		0	0					
		Unobserved		0.0001	0					
"Med risk" procedures	pups	0 Observed		0	0					
		Unobserved		0.0002	0					
	non-pups	0 Observed		0	0					
		Unobserved		0.0002	0					
"Elevated risk" procedures	pups	0 Observed		0	0					
		Unobserved		0.001	0					
	non-pups	0 Observed		0	0					
		Unobserved		0.001	0					
Total						0.10775	0.10775	0.10775	0.10775	0.10775



EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Comments	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animal															
Aerial survey		pups	0	Alert	0.01	0		0							
				Enter water	0.0001	0.001		0							
				Injured	0.00005	0.05		0							
		non-pups	0	Alert	0.01	0		0							
				Enter water	0.005	0.0001		0							
				Injured	0.00001	0.02		0							
On land catwalks, tripods, cliffs	Island Sentinel Activities	pups	20000	Alert	0.05	0	1	0	0	0	0	0	0	0	20000*.05 (the proportion affected)=1000 incidental takes requested
				Enter water	0.0001	0.001	1	0.002	0.002	0.002	0.002	0.002	0.002		
				Injured	0.00005	0.05	1	0.05	0.05	0.05	0.05	0.05	0.05		
		non-pups	48000	Alert	0.05	0	1	0	0	0	0	0	0	0	48000*.05 (the proportion affected)=2400 incidental takes requested
				Enter water	0.005	0.0001	1	0.024	0.024	0.024	0.024	0.024	0.024		
				Injured	0.00001	0.02	1	0.0096	0.0096	0.0096	0.0096	0.0096	0.0096		
Incidental effects due to researcher presence among animal															
Activities involving pup roundups															
		pups	0	Observed		0.00001		0							
				Alert	1	0		0							
				Enter water	0.01	0.001		0							
		non-pups	0	Alert	1	0		0							
				Enter water	0.8	0.0001		0							
				Injured	0.0005	0.02		0							
Activities involving clearing rookery/haulout															
	Biosampling	pups	100	Observed		0.00001	1	0.001	0.001	0.001	0.001	0.001	0.001		
				Alert	1	0	1	0	0	0	0	0	0		
				Enter water	0.05	0.0001	1	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
		non-pups	350	Alert	1	0	1	0	0	0	0	0	0	0	
				Enter water	0.9	0.0001	1	0.0315	0.0315	0.0315	0.0315	0.0315	0.0315		
				Injured	0.0001	0.02	1	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007		
Incidental disturbance during captures in breeding season															
		pups	0	Alert	1	0		0	0	0	0	0	0	0	
				Enter water	0.001	0.001		0	0	0	0	0	0		
				Injured	0.001	0.05		0	0	0	0	0	0		
		non-pups	0	Alert	1	0		0	0	0	0	0	0	0	
				Enter water	0.01	0.0001		0	0	0	0	0	0		
				Injured	0.001	0.02		0	0	0	0	0	0		
Incidental disturbance during captures outside of breeding season															
	Disentanglement	pups	400	Alert	1	0	1	0	0	0	0	0	0	0	
				Enter water	0.05	0.0001	1	0.002	0.002	0.002	0.002	0.002	0.002		
				Injured	0.0005	0.05	1	0.01	0.01	0.01	0.01	0.01	0.01		
		non-pups	4850	Alert	1	0	1	0	0	0	0	0	0	0	
				Enter water	0.2	0.0001	1	0.097	0.097	0.097	0.097	0.097	0.097		
				Injured	0.0001	0.02	1	0.0097	0.0097	0.0097	0.0097	0.0097	0.0097		
Capture/restraint effects															
Capture/physical restraint															
		pups	0	Observed		0		0							
				Unobserved		0.001		0							
		non-pups	0	Observed		0.004		0							
				Unobserved		0.0001		0							
Capture/chemical anesthesia (inhalable agent-isoflurane)															
		non-pups	0	Observed		0.004		0							
				Unobserved		0.0001		0							
Capture/chemical anesthesia (injectable)															
		non-pups	0	Observed		0.01		0							
				Unobserved		0.001		0							
Capture/chemical sedation (injectable-eq valium)															
		non-pups	0	Observed		0		0							
				Unobserved		0.0001		0							
Intentional lethal take or permanent removal															
		pups	0	Observed		1	1	0							
				Unobserved		1	1	0							
		non-pups	0	Observed		1	1	0							
				Unobserved		1	1	0							
Handling effects: estimated increased risk															
Procedure-animals															
Permanent mark/hot-cold branding															
		pups	0	Unobserved	1	0.002		0							
				Observed		0.0001		0							
		non-pups	0	Unobserved	1	0.0001		0							
				Observed		0.0001		0							
"Low risk" procedures															
		pups	0	Unobserved	1	0.0001		0							
				Observed		0.0001		0							
		non-pups	0	Unobserved	1	0.0001		0							
				Observed		0.0001		0							
"Med risk" procedures															
		pups	0	Unobserved	1	0.0002		0							
				Observed		0.0002		0							
		non-pups	0	Unobserved	1	0.0002		0							
				Observed		0.0002		0							
"Elevated risk" procedures															
		pups	0	Unobserved	1	0.001		0							
				Observed		0.001		0							
		non-pups	0	Unobserved	1	0.001		0							
				Observed		0.001		0							
Capture/transport/captivity effects															
Procedure-animals															
Transport/holding/release															
		pups	0	Observed		0		0							
				Unobserved		0		0							
		non-pups	0	Observed		0		0							
				Unobserved		0.0001		0							
Permanent mark/hot branding															
		non-pups	0	Observed		0		0							
				Unobserved		0.0001		0							
"Low risk" procedures															
		pups	0	Observed		0		0							
				Unobserved		0.0001		0							
		non-pups	0	Observed		0		0							
				Unobserved		0.0001		0							

"Med risk" procedures	pups	0 Observed	0	0					
		Unobserved	0.0002	0					
	non-pups	0 Observed	0	0					
		Unobserved	0.0002	0					
"Elevated risk" procedures	pups	0 Observed	0	0					
		Unobserved	0.001	0					
	non-pups	0 Observed	0	0					
		Unobserved	0.001	0					
				Total	0.2405	0.2405	0.2405	0.2405	0.2405



EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Comments
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey	pups	0 Alert		0.01	0	0		0						
		Enter water		0.0001	0.001		0							
		Injured		0.00005	0.05		0							
	non-pups	0 Alert		0.01	0	0		0						
		Enter water		0.005	0.0001	0	0							
		Injured		0.00001	0.02		0							
On land catwalks, tripods, cliffs	pups	20000 Alert		0.05	0	1	0	0	0	0	0	0	0 20000*.05 (the proportion affected)=1000 incidental takes	
		Enter water		0.0001	0.001	1	0.002	0.002	0.002	0.002	0.002	0.002		
		Injured		0.00005	0.05	1	0.05	0.05	0.05	0.05	0.05	0.05		
	non-pups	48000 Alert		0.05	0	1	0	0	0	0	0	0	0 48000*.05 (the proportion affected)=2400 incidental takes	
		Enter water		0.005	0.0001	1	0.024	0.024	0.024	0.024	0.024	0.024		
		Injured		0.00001	0.02	1	0.0096	0.0096	0.0096	0.0096	0.0096	0.0096		
Incidental effects due to researcher presence among animals														
Activities involving pup roundups	pups	0 Observed			0.00001		0							
		Alert		1	0		0							
		Enter water		0.01	0.001		0							
	non-pups	Injured		0.001	0.05		0							
		Alert		1	0		0							
		Enter water		0.8	0.0001		0							
Activities involving clearing rookery/haulout	pups	200 Observed			0.00001	1	0.002	0.002	0.002	0.002	0.002	0.002		
		Alert		1	0	1	0	0	0	0	0	0		
		Enter water		0.05	0.0001	1	0.001	0.001	0.001	0.001	0.001	0.001		
	non-pups	Injured		0.0005	0.05	1	0.005	0.005	0.005	0.005	0.005	0.005		
		Alert		350	1	0	1	0	0	0	0	0		
		Enter water		0.9	0.0001	1	0.0315	0.0315	0.0315	0.0315	0.0315	0.0315		
Incidental disturbance during captures in breeding season	pups	0 Alert		1	0		0	0	0	0	0	0		
		Enter water		0.001	0.001		0	0	0	0	0	0		
		Injured		0.001	0.05		0	0	0	0	0	0		
	non-pups	0 Alert		1	0		0	0	0	0	0	0		
		Enter water		0.01	0.0001		0	0	0	0	0	0		
		Injured		0.001	0.02		0	0	0	0	0	0		
Incidental disturbance during captures outside of breeding season	pups	500 Alert		1	0	1	0	0	0	0	0	0		
		Enter water		0.05	0.0001	1	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025		
		Injured		0.0005	0.05	1	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125		
	non-pups	6000 Alert		1	0	1	0	0	0	0	0	0		
		Enter water		0.2	0.0001	1	0.12	0.12	0.12	0.12	0.12	0.12		
		Injured		0.0001	0.02	1	0.012	0.012	0.012	0.012	0.012	0.012		
Capture/restraint effects														
Capture/physical restraint	pups	0 Observed			0		0							
		Unobserved			0.001		0							
non-pups	0 Observed				0.004		0							
		Unobserved			0.0001		0							
Capture/chemical anesthesia (inhalable agent-isoflurane)	non-pups	0 Observed			0.004		0							
		Unobserved			0.0001		0							
Capture/chemical anesthesia (injectable)	non-pups	0 Observed			0.01		0							
		Unobserved			0.001		0							
Capture/chemical sedation (injectable-eg valium)	non-pups	0 Observed			0		0							
		Unobserved			0.0001		0							
Intentional lethal take or permanent removal	pups	0 Observed			1	1	0							
		0 Unobserved			1	1	0							
Procedure-animals														
Handling effects: estimated increased risk														
Permanent mark/hot-cold branding	pups	0 Unobserved		1	0.002		0							
		0 Unobserved		1	0.0001		0							
"Low risk" procedures	pups	0 Unobserved		1	0.0001		0							
		0 Unobserved		1	0.0001		0							
"Med risk" procedures	pups	0 Unobserved		1	0.0002		0							
		0 Unobserved		1	0.0002		0							
"Elevated risk" procedures	pups	0 Unobserved		1	0.001		0							
		0 Unobserved		1	0.001		0							
Procedure-animals														
Capture/transport/captivity effects														
Transport/holding/release	pups	0 Observed					0							
		Unobserved					0							
non-pups	0 Observed				0		0							

		Unobserved	0.0001	0						
Permanent mark/hot branding	non-pups	0 Observed	0	0						
		Unobserved	0.0001	0						
"Low risk" procedures	pups	0 Observed	0	0						
		Unobserved	0.0001	0						
	non-pups	0 Observed	0	0						
		Unobserved	0.0001	0						
"Med risk" procedures	pups	0 Observed	0	0						
		Unobserved	0.0002	0						
	non-pups	0 Observed	0	0						
		Unobserved	0.0002	0						
"Elevated risk" procedures	pups	0 Observed	0	0						
		Unobserved	0.001	0						
	non-pups	0 Observed	0	0						
		Unobserved	0.001	0						
				Total	0.2728	0.2728	0.2728	0.2728	0.2728	



EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Comments	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animals															
Aerial survey	pups	0	Alert	0.01	0	0	0								
		Enter water	0.0001	0.001	0	0									
		Injured	0.00005	0.05	0	0									
	non-pups	0	Alert	0.01	0	0	0								
		Enter water	0.005	0.0001	0	0	0								
		Injured	0.00001	0.02	0	0									
On land catwalks, tripods, cliffs	pups	0	Alert	0.05	0	0	0								
		Enter water	0.0001	0.001	0	0	0								
		Injured	0.00005	0.05	0	0									
	non-pups	0	Alert	0.05	0	0	0								
		Enter water	0.005	0.0001	0	0	0								
		Injured	0.00001	0.02	0	0									
Incidental effects due to researcher presence among animals															
Activities involving pup roundups	pups	0	Observed		0.00001	0	0								
		Alert	1	0	0	0									
		Enter water	0.01	0.001	0	0									
	non-pups	0	Alert	1	0	0	0								
		Enter water	0.8	0.0001	0	0	0								
		Injured	0.0005	0.02	0	0									
Activities involving clearing rookery/haulout	pups	0	Observed		0.00001	0	0								
		Alert	1	0	0	0									
		Enter water	0.05	0.0001	0	0									
	non-pups	0	Alert	1	0	0	0								
		Enter water	0.9	0.0001	0	0	0								
		Injured	0.0001	0.02	0	0									
Incidental disturbance during captures in breeding season	pups	0	Alert	1	0	0	0								
		Enter water	0.001	0.001	0	0	0								
		Injured	0.001	0.05	0	0									
	non-pups	0	Alert	1	0	0	0								
		Enter water	0.01	0.0001	0	0	0								
		Injured	0.001	0.02	0	0									
Incidental disturbance during captures outside of breeding season	Land captures	2750	Alert	1	0	50	0	0	0	0	0	0	0	0	Assumes that 55% of 5,000 incidental takes are pups
		Enter water	0.05	0.0001	50	0.6875	0.6875	0.6875	0.6875	0.6875	0.6875	0.6875	0.6875	Assumes that 55% of 5,000 incidental takes are pups	
		Injured	0.0005	0.05	50	3.4375	3.4375	3.4375	3.4375	3.4375	3.4375	3.4375	3.4375	Assumes that 55% of 5,000 incidental takes are pups	
	non-pups	2250	Alert	1	0	50	0	0	0	0	0	0	0	0	Assumes that 45% of 5,000 incidental takes are non-pups
		Enter water	0.2	0.0001	50	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	Assumes that 45% of 5,000 incidental takes are non-pups
		Injured	0.0001	0.02	50	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225	0.225	Assumes that 45% of 5,000 incidental takes are non-pups
Capture/restraint effects															
Capture/physical restraint	pups	0	Observed		0	0	0								
		Unobserved		0.001	0	0									
	non-pups	0	Observed		0.004	0	0								
		Unobserved		0.0001	0	0									
Capture/chemical anesthesia (inhalable agent-isoflurane)	Land captures	50	Observed	1	0	1	0	0	0	0	0	0	0	0	0 1), 2), 3)
		Unobserved	1	0.001	1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	Land captures	50	Observed	1	0.004	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2 2), 3)
		Unobserved	1	0.0001	1	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005 2), 3)
	Pelagic captures	200	Observed	1	0.004	4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2 3)
		Unobserved	1	0.0001	4	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08 3)
Capture/chemical anesthesia (injectable)	non-pups	0	Observed		0.01	0	0								
		Unobserved		0.001	0	0									
Capture/chemical sedation (injectable-eg valium)	non-pups	0	Observed		0	0	0								
		Unobserved		0.0001	0	0									
Intentional lethal take or permanent removal	pups	0	Observed		1	1	0								
		0	Unobserved		1	1	0								
Procedure-animals															
Handling effects: estimated increased risk															
Permanent mark/hot-cold branding	pups	0	Unobserved	1	0.002	0	0								
		0	Unobserved	1	0.0001	0	0								
"Low risk" procedures	Land captures	550	Unobserved	1	0.0001	1	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055 2)	
		400	Unobserved	1	0.0001	1	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04 2)	
	Pelagic captures	9400	Unobserved	1	0.0001	1	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
"Med risk" procedures	Land captures	50	Unobserved	1	0.0002	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01 2)	
		50	Unobserved	1	0.0002	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01 2)	
	Pelagic captures	1000	Unobserved	1	0.0002	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
"Elevated risk" procedures	pups	0	Unobserved	1	0.001	0	0								

	non-pups	0	Unobserved	1	0.001	0							
		Procedure-animals											
Capture/transport/captivity effects													
Transport/holding/release	pups	0	Observed										
			Unobserved										
	non-pups	0	Observed		0								
			Unobserved		0.0001								
Permanent mark/hot branding	non-pups	0	Observed		0								
			Unobserved		0.0001								
"Low risk" procedures	pups	0	Observed		0								
			Unobserved		0.0001								
	non-pups	0	Observed		0								
			Unobserved		0.0001								
"Med risk" procedures	pups	0	Observed		0								
			Unobserved		0.0002								
	non-pups	0	Observed		0								
			Unobserved		0.0002								
"Elevated risk" procedures	pups	0	Observed		0								
			Unobserved		0.001								
	non-pups	0	Observed		0								
			Unobserved		0.001								
						Total	11.39	11.39	11.39	11.39	11.39		

1) Mortality rates for this EIS activity were not included for pups; rates have been inserted that are equal to the rates for SSL pups for this activity

2) Recaptured the following year as non-pups

3) Permit application requests use of isoflurane (chemical anesthesia) and valium (chemical sedation). Calculations based on higher mortality rate for capture/chemical anesthesia (inhalable agent).

Capture/chemical anesthesia (injectable)	non-pups	0 Observed Unobserved	0.01 0.001	0	0							
Capture/chemical sedation (injectable-eg valium)	non-pups	0 Observed Unobserved	0 0.0001	0	0							
Intentional lethal take or permanent removal	pups	0 Observed	1	1	0							
	non-pups	0 Unobserved	1	1	0							
Procedure-animals												
Handling effects: estimated increased risk												
Permanent mark/hot-cold branding	pups	0 Unobserved	1	0.002	0							
	non-pups	0 Unobserved	1	0.0001	0							
"Low risk" procedures	Activity 2	pups	1200 Unobserved	1	0.0001	1	0.12	0.12	0.12	0.12	0.12	
	Activity 1	non-pups	30 Unobserved	1	0.0001	1	0.003	0.003	0.003	0.003	0.003	0.003
	Activity 2	non-pups	1000 Unobserved	1	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1
"Med risk" procedures	Activity 2	pups	200 Unobserved	1	0.0002	1	0.04	0.04	0.04	0.04	0.04	0.04
	Activity 2	non-pups	400 Unobserved	1	0.0002	1	0.08	0.08	0.08	0.08	0.08	0.08
"Elevated risk" procedures	pups	0 Unobserved	1	0.001	0							
	non-pups	0 Unobserved	1	0.001	0							
Procedure-animals												
Capture/transport/captivity effects												
Transport/holding/release	pups	0 Observed Unobserved										
	non-pups	0 Observed Unobserved	0 0.0001	0	0							
Permanent mark/hot branding	non-pups	0 Observed Unobserved	0 0.0001	0	0							
"Low risk" procedures	pups	0 Observed Unobserved	0 0.0001	0	0							
	non-pups	0 Observed Unobserved	0 0.0001	0	0							
"Med risk" procedures	pups	0 Observed Unobserved	0 0.0002	0	0							
	non-pups	0 Observed Unobserved	0 0.0002	0	0							
"Elevated risk" procedures	pups	0 Observed Unobserved	0 0.001	0	0							
	non-pups	0 Observed Unobserved	0 0.001	0	0							

1) Outside of breeding season, assume all incidental takes are related to captures ("worst case" scenario)

Total 1.96112 1.96112 1.96112 1.96112 1.96112

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Comments
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey	pups	0 Alert		0.01	0			0						
		Enter water		0.0001	0.001			0						
		Injured		0.00005	0.05			0						
	non-pups	0 Alert		0.01	0			0						
		Enter water		0.005	0.0001			0						
		Injured		0.00001	0.02			0						
On land catwalks, tripods, cliffs	pups	0 Alert		0.05	0			0						
		Enter water		0.0001	0.001			0						
		Injured		0.00005	0.05			0						
	non-pups	0 Alert		0.05	0			0						
		Enter water		0.005	0.0001			0						
		Injured		0.00001	0.02			0						
Incidental effects due to researcher presence among animals														
Activities involving pup roundups	pups	0 Observed			0.00001			0						
		Alert		1	0			0						
		Enter water		0.01	0.001			0						
	non-pups	0 Alert		1	0			0						
		Enter water		0.8	0.0001			0						
		Injured		0.0005	0.02			0						
Activities involving clearing rookery/haulout	pups	0 Observed			0.00001			0						
		Alert		1	0			0						
		Enter water		0.05	0.0001			0						
	non-pups	0 Alert		1	0			0						
		Enter water		0.9	0.0001			0						
		Injured		0.0001	0.02			0						
Incidental disturbance during captures in breeding season	pups	0 Alert		1	0			0						
		Enter water		0.001	0.001			0						
		Injured		0.001	0.05			0						
	non-pups	0 Alert		1	0			0						
		Enter water		0.01	0.0001			0						
		Injured		0.001	0.02			0						
Incidental disturbance during cPup capture for permanent outside of breeding season removal	pups	100 Alert		1	0		1	0	0					
		Enter water		0.05	0.0001		1	0.0005	0.0005					
		Injured		0.0005	0.05		1	0.0025	0.0025					
	non-pups	85 Alert		1	0		1	0	0					
		Enter water		0.2	0.0001		1	0.0017	0.0017					
		Injured		0.0001	0.02		1	0.00017	0.00017					
Capture/restraint effects														
Capture/physical restraint	Pup capture for permanent removal	pups	26 Observed		1	0	1	0	0				Does not include 6 that will be permanently removed	
			Unobserved		1	0.001	1	0.026	0.026				Does not include 6 that will be permanently removed	
		non-pups	0 Observed			0.004		0						
			Unobserved			0.0001			0					
Capture/chemical anesthesia (inhalable agent-isoflurane)		non-pups	0 Observed			0.004		0						
			Unobserved			0.0001			0					
Capture/chemical anesthesia (injectable)		non-pups	0 Observed			0.01		0						
			Unobserved			0.001			0					
Capture/chemical sedation (injectable-eg valium)		non-pups	0 Observed			0		0						
			Unobserved			0.0001			0					
Intentional lethal take or perm: Pup capture for permanent removal		pups	6 Observed		1	1	1	6	6				Permanent removal of 6 pups	
		non-pups	0 Unobserved			1	1	0	0					
Procedure-animals														
Handling effects: estimated increased risk														
Permanent mark/hot-cold branding		pups	0 Unobserved		1	0.002		0						
		non-pups	0 Unobserved		1	0.0001		0						

"Low risk" procedures		pups	0 Unobserved	1	0.0001	0			
		non-pups	0 Unobserved	1	0.0001	0			
"Med risk" procedures		pups	0 Unobserved	1	0.0002	0			
		non-pups	0 Unobserved	1	0.0002	0			
"Elevated risk" procedures		pups	0 Unobserved	1	0.001	0			
		non-pups	0 Unobserved	1	0.001	0			
Procedure-animals									
Transport/holding/release	Pup capture for permanent removal	pups	2 Observed	1	0	1	0	0	1), 2)
			Unobserved	1	0.001	1	0.002	0.002	1), 2)
		non-pups	0 Observed		0				
			Unobserved		0.0001		0		
Permanent mark/hot branding		non-pups	0 Observed		0		0		
			Unobserved		0.0001		0		
"Low risk" procedures	Pup capture for permanent removal	pups	4 Observed	1	0	3	0	0	2)
			Unobserved	1	0.0001	3	0.0012	0.0012	2)
		non-pups	0 Observed		0				
			Unobserved		0.0001		0		
"Med risk" procedures		pups	0 Observed		0		0		
			Unobserved		0.0002		0		
		non-pups	0 Observed		0		0		
			Unobserved		0.0002		0		
"Elevated risk" procedures		pups	0 Observed		0		0		
			Unobserved		0.001		0		
		non-pups	0 Observed		0		0		
			Unobserved		0.001		0		
							Total	6.03407	

1) Mortality rates for this EIS activity were not included for pups; rates have been inserted that are 10 times the rates for non-pups, and are eq

2) 2 pups held and released; does not include 6 pups for PERMANENT REMOVAL

		Unobserved							
	non-pups	0 Observed	0	0					
		Unobserved	0.0001	0					
Permanent mark/hot branding	non-pups	0 Observed	0	0					
		Unobserved	0.0001	0					
"Low risk" procedures	pups	0 Observed	0	0					
		Unobserved	0.0001	0					
	non-pups	0 Observed	0	0					
		Unobserved	0.0001	0					
"Med risk" procedures	pups	0 Observed	0	0					
		Unobserved	0.0002	0					
	non-pups	0 Observed	0	0					
		Unobserved	0.0002	0					
"Elevated risk" procedures	pups	0 Observed	0	0					
		Unobserved	0.001	0					
	non-pups	0 Observed	0	0					
		Unobserved	0.001	0					
	Total				0.4347	0.4347	0.4347	0.4347	0.4347

4	5
0	0
1.96112	1.96112
11.39	11.39
0.2728	0.2728
0.2405	0.2405
0.10775	0.10775
48.57683	48.57683
0.10296	0.10296
0.4347	0.4347
<u>63.08666</u>	<u>63.08666</u>

Estimated mortality due to research activities, Steller sea lion eastern DPS.

Permit/Application	Permit year					Notes
	1	2	3	4	5	
NMML 782-1889	1.0	1.0	1.0	1.0	1.0	
ADFG 358-1888	15.8	15.8	15.8	15.8	15.8	
OSU 1034-1887	1.3	1.3	1.3	1.3	1.3	
NPUMMRC 715-1885	39.4	39.4	39.4	39.4	39.4	1
ODFW 434-1892	7.4	7.4	7.4	7.4	7.4	
NMML 782-1702	0.1	0.1	0.0	0.0	0.0	
Total	65.0	65.0	64.9	64.9	64.9	
Total w/o NPUMMRC	25.5	25.5	25.5	25.5	25.5	

Notes

1. Incidental disturbance takes requested in format not accomodated by EIS effects analysis, thus estimated mortalities are much higher than will occur.

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey	1. Aerial surveys	pups	500	Alert	0.05	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0	0.001	2	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	2	0.1	0.1	0.1	0.1	0.1	0.1	
		non-pups	1000	Alert	0.05	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0.01	0.0001	2	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	2	0.0	0.0	0.0	0.0	0.0	0.0	
Vessel surveys	2. Vessel surveys	pups	85	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	1, 2
				Enter water	0	0.001	2	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.01	0.05	2	0.1	0.1	0.1	0.1	0.1	0.1	
		non-pups	85	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	1, 2
		(breeding season)		Enter water	0.1	0.0001	2	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	2	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	166	Alert	1	0.0	10	0.0	0.0	0.0	0.0	0.0	0.0	1, 2
		(non-breeding season)		Enter water	0.3	0.0001	10	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	10	0.0	0.0	0.0	0.0	0.0	0.0	
On land		pups	0	Alert	0.05	0.0		0.0						
				Enter water	0	0.001		0.0						
				Injured	0.001	0.05		0.0						
		non-pups	0	Alert	0.05	0.0		0.0						
				Enter water	0.01	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
Incidental effects due to researcher presence among animals														
On rookeries during breeding season (ground counts, scats, captures)	3. Ground counts	pups	2000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0.01	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	1	0.1	0.1	0.1	0.1	0.1	0.1	
			200	Observed mortality during activity	1	0.007	1	1.4	1.4	1.4	1.4	1.4	1.4	
Roundups for branding														
On rookeries during breeding season (ground counts, scats, captures)	3. Ground counts	non-pups	4000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0.9	0.0001	1	0.4	0.4	0.4	0.4	0.4	0.4	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
Haulouts, rookeries non-breeding (scats, resights, captures)	8. Incidental harassment	pups		Alert	1	0.0		0.0						
				Enter water	0.9	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
		non-pups	10000	Alert	1	0.0	5	0.0	0.0	0.0	0.0	0.0	0.0	3
				Enter water	0.9	0.0001	5	4.5	4.5	4.5	4.5	4.5	4.5	
				Injured	0.0001	0.02	5	0.1	0.1	0.1	0.1	0.1	0.1	
Capture/restraint effects														
Capture/physical restraint		pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0						
		non-pups	0	Observed mortality during activity	1	0.002		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Capture/chemical anesthesia (inhalable agent-isoflurane)	4, 5, 6 Captures	pups	200	Unobserved/post-capture mortality	1	0.001	1	0.2	0.2	0.2	0.2	0.2	0.2	
		non-pups	0	Observed mortality during activity	1	0.004		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Capture/chemical anesthesia (injectable)		non-pups	0	Observed mortality during activity	1	0.034		0.0						
				Unobserved/post-capture mortality	1	0.011		0.0						
Capture/chemical sedation (injectable-eg valium)		non-pups	0	Observed mortality during activity	1	0		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Lethal take or permanent removal		pups	0	Observed mortality during activity	1	1	1	0.0						
		non-pups	0	Observed mortality during activity	1	1	1	0.0						
Handling effects: estimated increased risk														
Procedure-animals														
Permanent mark/hot branding		pups	200	Unobserved/post-capture mortality	1	0.002	1	0.4	0.4	0.4	0.4	0.4	0.4	
		non-pups	0	Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Low risk" procedures		pups	660	Unobserved/post-capture mortality	1	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
		non-pups	0	Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Med risk" procedures		pups	0	Unobserved/post-capture mortality	1	0.0002	1	0.0						
		non-pups	0	Unobserved/post-capture mortality	1	0.0002	1	0.0						
"Elevated risk" procedures		pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0						
		non-pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0						
Notes								Total by year:	7.4	7.4	7.4	7.4	7.4	
1. By EIS definition "pups" are on rookeries during Jun/Jul. Thus, "pups" for remaining 10 months are lumped with non-pup age class.														
2. 2000 takes is the maximum expected take for the entire year, inclusive of repeat surveys which are likely to be 2/month for six months (Bryan Wright, ODFW).														
Thus for the purposes of an effects analysis, the 2000 total takes are distributed across age/season categories with repeats to total 2000. This may not reflect the true distribution.														
3. Assume that breeding season rookery disturbances covered under "ground counts", thus all this disturbance is attributable to non-breeding season.														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animals															
Aerial survey		pups		Alert	0.05	0.0		0.0							
				Enter water	0	0.001		0.0							
				Injured	0.001	0.05		0.0							
		non-pups		Alert	0.05	0.0		0.0							
				Enter water	0.01	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
Vessel surveys		pups		Alert	1	0.0		0.0							
				Enter water	0	0.001		0.0							
				Injured	0.01	0.05		0.0							
		non-pups		Alert	1	0.0		0.0							
		(breeding season)		Enter water	0.1	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups		Alert	1	0.0		0.0							
		(non-breeding season)		Enter water	0.3	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
On land	3. Behavioral/demographic observations	pups (Jun-Jul)	334	Alert	0.05	0.0	61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0	0.001	61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	61	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
		non-pups (Jun-Jul)	4666	Alert	0.05	0.0	61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.01	0.0001	61	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
				Injured	0.0001	0.02	61	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
		non-pups (Aug-May)	5000	Alert	0.05	0.0	304	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.01	0.0001	304	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
				Injured	0.0001	0.02	304	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Incidental effects due to researcher presence among animals															
On rookeries during breeding season (ground counts, scats, captures)	1. Incidental disturbance for scat collection, monitoring, cameras, aerial surveys, etc.	pups	1000	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0.01	0.001	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	<i>Roundups for branding</i>		0	Observed mortality during activity	1	0.007		0.0							
On rookeries during breeding season (ground counts, scats, captures)	1. Incidental disturbance for scat collection, monitoring, cameras, aerial surveys, etc.	non-pups	14000	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0.9	0.0001	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
				Injured	0.0001	0.02	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Haulouts, rookeries non-breeding (scats, resights, captures)	1. Incidental disturbance for scat collection, monitoring, cameras, aerial surveys, etc.	pups	0	Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups	15000	Alert	1	0.0	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0.9	0.0001	10	13.5	13.5	13.5	13.5	13.5	13.5	13.5	
				Injured	0.0001	0.02	10	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
On rookeries during breeding season (ground counts, scats, captures)	2. Harrasment from collection of carcasses.	pups	1000	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
				Enter water	0.01	0.001	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	<i>Roundups for branding</i>		0	Observed mortality during activity	1	0.007		0.0							
On rookeries during breeding season (ground counts, scats, captures)	2. Harrasment from collection of carcasses.	non-pups	14000	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
				Enter water	0.9	0.0001	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
				Injured	0.0001	0.02	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Haulouts, rookeries non-breeding (scats, resights, captures)	2. Harrasment from collection of carcasses.	pups	0	Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups	15000	Alert	1	0.0	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
				Enter water	0.9	0.0001	10	13.5	13.5	13.5	13.5	13.5	13.5	13.5	
				Injured	0.0001	0.02	10	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
								Total by year:	39.4	39.4	39.4	39.4	39.4	39.4	
Notes:															
1. Behavioral/demographic observations conducted from blinds (pg. 23), so there will be zero takes. However, these estimated assuming 61 days (Jun-Jul) of 365 days are during breeding season, and 40% on rookery are pups (ADFG estimate).															
2. Requested takes span several activities classified as 'in-view' or 'among' animals, so without additional guidance all requested takes were lumped into most conservative category.															
However, applicant asked for takes based on potential number of animals present, rather than actual number anticipated to be disturbed. The EIS analytical framework did not address this type of request for incidental disturbances.															
Thus, this estimate for potential mortalities is only correct if all animals encountered were disturbed. This is a gross, gross overestimate.															
3. Applicant requested takes based on potential number of animals present, rather than actual number anticipated to be disturbed. The EIS analytical framework did not address this type of request for incidental disturbances.															
Thus, this estimate for potential mortalities is only correct if all animals encountered were disturbed. This is a gross, gross overestimate.															

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence among animals															
On rookeries during breeding season (ground counts, scats, captures)		pups	0	Alert	1	0.0		0.0							
				Enter water	0.01	0.001		0.0							
				Injured	0.001	0.05		0.0							
<i>Roundups for branding</i>			0	Observed mortality during activity	1	0.007		0.0							
On rookeries during breeding season (ground counts, scats, captures)		non-pups	0	Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
Haulouts, rookeries non-breeding (scats, resights, captures)		pups	0	Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
	Task 2 inc. dist. For installations	non-pups	1500	Alert	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
				Injured	0.0001	0.02	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 2 inc. dist. For servicing	non-pups	1200	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
				Injured	0.0001	0.02	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
								Total by year:	1.3	1.3	1.3	1.3	1.3		
Notes															
1. Non-breeding season activities (page 27 & Table 2). Reflects a maximum, not likely actual, predicted mortality because installations will likely occur well-away from animals, or when no animals are present (Horning).															

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey		pups	0	Alert	0.05	0.0		0.0						
				Enter water	0	0.001		0.0						
				Injured	0.001	0.05		0.0						
		non-pups	20000	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.01	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
Vessel surveys		pups	10000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Injured	0.01	0.05	1	5.0	5.0	5.0	5.0	5.0	5.0	
		non-pups	15000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	4
		(breeding season)		Enter water	0.1	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	0	Alert	1	0.0		0.0						
		(non-breeding season)		Enter water	0.3	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
On land		pups	0	Alert	0.05	0.0		0.0						
				Enter water	0	0.001		0.0						
				Injured	0.001	0.05		0.0						
		non-pups	0	Alert	0.05	0.0		0.0						
				Enter water	0.01	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
Incidental effects due to researcher presence among animals														
On rookeries during breeding season (ground counts, scats, captures)		pups	960	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	5, 6, 7
				Enter water	0.01	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	1	0.0	0.0	0.0	0.0	0.0	0.0	
<i>Roundups for branding</i>			800	Observed mortality during activity	1	0.007	1	5.6	5.6	5.6	5.6	5.6	5.6	
On rookeries during breeding season (ground counts, scats, captures)		non-pups	1440	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	6, 8
				Enter water	0.9	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
Haulouts, rookeries non-breeding (scats, resights, captures)		pups	2520	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	9
				Enter water	0.9	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	10080	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	10
				Enter water	0.9	0.0001	1	0.9	0.9	0.9	0.9	0.9	0.9	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	11
Capture/restraint effects														
Capture/physical restraint		pups	0	Unobserved/post-capture mortality	1	0.001		0.0						
		non-pups	0	Observed mortality during activity	1	0.002		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Capture/chemical anesthesia (inhalable agent-isoflurane)		pups	800	Unobserved/post-capture mortality	1	0.001	1	0.8	0.8	0.8	0.8	0.8	0.8	
		non-pups	115	Observed mortality during activity	1	0.004	1	0.5	0.5	0.5	0.5	0.5	0.5	12
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (injectable)		non-pups	5	Observed mortality during activity	1	0.034	1	0.2	0.2	0.2	0.2	0.2	0.2	
				Unobserved/post-capture mortality	1	0.011	1	0.1	0.1	0.1	0.1	0.1	0.1	
Capture/chemical sedation (injectable-eg valium)		non-pups	5	Observed mortality during activity	1	0		0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0001		0.0	0.0	0.0	0.0	0.0	0.0	
Lethal take or permanent removal		pups	0	Observed mortality during activity	1	1	1	0.0						
		non-pups	0	Observed mortality during activity	1	1	1	0.0						
Procedure-animals														
Handling effects: estimated increased risk														
Permanent mark/hot branding		pups	800	Unobserved/post-capture mortality	1	0.002	1	1.6	1.6	1.6	1.6	1.6	1.6	
		non-pups	115	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
"Low risk" procedures		pups	2770	Unobserved/post-capture mortality	1	0.0001	1	0.3	0.3	0.3	0.3	0.3	0.3	
		non-pups	1290	Unobserved/post-capture mortality	1	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
"Med risk" procedures		pups	20	Unobserved/post-capture mortality	1	0.0002	1	0.0						
		non-pups	275	Unobserved/post-capture mortality	1	0.0002	1	0.1	0.1	0.1	0.1	0.1	0.1	
"Elevated risk" procedures		pups		Unobserved/post-capture mortality	1	0.001	1	0.0						

		non-pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
								Total by year:	15.8	15.8	15.8	15.8	15.8	
Notes:														
1. Pg 9: 2000 individuals up to 10X; Feb-May. Takes listed as 'potentially exposed' are maximum number of requested takes, regardless of frequency (Rea-ADFG)														
2. Assumes pups comprise 40% of the total rookery population (Rea-ADFG)														
3. Distribution of resight effort will change year to year - assumed all in breeding season for this exercise given that is when most impact is calculated (typically will have 10-20% of the resight effort during non-breeding season) (Rea-ADFG).														
4. Assumes non-pups comprise 60% of the total rookery population (Rea-ADFG)														
5. Scat collection on rookeries during BS only if branding (Rea-ADFG).														
6. No captures during breeding season (other than pups for branding) (Rea-ADFG)														
7. Assumes pups comprise 30% of the total rookery population (Rea-ADFG)														
8. Assumes non-pups comprise 70% of the total rookery population (Rea-ADFG)														
9. Assumes pups comprise 20% of the total haulout population (Rea-ADFG)														
10. Assumes non-pups comprise 80% of the total haulout population (Rea-ADFG)														
11. Total requested under activity 3 EDPS (Rea-ADFG)														
12. The number given as "potentially exposed" is the total number of takes requested for the year, a subset of which may be animals that are handled in multiple capture trips (recaptures = up to 4 captures per year). Each subsequent capture of the same animal counts as one additional take towards the total. Thus, 115 are the total captures (Rea-ADFG).														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animals															
Aerial survey	1. Aerial survey breeding season	pups	6000	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
		non-pups	10000	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.01	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	2. Aerial survey non-breeding season	non-pups	10000	Alert	0.05	0.0	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.01	0.0001	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Vessel surveys		pups		Alert	1	0.0		0.0							
				Enter water	0	0.001		0.0							
				Injured	0.01	0.05		0.0							
		non-pups		Alert	1	0.0		0.0							
		(breeding season)		Enter water	0.1	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups		Alert	1	0.0		0.0							
		(non-breeding season)		Enter water	0.3	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
On land		pups		Alert	0.05	0.0		0.0							
				Enter water	0	0.001		0.0							
				Injured	0.001	0.05		0.0							
		non-pups		Alert	0.05	0.0		0.0							
				Enter water	0.01	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
Incidental effects due to researcher presence among animals															
On rookeries during breeding season (ground counts, scats, captures)		pups		Alert	1	0.0		0.0							
				Enter water	0.01	0.001		0.0							
				Injured	0.001	0.05		0.0							
<i>Roundups for branding</i>				Observed mortality during activity	1	0.007		0.0							
On rookeries during breeding season (ground counts, scats, captures)		non-pups		Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
Haulouts, rookeries non-breeding (scats, resights, captures)		pups		Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups	5000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0.9	0.0001	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/restraint effects															
Capture/physical restraint		pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	0	Observed mortality during activity	1	0.002	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (inhalable agent-isoflurane)		pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0							
		non-pups	24	Observed mortality during activity	1	0.004	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (injectable)		non-pups		Observed mortality during activity	1	0.034		0.0							
				Unobserved/post-capture mortality	1	0.011		0.0							
Capture/chemical sedation (injectable-eg valium)		non-pups		Observed mortality during activity	1	0		0.0							
				Unobserved/post-capture mortality	1	0.0001		0.0							
Lethal take or permanent removal		pups		Observed mortality during activity	1	1	1	0.0							
		non-pups		Observed mortality during activity	1	1	1	0.0							
Procedure-animals															
Handling effects: estimated increased risk															
Permanent mark/hot branding		pups	0	Unobserved/post-capture mortality	1	0.002	1	0.0							
		non-pups	24	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
"Low risk" procedures		pups		Unobserved/post-capture mortality	1	0.0001	1	0.0							
		non-pups	144	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
"Med risk" procedures		pups	48	Unobserved/post-capture mortality	1	0.0002	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups		Unobserved/post-capture mortality	1	0.0002	1	0.0							
"Elevated risk" procedures		pups		Unobserved/post-capture mortality	1	0.001	1	0.0							
		non-pups		Unobserved/post-capture mortality	1	0.001	1	0.0							
Notes								Total by year:	1.0	1.0	1.0	1.0	1.0		
1. These are the maximum numbers expected to be taken, inclusive of potential for some to be taken multiple times (application pg. 11).															
2. Maximum number of expected takes, inclusive of up to 5 repeated takes (application page 15).															

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animals															
Aerial survey	Harassment incidental to aerial surveys	non-pups	4500	Alert	0.05	0.0	5	0.0	0.0	0.0					1, 2
				Enter water	0.01	0.0001	5	0.0	0.0	0.0					
				Injured	0.0001	0.02	5	0.0	0.0	0.0					
								Total by year:	0.1	0.1	0.0	0.0	0.0	0.0	3
Notes:															
1. Permit states 4,500 takes up to 40x per year, but only about 5 surveys per year are conducted (Pat Gearin, NMML).															
2. Surveys are for WA (no breeding areas) or OR haulouts.															

Estimated mortality due to research activities, Steller sea lion western DPS.

Permit/Application	Permit year					Notes
	1	2	3	4	5	
NMML 782-1889	8.7	8.3	8.3	8.3	8.7	
UAF/AEB 1049-1886	1.2	2.7	1.2	2.7	1.2	
ADFG 358-1888	2.3	2.3	2.3	2.3	2.3	
OSU 1034-1887	3.1	3.1	3.1	3.1	3.1	
NPUMMRC 715-1884	0.0	0.0	0.0	0.0	0.0	
NPUMMRC 715-1885	100.0	100.0	100.0	100.0	100.0	1
ASLC 881-1890	12.0	12.0	12.0	12.0	12.0	
St Paul 1118-1881	0.0	0.0	0.0	0.0	0.0	
St George 1119-1882	0.0	0.0	0.0	0.0	0.0	
Total	127.4	128.5	127.0	128.5	127.4	
Total w/o NPUMMRC inc. dist.	27.4	28.5	27.0	28.5	27.4	

Notes

1. Incidental disturbance takes requested in format not accomodated by EIS effects analysis, thus estimated mortalities are inaccurate and much higher than will occur.

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence among animals														
Haulouts, rookeries non-breeding (scats, resights, captures)	1. Incidental disturbance	pups	0	Alert	1	0.0		0.0						
				Enter water	0.9	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
		non-pups	5	Alert	1	0.0	12	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	12	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	12	0.0	0.0	0.0	0.0	0.0	0.0	
Notes:								Total by year:	0.0	0.0	0.0	0.0	0.0	
1. Entered into most conservative (ie, greatest risk) category.														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence among animals															
On rookeries during breeding season (ground counts, scats, captures)	Incidental to fur seal research under 715-1884	pups	37	Alert	1	0.0	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1, 2
				Enter water	0.01	0.001	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	63	Alert	1	0.0	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0.9	0.0001	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Haulouts, rookeries non-breeding (scats, resights, captures)		pups		Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups		Alert	1	0.0		0.0							
				Enter water	0.9	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
								Total by year:	0.0	0.0	0.0	0.0	0.0		
Notes:															
1. Assume 37% present are pups based on NMML aerial surveys and pup ground counts.															
2. Assume all 5 repeats are during sea lion breeding season (Jun/Jul)															

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Capture/restraint effects														
Capture/physical restraint		pups		Unobserved/post-capture mortality	1	0.001		0.0						
		non-pups		Observed mortality during activity	1	0.002		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Capture/chemical anesthesia (inhalable agent-isoflurane)	6. Capture/restraint/no brand	pups	48	Unobserved/post-capture mortality	1	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	4,5
	8. Capture/restraint/no brand with analgesic.													
Capture/chemical anesthesia (injectable)		non-pups		Observed mortality during activity	1	0.034		0.0						
				Unobserved/post-capture mortality	1	0.011		0.0						
Capture/chemical sedation (injectable-eg valium)		non-pups		Observed mortality during activity	1	0		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Lethal take or permanent removal		pups		Observed mortality during activity	1	1	1	0.0						
		non-pups		Observed mortality during activity	1	1	1	0.0						
Procedure-animals														
Handling effects: estimated increased risk														
Permanent mark/hot branding		pups	0	Unobserved/post-capture mortality	1	0.002	1	0.0						4,5
		non-pups		Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Low risk" procedures	6, 7, 8, and 9 blood samples	pups	672	Unobserved/post-capture mortality	1	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	6
		non-pups		Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Med risk" procedures		pups		Unobserved/post-capture mortality	1	0.0002	1	0.0						
		non-pups		Unobserved/post-capture mortality	1	0.0002	1	0.0						
"Elevated risk" procedures		pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
		non-pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
Procedure-animals														
Capture/transport/captivity effects														
Capture/transport/holding/release		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0001	1	0.0						
Capture/chemical sedation (injectable-eg valium)		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0001	1	0.0						
Permanent mark/hot branding		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Low risk" procedures		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Med risk" procedures		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0002	1	0.0						
"Elevated risk" procedures		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.001	1	0.0						
Total by year:									100.0	100.0	100.0	100.0	100.0	
Notes:														
1. Behavioral/demographic observations conducted from blinds (pg. 23), so there will be zero takes. However, these estimated assuming 61 days (Jun-Jul) of 365 days are during breeding season, and 40% on rookery are pups (ADFG estimate).														
2. Requested takes span several activities classified as 'in-view' or 'among' animals, so without additional guidance all requested takes were lumped into most conservative category. However, applicant asked for takes based on potential number of animals present, rather than actual number anticipated to be disturbed. The EIS analytical framework did not address this type of request for incidental disturbances. Thus, this estimate for potential mortalities is only correct if all animals encountered were disturbed. This is a gross, gross overestimate.														
3. Applicant requested takes based on potential number of animals present, rather than actual number anticipated to be disturbed. The EIS analytical framework did not address this type of request for incidental disturbances. Thus, this estimate for potential mortalities is only correct if all animals encountered were disturbed. This is a gross, gross overestimate.														
4. Assumed all pups from western DPS for this analysis.														
5. Activity 7&9 for capture/restraint w/branding covered by ADFG/NMML permits														
6. Blood sampling only; external exams (BP, respiration, pulse etc are no risk activities per EIS).														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence among animals														
Haulouts, rookeries non-breeding (scats, resights, captures)	Task 1a incidental disturbance	pups	1200	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	1800	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 1b incidental disturbance for installation	non-pups	2000	Alert	1	0.0	8	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0.9	0.0001	8	1.4	1.4	1.4	1.4	1.4	1.4	
				Injured	0.0001	0.02	8	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 1b incidental disturbance for 6-mo service	non-pups	2800	Alert	1	0.0	2	0.0	0.0	0.0	0.0	0.0	0.0	2
				Enter water	0.9	0.0001	2	0.5	0.5	0.5	0.5	0.5	0.5	
				Injured	0.0001	0.02	2	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/restraint effects														
Capture/chemical anesthesia (inhalable agent-isoflurane)		pups	0	Unobserved/post-capture mortality	1	0.001		0.0						
		non-pups	140	Observed mortality during activity	1	0.004	1	0.6	0.6	0.6	0.6	0.6	0.6	3
Capture/chemical anesthesia (injectable)		non-pups	0	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Observed mortality during activity	1	0.034		0.0						
Capture/chemical sedation (injectable-eg valium)		non-pups	0	Unobserved/post-capture mortality	1	0.011		0.0						
				Observed mortality during activity	1	0		0.0						
Lethal take or permanent removal		pups	0	Unobserved/post-capture mortality	1	0.0001		0.0						
		non-pups		Observed mortality during activity	1	1	1	0.0						
Procedure-animals														
Capture/transport/holding/release		non-pups	140	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical sedation (injectable-eg valium)		non-pups		Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Permanent mark/hot branding		non-pups	140	Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0001	1	0.0						
"Low risk" procedures		non-pups	980	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Unobserved/post-capture mortality	1	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
"Med risk" procedures		non-pups	140	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Unobserved/post-capture mortality	1	0.0002	1	0.0	0.0	0.0	0.0	0.0	0.0	
"Elevated risk" procedures		non-pups	100	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Unobserved/post-capture mortality	1	0.001	1	0.1	0.1	0.1	0.1	0.1	0.1	
Total by year:								3.1	3.1	3.1	3.1	3.1		
Notes:														
1. Depends on captures by ADFG/NMML, used ADFG ratio to estimate pup fraction (40%)														
2. Non-breeding season activities (page 27 & Table 2). Reflects a maximum, not likely actual, predicted mortality because installations will likely occur well-away from animals, or when no animals are present (Horning).														
3. Requested annual takes also reflect maximum expected for permit duration. Thus, annual takes should decrease yearly, not remain constant as shown here. Likely 20 implants per year (Horning), but maximum authorized takes per year were analyzed here.														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animals															
Aerial survey		pups		Alert	0.05	0.0		0.0							
				Enter water		0	0.001	0.0							
				Injured	0.001	0.05		0.0							
		non-pups		Alert	0.05	0.0		0.0							
				Enter water	0.01	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
Vessel surveys		pups		Alert	1	0.0		0.0							
				Enter water	0	0.001		0.0							
				Injured	0.01	0.05		0.0							
		non-pups		Alert	1	0.0		0.0							
		(breeding season)		Enter water	0.1	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
		non-pups		Alert	1	0.0		0.0							
		(non-breeding season)		Enter water	0.3	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
On land		pups		Alert	0.05	0.0		0.0							
				Enter water	0	0.001		0.0							
				Injured	0.001	0.05		0.0							
		non-pups		Alert	0.05	0.0		0.0							
				Enter water	0.01	0.0001		0.0							
				Injured	0.0001	0.02		0.0							
Incidental effects due to researcher presence among animals															
On rookeries during breeding season (ground counts, scats, captures)	Task 1 inc. disturbance for captures etc	pups	1000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.01	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Roundups for branding			240	Observed mortality during activity	1	0.001	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
On rookeries during breeding season (ground counts, scats, captures)	Task 1 inc. disturbance for captures etc	non-pups	2000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Haulouts, rookeries non-breeding (scats, resights, captures)		pups		Alert	1	0.0	1	0.0							
				Enter water	0.9	0.0001	1	0.0							
				Injured	0.0001	0.02	1	0.0							
	Task 1 inc. disturbance for captures etc	non-pups	7000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 2 incidental disturbance for captures etc	non-pups	4000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/restraint effects															
Capture/physical restraint		pups	0	Unobserved/post-capture mortality	1	0.001		0.0							
		non-pups		Observed mortality during activity	1	0.002		0.0							
				Unobserved/post-capture mortality	1	0.0001		0.0							
Capture/chemical anesthesia (inhalable agent-isoflurane)	Task1	pups	200	Unobserved/post-capture mortality	1	0.001	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
			40	Unobserved/post-capture mortality	1	0.001	5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
	Task 1, 2mo-1yr + 1-4 yr olds	non-pups	80	Observed mortality during activity	1	0.004	3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2
				Unobserved/post-capture mortality	1	0.0001	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 2, 6-11 mo & 1-4 yr olds	non-pups	150	Observed mortality during activity	1	0.004	1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	2
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 1, Ad F (60 Aug-May)	non-pups	60	Observed mortality during activity	1	0.004	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 1, Ad F (40*3 Aug-May, Jun-Jul)	non-pups	80	Observed mortality during activity	1	0.004	3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3
				Unobserved/post-capture mortality	1	0.0001	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (injectable)	Task 1, Ad F (40x3; Jun-Jul)	non-pups	40	Observed mortality during activity	1	0.034	3	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3
				Unobserved/post-capture mortality	1	0.011	3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lethal take or permanent removal		pups	0	Observed mortality during activity	1	1	1	0.0							
		non-pups		Observed mortality during activity	1	1	1	0.0							

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Handling effects: estimated increased risk														
Procedure-animals														
Permanent mark/hot branding	Task 1, <2mo olds	pups	240	Unobserved/post-capture mortality	1	0.002	1	0.5	0.5	0.5	0.5	0.5	0.5	
	Task 1, 2mo-1yr + 1-4 yr olds, adults	non-pups	220	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 2 (Table 2)		120	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
"Low risk" procedures	Task 1	pups	2240	Unobserved/post-capture mortality	1	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
	Task 1, 2mo-1yr + 1-4 yr olds, adults	non-pups	5940	Unobserved/post-capture mortality	1	0.0001	1	0.6	0.6	0.6	0.6	0.6	0.6	4
"Med risk" procedures	Task 1	pups	200	Unobserved/post-capture mortality	1	0.0002	1	0.0	0.0	0.0	0.0	0.0	0.0	
	Task 1, 2mo-1yr + 1-4 yr olds, adults	non-pups	1320	Unobserved/post-capture mortality	1	0.0002	1	0.3	0.3	0.3	0.3	0.3	0.3	
"Elevated risk" procedures		pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
		non-pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
Capture/transport/captivity effects														
Procedure-animals														
Capture/transport/holding/release	Task 2 (Table 3)	non-pups	30	Observed mortality during activity	1	0	12	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0001	12	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical sedation (injectable-eg valium)		non-pups		Observed mortality during activity	1	0	1	0.0						
				Unobserved/post-capture mortality	1	0.0001	1	0.0						
Permanent mark/hot branding	Task 2 (Table 3)	non-pups	30	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
"Low risk" procedures	Task 2 (Table 3)	non-pups	1680	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	5
				Unobserved/post-capture mortality	1	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
"Med risk" procedures	Task 2 (Table 3)	non-pups	120	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0002	1	0.0	0.0	0.0	0.0	0.0	0.0	
"Elevated risk" procedures		non-pups	30	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Notes:								Total by year:	12.0	12.0	12.0	12.0	12.0	
1. Distribution of request for 10,000 takes incidental to captures, scat collection, etc. 10,000 are the total expected takes inclusive of repeated takes/individual (Russ Andrews, ASLC) for Task 1.														
The additional 4000 for task 2 (3,500 in PWS/Res Bay up to 15 each, 500 in Kodiak/Aleutians up to 5 times each) also represent total expected takes inclusive of repeated takes/individual (Jo-Ann Melish, ASLC).														
Request for any additional "unlimited" disturbances for collection of expelled placentas, aborted fetuses, and dead sea lions is not included in this analysis.														
2. Assumed that captures of 2 mo - 4 yr olds is by net, uw noose, seine, or floating pen.(yes, for Task 2: Mellish-ASLC)														
3. Only intend to dart adult females (40x3) captured in Jun-Jul (application pg 25; Russ Andrews, ASLC); assume all receive inhalable anesthesia.														
4. Attachment of buoyancy-altrreing blocks on non-pups was requested as instrument attachment, so are counted in this row, but not differently than any other instrument attachment.														
5. Metabolic chamber measurements assessed as "low risk". Temporary dry holding and short-term fasting experiments are uncategorized.														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey		pups	0	Alert	0.05	0.0		0.0						
				Enter water	0	0.001		0.0						
				Injured	0.001	0.05		0.0						
		non-pups	0	Alert	0.05	0.0		0.0						
				Enter water	0.01	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
Vessel surveys		pups	2000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	2
				Injured	0.01	0.05	1	1.0	1.0	1.0	1.0	1.0	1.0	
		non-pups	3000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
		(breeding season)		Enter water	0.1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	0	Alert	1	0.0		0.0						
		(non-breeding season)		Enter water	0.3	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
On land		pups	0	Alert	0.05	0.0		0.0						4
				Enter water	0	0.001		0.0						
				Injured	0.001	0.05		0.0						
		non-pups	0	Alert	0.05	0.0		0.0						
				Enter water	0.01	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
Incidental effects due to researcher presence among animals														
On rookeries during breeding season (ground counts, scats, captures)		pups		Alert	1	0.0		0.0						
				Enter water	0.01	0.001		0.0						
				Injured	0.001	0.05		0.0						
Roundups for branding				Observed mortality during activity	1	0.001		0.0						
On rookeries during breeding season (ground counts, scats, captures)		non-pups		Alert	1	0.0		0.0						
				Enter water	0.9	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
Haulouts, rookeries non-breeding (scats, resights, captures)		pups	400	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0.9	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	1600	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Enter water	0.9	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/restraint effects														
Capture/physical restraint		pups		Unobserved/post-capture mortality	1	0.001		0.0						
		non-pups		Observed mortality during activity	1	0.002		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Capture/chemical anesthesia (inhalable agent-isoflurane)		pups		Unobserved/post-capture mortality	1	0.001		0.0						
		non-pups (2mo-3yr)	165	Observed mortality during activity	1	0.004	1	0.7	0.7	0.7	0.7	0.7	0.7	5
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (injectable)		non-pups	5	Observed mortality during activity	1	0.034	1	0.2	0.2	0.2	0.2	0.2	0.2	
				Unobserved/post-capture mortality	1	0.011	1	0.1	0.1	0.1	0.1	0.1	0.1	
Capture/chemical sedation (injectable-eg valium)		non-pups	5	Observed mortality during activity	1	0	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Lethal take or permanent removal		pups		Observed mortality during activity	1	1	1	0.0						
		non-pups		Observed mortality during activity	1	1	1	0.0						
Handling effects: estimated increased risk														
Procedure-animals														
Permanent mark/hot branding		pups		Unobserved/post-capture mortality	1	0.002	1	0.0						
		non-pups	165	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
"Low risk" procedures		pups		Unobserved/post-capture mortality	1	0.0001	1	0.0						
		non-pups	1885	Unobserved/post-capture mortality	1	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
"Med risk" procedures		pups	0	Unobserved/post-capture mortality	1	0.0002	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	375	Unobserved/post-capture mortality	1	0.0002	1	0.1						
"Elevated risk" procedures		pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
		non-pups		Unobserved/post-capture mortality	1	0.001	1	0.0						
Total by year:									2.3	2.3	2.3	2.3	2.3	
Notes:														
1. Assumes pups comprise 40% of the total rookery population (Rea-ADFG)														
2. Distribution of resight effort will change year to year - assumed all in breeding season for this exercise given that is when most impact is calculated (typically will have 20-30% of the resight effort during non-breeding season) (Rea-ADFG)														
3. Assumes non-pups comprise 60% of the total rookery population (Rea-ADFG)														
4. Total request for Activity 3 WDPS (Rea-ADFG)														
5. Potentially exposed is the total number of captures, inclusive of any recaptures of individuals (Rea-ADFG).														

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes	
									1	2	3	4	5		
Incidental effects due to researcher presence in view of animals															
Aerial survey	Quarterly aerial survey	pups	3664	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	1	0.2	0.2	0.2	0.2	0.2	0.2		
		non-pups	9336	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1	
				Enter water	0.01	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0		
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0		
	non-pups	13000	Alert	0.05	0.0	3	0.0	0.0	0.0	0.0	0.0	0.0	2		
			Enter water	0.01	0.0001	3	0.0	0.0	0.0	0.0	0.0	0.0			
			Injured	0.0001	0.02	3	0.1	0.1	0.1	0.1	0.1	0.1			
	Biennial replicate aerial surveys	pups	3664	Alert	0.05	0.0	7	0.0		0.0		0.0		3	
				Enter water	0	0.001	7	0.0		0.0		0.0			
				Injured	0.001	0.05	7	1.3		1.3		1.3			
non-pups		9336	Alert	0.05	0.0	7	0.0		0.0		0.0		4		
			Enter water	0.01	0.0001	7	0.1		0.1		0.1				
			Injured	0.0001	0.02	7	0.1		0.1		0.1				
Vessel surveys	Boat-based quarterly brand resighting	non-pups (non-breeding season)	1000	Alert	1	0.0	4	0.0	0.0	0.0	0.0	0.0	0.0	5	
				Enter water	0.3	0.0001	4	0.1	0.1	0.1	0.1	0.1	0.1		
	Land-based biweekly brand resighting	non-pups	500	Alert	0.05	0.0	20	0.0	0.0	0.0	0.0	0.0	0.0	6	
				Enter water	0.01	0.0001	20	0.0	0.0	0.0	0.0	0.0	0.0		
				Injured	0.0001	0.02	20	0.0	0.0	0.0	0.0	0.0	0.0		
Incidental effects due to researcher presence among animals															
Haulouts, rookeries non-breeding (scats, resights, captures)		non-pups	2000	Alert	1	0.0	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
				Enter water	0.9	0.0001	4	0.7	0.7	0.7	0.7	0.7	0.7		
				Injured	0.0001	0.02	4	0.0	0.0	0.0	0.0	0.0	0.0		
								Total by year:	1.2	2.7	1.2	2.7	1.2		
Notes:															
1. June survey; estimated as pup count from 2005 NMML survey for C/WGOA															
2. Sep/Dec/Mar surveys															
3. Estimated as pup count from 2005 NMML survey for C/WGOA															
4. Difference of 13000 and estimated pup count from 2005 NMML survey															
5. Application take table states no rookery visits during breeding season.															
6. During midSep-midMay, thus no pup-take category by EIS definition															

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence in view of animals														
Aerial survey	1. Aerial survey: breeding season	pups	13000	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1, 2
				Enter water	0	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.001	0.05	1	0.7	0.7	0.7	0.7	0.7	0.7	
		non-pups	32000	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	3
				Enter water	0.01	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	1	0.1	0.1	0.1	0.1	0.1	0.1	
	2. Aerial survey: non-breeding season	non-pups	28000	Alert	0.05	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	1, 4
				Enter water	0.01	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	1	0.1	0.1	0.1	0.1	0.1	0.1	
Vessel surveys	4. Incidental disturbance...	pups	1000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	5
				Enter water	0	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.01	0.05	1	0.5	0.5	0.5	0.5	0.5	0.5	
		non-pups	5000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	5
		(breeding season)		Enter water	0.1	0.0001	1	0.1	0.1	0.1	0.1	0.1	0.1	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
		non-pups	5000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	5
		(non-breeding season)		Enter water	0.3	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
On land		pups	0	Alert	0	0.05	0	0.0						
				Enter water	0	0.001		0.0						
				Injured	0.001	0.05		0.0						
		non-pups	0	Alert	0	0.05	0	0.0						
				Enter water	0	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
Incidental effects due to researcher presence among animals														
On rookeries during breeding season (ground counts, scats, captures)	3. Ground counts	pups	7100	Alert	1	0.0	1	0.0		0.0	0.0	0.0		6
				Enter water	0.01	0.001	1	0.1		0.1	0.1	0.1		
				Injured	0.001	0.05	1	0.4		0.4	0.4	0.4		
<i>Roundups for branding</i>			400	Observed mortality during activity	1	0.001	1	0.4	0.4	0.4	0.4	0.4	0.4	
On rookeries during breeding season (ground counts, scats, captures)	3. Ground counts	non-pups	18000	Alert	1	0.0	1	0.0		0.0	0.0	0.0		6
				Enter water	0.9	0.0001	1	1.6		1.6	1.6	1.6		
				Injured	0.0001	0.02	1	0.0		0.0	0.0	0.0		
On rookeries during breeding season (ground counts, scats, captures)	3. Ground counts	pups	9000	Alert	1	0.0	1	0.0	0.0				0.0	7
				Enter water	0.01	0.001	1	0.1	0.1				0.1	
				Injured	0.001	0.05	1	0.5	0.5				0.5	
		non-pups	21000	Alert	1	0.0	1	0.0	0.0				0.0	7
				Enter water	0.9	0.0001	1	1.9	1.9				1.9	
				Injured	0.0001	0.02	1	0.0	0.0				0.0	
Haulouts, rookeries non-breeding (scats, resights, captures)	4. Incidental disturbance...	pups		Alert	1	0.0		0.0						
				Enter water	0.9	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
		non-pups	7000	Alert	1	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	5
				Enter water	0.9	0.0001	1	0.6	0.6	0.6	0.6	0.6	0.6	
				Injured	0.0001	0.02	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/restraint effects														
Capture/physical restraint	6. Capture, restraint, measurements	pups	700	Unobserved/post-capture mortality	1	0.001	1	0.7	0.7	0.7	0.7	0.7	0.7	
		non-pups	0	Observed mortality during activity	1	0.002	1	0.0	0.0	0.0	0.0	0.0	0.0	
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (inhalable agent-isoflurane)	6. Capture, restraint, measurements	pups	400	Unobserved/post-capture mortality	1	0.001	1	0.4	0.4	0.4	0.4	0.4	0.4	
		non-pups	180	Observed mortality during activity	1	0.004	1	0.7	0.7	0.7	0.7	0.7	0.7	8,9
				Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0	
Capture/chemical anesthesia (injectable)		non-pups	10	Observed mortality during activity	1	0.034	1	0.3	0.3	0.3	0.3	0.3	0.3	10
				Unobserved/post-capture mortality	1	0.011	1	0.1	0.1	0.1	0.1	0.1	0.1	
Capture/chemical sedation (injectable-eg valium)		non-pups	0	Observed mortality during activity	1	0		0.0						
				Unobserved/post-capture mortality	1	0.0001		0.0						
Lethal take or permanent removal		pups	0	Observed mortality during activity	1	1	1	0.0						
		non-pups		Observed mortality during activity	1	1	1	0.0						

Handling effects: estimated increased risk				Procedure-animals									
Permanent mark/hot branding	6.h.	pups	400	Unobserved/post-capture mortality	1	0.002	1	0.8	0.8	0.8	0.8	0.8	0.8
		non-pups	180	Unobserved/post-capture mortality	1	0.0001	1	0.0	0.0	0.0	0.0	0.0	0.0
"Low risk" procedures	6a,b,d,f,g,i,j,k,l,m,n	pups	2150	Unobserved/post-capture mortality	1	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2
		non-pups	1980	Unobserved/post-capture mortality	1	0.0001	1	0.2	0.2	0.2	0.2	0.2	0.2
"Med risk" procedures	6c,e	pups	0	Unobserved/post-capture mortality	1	0.0002	1	0.0	0.0	0.0	0.0	0.0	0.0
		non-pups	360	Unobserved/post-capture mortality	1	0.0002	1	0.1	0.1	0.1	0.1	0.1	0.1
"Elevated risk" procedures		pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0
		non-pups	0	Unobserved/post-capture mortality	1	0.001	1	0.0	0.0	0.0	0.0	0.0	0.0
								Total by year:	8.7	8.3	8.3	8.3	8.7
Notes:													
1. Pups are defined in the EIS as being on the rookery during the breeding season (June/July)													
2. 13000 is the maximum number expected to be taken, inclusive of potential for some to be taken 2x (application pg. 11).													
3. 32000 is the maximum number expected to be taken, inclusive of potential multiple disturbance (application pg. 11)													
4. 28,000 is the maximum number expected to be taken, inclusive of potential for some to be taken up to 4x (application page 12).													
5. Distributed from request for 23000 takes, total (application pg 15)													
6. Non-range wide survey years													
7. Range-wide survey in 2007 and 2011													
8. Assumes non-pup captures are with uw noose, floating pen, or at-sea, and that any adults sedated by dart delivery would also be anesthetized with isoflurane.													
9. Includes age groups 2mo-3yr (120) and >3 yr (60); application pages states these are maximum takes inclusive of potential for recapture.													
10. Application (pg 19) states if adults can not be captured by other techniques darting may be used, but no specific sample size was stated. This analysis assumes 10 adules per year captured by dart injection.													

EIS Activity	Application activity	Age class	Potentially exposed	Effect	Proportion affected	Mortality rate	Frequency	Predicted mortality	Predicted mortality by permit year					Notes
									1	2	3	4	5	
Incidental effects due to researcher presence among animals														
Haulouts, rookeries non-breeding (scats, resights, captures)	1. Incidental disturbance	pups	0	Alert	1	0.0		0.0						
				Enter water	0.9	0.0001		0.0						
				Injured	0.0001	0.02		0.0						
		non-pups	5	Alert	1	0.0	12	0.0	0.0	0.0	0.0	0.0	0.0	1
				Enter water	0.9	0.0001	12	0.0	0.0	0.0	0.0	0.0	0.0	
				Injured	0.0001	0.02	12	0.0	0.0	0.0	0.0	0.0	0.0	
Notes:								Total by year:	0.0	0.0	0.0	0.0	0.0	
1. Entered into most conservative (ie, greatest risk) category.														