



Prepared for:



DRAFT Programmatic Environmental Impact Statement Appendices A-L

Hawaiian Monk Seal Recovery Actions

August 2011

*Appendix I
Hawaiian Monk Seal Research
and Enhancement Proposed
Levels of Take for PEIS
Alternatives 1, 3, and 4*

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Appendix I: Table Specifying the Activities Proposed under the Status Quo Alternative.

Table 1. Proposed annual takes of Hawaiian monk seals. Locations: Hawaiian Archipelago=Main Hawaiian Islands (MHI) and adjacent islets, Northwestern Hawaiian Islands (NWHI), and Johnston Atoll. MHI=Hawaii, Maui, Molokai, Kahoolawe, Lanai, Oahu, Kauai, and Niihau. Also all smaller islands and offshore islets, including, but not limited to, Kaula Rock, Lehua, Molokini, etc. NWHI=Nihoa Island (Is.), Necker Is., French Frigate Shoals, Laysan Is., Lisianski Is., Pearl and Hermes Reef, Midway Atoll, Kure Atoll, Gardner Pinnacles. Activities would occur under Permit No. 10137 through June 2014, and the same activities are proposed to be permitted beyond 2014.

Task	Size (Age)	Sex	No. Seals Taken/ Year	No. Takes/ Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
1. Monitoring	Any	Both	150	3	Disturbance from visual observation and photo-identification during ground monitoring and aerial and vessel surveys	MHI	Annually at any time of year.
			50	1		Nihoa Is.	
			50	1		Necker Is.	
			250	5		French Frigate Shoals	
			10	1		Gardner Pinnacles	
			250	3		Laysan Is.	
			225	3		Lisianski Is.	
			200	3		Pearl and Hermes Reef	
			100	2		Midway Atoll	
			150	2		Kure Atoll	
			5	1		Johnston Atoll	

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
2a. Tagging	Any except nursing pups, lactating or obviously pregnant females.	Both	30	3	Restraint, tagging (flipper and PIT), collect flipper plugs, morphometrics (length and girth)	MHI	Annually at any time of year (predominantly during summer field camps). All of the animals may also be taken by Tasks 1 and 3.
			25	1		Niihau Is.	
			15	1		Necker Is.	
			150	3		French Frigate Shoals	Weaned pups in the MHI may also have ultrasound performed concurrent with flipper tagging
			75	3		Laysan Is.	
			50	3		Lisianski Is.	At French Frigate Shoals, 35 weaned pups of either sex may have a sonic tag deployed on a third flipper tag (annually over three years).
			50	3		Pearl and Hermes Reef	
			25	2		Midway Atoll	
			35	2		Kure Atoll	
			1	1		Johnston Atoll	
			2b. Retagging	Any except nursing pups, lactating or obviously pregnant females.		Both	100

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
3. Marking	Any	Both	75	2	Temporary bleach marking	MHI	Annually at any time of year. All of the animals may also be taken by disturbance (Task 1) and tagging (Task 2).
			30	2		Nihoa Is.	
			30	2		Necker Is.	
			250	2		French Frigate Shoals	
			250	2		Laysan Is.	
			225	2		Lisianski Is.	
			200	2		Pearl and Hermes Reef	
			100	2		Midway Atoll	
			150	2		Kure Atoll	
			5	1		Johnston Atoll	
total			1,871				
4. Health Screening and Foraging Studies	Any healthy seal excluding lactating females with pups and	Both	70	2	Restraint, sedation, tagging, blood sampling, swabs, blubber biopsy, weight, morphometrics, ultrasound, instrumentation	Hawaiian Archipelago	Annually any time of year. Sixty (60) healthy seals may be instrumented. Recaptures for instrument removal and sampling. All animals may have been

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
	nursing pups						taken by Tasks 1-3.
	Any unhealthy seal excluding lactating females with pups and nursing pups	Both	30	2	Restraint, sedation, tagging, blood sampling, swabs, blubber biopsy, morphometrics, ultrasound, treatment (lance abscesses), humane euthanasia or incidental mortality of 10 moribund animals	Hawaiian Archipelago	Annually at any time of year. Includes humane euthanasia of up to 10 moribund or severely injured seals at discretion of veterinarian authorized over a five-year period. All animals may have been taken by Tasks 1-3.
5. Intestinal Parasite Treatment (De-worming)	Pups \geq 120 days post-weaning and juveniles up to age 3	Both	200	8	Restraint, weight, morphometrics, fecal collection (voided feces or fecal sample collected via fecal loop or digital extraction), treatment (IM or oral praziquantel and SC ivermectin, oral Fenbendazole), ultrasound; post-treatment monitoring at approximately 4 week intervals (visual assessments and recapture for weight, morphometrics, and fecal	Hawaiian Archipelago	Annually, year-round. Initial study trials to include pups \geq 120 days post weaning to juveniles \leq 2 years. Estimated maximum number of seals that may be included in initial study are: French Frigate Shoals: 47 seals; Laysan Island: 41 seals; and Lisianski Island: 29 seals. Treatments may be combined with other activities requiring restraint and sedation

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
					sampling)		
total							
6. Translocation	Nursing pup	Both	20	6	Capture, restraint, and relocation by hand to natural mother or prospective foster mother	Hawaiian Archipelago, Johnston Atoll	Establishing/re-establishing maternal association. Annually at any time of year but predominantly during summer field camps. Most takes will occur in the NWHI (intra-island/atoll).
	Weaned Pup	Both	35	3	Capture, restraint, sampling, and relocation from high risk areas via boat, ship, vehicle, or air craft	Hawaiian Archipelago, Johnston Atoll	Risk alleviation. Annually at any time of year. Most takes occur at French Frigate Shoals (intra-atoll) or within the Main Hawaiian Islands.
	Weaned Pup	Both	20	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocation from areas of low survival via boat	NWHI	Seals may be translocated between atolls within the NWHI, requiring authorization on a case-by-case basis.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
					and ship		
total			75				
7. Adult Male Removal	Adult	Male	10	2	Capture, restraint, sedation, sampling, instrumentation/translocation, permanent captivity, or euthanasia	Hawaiian Archipelago; Johnston Atoll	Up to 10 males may be removed over a five year period.
8. Disentangle	Any	Both	As warranted (likely not to exceed 25/year)	>1	Disentanglement and dehooking (with or without capture, sedation, and release)	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year. All animals may have been taken by Tasks 1-3.
9. Conduct Necropsies	Any	Both	As warranted	1	Necropsy any seal found dead, that died during restraint, or that was euthanized.	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year.
10. Opportunistic Retrieval of samples	Any	Both	Unlimited samples	Unlimited samples	Collect parts (placentae, scats, spews, and molted fur/skin) from haul out areas	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year but predominantly during summer field camps.
11. Import and Export Parts	Any	Both	Unlimited import/export	Unlimited samples	Export (and re-import) Hawaiian monk seal samples collected under the authority of this	World-wide (including but not limited to Canada, the Netherlands,	Annually at any time of year.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
					permit. Import (and re-export) Mediterranean monk seal specimens for research related to monk seal conservation	Scotland, Greece, Australia)	
12. Incidental harassment of monk seals	Any	Both	200	2	Incidental harassment during any research and enhancement activity	Hawaiian Archipelago; Johnston Atoll	Total incidental harassment over all activities.
13. Accidental Mortality (Research)	Any	Both	2	1	During any research or enhancement activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period is authorized not to exceed 2 deaths in any one year.

Appendix I: Table Specifying the Activities Proposed under Alternative 3 – Limited Translocation.

Table 1. Proposed annual takes of Hawaiian monk seals. Locations: Hawaiian Archipelago=Main Hawaiian Islands (MHI) and adjacent islets, Northwestern Hawaiian Islands (NWHI), and Johnston Atoll. MHI=Hawaii, Maui, Molokai, Kahoolawe, Lanai, Oahu, Kauai, and Niihau. Also all smaller islands and offshore islets, including, but not limited to, Kaula Rock, Lehua, Molokini, etc. NWHI=Niihau Island (Is.), Necker Is., French Frigate Shoals, Laysan Is., Lisianski Is., Pearl and Hermes Reef, Midway Atoll, Kure Atoll, Gardner Pinnacles. Activities would occur under Permit No. 10137 through June 2014, and the same activities are proposed to be permitted beyond 2014.

Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details

Table 1. Proposed annual takes of Hawaiian monk seals. Locations: Hawaiian Archipelago=Main Hawaiian Islands (MHI) and adjacent islets, Northwestern Hawaiian Islands (NWHI), and Johnston Atoll. MHI=Hawaii, Maui, Molokai, Kahoolawe, Lanai, Oahu, Kauai, and Niihau. Also all smaller islands and offshore islets, including, but not limited to, Kaula Rock, Lehua, Molokini, etc. NWHI=Nihoa Island (Is.), Necker Is., French Frigate Shoals, Laysan Is., Lisianski Is., Pearl and Hermes Reef, Midway Atoll, Kure Atoll, Gardner Pinnacles. Activities would occur under Permit No. 10137 through June 2014, and the same activities are proposed to be permitted beyond 2014.

Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
1. Monitoring	Any	Both	250	5	Disturbance from visual observation and photo-identification during ground monitoring and aerial and vessel surveys and video camera or remote aerial survey vehicle	MHI	Annually at any time of year.
			100	3		Nihoa Is.	
			75	3		Necker Is.	
			250	5		French Frigate Shoals	
			10	1		Gardner Pinnacles	
			400	5		Laysan Is.	
			275	5		Lisianski Is.	
			400	5		Pearl and Hermes Reef	
			150	5		Midway Atoll	
			200	5		Kure Atoll	
			5	1		Johnston Atoll	
2a. Tagging	Any except	Both	60	3	Restraint, tagging (flipper)	MHI	Annually at any time of year

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
	nursing pups, lactating or obviously pregnant females.		25	3	and PIT), collect flipper plugs, morphometrics (length and girth)	Nihoa Is.	(predominantly during summer field camps). All of the animals may also be taken by Tasks 1 and 3. Weaned pups in the MHI may also have ultrasound performed concurrent with flipper tagging At French Frigate Shoals, 35 weaned pups of either sex may have a sonic tag deployed on a third flipper tag (annually over three years).
			15	3		Necker Is.	
			100	3		French Frigate Shoals	
			75	3		Laysan Is.	
			70	3		Lisianski Is.	
			70	3		Pearl and Hermes Reef	
			50	3		Midway Atoll	
			50	3		Kure Atoll	
			5	3		Johnston Atoll	
			2b. Retagging	Any except nursing pups, lactating or obviously pregnant females.		Both	
3. Marking	Any	Both	150	2	Temporary bleach	MHI	Annually at any time of

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
			60	2	marking	Nihoa Is.	year. All of the animals may also be taken by disturbance (Task 1) and tagging (Task 2).
			30	2		Necker Is.	
			250	2		French Frigate Shoals	
			250	2		Laysan Is.	
			250	2		Lisianski Is.	
			250	2		Pearl and Hermes Reef	
			100	2		Midway Atoll	
			150	2		Kure Atoll	
			5	1		Johnston Atoll	
4. Health Screening and Foraging Studies	Any healthy seal excluding lactating females with pups and nursing pups	Both	100	2	Restraint, sedation, tagging, blood sampling, swabs, blubber biopsy, weight, morphometrics, ultrasound, instrumentation	Hawaiian Archipelago and Johnston Atoll	Annually any time of year. Sixty (60) healthy seals may be instrumented. Recaptures for instrument removal and sampling. All animals may have been taken by Tasks 1-3.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
	Any unhealthy seal excluding lactating females with pups and nursing pups	Both	30	2	Restraint, sedation, tagging, blood sampling, swabs, blubber biopsy, morphometrics, ultrasound, treatment (lance abscesses, administer long-acting antibiotic), humane euthanasia or incidental mortality of 10 moribund animals	Hawaiian Archipelago and Johnston Atoll	Annually at any time of year. Includes humane euthanasia of up to 10 moribund or severely injured seals at discretion of veterinarian authorized over a five-year period. All animals may have been taken by Tasks 1-3.
5. Intestinal Parasite Treatment (Deworming)	Pups \geq 120 days post-weaning and juveniles up to age 3	Both	300	8	Restraint, weight, morphometrics, fecal collection (voided feces or fecal sample collected via fecal loop or digital extraction), deworming treatment, ultrasound; post-treatment monitoring at regular intervals (visual assessments and recapture for weight, morphometrics, and fecal sampling)	Hawaiian Archipelago and Johnston Atoll	Annually, year-round. Treatments may be combined with other activities requiring restraint and sedation

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
6. Translocation	Nursing pup	Both	20	6	Capture, restraint, and relocation by hand to natural mother or prospective foster mother	Hawaiian Archipelago, Johnston Atoll	Establishing/re-establishing maternal association. Annually at any time of year but predominantly during summer field camps. Most takes will occur in the NWHI (intra-island/atoll).
	Weaned Pup	Both	60	3	Capture, restraint, sampling, and relocation from high risk areas via boat, ship, vehicle, or air craft	Hawaiian Archipelago, Johnston Atoll	Risk alleviation. Annually at any time of year. No movements from NWHI to MHI but any other combination allowed.
	Weaned Pup	Both	20	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocation from areas of low survival via boat, ship, vehicle, or air craft	Hawaiian Archipelago, Johnston Atoll	Enhance survival: 1 st stage of two-stage translocation. Annually at any time of year. Mostly females, but males when warranted. No movements from NWHI to MHI but any other combination allowed. Details to be determined

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
							through application of decision framework.
	Juvenile and Sub-adult	Both	30	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocation via boat, ship, vehicle, or air craft	Hawaiian Archipelago, Johnston Atoll	Enhance survival: 2 nd stage of two-stage translocation. Annually at any time of year. Mostly females, but males when warranted. No movements from NWHI to MHI but any other combination allowed. Details to be determined through application of decision framework. Surviving juveniles which had been translocated as weaned pups returned to their natal or other suitable region (may include seals from 1 st stage of translocation that remained at recipient site more than 3 yr and need to be returned).

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	Juvenile	Both	6	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocate between subpopulations	Hawaiian Archipelago, Johnston Atoll	Research to determine survival of translocated juveniles to inform two-stage translocation enhancement. Annually at any time of year. No movements from NWHI to MHI but any other combination allowed.
7. Adult Male Removal	Adult	Male	20	2	Capture, restraint, sedation, sampling, instrumentation/translocation, permanent captivity, or euthanasia	Hawaiian Archipelago; Johnston Atoll	Up to 20 males may be removed annually, but only 10 lethal removals over a five year period.
8. Disentangle	Any	Both	As warranted (likely not to exceed 25/year)	>1	Disentanglement and dehooking (with or without capture, sedation, and release)	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year. All animals may have been taken by Tasks 1-3.
9. Conduct Necropsies	Any	Both	As warranted	1	Necropsy any seal found dead, that died during restraint, or that was euthanized.	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year.
10.	Any	Both	Unlimited	Unlimited	Collect parts (placentae,	Hawaiian	Annually at any time of year

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Opportunistic Retrieval of samples			samples	samples	scats, spews, and molted fur/skin) from haul out areas	Archipelago; Johnston Atoll	but predominantly during summer field camps.
11. Import and Export Parts	Any	Both	Unlimited import/export	Unlimited samples	Export (and re-import) Hawaiian monk seal samples collected under the authority of this permit. Import (and re-export) Mediterranean monk seal specimens for research related to monk seal conservation	World-wide (including but not limited to Canada, the Netherlands, Scotland, Greece, Australia)	Annually at any time of year.
12. Supplemental Feeding	Pup or Juvenile	Both	12	Unlimited	Supplemental feeding of post-rehabilitated seals	NWHI	Annually at any time of year seals may be fed at daily or longer intervals for up to one year.
13. Behavioral modification	Any	Both	10	20	Intentional harassment for behavior modification. Aversive conditioning and other methods. Capture restraint, sedation, biomedical sampling, instrumentation, translocation, temporary holding. Hazing using visual, audible and tactile means. Impeding movement with barriers.	MHI	Annually at any time of year. Alter behavior of seals socialized to humans or behaving in a manner dangerous to the seal or public safety. Experimental protocols to determine optimal methods.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
14. Chemical Behavioral Modification of Adult Males	Adult	Male	20	3	Capture, restraint, sedation, biomedical sampling, instrumentation, and administration of testosterone reduction agent	Hawaiian Archipelago	Annual
15. Vaccinations	Any	Both	1100	4	Capture, restraint, sedation, biomedical sampling and administration of vaccine.	Hawaiian Archipelago	
16. Incidental harassment of monk seals	Any	Both	400	3	Incidental harassment during any research and enhancement activity	Hawaiian Archipelago; Johnston Atoll	Total incidental harassment over all activities.
17. Accidental Mortality (Research)	Any	Both	2	1	During any research activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period are authorized not to exceed 2 deaths in any one year.
17. Accidental Mortality (Enhancement)	Weaner	Both	2	1	During any enhancement activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period are authorized not to exceed 2 deaths in any one year.
	Juvenile	Both	4	1	During any enhancement activity	Hawaiian Archipelago;	Eight accidental mortalities over a five-year period are

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
						Johnston Atoll	authorized not to exceed 4 deaths in any one year.
	Adult	Male	2	1	During any enhancement activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period are authorized not to exceed 2 deaths in any one year.

Appendix I: Table Specifying the Activities Proposed under Alternative 4 – Enhanced Implementation.

Table 1. Proposed annual takes of Hawaiian monk seals. Locations: Hawaiian Archipelago=Main Hawaiian Islands (MHI) and adjacent islets, Northwestern Hawaiian Islands (NWHI), and Johnston Atoll. MHI=Hawaii, Maui, Molokai, Kahoolawe, Lanai, Oahu, Kauai, and Niihau. Also all smaller islands and offshore islets, including, but not limited to, Kaula Rock, Lehua, Molokini, etc. NWHI=Nihoa Island (Is.), Necker Is., French Frigate Shoals, Laysan Is., Lisianski Is., Pearl and Hermes Reef, Midway Atoll, Kure Atoll, Gardner Pinnacles. Activities would occur under Permit No. 10137 through June 2014, and the same activities are proposed to be permitted beyond 2014.

Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
1. Monitoring	Any	Both	250	5	Disturbance from visual observation and photo-identification during ground monitoring and aerial and vessel surveys and video camera or remote aerial survey	MHI	Annually at any time of year.
			100	3		Nihoa Is.	
			75	3		Necker Is.	
			250	5		French Frigate Shoals	

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
			10	1	vehicle	Gardner Pinnacles	
			400	5		Laysan Is.	
			275	5		Lisianski Is.	
			400	5		Pearl and Hermes Reef	
			150	5		Midway Atoll	
			200	5		Kure Atoll	
			5	1		Johnston Atoll	
2a. Tagging	Any except nursing pups, lactating or obviously pregnant females.	Both	60	3	Restraint, tagging (flipper and PIT), collect flipper plugs, morphometrics (length and girth)	MHI	Annually at any time of year (predominantly during summer field camps). All of the animals may also be taken by Tasks 1 and 3. Weaned pups in the MHI may also have ultrasound performed concurrent with
			25	3		Nihoa Is.	
			15	3		Necker Is.	
			100	3		French Frigate Shoals	
			75	3		Laysan Is.	

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
							flipper tagging
			70	3		Lisianski Is.	At French Frigate Shoals, 35 weaned pups of either sex may have a sonic tag deployed on a third flipper tag (annually over three years).
			70	3		Pearl and Hermes Reef	
			50	3		Midway Atoll	
			50	3		Kure Atoll	
			5	3		Johnston Atoll	
2b. Retagging	Any except nursing pups, lactating or obviously pregnant females.	Both	100	1	Restraint, retagging (flipper), flipper plugs, morphometrics	Hawaiian Archipelago	Annually at any time of year. Seals may have been taken by disturbance (Task 1) and may have been tagged in previous years.
3. Marking	Any	Both	150	2	Temporary bleach marking	MHI	Annually at any time of year. All of the animals may also be taken by disturbance (Task 1) and tagging (Task 2).
			60	2		Nihoa Is.	
			30	2		Necker Is.	
			250	2		French Frigate Shoals	

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
			250	2		Laysan Is.	
			250	2		Lisianski Is.	
			250	2		Pearl and Hermes Reef	
			100	2		Midway Atoll	
			150	2		Kure Atoll	
			5	1		Johnston Atoll	
4. Health Screening and Foraging Studies	Any healthy seal excluding lactating females with pups and nursing pups	Both	100	2	Restraint, sedation, tagging, blood sampling, swabs, blubber biopsy, weight, morphometrics, ultrasound, instrumentation	Hawaiian Archipelago and Johnston Atoll	Annually any time of year. Sixty (60) healthy seals may be instrumented. Recaptures for instrument removal and sampling. All animals may have been taken by Tasks 1-3.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
	Any unhealthy seal excluding lactating females with pups and nursing pups	Both	30	2	Restraint, sedation, tagging, blood sampling, swabs, blubber biopsy, morphometrics, ultrasound, treatment (lance abscesses, administer long-acting antibiotic), humane euthanasia or incidental mortality of 10 moribund animals	Hawaiian Archipelago and Johnston Atoll	Annually at any time of year. Includes humane euthanasia of up to 10 moribund or severely injured seals at discretion of veterinarian authorized over a five-year period. All animals may have been taken by Tasks 1-3.
5. Intestinal Parasite Treatment (Deworming)	Pups \geq 120 days post-weaning and juveniles up to age 3	Both	300	8	Restraint, weight, morphometrics, fecal collection (voided feces or fecal sample collected via fecal loop or digital extraction), deworming treatment, ultrasound; post-treatment monitoring at regular intervals (visual assessments and recapture for weight, morphometrics, and fecal sampling)	Hawaiian Archipelago and Johnston Atoll	Annually, year-round. Treatments may be combined with other activities requiring restraint and sedation

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
6. Translocation	Nursing pup	Both	20	6	Capture, restraint, and relocation by hand to natural mother or prospective foster mother	Hawaiian Archipelago, Johnston Atoll	Establishing/re-establishing maternal association. Annually at any time of year but predominantly during summer field camps. Most takes will occur in the NWHI (intra-island/atoll).
	Weaned Pup	Both	60	3	Capture, restraint, sampling, and relocation from high risk areas via boat, ship, vehicle, or aircraft	Hawaiian Archipelago, Johnston Atoll	Risk alleviation. Annually at any time of year. Translocations within or between any subpopulations in the species range allowed.
	Weaned Pup	Both	20	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocation from areas of low survival via boat, ship, vehicle, or aircraft	Hawaiian Archipelago, Johnston Atoll	Enhance survival: 1 st stage of two-stage translocation. Annually at any time of year. Mostly females, but males when warranted. Translocations within or between any subpopulations in the

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
							species range allowed. Details to be determined through application of decision framework.
	Juvenile and Sub-adult	Both	30	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocation via boat, ship, vehicle, or air craft	Hawaiian Archipelago, Johnston Atoll	Enhance survival: 2 nd stage of two-stage translocation. Annually at any time of year. Mostly females, but males when warranted. Translocations within or between any subpopulations in the species range allowed. Details to be determined through application of decision framework. Surviving juveniles which had been translocated as weaned pups returned to their natal or other suitable site (may include seals from 1 st stage of translocation that remained at recipient site more than 3 yr and need to be returned).

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
	Juvenile	Both	6	3	Capture, restraint, sedation, sampling, instrumentation, temporary holding, translocate between subpopulations	Hawaiian Archipelago, Johnston Atoll	Research to determine survival of translocated juveniles to inform two-stage translocation enhancement. Annually at any time of year. Translocations within or between any subpopulations in the species range allowed.
7. Adult Male Removal	Adult	Male	20	2	Capture, restraint, sedation, sampling, instrumentation/translocation, permanent captivity, or euthanasia	Hawaiian Archipelago; Johnston Atoll	Up to 20 males may be removed annually, but only 10 lethal removals over a five year period.
8. Disentangle	Any	Both	As warranted (likely not to exceed 25/year)	>1	Disentanglement and dehooking (with or without capture, sedation, and release)	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year. All animals may have been taken by Tasks 1-3.
9. Conduct Necropsies	Any	Both	As warranted	1	Necropsy any seal found dead, that died during restraint, or that was euthanized.	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
10. Opportunistic Retrieval of samples	Any	Both	Unlimited samples	Unlimited samples	Collect parts (placentae, scats, spews, and molted fur/skin) from haul out areas	Hawaiian Archipelago; Johnston Atoll	Annually at any time of year but predominantly during summer field camps.
11. Import and Export Parts	Any	Both	Unlimited import/export	Unlimited samples	Export (and re-import) Hawaiian monk seal samples collected under the authority of this permit. Import (and re-export) Mediterranean monk seal specimens for research related to monk seal conservation	World-wide (including but not limited to Canada, the Netherlands, Scotland, Greece, Australia)	Annually at any time of year.
12. Supplemental Feeding	Pup or Juvenile	Both	12	Unlimited	Supplemental feeding of post-rehabilitated seals	NWHI	Annually at any time of year seals may be fed at daily or longer intervals for up to one year.
13. Behavioral modification	Any	Both	10	20	Intentional harassment for behavior modification. Aversive conditioning and other methods. Capture restraint, sedation, biomedical sampling, instrumentation, translocation, temporary holding. Hazing using visual, audible and tactile means. Impeding	MHI	Annually at any time of year. Alter behavior of seals socialized to humans or behaving in a manner dangerous to the seal or public safety. Experimental protocols to determine optimal methods.

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
					movement with barriers.		
14. Chemical Behavioral Modification of Adult Males	Adult	Male	20	3	Capture, restraint, sedation, biomedical sampling, instrumentation, and administration of testosterone reduction agent	Hawaiian Archipelago	Annual
15. Vaccinations	Any	Both	1100	4	Capture, restraint, sedation, biomedical sampling and administration of vaccine.	Hawaiian Archipelago	
16. Incidental harassment of monk seals	Any	Both	400	3	Incidental harassment during any research and enhancement activity	Hawaiian Archipelago; Johnston Atoll	Total incidental harassment over all activities.
17. Accidental Mortality (Research)	Any	Both	2	1	During any research activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period are authorized not to exceed 2 deaths in any one year.
17. Accidental Mortality (Enhancement)	Weaner	Both	2	1	During any enhancement activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period are authorized not to exceed 2 deaths in any one year.
	Juvenile	Both	4	1	During any enhancement	Hawaiian	Eight accidental mortalities

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Task	Size (Age)	Sex	No. Seals Taken/Year	No. Takes/Seal/Year	Type of Takes	Locations	Dates/Time Period And Details
					activity	Archipelago; Johnston Atoll	over a five-year period are authorized not to exceed 4 deaths in any one year.
	Adult	Male	2	1	During any enhancement activity	Hawaiian Archipelago; Johnston Atoll	Four accidental mortalities over a five-year period are authorized not to exceed 2 deaths in any one year.

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