



## ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

# MINIMUM REQUIREMENTS DECISION GUIDE

## WORKSHEETS

*“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”*

– the Wilderness Act, 1964

Project Title: **Farallon NWR Gull Hazing Trial**

Step 1: Determine if any administrative action is necessary.

**Description:** Describe the situation that may prompt action.

The U.S. Fish and Wildlife Service (Service), in collaboration with its partners Island Conservation and PRBO Conservation Science, plans to conduct a gull hazing trial on the South Farallon Islands between November 27 and December 18, 2012. The main goal of these trials is to evaluate the efficacy of various techniques of hazing roosting gulls from the islands while minimizing disturbance to hauled out marine mammals. Information will be used for planning of a proposed invasive house mouse eradication project that will benefit native species. Certain potential mouse eradication techniques that would utilize rodenticides pose a risk to gulls. Successful gull hazing would dramatically reduce this risk. Hazing techniques may include, but are not limited to, lasers, spotlights, pyrotechnics, effigies, aircraft, dogs, and humans. Helicopters may be used to safely deliver gear and personnel to remote and rugged portions of the wilderness area, including West End Island (Maintop Island). This project will not occur in or impact the remaining wilderness area in the North and Middle Farallon islands. This MRDG only addresses the gull hazing trials; a separate decision guide will be developed for the house mouse eradication project.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages by answering Yes or No, and providing an explanation.

### A. Options Outside of Wilderness

Is action necessary within wilderness?

Yes: ☒ No: ☐

Explain: **To be completely successful, gulls need to be hazed from all areas of the South Farallon Islands, including both wilderness (West End and offshore rocks) and non-wilderness (Southeast Farallon Island) areas.**

### B. Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows or requires consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes: ☐ No: ☒

Explain:

### C. Requirements of Other Legislation

Is action necessary to meet the requirements of other laws? Cite law and section.

Yes: ☐ No: ☒

Explain:

### D. Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes: ☒ No: ☐

Explain: **The established purposes of the Farallon NWR set forth by *Executive Order 1043* is “as a preserve and breeding ground for native birds.”**

**The Service’s *Farallon National Wildlife Refuge Comprehensive Conservation Plan (2009)* identified eradication of invasive house mice from the Farallon Islands as a management priority to restore native species populations on the islands.**

***Fish and Wildlife Service Policy Part 601 FW 3* defines guidance for biological integrity, diversity, and environmental health for refuge management. Specifically for non-native species, prevention, and control of invasive species and restoration of native species and habitat conditions will be conducted through mechanical, chemical, biological, and cultural controls.**

***Fish and Wildlife Service Policy Part 610 FW 2.8* prohibits landing or flying over wilderness areas unless it is determined that such uses are the minimum requirement for administering the area as wilderness, and the use is necessary to accomplish the purposes of the refuge, including Wilderness Act purposes; they are required to respond to an emergency involving the health and safety of a person or people, damage to property, or violations of civil and criminal law; or the uses are authorized in the enabling legislation.**

***Fish and Wildlife Service Policy Part 610 FW 2.19* directs the Service to control invasive species, pests, and diseases in wilderness when it is demonstrated that they have degraded or there is a high probability they will degrade the biological integrity, diversity, environmental health, or wilderness character of a wilderness area; they pose a significant threat to the health of humans, and the U.S. Public Health Service (which includes the Centers for Disease Control) has advised us to control them; or it is demonstrated that they pose a significant threat to the health of fish, wildlife, plants, or their habitats. Control will be directed by an integrated pest management (IPM) approach to prevent, control, or eradicate invasive species, pests, and diseases subject to the criteria in 610 FW 2.16 and 601 FW 3.16.**

**Fish and Wildlife Service Policy Part 610 FW 2.20** directs the Service to control predation when compelling evidence exists that the proposed action will correct or alleviate identified impacts on native fish, wildlife, plants, or their habitats and would be in compliance with 610 FW 2.16. We would direct control at the individual animal(s) causing the problem using the methods to minimize impact non-target species. Predation will not be managed to solely to protect livestock, wilderness visitors, or other users.

### E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: Untrammeled, Undeveloped, Natural, Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation, or Unique Attributes or Other Features that reflect the character of this wilderness area?

Untrammeled: Yes: ☐ No: ☒

Explain:

Undeveloped: Yes: ☐ No: ☒

Explain:

Natural: Yes: ☒ No: ☐

Explain:

**These gull hazing trials will help minimize non-target risk of the use of rodenticide to eradicate invasive house mice in the wilderness area. The success of these hazing trials will contribute to the overall success of the house mouse eradication program, which subsequently will increase the natural character of the wilderness area by restoring it to pre-anthropogenic conditions.**

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

Yes: ☐ No: ☒

Explain:

**Public access to the wilderness is prohibited. The project will not change this restriction.**

Unique Attributes or Other Features that reflect the character of this wilderness:

Yes: ☒ No: ☐

Explain:

**The South Farallon Islands host the world's largest colony of Ashy Storm-Petrels (*Oceanodroma homochroa*). Eradication of invasive house mice will lead to increased population sizes of this species. These gull hazing trials will ensure that non-target risks are minimized to the greatest extent possible.**

### F. Public Purposes

Is action necessary to protect one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreational, scenic, scientific, educational, conservation, and historical use?

Recreational: Yes: ☐ No: ☒

Explain:

Scenic: Yes: ☐ No: ☒

Explain:

Scientific: Yes: ☐ No: ☒

Explain:

Educational: Yes: ☐ No: ☒

Explain:

Conservation: Yes: ☒ No: ☐

Explain:

**Eradication of invasive house mice will help restore populations of native species and ecosystem function of the Farallon National Wildlife refuge and Wilderness Area.**

Historical: Yes: ☐ No: ☒

Explain:

**Step 1 Decision:** Is any administrative action necessary in wilderness?

Yes: ☒ No: ☐

Explain:

**Yes, the action is necessary in the wilderness because it will improve the wilderness character of the site. The presence of invasive house mice has altered the natural ecological processes of the area. The permanent eradication of mice would result in a return to the natural ecosystem of the wilderness area, outweighing temporary disturbance and trammeling from mouse eradication activities. Gulls in the wilderness areas will need to be protected from harm during mouse eradication implementation. Trials will examine efficacy of certain protection measures to minimize non-target risk of rodenticides on Western gulls.**

If action is necessary, proceed to Step 2 to determine the minimum activity.

**Step 2: Determine the minimum activity.**

### **Description of Alternatives**

**For each alternative**, describe what the action is, when the activity will take place, where the activity will take place, and what methods and techniques will be used. Detail the impacts to the qualities of wilderness character and other comparison criteria, including safety. Where mitigation is possible, include mitigation measures. In addition to describing the effects of the alternative, it may be useful to break down each alternative into its component parts and list in tabular form the impacts to each comparison criterion.

**Alternative # A - Gull hazing trials using aircraft for equipment transport, gull monitoring, and gull hazing**

**Description: Gull hazing trials will be conducted using a variety of techniques including lasers, spotlights, air cannons, pyrotechnics, biosonics, gull effigies, and helicopters. The goal will be to flush any gulls present and keep gulls from landing on the islands. Helicopters will be used to: 1) circle wilderness areas to search for roosting gulls in remote areas that are not otherwise visible from ground observers; 2) transport supplies and equipment to West End**

Island; and 3) haze gulls from areas that cannot be accessed safely by other means. Project staff will access West End Island by use of a zip line that crosses the narrow Jordan Channel and will be dropped off at other wilderness areas by small inflatable boat. Small groups of people will camp in a primitive camp on West End Island. Hazing will be conducted primarily using ground-based and air-based techniques; boat-based hazing may be used on a limited basis and only in calm sea conditions. Hazing trials will be conducted when impacts to wildlife are anticipated to be near minimum because no seabirds or marine mammals will be breeding and most species present during this timeframe (Nov 27-Dec 18) are near annual low population sizes. For delivery of equipment, the helicopter will follow a specific flight plan to minimize overflying of the wilderness area and disturbance to marine mammals. Helicopter use for monitoring will mainly be conducted from offshore of the wilderness area so as to limit direct flights over the wilderness area.

#### Impacts to Wilderness Character:

##### Untrammelled:

- This action will cause a short-term increase in human access and activity to designated wilderness in the South Farallon Islands. Personnel and contractors will access West End Island daily for a period of about 14-17 days. Camping is not a typical activity in the Farallon wilderness. To reduce the negative impact, camping will be limited to three personnel and equipment will be limited to necessities. The use of biosonics, pyrotechnics, and air cannons will produce loud noises. To reduce the potential longer-term impacts of pyrotechnics spent shell casings will be collected and removed.
- The methods associated with this alternative will cause substantially less negative impact than certain other potential methods of mouse eradication. For example, the use of bait stations which may minimize risk to non-targets (as opposed to broadcasting rodenticide pellets) would require almost daily access to West End for months or years.

##### Undeveloped:

- The use of helicopters in the wilderness area is a 4(c) prohibition that degrades the undeveloped nature of the wilderness area.

##### Natural

- House mice are an invasive species and impact the natural ecosystem of the islands. Eradicating house mice will help restore the native ecosystem. Protecting certain resources, including gulls, will be necessary to minimize non-target impacts from mouse eradication implementation. Resting marine mammals will be incidentally disturbed by low flying aircraft, personnel walking to and across West End Island, and from hazing activities. Gulls and other species of birds will be kept from roosting or feeding in the wilderness areas.

##### Solitude or Primitive and Unconfined Recreation

- Because the Farallon Wilderness Area is closed to the public, no negative impact is expected.

##### Unique Attributes or Other Features

- There are no unique attributes or other features affected by this alternative.

#### Impacts to other criteria:

##### Maintaining Traditional Skills

- None

## Special Provisions

- **No special provisions apply to this alternative.**

## Economics and Timing Constraints

- **Economics** – The cost of this project is about \$80,000, including preparation, equipment and supplies, transportation, and operations.
- **Duration** – Work in the wilderness areas will be conducted over a 14-17 period between November 27 and December 17, 2012.
- **Timing** – Timing is designed to coincide with proposed timing of an actual mouse eradication project, which likely would be implemented during the November to December period when mouse abundance begins to decline but when impacts to non-target wildlife are near minimum because most populations are at annual lows and it outside the sensitive breeding season. Early December is best for trials because this is the period when Western Gull numbers begin to increase and thus hazing will be more necessary. Timing of the trials is critical to coincide with this period. Timing during the trials is also critical to respond to arriving gulls quickly so they can be kept from landing on the islands.

## Impacts to safety of visitors and workers

- **Hazing activities may impact the safety of project staff.** The use of a helicopter does pose certain risks, especially because marine weather conditions can deteriorate quickly and landing areas are limited on the mostly rocky and uneven surface. However, helicopter use is considered to be safer than other alternatives for delivering equipment and for monitoring and hazing gulls in remote wilderness areas. The only other means to deliver equipment to West End Island is via a zip line across the narrow Jordan Channel, which is not set up for transporting heavy and bulky equipment items. Currently, the zip line is awaiting replacement and is not serviceable. It might or might not be operational at the time of implementation.

## Impacts Comparison Tables

### Wilderness Character

#### Untrammelled

	positive impacts	negative impacts	Untrammelled Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Increased foot traffic; camping normally not permitted.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		-	-

#### Undeveloped

	positive impacts	negative impacts	Undeveloped Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped.	

transport to site			
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		--	--

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	Marine mammals will be disturbed.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact.	Marine mammals will be disturbed	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Non-target risk to gulls will be reduced in proposed future project..	Birds and marine mammals will be disturbed.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	+	---	Natural Grand Total + / ---

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			S or P&UR Grand Total NI

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			UA or OF Grand Total NI

## Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	Traditional Skills Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Special Provisions

	positive impacts	negative impacts	Special Provisions Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Economics and Timing Constraints

	positive impacts	negative impacts	Economics & Timing Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Will increase time to access site.	
2 <sup>nd</sup> component: Method of equipment transport to site	This will save about one day of time.	Helicopter expensive for this phase (~\$2000)	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Use of helicopter will be much quicker at locating and hazing gulls in remote areas.	Helicopter expensive for this phase (~\$10,000)	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	++	---	++ / ---

### Safety of Visitors and Workers

	positive impacts	negative impacts	Safety Grand Total
1 <sup>st</sup> component: Method of staff access to site	Foot access and zip line West End is safer than helicopter.	Minor risk to staff of injury from hiking over steep, rocky terrain and use of zip line. Can be mitigated by proper training and equipment using zip line.	
2 <sup>nd</sup> component: Method of equipment access to site	Alleviates risk of injury from transporting heavy, bulky supplies and equipment over rough terrain	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Alleviates risk of serious injury using boats in hazardous seas or traversing rough terrain	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident	



4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	+++	---	+++ / ---

### Alternative # B - Gull hazing trials using aircraft for equipment transport, staff transport, gull monitoring, and gull hazing

**Description:** Gull hazing trials will be conducted using a variety of techniques including lasers, spotlights, air cannons, pyrotechnics, biosonics, gull effigies, and helicopters. The goal will be to flush any gulls present and keep gulls from landing on the islands. Helicopters will be used to: 1) circle wilderness areas to search for roosting gulls in remote areas; 2) transport supplies and equipment to West End Island; 3) transport staff to West End Island; and 4) to haze gulls from areas that cannot be accessed safely by other means. Project staff will be dropped off at other wilderness areas by small inflatable boat. Small groups of people will camp in a primitive camp on West End Island. Hazing will be conducted primarily using ground-based and air-based techniques; boat-based hazing may be used on a limited basis and only in calm sea conditions. Hazing trials will be conducted when impacts to wildlife are anticipated to be near minimum because no seabirds or marine mammals will be breeding and most species present during this timeframe (Nov 27-Dec 18) are near annual low population sizes. For delivery of staff and equipment, the helicopter will follow a specific flight plan to minimize overflying of the wilderness area and disturbance to marine mammals. Helicopter use for monitoring will mainly be conducted from offshore of the wilderness area so as to limit direct flights over the wilderness area.

#### Impacts to Wilderness Character:

##### Untrammelled

- This action will cause a short-term increase in human access and activity to the wilderness areas in the South Farallon Islands. Personnel and contractors will access West End Island daily for a period of about 14-17 days. Camping is not a typical activity in the Farallon wilderness. To reduce the negative impact, camping will be limited to three personnel and equipment will be limited to necessities. The use of biosonics, pyrotechnics, and air cannons will produce loud noises. To reduce the potential longer-term impacts of pyrotechnics spent shell casings will be collected and removed.
- The methods associated with this alternative will cause substantially less negative impact than certain other potential methods of mouse eradication. For example, the use of bait stations which may minimize risk to non-targets (as opposed to broadcasting rodenticide pellets) would require almost daily access to West End for months or years.

##### Undeveloped

- The use of helicopters in the wilderness area is a 4(c) prohibition that degrades the undeveloped nature of the wilderness area.

##### Natural

- House mice are an invasive species and impact the natural ecosystem of the islands. Eradicating house mice will help restore the native ecosystem. Protecting certain resources, including gulls, will be necessary to minimize non-target impacts from mouse eradication implementation. Resting marine mammals will be incidentally disturbed by low flying aircraft, personnel walking to and across West End Island, and from hazing activities. Gulls and other species of birds will be kept from roosting or feeding in the wilderness areas.

#### Solitude or Primitive and Unconfined Recreation

- **Because the Farallon wilderness is closed to the public, no negative impact is expected.**

#### Unique Attributes or Other Features

- **There are no unique attributes or other features affected by this alternative.**

#### Impacts to other criteria:

#### Maintaining Traditional Skills

- **None**

#### Special Provisions

- **No special provisions apply to this alternative.**

#### Economics and Timing Constraints

- ***Economics* – The cost of this project is about \$85,000, including preparation, equipment and supplies, transportation, and operations.**
- ***Duration* – Work in the wilderness areas will be conducted over a 14-17 day period between about November 27 and December 17, 2012.**
- ***Timing* – Timing is designed to coincide with proposed timing of an actual mouse eradication project, which likely would be implemented during the November to December period when mouse abundance begins to decline but when impacts to non-target wildlife are near minimum because most populations are at annual lows and it is outside the sensitive breeding season. Early December is best for trials because this is the period when Western Gull numbers begin to increase and thus hazing will be more necessary. Timing of the trials is critical to coincide with this period. Timing during the trials is also critical to respond to arriving gulls quickly so they can be kept from landing on the islands.**

#### Impacts to safety of visitors and workers

**Hazing activities may impact the safety of project staff. The use of a helicopter does pose certain risks, especially because marine weather conditions can deteriorate quickly and landing areas are limited on the mostly rocky and uneven surface. However, helicopter use is considered to be safer than other alternatives for delivering equipment and for monitoring and hazing gulls in remote wilderness areas. The only other means to deliver equipment and staff to West End Island is via a zip line across the narrow Jordan Channel, which is not set up for transporting heavy and bulky equipment items. Currently, the zip line is awaiting replacement and is not serviceable. It might or might not be operational at the time of implementation.**

### Impacts Comparison Tables

#### Wilderness Character

Untrammeled			
	positive impacts	negative impacts	Untrammeled Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Increased foot traffic; camping normally not permitted.	

2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
<b>TOTAL</b>		-	-

### Undeveloped

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
<b>TOTAL</b>		- - -	<b>Undeveloped Grand Total</b> - - -

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	Area of disturbance to marine mammals mayl be reduced.	Marine mammals will be disturbed.	
2 <sup>nd</sup> component: Method of equipment transport to site	Area of disturbance to marine mammals may be reduced.	Marine mammals will be disturbed	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Non-target risk to gulls will be reduced in proposed future project.	Birds and marine mammals will be disturbed.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
<b>TOTAL</b>	+ + +	- - -	<b>Natural Grand Total</b> + + + / - - -

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
<b>TOTAL</b>			<b>S or P&amp;UR Grand Total</b> NI

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
<b>TOTAL</b>			<b>UA or OF Grand Total</b>

3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			

## Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	Traditional Skills Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Special Provisions

	positive impacts	negative impacts	Special Provisions Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Economics and Timing Constraints

	positive impacts	negative impacts	Economics & Timing Grand Total
1 <sup>st</sup> component: Method of staff access to site	Will decrease time to access site.	Helicopter expensive for this phase (~\$5000)	
2 <sup>nd</sup> component: Method of equipment transport to site	This will save about one day of time.	Helicopter expensive for this phase (~\$2000)	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Use of helicopter will be much quicker at locating and hazing gulls in remote areas.	Helicopter expensive for this phase (~\$10,000)	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	++	---	++ / ---

### Safety of Visitors and Workers

	positive impacts	negative impacts	Safety Grand Total
1 <sup>st</sup> component: Method of staff access to site	Concern that zip line may not be serviceable. Will be only safe method if zip line is not replaced prior to trial.	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident.	
2 <sup>nd</sup> component: Method of equipment access to site	Alleviates risk of injury from transporting heavy, bulky supplies and equipment over rough terrain	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Alleviates risk of serious injury using boats in hazardous seas or traversing rough terrain	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident.	

4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	+++	---	+++ / ---

### Alternative # C - Gull hazing trials using aircraft for equipment transport and staff transport

**Description:** Gull hazing trials will be conducted using a variety of techniques including lasers, spotlights, air cannons, pyrotechnics, biosonics, gull effigies, and helicopters. The goal will be to flush any gulls present and keep gulls from landing on the islands. Helicopters will be used to: 1) transport supplies and equipment to West End Island; and 2) transport staff to West End Island. Small groups of people will camp in a primitive camp on West End Island. Hazing will be conducted from both ground-based and boat-based locations. Hazing trials will be conducted when impacts to wildlife are near minimum because no seabirds or marine mammals will be breeding and most species are near annual low population sizes. For delivery of staff and equipment, the helicopter will follow a specific flight plan to minimize overflying of the wilderness area and disturbance to marine mammals.

Impacts to Wilderness Character:

Untrammeled

- This action will cause a short-term increase in human access and activity to the wilderness portion of the South Farallon Islands. Personnel and contractors will access West End Island daily for a period of about 14-17 days. Camping is not a typical activity in the Farallon wilderness. To reduce the negative impact, camping will be limited to three personnel and equipment will be limited to necessities. The use of biosonics, pyrotechnics, and air cannons will produce loud noises. To reduce the potential longer-term impacts of pyrotechnics spent shell casings will be collected and removed.
- The methods associated with this alternative will cause substantially less negative impact than certain other potential methods of mouse eradication. For example, the use of bait stations which may minimize risk to non-targets (as opposed to broadcasting rodenticide pellets) would require almost daily access to West End for months or years.

Undeveloped

- The use of helicopters in the wilderness area is a 4(c) prohibition that degrades the undeveloped nature of the wilderness area.

Natural

- House mice are an invasive species and impact the natural ecosystem of the islands. Eradicating house mice will help restore the native ecosystem. Protecting certain resources, including gulls, will be necessary to minimize non-target impacts from mouse eradication implementation. Resting marine mammals will be incidentally disturbed by landing aircraft, personnel walking across West End Island, and from hazing activities. Gulls and other species of birds will be kept from roosting or feeding in the wilderness areas.

Solitude or Primitive and Unconfined Recreation

- Because the Farallon wilderness is closed to the public, no negative impact is expected.

#### Unique Attributes or Other Features

- **There are no unique attributes or other features affected by this alternative.**

#### Impacts to other criteria:

#### Maintaining Traditional Skills

- **None**

#### Special Provisions

- **No special provisions apply to this alternative.**

#### Economics and Timing Constraints

- ***Economics*** – The cost of this project is about \$70,000, including preparation, equipment and supplies, transportation, and operations.
- ***Duration*** – Work in the wilderness areas will be conducted over a 14-17 period between November 27 and December 17, 2012.
- ***Timing*** – Timing is designed to coincide with proposed timing of an actual mouse eradication project, which likely would be implemented during the November to December period when mouse abundance begins to decline but when impacts to non-target wildlife are near minimum because most populations are at annual lows and it outside the sensitive breeding season. Early December is best for trials because this is the period when Western Gull numbers begin to increase and thus hazing will be more necessary. Timing of the trials is critical to coincide with this period. Timing during the trials is also critical to respond to arriving gulls quickly so they can be kept from landing on the islands.

#### Impacts to safety of visitors and workers

- **Hazing activities may impact the safety of personnel and contractors. The use of a helicopter does pose certain risks, especially because marine weather conditions can deteriorate quickly and landing areas are limited on the mostly rocky and uneven surface. By not using a helicopter, gulls in remote areas will need to be located by other means, including boats. Since several areas around the island often host treacherous seas, this will pose a significant hazard to staff if sea conditions become rough.**

### Impacts Comparison Tables

#### Wilderness Character

##### Untrammeled

	positive impacts	negative impacts	Untrammeled Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Increased foot traffic; camping normally not permitted.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		-	-

### Undeveloped

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	Use of helicopter is a 4(c) prohibition that degrades Undeveloped.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		--	Undeveloped Grand Total --

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	Marine mammals will be disturbed.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact.	Marine mammals will be disturbed	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Non-target risk to gulls is reduced.	Birds and marine mammals will be disturbed.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	+	---	Natural Grand Total + / ---

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			S or P&UR Grand Total NI

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			UA or OF Grand Total NI

### Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	Traditional Skills Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Special Provisions

	positive impacts	negative impacts	Special Provisions Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Economics and Timing Constraints

	positive impacts	negative impacts	Economics & Timing Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Helicopter expensive for this phase (~\$5000)	
2 <sup>nd</sup> component: Method of equipment transport to site	This will save about one day of time.	Helicopter expensive for this phase (~\$2000)	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Use of helicopter will be much quicker at locating and hazing gulls in remote areas.	Will need more time and increased effort on the ground and in boats to locate gulls in remote areas.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	++	---	++ / ---

### Safety of Visitors and Workers

	positive impacts	negative impacts	Safety Grand Total
1 <sup>st</sup> component: Method of staff access to site	Concern that zip line may not be serviceable. Will be only safe method if zip line is not replaced prior to trial.	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident.	
2 <sup>nd</sup> component: Method of equipment access to site	Alleviates risk of injury from transporting heavy, bulky supplies and equipment over rough terrain	Danger from helicopter use can only be partially mitigated because of the severity of consequences if there is an accident.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Risk to staff of injury or drowning if boat capsizes. Risk to staff of injury from hiking over steep, rocky terrain in remote areas.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	++	--	++ / --



## Alternative # D - Gull hazing trials not using aircraft for equipment transport, staff transport, gull monitoring, or gull hazing

**Description:** Gull hazing trials will be conducted using a variety of techniques including lasers, spotlights, air cannons, pyrotechnics, biosonics, and gull effigies. The goal will be to flush any gulls present and keep gulls from landing on the islands. Project staff will access West End Island by use of a zip line that crosses the narrow Jordan Channel and will be dropped off at other wilderness areas by small inflatable boat. Small groups of people will camp in a primitive camp on West End Island. Hazing will be conducted from both ground-based and boat-based locations. Hazing trials will be conducted when impacts to wildlife are near minimum because no seabirds or marine mammals will be breeding and most species are near annual low population sizes.

Impacts to Wilderness Character:

Untrammelled

- This action will cause a short-term increase in human access and activity to the wilderness portion of the South Farallon Islands. Personnel and contractors will access West End Island daily for a period of about 14-17 days. Camping is not a typical activity in the Farallon wilderness. To reduce the negative impact, camping will be limited to three personnel and equipment will be limited to necessities. The use of biosonics, pyrotechnics, and air cannons will produce loud noises. To reduce the potential longer-term impacts of pyrotechnics spent shell casings will be collected and removed.
- The methods associated with this alternative will cause substantially less negative impact than certain other potential methods of mouse eradication. For example, the use of bait stations would require almost daily access to West End for months or years.

Undeveloped

- No impacts will occur.

Natural

- House mice are an invasive species and impact the natural ecosystem of the islands. Eradicating house mice will help restore the native ecosystem. Protecting certain resources, including gulls, will be necessary to minimize non-target impacts from mouse eradication implementation. Resting marine mammals will be incidentally disturbed by personnel walking to and across West End Island, and from hazing activities. Gulls and other species of birds will be kept from roosting or feeding in the wilderness areas.

Solitude or Primitive and Unconfined Recreation

- Because the Farallon wilderness is closed to the public, no negative impact is expected.

Unique Attributes or Other Features

- There are no unique attributes or other features affected by this alternative.

Impacts to other criteria:

Maintaining Traditional Skills

- **None**

#### Special Provisions

- **No special provisions apply to this alternative.**

#### Economics and Timing Constraints

- **Economics** – The cost of this project is about \$63,000, including preparation, equipment and supplies, transportation, and operations.
- **Duration** – Work in the wilderness areas will be conducted over a 14-17 period between November 27 and December 17, 2012.
- **Timing** – Timing is designed to coincide with proposed timing of an actual mouse eradication project, which likely would be implemented during the November to December period when mouse abundance begins to decline but when impacts to non-target wildlife are near minimum because most populations are at annual lows and it is outside the sensitive breeding season. Early December is best for trials because this is the period when Western Gull numbers begin to increase and thus hazing will be more necessary. Timing of the trials is critical to coincide with this period. Timing during the trials is also critical to respond to arriving gulls quickly so they can be kept from landing on the islands.

#### Impacts to safety of visitors and workers

- **Hazing activities may impact the safety of personnel and contractors. The use of boats to monitor and haze gulls in remote coastal areas may pose a significant threat because many portions of the island host treacherous conditions when seas are rough. Access other remote areas on foot poses a substantial hazard to staff because of steep cliffs, loose rocks, and uneven surfaces.**

### Impacts Comparison Tables

#### Wilderness Character

##### Untrameled

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	Increased foot traffic; camping normally not permitted.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	Increased foot traffic; camping normally not permitted.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Increased foot traffic; camping normally not permitted.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	<b>Untrameled Grand Total</b>
<b>TOTAL</b>		---	---

##### Undeveloped

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring &	No impact	No impact	<b>Undeveloped Grand Total</b>

hazing			
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			

NI

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	Marine mammals will be disturbed.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact.	Marine mammals will be disturbed	
3 <sup>rd</sup> component: Methods of monitoring & hazing	Non-target risk to gulls is reduced.	Birds and marine mammals will be disturbed.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL	+	- - -	Natural Grand Total + / - - -

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			S or P&UR Grand Total NI

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			UA or OF Grand Total NI

## Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
			Traditional Skills Grand Total

TOTAL			NI
-------	--	--	----

### Special Provisions

	positive impacts	negative impacts	Special Provisions Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Economics and Timing Constraints

	positive impacts	negative impacts	Economics & Timing Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Will increase time to access site.	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	Will add about one day of time.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Will increase time to locate and haze gulls in remote areas.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		---	---

### Safety of Visitors and Workers

	positive impacts	negative impacts	Safety Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	Minor risk to staff of injury from hiking over steep, rocky terrain and use of zip line. Can be mitigated by proper training and equipment using zip line.	
2 <sup>nd</sup> component: Method of equipment access to site	No impact	Risk to staff of injury from hiking over steep, rocky terrain hauling bulky, heavy equipment over large areas. May be infeasible.	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Risk to staff of injury or drowning if boat capsizes. Risk to staff of injury from hiking over steep, rocky terrain in remote areas.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		---	---

### Alternative # E - No action

Description: **No gull hazing trials will be conducted in the wilderness areas. Trials will be limited to non-wilderness areas. It is likely that gulls hazed from non-wilderness areas will fly to and land in wilderness areas. In an actual mouse eradication implementation, these gulls would be a non-target risk. Techniques would not be developed to respond to gulls landing in wilderness areas, risking failure to reduce non-target risk in a mouse eradication project.**

Impacts to Wilderness Character:

#### Untrammeled

- **There will be no impacts from this alternative.**

#### Undeveloped

- **There will be no impacts from this alternative.**

#### Natural

- **House mice are an invasive species and impact the natural ecosystem of the islands. Eradicating house mice will help restore the native ecosystem. Protecting certain resources, including gulls, will be necessary to minimize non-target impacts from mouse eradication implementation. Gulls and other birdlife will not be disturbed. However, if proposed mouse eradication is implemented, we will be less prepared to protect gulls from non-target risk.**

#### Solitude or Primitive and Unconfined Recreation

- **There will be no impacts from this alternative.**

#### Unique Attributes or Other Features

- **There are no unique attributes or other features affected by this alternative.**

#### Impacts to other criteria:

#### Maintaining Traditional Skills

- **None**

#### Special Provisions

- **No special provisions apply to this alternative.**

#### Economics and Timing Constraints

- ***Economics* – The cost of this project is about \$50,000, including preparation, equipment and supplies, transportation, and operations. This includes gull hazing in non-wilderness areas only.**
- ***Duration* – N/A**
- ***Timing* – N/A**

#### Impacts to safety of visitors and workers

- **None**

### Impacts Comparison Tables

#### Wilderness Character

##### Untrammeled

	positive impacts	negative impacts	Untrammeled Grand Total
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component:	No impact	No impact	

Method of equipment transport to site			
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

### Undeveloped

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			Undeveloped Grand Total NI

### Natural

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact.	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	Non-target risk to gulls will be increased.	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL		-	Natural Grand Total -

### Solitude or Primitive and Unconfined Recreation

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			S or P&UR Grand Total NI

### Unique Attributes or Other Features

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
			UA or OF Grand Total

4 <sup>th</sup> component: Condition after trials	No impact	No impact	
TOTAL			NI

## Other Criteria

### Maintaining Traditional Skills

	actions with beneficial effects	actions with adverse effects	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	Traditional Skills Grand Total
TOTAL			NI

### Special Provisions

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	Special Provisions Grand Total
TOTAL			NI

### Economics and Timing Constraints

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment transport to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact.	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	Economics & Timing Grand Total
TOTAL			NI

### Safety of Visitors and Workers

	positive impacts	negative impacts	
1 <sup>st</sup> component: Method of staff access to site	No impact	No impact	
2 <sup>nd</sup> component: Method of equipment access to site	No impact	No impact	
3 <sup>rd</sup> component: Methods of monitoring & hazing	No impact	No impact	
4 <sup>th</sup> component: Condition after trials	No impact	No impact	Safety Grand Total
TOTAL			NI





## Comparison of Alternatives

It may be useful to compare each alternative's positive and negative impacts to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character."

	Alternative A	Alternative B	Alternative C	Alternative D	No Action
Untrammelled	-	-	-	---	NI
Undeveloped	--	---	--	NI	NI
Natural	+ / ---	+++ / ---	+ / ---	+ / ---	-
Solitude or Primitive and Unconfined Recreation	NI	NI	NI	NI	NI
Unique / Other Features	NI	NI	NI	NI	NI
<b>WILDERNESS CHARACTER</b>	+ / -----	+++ / ----- --	+ / -----	+ / -----	-

	Alternative A	Alternative B	Alternative C	Alternative D	No Action
Maintaining Traditional Skills	NI	NI	NI	NI	NI
Special Provisions	NI	NI	NI	NI	NI
Economics & Timing	++ / ---	+++ / ---	++ / ---	---	---
<b>OTHER CRITERIA SUMMARY</b>	++ / ---	+++ / ---	++ / ---	---	---

	Alternative A	Alternative B	Alternative C	Alternative D	No Action
<b>SAFETY (visitors &amp; workers)</b>	+++ / ---	+++ / ---	++ / --	---	---

### Safety Criterion

Occasionally, safety concerns can legitimately dictate choosing one alternative which degrades wilderness character (or other criteria) more than an otherwise preferable alternative. In that case, describe the positive and negative impacts in terms of risks to the public and workers for each alternative here but avoid pre-selecting an alternative based on the safety criteria in this section.

**Access to the Farallon wilderness areas poses several challenges. The wilderness areas in the South Farallon Island group are on separate islands/islets than the main, non-wilderness Southeast Farallon Island. Foot access can only be gained to the largest island of the Farallon Wilderness that is located in the South Farallon Island group, West End Island: 1) at minus tides, by climbing down a steep grade, crossing the wave-washed exposed intertidal of the Jordan Channel, then climbing up a steep grade; or 2) by crossing the Jordan Channel via a "zip" line. Because of the difficulty hauling and handling heavy equipment and supplies to, the zip line has only been used to transfer people and small amounts of gear (e.g., daypacks) to West End Island. Getting items heavier than about 60 pounds to and across the Jordan Channel would be very challenging logistically and would require several days of planning and moving the items without the use of mechanized equipment. This would require repeated and prolonged access to both the wilderness area and parts of Southeast Farallon Island, causing repeated disturbances to marine mammals hauled out. Once equipment was on West End, it would need to be hauled up to ¾ mile from Jordan channel to work staging areas. Terrain is steep, rocky, and workers must often change course to avoid hauled-out marine mammals. Thus, this method is not considered safe. Another issue is that as of now (12 November 2012), the Jordan Channel zip line is not functional and is awaiting replacement. Replacement may occur by the first week of December but this is not**

likely. If the zip line is not available for use, aircraft will be the only safe means to access West End Island.

Access to remote portions of the wilderness areas for monitoring and hazing gulls also poses many hazards. Much of the terrain is steep, rocky, and unstable. Workers must also work around hundreds to thousands of hauled-out marine mammals, and to do so in some areas will not be possible safely. While some areas could be monitored or hazed from boats, sea conditions normally do not allow safe approach in many areas. Detecting and responding quickly to gulls that land in the remote areas will thus be nearly impossible without the use of aircraft.

#### **Documentation:**

To support the evaluation of alternatives, provide an analysis, reference, or documentation and avoid assumptions about risks and the potential for accidents. This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.

**Attachments: 1) Draft Gull hazing Trial P and 2) Draft Safety Plan.**

### **Step 2 Decision: What is the Minimum Activity?**

Selected alternative: **Alternative # B - Gull hazing trials using aircraft for equipment transport, staff transport, gull monitoring, and gull hazing**

Rationale for selecting this alternative (including safety criterion, if appropriate): **Without the use of the Jordan Channel zip line, the landing of a helicopter provides the only safe method to deliver personnel to West End Island. Even with the use of the zip line, helicopter delivery provides the only safe method to deliver heavy equipment and supplies to outposts on West End Island. While motorboats may be used on a limited basis to monitor and haze in certain areas not safely accessible by land, typically hazardous sea conditions will eliminate this possibility except on the best of weather days. Helicopter use will also reduce trammeling in the wilderness, which in turn will reduce habitat disturbance. Incidental harassment to marine mammals, which are protected under the Marine Mammal Protection Act, will likely be similar between foot access and aircraft access to the wilderness areas. Aircraft will land using a specific approach designed to minimize over flight of the wilderness areas and marine mammal haul-outs, and thus can avoid overflying certain areas. Using foot access to West End Island, areas with hauled-out marine mammals in both wilderness and non-wilderness areas will need to be traversed; thus, incidental harassment of marine mammals will likely be more widespread with foot access. While an Incidental Harassment Authorization from NMFS has been issued, the amount of harassment permitted is limited. It is also in the Refuge's management guidelines to minimize harassment of marine mammals and other wildlife. Helicopter use for monitoring will mainly be conducted from offshore of the wilderness area so as to limit direct flights over the wilderness area.**

Monitoring and reporting requirements: **Hazing trials will be closely monitored for efficacy, safety and incidental harassment to marine mammals. A report on the results of the hazing trial will be written as well as a report to NMFS summarizing marine mammal incidental harassment.**

**Check any Wilderness Act Section 4(c) uses approved in this alternative:**

☐ mechanical transport

☒ landing of aircraft

☒ motorized equipment

☐ temporary road

☐ motor vehicles

☐ structure

☐ motorboats

☐ installation

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency policies or guidelines.

Follow agency policies for the following review and decision authorities:

Approvals	Signature	Name	Position	Date
Prepared by:		Gerry McChesney	Farallon Refuge Manager	11/13/ 12
Recommended:				
Recommended:				
Approved:		Anne Morkill	San Francisco Bay NWR Complex Manager	11/19/2012