ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW
INITIAL REGULATORY FLEXIBILITY ANALYSIS
For a Regulatory Amendment to Permit the Seasonal Closure of Chiniak Gully in the Gulf of Alaska to Trawl Fishing

Implemented Under the Authority of the
Fishery Management Plan
for the
Groundfish Fishery of the Gulf of Alaska

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Abstract: This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) evaluates the environmental impacts, costs and benefits, and small entity impacts of a proposed regulatory amendment. The proposed amendment would impose a seasonal ban on all commercial trawl fishing in the Chiniak Gully region on the east side of Kodiak Island. The closure would be in effect from August 1 to a date no later than September 20 from 2006 through 2010. The regulatory changes are needed to permit NMFS to conduct controlled experiments on the effects of fishing on pollock distribution and abundance, as part of a comprehensive research program on sea lion/fishery interactions. The experiment and this closure likely would be conducted only in three of the five years from 2006 through 2010. This EA/RIR/IRFA addresses the requirements of the National Environmental Policy Act, Presidential Executive Order 12866, and the Regulatory Flexibility Act.

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ABC	Acceptable Biological Catch
BSAI	Bering Sea/Aleutian Islands
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CTD	Conductivity-Temperature-Depth
CPUE	Catch per Unit Effort
DPS	Distinct Population Segment
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EIT	Echo-integration Trawl
EO	Executive Order
ESA	Endangered Species Act
FMP	Fishery Management Plan
FR	Federal Register
GOA	Gulf of Alaska
IFQ	Individual Fishing Quota
IRFA	Initial Regulatory Flexibility Analysis
kHz	Kilohertz
LOA	Length overall
MFMT	Maximum Fishing Mortality Threshold
MMPA	Marine Mammal Protection Act
MSST	Minimum Stock Size Threshold
mt	Metric tons
NEPA	National Environmental Protection Act
nm	Nautical miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
OFL	Overfishing Limit
PBR	Potential Biological Removal
PSC	Prohibited Species Catch
PSEIS	Programmatic Supplemental Environmental Impact Statement
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SAFE	Stock Assessment and Fishery Evaluation
SAB	Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
SEIS	Supplemental Environmental Impact Statement
SSL	Steller sea lion
Stat areas	Alaska Department of Fish and Game groundfish/shellfish statistical areas
TAC	Total Allowable Catch
XBT	Expendable Bathythermograph

Executive Summary

This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) addresses a proposed regulatory amendment that would close Chiniak Gully, in the Gulf of Alaska (GOA), to all trawl fishing from August 1 to a date no later than September 20 between 2006 and 2010. This action would facilitate research by NMFS into the effects of commercial fishing on pollock off Kodiak Island. A regulatory amendment is required to support the proposed experimental design by prohibiting commercial trawl fishing in the control site (Chiniak Gully). The goal of the experiment is to improve the information available to assess further management actions to protect Steller sea lions (SSLs) and their habitat (See Appendix A for full project description). This study is an integral part of a NMFS comprehensive research program designed to evaluate effects of fishing on the foraging behavior of SSLs. It is likely that the experiment would be conducted in only three of the five years from 2006 through 2010. Hence, the proposed regulatory amendment provides for rescission of the closure in years in which the experiment will not be conducted.

ES.1 Environmental Assessment

An EA was prepared for this action to address the requirements of the National Environmental Policy Act (NEPA). The EA evaluates the two alternatives associated with this proposed regulatory amendment and finds no significant effects on the human environment. The EA evaluates two alternatives (a no action alternative and a proposed closure) for all direct, indirect, and cumulative effects on resources, species, and issues within the action area. The impacts of the alternatives are discussed in Chapter 4 of this EA. The analysis includes review of the considerations to determine intensity of the impacts in 50 CFR § 1508.27 (b) and in the NOAA Administrative Order 216-6, Section 6. Each consideration is addressed in section 4.4.

The action could result in redistribution of commercial trawl fishing effort on the east side of Kodiak Island from August 1 to a date no later than September 20. The potential redistribution of mid-water pollock fishing effort due to the Chiniak Gully closure is likely to be minor and to be insufficient to cause a significant impact on other groundfish fisheries. Much of the bottom trawl fishery does not operate in this time period because the halibut prohibited species catch limit is usually reached by early August. There should be no overall change in the amount of bycatch taken. The potential shift in trawl fishing effort is not expected to have an impact on essential fish habitat, or SSLs. The action may have a beneficial effect of providing information about pollock abundance and distribution that could be used in pollock fishery management and SSL protection.

Overall, no directed, indirect or cumulative effects were identified for the action that would result in significant impacts on the human environment.

ES.2 Regulatory Impact Review

A Regulatory Impact Review (RIR) is included in Chapter 5 of this document to evaluate the costs and benefits of the proposed closure of Chiniak Gully to commercial trawling. The RIR meets the statutory requirements of Presidential Executive Order 12866 (58 *FR* 51735; October 4, 1993).

This action is expected to make it possible to obtain better information about the impact of pollock trawling on localized depletion of pollock and on the configuration of pollock schools. It has not been possible to make quantitative estimates of the benefits from this new information. However, the benefits are likely to include: (1) potential for design of more effective measures

for protecting Steller sea lions, (2) potential for design of protection measures that are less costly to industry, (3) potential for an increase in catch per unit of effort due to modification of gear or fishing tactics, and (4) improved annual information about pollock stocks in the Gulf of Alaska. Local industry representatives have expressed support for this experiment for several of these reasons.

The costs of this action include the costs to operations of potential displacement from the Chiniak Gully area, increased congestion in other fishing areas as displaced operations move to those areas, and the cost of the research effort itself.

Some operations may be displaced from fishing in the Chiniak Gully area. It is not possible to estimate the costs to these operations from this displacement, however "revenues at risk," that is, the revenues that might have been earned from continued fishing in the Gully, provide an upper bound to the potential cost. Actual displacement costs are likely to be significantly less than the potential revenues placed at risk, because other fishing opportunities appear to be available for these operations at this time. This was indicated by an examination of the available harvest data, and by conversations with industry representatives. The combined annual potential revenues at risk for vessels displaced from fishing in the Chiniak Gully area are estimated to range from $76,000 (if the potential revenues at risk were equal to the difference between average revenues in years the Gully was closed for the experiment, and years it was open) to $427,000 (if revenues would have equaled those in the biggest year and no revenues would have been recovered by fishing elsewhere). An alternative approach assumed that displaced operations could recover their revenues by fishing elsewhere, and that the biggest cost item they would face was the additional cost of fuel associated with the travel. The potential aggregate fuel costs were estimated to be about $24,000.

There may be some costs imposed on operations that would not have fished in the Gully area, if vessels displaced by the action move to those areas (i.e., crowding externalities). However, these costs were considered to be relatively small given the modest share of the regional harvest taken from the Chiniak Gully statistical areas during this period, and the likelihood that not all vessels would be displaced from the area around the Gully, if the Gully itself were closed. The analysis also noted that the annual costs of the research itself were expected to be $292,000. The research was expected to occur in only three of the five years.

Costs to other entities, such as processors or fishing communities, are expected to be minimal.

ES.3 Initial Regulatory Flexibility Analysis

An Initial Regulatory Flexibility Analysis (IRFA) is included as Chapter 6 in this document to evaluate the adverse economic impacts on small entities of the proposed closure of Chiniak Gully to commercial trawling. The IRFA meets the statutory requirements of the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C. 601-612).

The small entities that may be potentially directly regulated by this action are the 49 unique vessels that, from 1999 through 2005, fished at least once in at least one of the three Alaska Department of Fish and Game groundfish/shellfish statistical areas that include the proposed Chiniak Gully closure, during the period from August 1 through September 20.

This action may have a very small adverse impact on the cash flow or profitability of some trawl catcher vessels that would have operated in the Chiniak Gully closure area in August and

September, in years that the closure is in effect. The adverse impact is likely to be significantly less than 2.7% of their annual revenues.
This regulation does not impose new recordkeeping or reporting requirements on the regulated small entities.

This analysis did not reveal any Federal rules that duplicate, overlap or conflict with the proposed action.

Alternative 1, no regulatory change, would have no impact on small entities. However, it would make it impossible for NMFS to conduct a controlled experiment off Kodiak Island. Therefore, NMFS would be prevented from obtaining information that can be used to further evaluate management actions to protect SSLs and their habitat. Because of this, Alternative 1 would not meet the objectives of this action.

An alternative that would exempt small entities from the proposed time/area closure was considered by NMFS, but was rejected. The entities fishing in this area during August and September are all small. A small entity exemption would undermine the intent of the action to allow a controlled experiment to assess the effects of trawl fishing on the availability of prey for SSLs. It would thus not meet the objectives of this action.

Consultation with small entity representatives made clear that the impact on small entities would be minimized if provisions were made to relieve the trawl restrictions as soon as the experiment was over for a particular year, rather than continue the closure automatically until September 20. This provision is part of Alternative 2.

1.0 Purpose and Need

1.1 Introduction

The proposed action would close Chiniak Gully, in the Gulf of Alaska (GOA), to all commercial trawling from August 1 to a date no later than September 20 between 2006 and 2010. The closure would likely be in effect, however, in only three of these five years to provide a control site for research into the effects of trawling on availability of prey for foraging Steller sea lions (SSLs).

This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) provides assessments of the environmental and small entity impacts (EA and IRFA) and assessment of the benefits and costs of alternatives to the proposed closure (RIR). Specifically, this EA/RIR/IRFA provides a National Environmental Policy Act (NEPA) EA, an Executive Order 12866 RIR, and a Regulatory Flexibility Act (RFA) IRFA, covering the proposed closure.

This EA evaluates the proposed action with respect to three environmental components:

- Target species and fisheries
- Marine mammals
- Benthic and essential fish habitat

These environmental components are defined in Chapter 3. The criteria used to evaluate the environmental significance of the alternatives are explained in Section 4.1. In addition, in Chapter 6, the IRFA evaluates the adverse impacts of this action on directly regulated small entities.

Locations of key parts of the EA/RIR/IRFA	
Description of the proposed closure	Chapter 2
Environmental and social context	Chapter 3
The criteria used to evaluate the environmental significance of the proposed closure	Section 4.1
NEPA analysis of direct, indirect and cumulative environmental effects	Sections 4.2 – 4.3
NEPA conclusions	Section 4.4
Regulatory Impact Review	Chapter 5
Regulatory Flexibility Act analysis	Chapter 6

1.2 Statutory Authority for This Action

The National Marine Fisheries Service manages the U.S. groundfish fisheries of the Gulf of Alaska in the Exclusive Economic Zone (EEZ) under the Fishery Management Plan (FMP) for Groundfish of the Gulf of Alaska (NPFMC 2005). The North Pacific Fishery Management Council (NPFMC) prepared the FMP under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) P. L. 94-265, 16 U.S.C. 1801. The EEZ is located 3 to 200 miles offshore in the Gulf of Alaska (GOA). The GOA FMP was approved by the Secretary of Commerce (Secretary) and became effective in 1978 and updated July 6, 1999. In response to NMFS stewardship responsibilities identified in the Magnuson-Stevens Act, the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA), fishery regulations were changed to ensure that the Bering Sea and Aleutian Islands management area (BSAI) and GOA groundfish fisheries neither jeopardize the continued existence of the western distinct population segment (DPS) of endangered SSLs nor adversely modify its critical habitat.

1.3 The Action Area

The action area for the proposed regulatory amendment is Chiniak Gully, in the central GOA (Fig. 1).

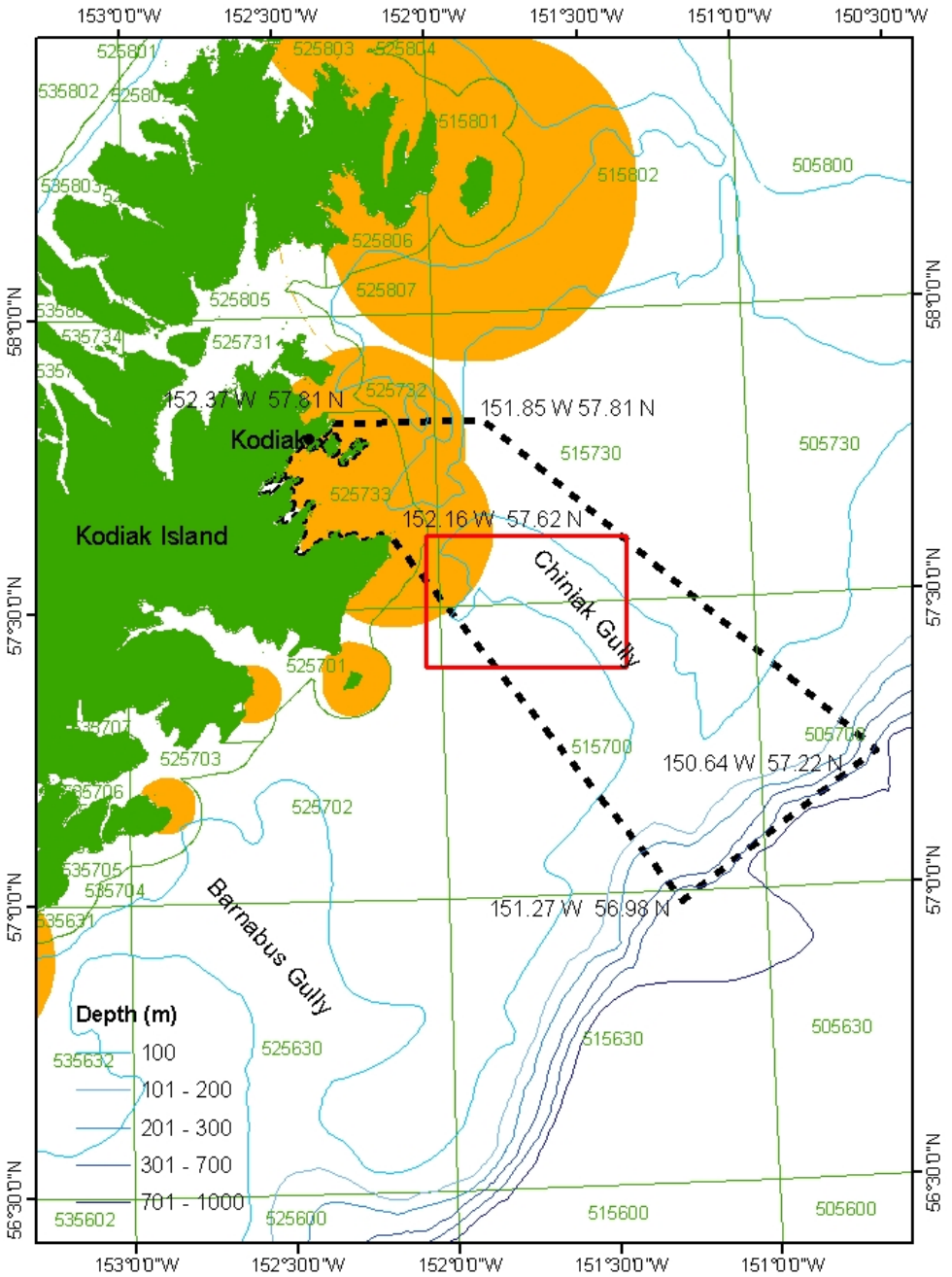

Figure 1. Proposed Chiniak Gully Research Area. Depth contours (in meters) and Alaska Department of Fish and Game statistical areas are also shown. The dashed line represents the proposed closure. Shaded areas represent no-trawl zones implemented as part of Steller sea lion protection measures. The solid-line box indicates the Kodiak Test Area.

1.4 Purpose and Need for this Action

Currently, the information available to evaluate alternative methods for protecting SSLs and their habitat is very limited. This can result in the use of less effective and less efficient (i.e., more costly) management measures. NMFS has proposed a controlled experiment off Kodiak Island in order to improve the information available to assess further management actions to protect SSLs and their habitat (See Appendix A for full project description). This study is an integral part of a NMFS comprehensive research program designed to evaluate effects of fishing on the foraging behavior of SSLs.

The goal of the experiment is to identify and quantify the effects of commercial trawl fishing on the availability of potential prey (i.e. pollock) to SSLs within a finite area. Specifically, the experiment is designed to provide information bearing on the following questions:

1. Do measurable changes exist in the distribution and abundance of pollock during the duration of the experiment?

2. Do commercial fisheries for pollock cause short-term (days to weeks) changes in the pollock school dynamics?

3. Do pollock fisheries cause reductions in the availability of sea lion forage (i.e. pollock) in localized regions off the east side of Kodiak Island?

A pollock fishery interaction experiment was conducted off Kodiak Island during 2001, 2002, and 2004. The proposed experiment would follow the same procedures. The sampling design used control (unfished) and treatment (fished) areas. Barnabus Gully was open to fishing and, thus, was the treatment site. Chiniak Gully was closed to fishing and, thus, was the control site (Fig. 2).

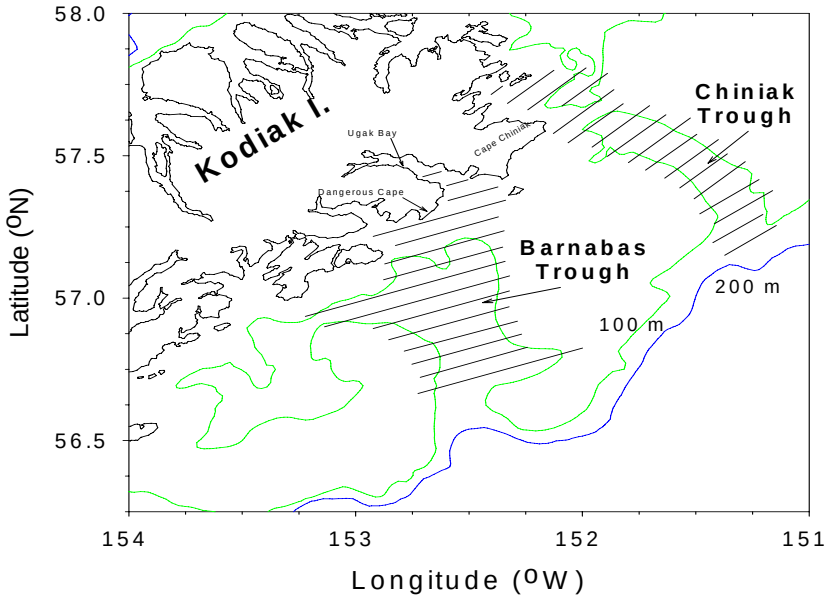

Figure 2. Study area off the east coast of Kodiak Island. Barnabus Gully (a.k.a. "Trough") was open to fishing, Chiniak Gully (a.k.a. "Trough") was closed to fishing. Lines show locations of echo integration-trawl survey transects.

These study locations were chosen because they encompass historical fishing areas for pollock that are separated by topographical features with generally discrete concentrations of fish. The concentration of fishing effort in the Gulf of Alaska enabled the designation of comparable treatment and control sites, which were essential to the study design. The distribution and abundance of adult and juvenile pollock and of capelin were determined using AFSC standard echo-integration trawl (EIT) methods. Acoustic data were collected with a calibrated Simrad EK 500 echosounder operating at 38, 120 and 200 kHz. Trawls were conducted to identify the species composition of the echosign and to collect biological samples needed to estimate abundance and distribution patterns. Multiple surveys, or "passes," of each gully were conducted before and after the start of commercial fishing.

In 2001 and 2004, substantial (> 1500 mt) amounts of adult pollock were removed from the study area during the C season. Results from the 2001 experiment show high temporal variability in adult pollock biomass in the treatment area, but not in response to fishing (Fig. 3).

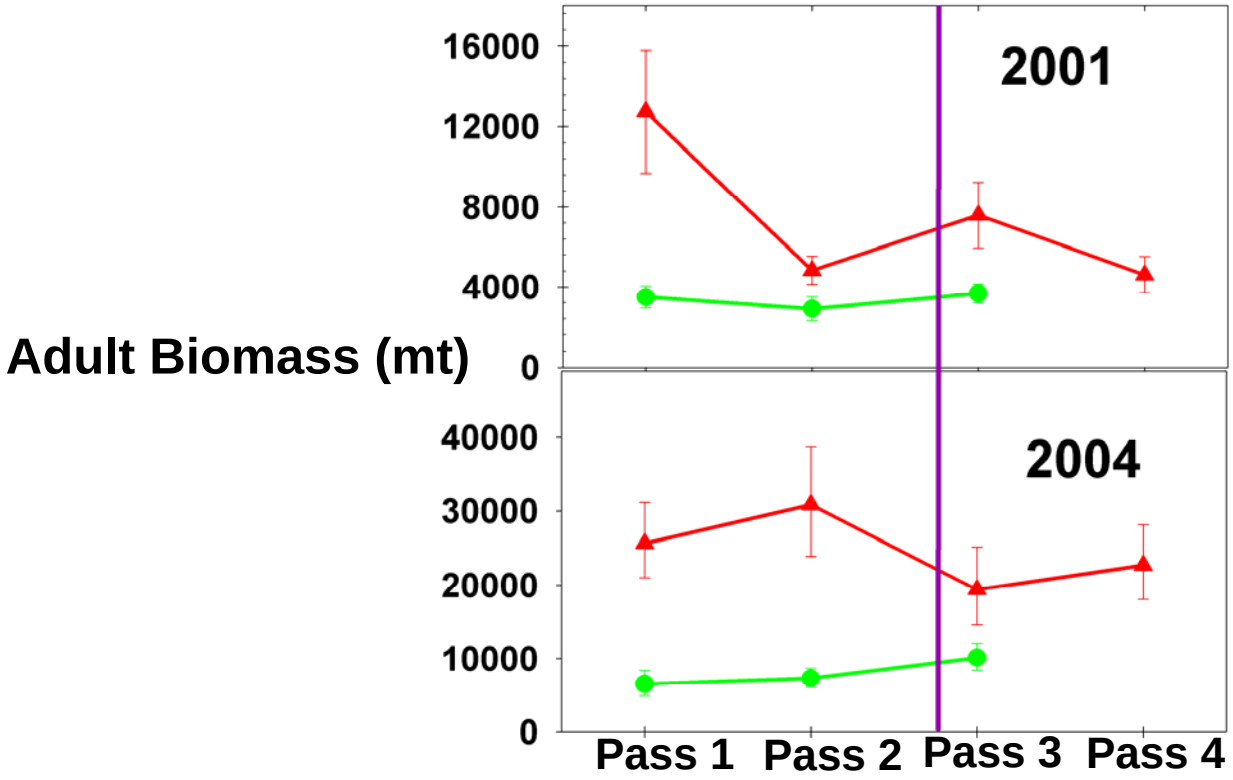

Figure 3. Adult pollock biomass (with 95% confidence intervals) in 2001 and 2004, during passes 1 and 2 (before the start of the commercial fishery) and passes 3 and 4 (after the start of the commercial fishery). Data for treatment (Barnabus Gully) and control (Chiniak Gully) are shown as triangles and circles, respectively.

In contrast, results from 2004 show a statistically significant decrease in pollock biomass in the treatment area following the start of commercial fishing (Fig. 3). No concurrent decrease in adult pollock biomass in the control area was observed. Results from 2002 are not shown because fishery removals were very small (roughly 300 mt) in the study area in that year. Fishery removals in 2001 and 2004 were 2,853 and 1,723 mt, respectively. Because the results from

these two years are equivocal, additional years of field work are needed to come to a conclusion about the effects of commercial fishing on pollock distribution and abundance.

NMFS proposes to conduct an echo integration trawl (EIT) survey before and after the start of the 'C' season commercial pollock fishery, off the east side of Kodiak Island, during three years between 2006 and 2010. The exact years during which the experiment will be conducted will depend on NOAA vessel availability. The 'C' season currently opens on August 25 (§679.23(d)(2)(iii)). The prohibition on trawling in the control site (Chiniak Gully) is necessary to provide a basis for comparing pollock school dynamics in a fished and in an unfished condition (addressing question 2 above).

The analytical products produced from the proposed research could provide researchers and fishery managers with better information on pollock movements and potential impacts of commercial pollock harvest on foraging behavior of SSLs.

Current regulations prohibit directed fishing for pollock within 10 nautical miles (nm) of specified SSL haulout sites in the GOA. Fishing with trawl gear in the Chiniak Gully area is authorized consistent with these and other regulations. A regulatory amendment is required to support the proposed experimental design by prohibiting trawl fishing in the control site (Chiniak Gully). The proposed regulatory amendment would prohibit trawl fishing in the Chiniak Gully region off the east side of Kodiak Island from August 1st, to a date no later than September 20th. The regulatory amendment is also needed to prohibit vessels from testing trawl gear in that portion of the Kodiak Test Area that lies within the Chiniak Gully Research Area, during the experiment. Although no fish are caught during trawl testing, the activity of vessels in the control site (Chiniak Gully) may affect the distribution of pollock. For example, trawl testing may drive fish towards the bottom or disrupt fish schools. During previous experiments, the Kodiak Test Area was open to trawl testing. This was an oversight. Given the many unforeseeable causes of variability in pollock distribution and abundance, it is important to eliminate as many anthropogenic effects on pollock as possible in the control site (Chiniak Gully).

This EA/RIR/IRFA analyzes the impacts of the proposed regulatory amendment. An EA is prepared pursuant to NEPA to determine whether a proposed action will result in significant effects on the human environment. If the environmental effects of the action are determined not to be significant, based on an analysis of relevant considerations, the EA and resulting finding of no significant impact, are the final environmental documents required by NEPA. If this analysis concludes that the proposal is a major Federal action, significantly affecting the human environment, an environmental impact statement must be prepared.

1.5 Relationship of this Action to Federal Law

While NEPA and the RFA are the primary laws directing the preparation of this document, a variety of other Federal laws and policies require environmental, economic, and socio-economic analysis of proposed Federal actions. This document contains the required analysis of the proposed Federal action to ensure that the action complies with these additional Federal laws and executive orders (EOs):

- Magnuson-Stevens Fisheries Conservation and Management Act (including Sustainable Fisheries Act of 1996)
- Endangered Species Act
- Marine Mammal Protection Act
- Administrative Procedure Act

- Information Quality Act

The 2006-2007 Harvest Specifications EA provides details on the laws and executive orders directing this analysis (NMFS 2005a).

1.6 Related NEPA Documents

The NEPA documents listed below have detailed information on the groundfish fisheries, and on the natural resources, the economic and social activities, and communities affected by those fisheries.

- Groundfish Programmatic Supplemental Environmental Impact Statement (PSEIS)
- Essential Fish Habitat Environmental Impact Statement (EIS)
- Annual TAC-Specifications EA
- SSL Protection Measures Supplemental Environmental Impact Statement (SEIS)
- American Fisheries Act Amendments 61/61/13/8 EIS

Further information about these documents can be found in the 2006-2007 Harvest Specifications EA (NMFS 2005a).

2.0 Description of Alternatives

Alternative 1: Status quo. No regulatory changes would be implemented to allow the proposed controlled experiment.

Alternative 2: Adopt regulations to prohibit all trawl fishing in the Chiniak Gully region, off the eastside of Kodiak Island, from August 1 to a date no later than September 20 between 2006 and 2010, inclusive. The regulations also shall prohibit vessels from testing trawl gear in that portion of the Kodiak Test Area that lies within the Chiniak Gully Research Area during the time period of the trawl closure. The affected areas are depicted in Figure 1. The proposed no trawl zone identified as Chiniak Gully is bounded by lines intersecting the following coordinates: 152.37 W Longitude, 57.81 N Latitude, 151.85 W Longitude, 57.81 N Latitude, 150.64 W Longitude, 57.22 N Latitude, 150.64 W Longitude, 57.22 N Latitude, 151.27 W Longitude, 56.98 N Latitude, 151.27 W Longitude, 56.98 N Latitude, 152.16 W Longitude, 57.62 N Latitude. The Kodiak Test Area is bounded by 57° 37' N. Latitude, 152° 02' W. Longitude, 57° 37' N. Latitude, 151° 25' W. Longitude, 57° 23' N. Latitude, 151° 25' W. Longitude, 57° 23' N. Latitude, 152° 02' W. Longitude, 57° 37' N. Latitude, 152° 02' W. Longitude.

If funding is not sufficient, or NOAA vessel time is not available in any given year, then the proposed Chiniak Gully closure will not be needed. The Regional Administrator shall publish notification in the *Federal Register* when the determination is made that the research is either over for the year or that it will not be conducted that year. The experiment likely would be conducted in only three of the years from 2006 through 2010; consequently the Chiniak Gully area would be closed in only those three years in which the experiment is conducted.

3.0 Affected Environment

The GOA groundfish fisheries occur in the North Pacific Ocean in the U.S. EEZ. The proposed experiment will affect groundfish fishing off the east side of Kodiak Island (Fig. 1). The most recent descriptions of the affected environment are given in the PSEIS (NMFS 2004): features of

the physical environment in Section 3.1, fishing gear effects on substrate and benthic communities in Section 3.2, groundfish resources in Section 3.3, marine mammals in Section 3.4, seabirds in Section 3.5, other species in Section 3.6, prohibited species in Section 3.7, contaminants in Section 3.8, interactions between climate, commercial fishing, and the ecosystem in Section 3.9, and the economic and socioeconomic environment in Section 3.10.

The status of each target species category, biomass estimates, and acceptable biological catch specifications are presented both in summary and in detail in the annual GOA stock assessment and fishery evaluation (SAFE) report (NPFMC 2005b). The SAFE report also updated the economic status of the groundfish fisheries off Alaska and presented the ecosystem considerations relevant to the GOA.

A review of harvest specifications and in-season management can be found in the 2006-2007 Harvest Specifications EA (NMFS 2005a). That EA also details the reasonable and foreseeable future actions used for the evaluation of cumulative effects of harvest specifications.

An assessment of impacts to essential fish habitat is contained in NMFS (2005b). The most recent information on the impact of the groundfish fisheries on SSLs is contained in the November 2001 SEIS on SSL protection measures (NMFS 2001). That SEIS includes in Appendix A the biological opinion on the effects of the pollock, Pacific cod, and Atka mackerel fisheries on SSLs and their designated critical habitat.

This EA analyzes the impacts of the proposed closure on the following environmental components:

- Target species
- Marine mammals
- Benthic habitat and essential fish habitat

As described below, the primary impact of the proposed action would be a redistribution of target species fishing effort and catch along the east side of Kodiak Island. Major changes in expected total effort and removals are not anticipated. Economic and social impacts will be addressed in the RIR/IRFA (Chapters 5 and 6).

The proposed action is expected to have no impact on several environmental components. The following components will not be described, nor impacts analyzed, for the reasons provided.
Non-specified species. This action is not expected to change fishing activities in a manner that would cause impacts on non-specified species beyond those already analyzed for the groundfish fisheries in the 2006 and 2007 harvest specifications EA (NFMS 2005a) The most important non-specified species taken in the GOA are grenadiers which are caught in hook-and-line fisheries and, thus, would not be impacted by the proposed trawl closure (NMFS 2005a).
Forage fish species. No impacts on forage fish are expected as a result of this action because forage fish are primarily affected by amounts of pollock trawl harvest (NMFS 2005a). The quantity of pollock harvest is not expected to change with this action.
Prohibited Species. This EA will not address the effects on prohibited species, because changes to fishing practices from this action are not expected to impact prohibited species, and no changes to Prohibited Species Catch (PSC) management measures will result from the proposed closure.
Seabirds. This EA will not analyze the impacts on seabirds because by far the greatest incidental take of seabirds occurs in the longline fishery (NMFS 2005a), which will not be affected by the proposed closure.
Ecosystem. This EA will not explicitly address the ecosystem effects of the proposed closure because those effects are generally evaluated on a large scale (i.e., GOA-wide; NMFS 2005a).

The closure of a relatively small area of the GOA is not expected to impact regional removals, discards, etc.

3.1 Status of Target Species

As defined in the GOA FMP, target species are species that: "…support either a single species or mixed species target fishery, are commercially important, and for which a sufficient data base exists that allows each to be managed on its own biological merits. Accordingly, a specific total allowable catch (TAC) is established annually for each target species. Catch of each species must be recorded and reported…" (Section 3.1.2 of the GOA groundfish FMP, page 10).

In the GOA, target species include walleye pollock, Pacific cod, sablefish, shallow and deep water flatfish, rex sole, flathead sole, arrowtooth flounder, Pacific ocean perch, shortraker/rougheye rockfish, northern rockfish, "other slope" rockfish, pelagic shelf rockfish, demersal shelf rockfish, thornyhead rockfish, Atka mackerel, and skates. (NPFMC 2005b).

The status of each target species or species group category, biomass estimates, and ABC specification are presented both in summary and in detail in the GOA SAFE reports (NPFMC 2005b) and the 2006-2007 Harvest Specifications EA (NMFS 2005a). This EA relies on information about target species stock status as it was known in 2005.

TACs and harvest amounts in 2005, along with final 2006 and 2007 specifications of OFLs, ABCs, and TACS for the GOA area are discussed in the EA for the 2006-2007 Harvest Specifications (NMFS 2005a) and shown in Table 3.1-1. This table provides an overview of the status of GOA groundfish and a perspective on potential impacts associated with the redistribution of groundfish harvest associated with the proposed closure. For detailed life history, ecology, and fishery management information regarding groundfish stocks in the GOA see Section 3.3 of the PSEIS (NMFS 2004).

Table 3.1-1. GOA OFL, ABC, and TAC for 2005. GOA Preferred Alternative OFL, ABC and TAC Recommendations for the 2006-2007 Fisheries.

SPECIES		OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
		2005	2005	2005	2005**	2006	2006	2006	2007	2007	2007
Pollock	W (61)		30,380	30,380	31,116		29,187	29,187		23,291	23,291
	C (62)		34,404	34,404	27,838		30,775	30,775		24,558	24,558
	C (63)		18,718	18,718	19,348		18,619	18,619		14,858	14,858
	WYAK		1,688	1,688	1,879		1,809	1,809		1,443	1,443
	Subtotal	144,340	85,190	85,190	80,181	110,100	80,390	80,390	89,500	64,150	64,150
	EYAK/SEO	8,690	6,520	6,520	0	8,209	6,157	6,157	8,209	6,157	6,157
	Total	153,030	91,710	91,710	80,181	118,309	86,547	86,547	97,709	70,307	70,307
Pacific cod	W		20,916	15,687	12,208		26,855	20,141		19,292	14,469
	C		33,117	25,086	21,241		37,873	28,405		27,206	20,405
	E		4,067	3,660	14		4,131	3,718		2,968	2,671
	Total	86,200	58,100	44,433	33,462	95,500	68,859	52,264	59,100	49,466	37,545
Sablefish	W		2,540	2,540	1,892		2,670	2,670		2,360	2,360
	C		7,250	7,250	6,602		6,370	6,370		5,630	5,630
	WYAK		2,580	2,580	1,825		2,280	2,280		2,014	2,014
	SEO		3,570	3,570	3,335		3,520	3,520		3,116	3,116
	Total	19,280	15,940	15,940	13,654	17,880	14,840	14,840	15,800	13,120	13,120
Deep water flatfish[1]	W		330	330	3		420	420		421	421
	C		3,340	3,340	395		4,139	4,139		4,145	4,145
	WYAK		2,120	2,120	4		2,661	2,661		2,665	2,665
	EYAK/SEO		1,030	1,030	4		1,445	1,445		1,446	1,446
	Total	8,490	6,820	6,820	406	11,008	8,665	8,665	11,022	8,677	8,677
Rex sole	W		1,680	1,680	576		1,159	1,159		1,096	1,096
	C		7,340	7,340	1,576		5,506	5,506		5,207	5,207
	WYAK		1,340	1,340	0		1,049	1,049		992	992
	EYAK/SEO		2,290	2,290	0		1,486	1,486		1,405	1,405
	Total	16,480	12,650	12,650	2,152	12,000	9,200	9,200	11,400	8,700	8,700
Shallow water flatfish[2]	W		21,580	4,500	108		24,720	4,500		24,720	4,500
	C		27,250	13,000	4,516		24,258	13,000		24,258	13,000
	WYAK		2,030	2,030	0		628	628		628	628
	EYAK/SEO		1,210	1,210	6		1,844	1,844		1,844	1,844
	Total	63,840	52,070	20,740	4,630	62,418	51,450	19,972	62,418	51,450	19,972

SPECIES		OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
		2005	2005	2005	2005**	2006	2006	2006	2007	2007	2007
Flathead sole	W		11,690	2,000	611		10,548	2,000		10,932	2,000
	C		30,020	5,000	1,904		25,195	5,000		26,111	5,000
	WYAK		3,000	3,000	0		2,022	2,022		2,096	2,096
	EYAK/SEO		390	390	0		55	55		57	57
	Total	56,500	45,100	10,390	2,515	47,003	37,820	9,077	48,763	39,196	9,153
Arrowtooth flounder	W		26,250	8,000	2,531		20,154	8,000		21,011	8,000
	C		168,950	25,000	16,681		134,906	25,000		140,640	25,000
	WYAK		11,790	2,500	23		15,954	2,500		16,632	2,500
	EYAK/SEO		9,910	2,500	29		6,830	2,500		7,120	2,500
	Total	253,900	216,900	38,000	19,264	207,678	177,844	38,000	216,500	185,403	38,000
Other slope rockfish[3]	W		40	40	93		577	577		577	577
	C		300	300	565		386	386		386	386
	WYAK		130	130	70		317	317		317	317
	EYAK/SEO		3,430	200	36		2,872	200		2,872	200
	Total	5,150	3,900	670	764	5,394	4,152	1,480	5,394	4,152	1,480
Northern rockfish[3]	W		808	808	570		1,483	1,483		1,483	1,483
	C		4,283	4,283	4,208		3,608	3,608		3,608	3,608
	E		0	0	0		0	0		0	0
	Total	6,050	5,091	5,091	4,778	7,673	5,091	5,091	7,618	5,091	5,091
Pacific Ocean perch	W	3,076	2,567	2,567	2,340	4,931	4,155	4,155	4,997	4,290	4,290
	C	10,226	8,535	8,535	8,145	8,806	7,418	7,418	8,923	7,660	7,660
	WYAK		841	841	872		1,101	1,101		1,137	1,137
	SEO		1,632	1,632	0		1,587	1,587		1,639	1,639
	E(subtotal)	2,964				3,190	2,688	2,688	3,232	2,776	2,776
	Total	16,266	13,575	13,575	11,357	16,927	14,261	14,261	17,152	14,726	14,726
Shortraker rockfish	W		155	155	70		153	153		153	153
	C		324	324	224		353	353		353	353
	E		274	274	203		337	337		337	337
	Total	982	753	753	497	1,124	843	843	1,124	843	843
Rougheye rockfish	W		188	188	52		136	136		133	133
	C		557	557	122		608	608		596	596
	E		262	262	122		239	239		235	235
	Total	1,531	1,007	1,007	296	1,180	983	983	1,161	964	964

SPECIES		OFL	ABC	TAC	Catch	OFL	ABC	TAC	OFL	ABC	TAC
		2005	2005	2005	2005**	2006	2006	2006	2007	2007	2007
Pelagic shelf rockfish	W		377	377	120		1,438	1,438		1,463	1,463
	C		3,067	3,067	1,845		3,262	3,262		3,318	3,318
	WYAK		211	211	215		301	301		306	306
	EYAK/SEO		898	898	3		435	435		443	443
	Total	5,680	4,553	4,553	2,183	6,662	5,436	5,436	6,779	5,530	5,530
Demersal rockfish	**SEO**	640	410	410	289	650	410	410	650	410	410
Thornyhead rockfish	W		410	410	189		513	513		513	513
	C		1,010	1,010	388		989	989		989	989
	E		520	520	134		707	707		707	707
	Total	2,590	1,940	1,940	711	2,945	2,209	2,209	2,945	2,209	2,209
Atka mackerel	**Total**	6,200	600	600	882	6,200	4,700	1,500	6,200	4,700	1,500
Big skate	W		727	727	26		695	695		695	695
	C		2,463	2,463	758		2,250	2,250		2,250	2,250
	E		809	809	60		599	599		599	599
	Total	5,332	3,999	3,999	844	4,726	3,544	3,544	4,726	3,544	3,544
Longnose skate	W		66	66	15		65	65		65	65
	C		1,972	1,972	947		1,969	1,969		1,969	1,969
	E		780	780	135		861	861		861	861
	Total	3,757	2,818	2,818	1,097	3,860	2,895	2,895	3,860	2,895	2,895
Other skates	GW	1,769	1,327	1,327	663	2,156	1,617	1,617	2,156	1,617	1,617
Other species	GW	NA	NA	13,871	2232	NA	NA	13,942		NA	12,314
TOTAL		713,667	539,263	291,298	182,957	631,293	501,366	292,776	582,477	473,000	258,597

**Catch through November 5, 2005.

1/ Deep water flatfish includes Dover sole, Greenland turbot and deepsea sole.

2/ "Shallow water flatfish" includes rock sole, yellowfin sole, butter sole, starry flounder, English sole, Alaska plaice, and sand sole.

3/ The EGOA ABC of 2 mt for northern rockfish has been included in the WYAK ABC for other slope rockfish.

* Indicates rollover from previous year (no age-structured projection data available).

4/ The ABC for sablefish has been reduced by 5% in the SEO and added to the WYK to allow for 5% of the EGOA TAC to be made available for trawl incidental catch.

NOTE:
ABCs and TACs are rounded to nearest mt.
GW means Gulfwide.
Catch data source: NMFS Catch Accounting Reports.

3.2 Status of Marine Mammals

The BSAI and the GOA support one of the richest assemblages of marine mammals in the world. Twenty-six species are present from the orders Pinnipedia (seals, sea lion, and walrus), Carnivora (sea otter and polar bear), and Cetacea (whales, dolphins, and porpoises). Most species are resident throughout the year, while others seasonally migrate into or out of the management areas. Marine mammals occur in diverse habitats, including deep oceanic waters, the continental slope, and the continental shelf (Lowry et al. 1982). The Alaska Groundfish Fisheries Final PSEIS (NMFS 2004) provides descriptions of the range, habitat, diet, abundance, and population status for these marine mammals. The most recent marine mammal stock assessments were completed in 2004 based on 2003 data (Angliss and Lodge 2004) and a draft 2005 stock assessment is being developed. This information is incorporated by reference.

The 2006-2007 Harvest Specifications EA provides detailed analyses of the potential impacts of U.S. groundfish fisheries on marine mammals of Alaska (NMFS 2005a). Based on those analyses, the action proposed in this EA is expected to have no impact on several marine mammal species. The following species have minimal interaction with any Alaska groundfish fishery: bearded seal, spotted seal, ringed seal, ribbon seal, Pacific white-sided dolphin, walrus, northern sea otter, northern elephant seal, transient killer whale, and beluga whale. The human-caused mortality is low (below the maximum number of animals that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population) for many species that may interact with Alaska groundfish fisheries: minke whale, harbor seal, killer whale, Dall's porpoise, BSAI harbor porpoise, humpback whale, fin whale, blue whale and northern right whale. Sperm whales and resident killer whales interact with longline fisheries, but these fisheries are excluded from the proposed action. Northern fur seals interact with pollock fisheries in the BSAI, but there are no fur seal rookeries in the GOA (the proposed action area).

Because of the short duration, location, lack of change in overall harvest amounts, and type of fishing, this action is unlikely to affect nearly all marine mammals listed above. The only exception may be for SSLs where the groundfish fisheries are managed by spatial and temporal distribution of harvest to ensure protection. This EA will analyze the effects of the proposed closure on SSLs. In 2000, NMFS determined that the groundfish fisheries were likely to jeopardize the western DPS of SSLs and adversely modify its critical habitat (USFWS 2003, NMFS 2000, and NMFS 2001). The groundfish fisheries must be managed in compliance with the SSL protection measures (68 FR 204, January 2, 2003) to avoid the likelihood of jeopardizing the population or adversely modifying SSL critical habitat. A new program level (i.e. FMP level) Biological Opinion is likely to be reinitiated in 2006.

3.3 Status of Benthic and Essential Fish Habitat

Benthic habitat is the bottom living and non-living habitat between the shoreline and the 200 mile outer limit of the US EEZ. Essential Fish Habitat (EFH), is defined in the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." In this analysis, EFH as defined in the Magnuson-Stevens Act, is used as a proxy for benthic habitat. For the purpose of interpreting the definition of EFH, the EFH regulations at 50 CFR 600.10 specify that "waters" include aquatic areas that are used by fish and their associated physical, chemical, and biological properties and may include areas historically used by fish where appropriate; "substrate" includes sediments, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' entire life cycle. Benthic habitat is used synonymously with EFH in this analysis because virtually all of the seafloor in the area of active groundfish fisheries off Alaska has been designated as EFH for one species or another.

Most of the seafloor off Alaska has been designated as EFH for at least one NPFMC managed species, and the 2005 EFH EIS provides a recent and comprehensive analysis of the effects of fishing activity on EFH. The EFH EIS evaluates the long-term effects of fishing on benthic habitat features, as well as the likely consequences of those habitat changes for each managed stock, based on the best available scientific information. The present analysis assumes that habitat modifications that have more than minimal and temporary impacts on managed fish populations also would have adverse impacts on other habitat-dependent species, including mammals, seabirds, invertebrates, and living components of the habitat, such as corals and sponges. Conversely, this analysis assumes that habitat modifications that result in minimal or temporary effects on managed fish populations also would have negligible effects on other components of the ecosystem that rely upon the same habitats. Therefore, in this analysis, EFH impacts are considered a proxy for overall habitat impacts.

Inclusively all the marine waters and benthic substrates in the management areas comprise the habitat of the target species. Additionally the adjacent marine waters outside the EEZ, adjacent State of Alaska waters inside the EEZ, shoreline, freshwater inflows, and atmosphere above the waters, constitutes habitat for prey species, other life stages, and species that move in and out of, or interact with, the target species in the management areas. Distinctive aspects of the habitat include water depth, substrate composition, substrate infauna, light penetration, water chemistry (salinity, temperature, nutrients, sediment load, color, etc.), currents, tidal action, plankton and zooplankton production, associated species, natural disturbance regimes, and the seasonal variability of each aspect. Substrate types include bedrock, cobble, sand, shale, mud, silt, and various combinations of organic material and invertebrates which may be termed biological substrate. Biological substrates present in these management areas include corals, tunicates, mussel beds, and tube worms. Biological substrate has the aspect of ecological state (from pioneer to climax) in addition to the organic and inorganic components. Ecological state is heavily dependant on natural and anthropogenic disturbance regimes. The GOA FMP (NPFMC 2005a) contains descriptions of habitat preferences of the target species in the GOA.

The environmental assessment prepared for the 2006-2007 Harvest Specifications (NMFS 2005a) contains an analysis of impacts to essential fish habitat as required by amendments to the Magnuson-Stevens Act. That assessment addresses the effects of the authorization of the proposed and final specifications on EFH pursuant to the requirements of 50 CFR 600.920(h) and in coordination with the review procedures required under the NEPA. The 2006-2007 Harvest Specifications EA concludes that the preferred harvest alternative may have an adverse impact on EFH for managed species, but that the potential adverse impact on EFH is not significant (NMFS 2005a). That means that adverse effects may be occurring but that they do not rise to the level requiring additional minimization, that level being established by 50 CFR 600.815(a)(2) as adverse effects that are more than minimal and not temporary in nature.

For further information about the habitat and ongoing habitat studies in the fisheries management area, see Section 3.1 and 3.6 of the PSEIS (NMFS 2004), and the Ecosystems Considerations Chapter of the 2006 SAFE report (NPFMC 2005d).

4.0 Environmental Impacts

4.1 Significance analysis

An environmental assessment (EA) is meant to "provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact." (40 *CFR* 1508.9) An EA must evaluate whether a Federal action, and all reasonable alternatives to that action, will have a significant effect on the human environment. Significance is determined by considering the context (geographic, temporal, and societal) in which the action will occur, and the intensity of the action. Intensity depends on the magnitude of the impact, the degree of certainty in the evaluation, the cumulative impact when the action is related to other actions, the degree of controversy, and violations of other laws. (40 *CFR* 1508.27) Significance must be determined with respect to both direct and indirect impacts, and with respect to cumulative impacts. Direct impacts "…are caused by the action and occur at the same time and place…" (40 *CFR* 1508.8(a)), while indirect impacts "…are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable…" (40 *CFR*1508.8(b))[1] A cumulative impact is "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 *CFR* 1508.7) In this EA, the term "no impact" means a environmental component (such as target species or habitat) is left in the condition it would be in, in the absence of the proposed action. An "adverse" impact leaves the component in a worse condition than it would be in the absence of the proposed action. A "beneficial" impact leaves the component in a better condition than it would be in the absence of the proposed action. "Significant" impacts are those adverse or beneficial impacts that meet the criteria described for each environmental component. The remaining sections in this chapter evaluate the direct/indirect and cumulative impacts of each alternative on each of the environmental components.

This section describes the criteria by which the significance of the impacts of the alternatives is analyzed for the following environmental components:

- Target species
- Marine mammals
- Benthic and essential fish habitat

As described below, the primary impact of the proposed action would be a redistribution of target species groundfish fishing effort and catch along the east side of Kodiak Island. Major changes in expected total effort and removals are not anticipated. Economic and social impacts will be addressed in the RIR/IRFA (Chapters 5 and 6).

Environmental impacts are compared to a baseline to determine significance. For direct and indirect impacts, the baseline is the fishery and resource status as it was in years when the proposed closure area (Chiniak Gully) was open to trawl fishing during the proposed closure time period (August 1 through September 20). This is the fishery status quo. The baseline for the evaluation of cumulative effects is the environmental component as it would be if the baseline were changed by a set of reasonably foreseeable future actions. These reasonably foreseeable future actions do not include the current action, which is the closure of Chiniak Gully during August 1 through September 20 in years 2006-2010. The past and present actions are considered part of the cumulative baseline of the fisheries and their effects as presently seen in the environment. No additional past or present actions are known beyond those identified and analyzed in the PSEIS, EFH EIS and the 2006 and 2007 Harvest Specifications EA.

Groundfish Target Species

[1] The CEQ regulations use the words "effects" and "impacts" synonymously [40 *CFR* 1508.8(b)].

Alternatives are evaluated with respect to impacts on the following indicators of groundfish target resource health which are used to determine the significance of the impacts (Table 4.1-1):

- Fishing mortality: Will fish harvests at the levels indicated in an alternative lead to overfishing or to overfished status for a stock by removing a sufficient portion of the spawning population from the stock?
- Genetic structure of the population: A fish stock is often a collection of genetically differentiated substocks. Fishing at a constant rate on all the substocks can have greater adverse impacts on some than on others. Moreover, fishing for fish with certain characteristics (such as large size) can lead, through time, to selection for fish with certain characteristics (such as growth rate).
- Reproductive success: Fishing operations may interfere with or disturb spawning and reproductive behavior. Fish populations may exhibit density-dependent or compensatory behavior. This may result in increased reproductive success or juvenile survival rates, or dispensatory decrease in juvenile survival at low population levels, raising concerns about species survival.
- Prey availability: Harvesting activity may change the prey available to target stocks.
- Habitat: Gear impacts on habitat may affect the ability of the habitat to support sustainable stock levels.

In the 2006-2007 Harvest Specifications EA, the ratings use a minimum stock size threshold (MSST) as a basis for beneficial or adverse impacts of each alternative (NMFS 2005a). Any stock that is below its MSST is defined as overfished. Any stock that is expected to fall below its MSST in the next two years is defined to be approaching an overfished condition. Overfishing is defined as any rate of fishing in excess of the maximum fishing mortality threshold (MFMT). The catch corresponding to fishing at a rate equal to the MFMT is referred to as the "overfishing level" (OFL). A thorough description of the rationale for the MSST can be found in the National Standard Guidelines 50 CFR Part 600 (Federal Register Vol. 63, No. 84, 24212 - 24237).

Table 4.1-1 Significance criteria for groundfish targets and other species

	Level of mortality	**Genetic structure**	**Reproductive success**	**Prey availability**	**Habitat**
		Genetic structure and reproductive success provide indicators of the effect of the alternative on spatial and temporal concentration of the species.			
No impact	No change in sustainable target fishery biomass.	No fishery induced changes in genetic structure of the stock.	No fishing impact on level of recruitment success or adult fecundity.	No fishing impact on prey availability for target species	No fishing impact on target fishery habitat.
Adverse impact	Substantial reduction in the level of the sustainable biomass because of fishing activity.	Fishing activity has differential impact on substocks in the population.	Reduced level of recruitment success due to fishing related disturbance of fish stocks during life cycle stages important to recruitment or to dispensatory impacts of fishing activity.	Current harvest levels and distribution of harvest reduce prey available for target stocks	Fishing activity will have an adverse impact on sustainable target fishery biomass because of its impact on habitat.

	Level of mortality	Genetic structure	Reproductive success	Prey availability	Habitat
		Genetic structure and reproductive success provide indicators of the effect of the alternative on spatial and temporal concentration of the species.			
Beneficial impact	There is no beneficial impact from this action.	There is no beneficial impact from this action.	Increased level of recruitment success associated with density dependent or compensatory mechanisms.	Current harvest levels and distribution of harvest increase prey available to target stocks.	There is no beneficial impact from this action.
Significantly adverse impact	Level of mortality likely to exceed the maximum fishing mortality threshold (MFMT or OFL) or to decrease abundance below minimum stock size threshold (MSST).	Evidence of genetic subpopulation structure and evidence that the distribution of harvest leads to a detectible reduction in genetic diversity that jeopardizes the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing.	Evidence that the distribution of harvest leads to a detectable decrease in reproductive success such that it jeopardizes the ability of the stock to sustain itself at or above MSST or increases the potential for overfishing.	Evidence that current harvest levels and distribution of harvest lead to a change in prey availability that jeopardizes the ability of the target stock to sustain itself at or above MSST or increases the potential for overfishing..	Evidence that current levels of habitat disturbance are sufficient to lead to a decrease in spawning or rearing success such that it jeopardizes the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing..
Significantly beneficial impact	Not applicable	Not applicable	Not applicable. Increased recruitment success due to fishing activity can only be sustained with beneficial fishing activity, and biomass below unfished levels.	Evidence that current harvest levels and distribution of harvest lead to a change in prey availability such that it enhances the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing.	Not applicable
Unknown impact	Unknown fishing mortality rate	OFL or MSST and genetic structure are unknown, therefore no information to evaluate whether distribution of the catch changes the genetic structure of the population such that it jeopardizes or enhances the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing.	OFL or MSST are unknown therefore no information regarding the potential impact of the distribution of the catch on reproductive success such that it jeopardizes or enhances the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing.	OFL or MSST are unknown there fore no information that current harvest levels and distribution of harvest lead to a change in prey availability such that it enhances or jeopardizes the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing.	OFL or MSST are unknown therefore no information that current levels of habitat disturbance are sufficient to lead to a detectable change in spawning or rearing success such that it enhances or jeopardizes the ability of the stock to sustain itself at or above the MSST or increases the potential for overfishing.

Marine Mammals
Direct and indirect interactions between marine mammals and groundfish harvest may occur due to overlap in the size and species of groundfish harvested in the fisheries that are also important marine mammal prey, and due to temporal and spatial overlap in marine mammal occurrence and commercial fishing activities.

Impacts of the proposed action are analyzed by addressing three questions: (1) Does the proposed action result in an increase in direct interactions with marine mammals (incidental take and entanglement in marine debris)? (2) Does the proposed action remove prey species at levels or in areas that could compromise foraging success of marine mammals (harvest of prey species)? (3) Does the proposed action modify marine mammal behavior (disturbance)?

Significant incidental take of marine mammals is determined by predicting whether the proposed harvest levels will result in a take that exceeds the potential biological removal (PBR). The PBR is the maximum number of animals that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. The PBR is used for marine mammals because it is the value determined through the marine mammal stock assessments (Angliss and Lodge 2004) to identify the level at which animals may be removed from the stock while the stock achieves sustainable populations. As long as take is maintained within the PBR, the take is considered not significant. Significance ratings for each question are summarized in Table 4.1-2.

Table 4.1 – 2. Criteria for determining significance of impacts to marine mammals

	Incidental take and entanglement in marine debris	**Harvest of prey species**	**Disturbance**
No impact	No incidental take by fishing operations, and no entanglement in marine debris	No competition for key marine mammal prey species by the fishery.	No disturbance of mammals or their prey.
Adverse impact	Mammals are taken incidentally to fishing operations, or become entangled in marine debris	Fisheries reduce the availability of marine mammal prey.	Fishing operations disturb marine mammals or the prey of marine mammals.
Beneficial impact	There is no beneficial impact.	There are no beneficial impacts.	There is no beneficial impact.
Significantly adverse impact	Incidental take is more than PBR	Competition for key prey species likely to constrain foraging success of marine mammal species causing population decline.	Disturbance of mammal or prey field such that population is likely to decrease.
Significantly beneficial impact	Not applicable	Not applicable	Not applicable
Unknown impact	Insufficient information available on take rates	Insufficient information as to what constitutes a key area or important time of year	Insufficient information as to what constitutes disturbance.

Benthic and Essential Fish Habitat
The baseline for purposes of this EA, against which the criteria are applied, is the status quo impact on habitat, in the absence of the proposed closure (NMFS 2005b).

The criterion for significantly adverse effects on habitat is derived from the requirement at 50 CFR 600.815(a)(2)(ii) that NMFS must determine whether fishing adversely affects EFH in a manner that is more than minimal and temporary in nature. This standard determines whether Councils are required to act to prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable. Fishery impacts on benthic habitat are, therefore, rated as insignificant if the fishery impacts are minimal or temporary in nature.

The final rule revising the regulations for essential fish habitat (67 *FR* 2343; January 17, 2002) does not define minimal and temporary, although the preamble to the rule states that "Temporary impacts are those that are limited in duration and that allow the particular environment to recover without measurable impact. Minimal impacts are those that may result in relatively small changes in the affected environment and insignificant changes in ecological functions." (67 *FR* 2354) This EA follows the usage and criteria used in the EFH EIS (NMFS 2005b).

Table 4.1 - 3 **Significance Criteria for Essential Fish Habitat**

	Fishery Impact on EFH
No impact	Fishing activity has no impact on EFH
Adverse impact	Fishing activity causes disruption or damage of EFH
Beneficial impact	Beneficial impacts of this action cannot be identified
Significantly adverse impact	Fishery induced disruption or damage of EFH that is more than minimal and not temporary.
Significantly beneficial impact	No threshold can be identified
Unknown impact	No information is available regarding gear impact on EFH.

4.2 Direct and Indirect Effects on Environmental Components

The following effects analysis details the potential effects on those environmental components that were identified as likely to be impacted by the action and for which significance criteria are described above. The impacts of Alternative 1 (no action alternative) is adopted by reference as the analysis of the impacts of the preferred alternative (Alternative 2) in the 2006-2007 Harvest Specifications EA (NMFS 2005a). No significant impacts on the human environment were identified for the preferred alternative in the Harvest Specifications EA which is considered Alternative 1 for purposed of this analysis. The following analysis discusses the impacts of this EA's Alternative 2 (Chiniak Gully closure).

4.2.1 Target Species

The general impacts of fishing mortality within FMP Amendment 56/56 ABC/OFL definitions are discussed in Section 4.1.3 of the PSEIS (NMFS 2004), and apply to all fish species for which a TAC is specified. Detailed stock assessment and fishery evaluation analyses were prepared for each stock, species, or species group in the GOA. These may be found in the stock assessment and fishery evaluation (SAFE) reports. Copies of the reports are available online at http://www.afsc.noaa.gov/refm/stocks/assessments.htm.

The criteria used to estimate the significance of the proposed closure on GOA stocks of target species are summarized in Section 4.1 and in Table 4.1-1. The criteria use a minimum stock size threshold (MSST) for tier 1-3 species and the OFL for tier 4-6 species as a basis for beneficial or adverse impacts of each alternative. A thorough description of the MSST is in the National Standard Guidelines 50 CFR Part 600 (Federal Register Vol. 63, No. 84, 24212 - 24237).

The primary impact of the proposed action (Chiniak Gully closure) would be a redistribution of fishing effort and, persumably, catch along the east side of Kodiak Island. Major changes in expected total removals are not anticipated. The impact of expected total removals within the GOA were addressed in the 2006-2007 Harvest Specifications EA (NMFS 2005a). An additional impact of the proposed action would be a redistribution of trawl testing, resulting from the temporary closure of most of the Kodiak Test Area.

The Chiniak Gully trawl closure is not expected to impact the distribution of groundfish bottom trawl harvest off the east side of Kodiak Island, because the 3rd seasonal allowance (July 4 to September 30) of halibut would typically be attained in early August. The fisheries that are likely to be operating during the experiment are the mid-water pollock fishery, the sablefish Individual Fishing Quota (IFQ) fisheries using hook-and-line gear, and the year round pot and jig groundfish fisheries that principally target Pacific cod and rockfish. Of the fisheries likely to be open, the fixed gear fisheries will be exempt from the proposed action. Closing the Kodiak Test Area is not expected to impact the distribution of groundfish trawl harvest, because no fish are caught during trawl testing. Specific impacts of the Chiniak Gully trawl closure on FMP groundfish are described below.

Groundfish Trawl

Groundfish trawl fisheries are typically closed during large portions of August and September (the proposed Chiniak Gully trawl closure time frame), because the 3rd seasonal allowance (July 4 to September 30) of halibut bycatch mortality has typically been reached. Groundfish trawl fisheries are managed as deep-water and shallow-water complexes. The shallow-water complex consists of pollock, Pacific cod, shallow-water flatfish, flathead sole, Atka mackerel, and "other species". The deep-water complex consists of sablefish, rockfish, deep-water flatfish, rex sole, and arrowtooth flounder. Vessels using pelagic trawl gear targeting Pollock and exempt from the shallow-water complex halibut closure. Closure dates for deep-water and shallow-water complexes, since 1996, are shown in Table 4.2.1-1.

Table 4.2.1-1. Third season (July 4 – September 30) closure dates for deep-water and shallow-water complexes since 1996.

Year	Deep-water complex		Shallow-water complex	
	Closed from	to	Closed from	to
1996	Aug 7	Sept 30	Aug 5	Sept 30
1997	July 20	Sept 30	Aug 11	Sept 30
1998	July 28	Sept 30	Aug 3	Sept 30
1999	July 21	Sept 30	July 4	Sept 30
2000	Aug 23	Sept 30	Aug 11	Sept 30
2001	July 23	Sept 30	Aug 4	Sept 30
2002	Aug 2	Oct 1	Aug 5	Oct 1
2003	no closure		Sept 12	Oct 1
2004	July 25	Oct 1	Sept 10	Oct 1
2005	July 24	Sept 30 (open 1 to 4 Sept)	Aug 19	Sept 30 (open 1 to 4 Sept)

In 2003, the halibut bycatch allowance in the central Gulf of Alaska was not reached until September 12 for the shallow-water complex and October 15 for the deep-water complex. However, rockfish and sablefish fisheries were closed during the proposed Chiniak Gully closure time frame, due to bycatch limits set by groundfish harvest specifications, and the inshore Pacific cod fishery was only open from September 1 through 3. Offshore Pacific cod, deep and shallow flatfish, flat head sole, and rex sole fisheries were open during the time frame of the proposed Chiniak Gully trawl closure. In 2004, the halibut bycatch allowance was not reached until September 10, for the shallow-water complex. However, inshore and offshore Pacific cod fisheries were only open from September 1 through 10 that year, due to other bycatch limits. Of the species in this complex, Pacific cod fisheries would have been less affected by the proposed Chiniak Gully closure. Shallow water flatfish and flathead sole fisheries were open during the time frame of the proposed trawl closure.

Part of the Chiniak Gully closure site is already closed to non-pelagic trawl gear during the time frame of the proposed trawl closure. Crab habitat along the east side of Kodiak Island is protected from non-pelagic trawl gear on a year-long (Type 1) or seasonal (Type II) basis (NPFMC 1999). In addition, some areas adjacent to Type I and II areas have been identified as important juvenile king crab rearing or migratory areas (designated as Type III). Type III areas only become operational following a determination that a "recruitment event" has occurred. Once operational, the NMFS Alaska Regional Administrator will then proceed to classify the Type III area as either Type I or II, depending on the information available. The protective crab regulations affect the bottom trawl fisheries (e.g., flatfish). A nearshore section of the proposed Chiniak Gully closed control site is found within a Type I closure area, which would prohibit non-pelagic trawling all year.

Re-distribution of trawl testing, as a result of closing the Kodiak Test area, is not expected to impact the trawl harvest of groundfish, because no fish are caught during trawl testing. However, there may be unforeseen impacts of trawl testing on the local distribution of fish due to behavioral reactions to vessel fishing activities (e.g., motoring, deploying and retrieving nets, etc.). According to fishing industry representatives, it is anticipated that approximately 5 vessels would be testing trawls during the proposed Chiniak Gully closure period, August 1 to a date no later than September 20 (Julie Bonney, Alaska Groundfish Data Bank, pers. com.). The potential disruption to groundfish distribution is, thus, likely to be minor, likely to be insufficient to cause a localized effect on these stocks, and unlikely to cause a significant impact on other groundfish.

Flatfish – "Flatfish" includes the following species or species groups: arrowtooth flounder, flathead sole, rex sole, shallow water flatfish (northern and southern rock sole, yellowfin sole, butter sole, starry flounder, English sole, Alaska plaice, and sand sole) and deep water flatfish (Dover sole, Greenland turbot, and deepsea sole). If the halibut allowance did not prohibit flatfish trawl fisheries in August and September for the years 2006 through 2010, the major impact of the proposed action would be a displacement of flatfish fishing effort away from Chiniak Gully. This shift in flatfish fishing effort is unlikely to result in adverse impacts to flatfish, since the TACs for these species have been, and likely are to remain, well below the recommended ABC levels. Observer data from the months of August and September, from 1999 through 2004, revealed that in years when vessels were allowed to operate in Chiniak Gully (1999, 2000, and 2003), 1% to 3% of the Central GOA fishing effort occurred in Chiniak Gully (observer data from 1999 cannot be reported due to confidentiality restrictions, and data from 2005 was not available at the time of writing) (Table 4.2.1-2). These data suggest that the shift of flatfish fishing effort to Barnabas Gully and other fishing grounds in the central GOA, if it occurred, would be about a 2% increase. The potential redistribution of flatfish bottom trawl fishing effort due to the proposed Chiniak Gully closure is likely to be minor, likely to be insufficient to cause a localized effect on these stocks, and unlikely to cause a significant impact on other groundfish.

Table 4.2.1-2. Summary of non-pelagic flatfish fishery in area 620 and 630 based on NMFS observer data summarized for August and September*.

YEAR	Observed flatfish catch in Chiniak Gully closure (mt)	Observed flatfish catch in 620 and 630 (mt)	Proportion of observed flatfish catch in Chiniak Gully closure
1999	confidential	239.47	
2000	22.96	2,047.51	0.01
2001		211.67	
2002		396.24	
2003	51.19	1,587.77	0.03
2004		1,017.46	
Mean			0.02

* Observer data must be evaluated with caution because only 30% coverage is required for vessels over 60 ft and less than 125 ft. Most of the vessels participating in fisheries off the east side of Kodiak Island fall into the 30% coverage size category. In addition, Federal law specifies that fisheries data collected for Federal fisheries, and the results of analysis of such data, may only be reported to the public when three or more operations (e.g., independently owned vessels and/or plants) are included in the reporting category.

Pacific Cod - If the halibut bycatch allowance did not prohibit Pacific cod trawl fisheries in August and September for the years 2006 through 2010, the major impact of the proposed closure would be a displacement of Pacific cod fishing effort away from Chiniak Gully. Observer data from the months of August and September from 1999 through 2004, revealed that in years when vessels were allowed to operate in Chiniak Gully (1999, 2000, and 2003), 2% to 13% of the effort occurred in Chiniak Gully (observer data from 1999 cannot be reported due to confidentiality restrictions, and data from 2005 was not available at the time of writing) (Table 4.2.1-3). These data suggest that the shift of Pacific cod fishing effort to Barnabas Gully and other fishing grounds in the Central GOA, if it occurred, would be about a 8% increase. The potential redistribution of cod bottom trawl fishing effort due to the proposed Chiniak Gully closure is likely to be minor, likely to be insufficient to cause a localized effect on these stocks, and unlikely to cause a significant impact on other groundfish.

Table 4.2.1-3. Summary of non-pelagic Pacific cod fishery in area 620 and 630 based on NMFS observer data summarized for August and September*.

YEAR	Observed cod catch in Chiniak Gully closure (mt)	Observed cod catch in 620 and 630 (mt)	Proportion of observed cod catch in Chiniak Gully closure
1999	confidential	37.89	
2000	19.86	151.06	0.13
2001		479.71	
2002		71.59	
2003	35.74	1,663.08	0.02
2004		1,781.87	
Mean			0.08

* Observer data must be evaluated with caution because only 30% coverage is required for vessels over 60 ft and less than 125 ft. Most of the vessels participating in fisheries off the east side of Kodiak Island fall into the 30% coverage size category. In addition, federal law specifies that fisheries data collected for Federal fisheries, and the results of analysis of such data, may only be reported to the public when three or more operations (e.g., independently owned vessels and/or plants) are included in the reporting category.

Walleye pollock - The mid-water pollock fishery is the only sector of the shallow water fishery complex that is exempt from the shallow water complex closure. Displacement of fishing effort resulting from the establishment of a no trawl zone is likely to be minor. Observer data from the months of August and

September from 1999 through 2004, revealed that in years when vessels operated in Chiniak Gully (1999, 2000, and 2003), 7% to 17% of the pollock fishing effort occurred in Chiniak Gully (observer data from 2005 was not available at the time of writing). These data suggest that the shift of fishing effort to Barnabas Gully and other fishing grounds in the Central GOA, if it occurred, would be about a 10% increase (Table 4.2.1-4). The potential redistribution of mid-water pollock fishing effort due to the Chiniak Gully closure is likely to be minor and insufficient to cause a significant impact on other groundfish. Pollock are capable of broad scale movements, well beyond the localized region of Chiniak Gully. At the recommended harvest level for the region, small shifts in the geographic distribution of effort and, presumably, catch are not likely to significantly impact predator prey or reproductive success of pollock or other groundfish stocks in the region.

Table 4.2.1-4. Summary of pelagic pollock fishery in area 620 and 630 based on NMFS observer data summarized for August and September*.

Year	Observed pollock catch in Chiniak Gully closure (mt)	Observed pollock catch in 620 and 630 (mt)	Proportion of observed pollock catch in Chiniak Gully closure
1999	862.65	4,934.73	0.17
2000	216.49	1,986.39	0.11
2001		1,600.73	
2002		2,882.45	
2003	152.15	2,196.48	0.07
2004		2,140.03	
Mean			0.10

* Observer data must be evaluated with caution because only 30% coverage is required for vessels over 60 ft and less than 125 ft. Most of the vessels participating in fisheries off the east side of Kodiak Island fall into the 30% coverage size category. In addition, federal law specifies that fisheries data collected for Federal fisheries, and the results of analysis of such data, may only be reported to the public when three or more operations (e.g., independently owned vessels and/or plants) are included in the reporting category.

Hook-and-line, pot and jig fisheries

The principal groundfish targeted by hook-and-line gear in the Central GOA are sablefish and Pacific cod. The principal species targeted by pot and jig fisheries are Pacific cod and rockfish. Hook-and-line, pot, and jig groundfish fisheries are exempt from the proposed no trawl zone in Chiniak Gully. Therefore, the Chiniak Gully closure is not expected to impact these fisheries, except insofar as redistribution of groundfish trawl fishing effort causes gear conflicts outside the closure area. Given the small amount of trawl fishing effort that is expected to be displaced, increased gear conflicts are not expected to be significant.

Significance Conclusions

The primary impact of the proposed Chiniak Gully closure action would be a redistribution of catch along the east side of Kodiak Island. Major changes in expected total removals are not anticipated. The impact of expected total removals within the GOA were addressed in the 2006-2007 Harvest Specifications EA (NMFS 2005a). That EA concluded that impacts of redistributed harvest on target species stocks, species, or species groups, are likely insignificant for all target fish evaluated. The proposed action is not expected to:

(1) jeopardize the capacity of the stock to produce maximum sustainable yield on a continuing basis because the removal of target species is expected to remain the same;
(2) alter the genetic sub-population structure such that it jeopardizes the ability of the stock to sustain itself at or above the minimum stock size threshold or experience overfishing because the portion of the TAC harvest redistributed to outside the closure area is too small to be expected to alter genetic structure;
(3) decrease reproductive success in a way that jeopardizes the ability of the stock to sustain itself at or above the minimum stock size threshold because the redistribution of fishing effort is a minor amount over a short duration and is not expected to disrupt reproductive behavior;
(4) alter harvest levels or distribution of harvest such that prey availability would jeopardize the ability of the stock to sustain itself at or above the minimum stock size threshold or experience overfishing because the redistribution of fishing effort is a minor amount over a short duration and is not expected to disrupt prey availability for target species; and
(5) disturb habitat at a level that would alter spawning or rearing success such that it would jeopardize the ability of the stock to sustain itself at or above the minimum stock size threshold or prevent overfishing because the redistribution of fishing effort is a minor amount over a short duration and is not expected to disturb habitat to a level that would disrupt spawning and rearing success.

Because the primary impact of the proposed regulatory amendment (Chiniak Gully closure) would be a redistribution of catch and effort along the east side of Kodiak Island, with no major changes in expected total removals, the proposed action will not result in significant impacts on target species following the 5 criteria detailed in Section 4.1, Table 4.1-1.

4.2.2 Steller Sea Lions

In the 2006-2007 Harvest Specifications EA (NMFS 2005a), the potential effects of the harvest alternatives were evaluated with respect to (1) the extent of direct take of marine mammals by fishing operations, (2) competition between the fisheries and marine mammals for food, and (3) disturbance by fishing vessels. The analysis determined (a) whether or not takings, prey competition, or disturbance occur under each alternative, and (b) if they do occur, whether or not they have impacts that exceed the significance criteria. That EA concluded that the TACs established under the preferred harvest alternative are not likely to result in incidental takes that exceed the PBRs and therefore are not significant. The Harvest Specifications EA also concluded that impacts from the preferred harvest alternative on the harvest of marine mammal prey species are insignificant. Finally, the preferred harvest alternative in the 2006-2007 Harvest Specifications EA would not open additional areas where disturbance may increase at particular locations, compared to 2005 (NMFS 2005a). Thus, the EA concluded that the effect of the preferred harvest alternative on marine mammal disturbance is insignificant.

The primary impact of the proposed action (Chiniak Gully closure) would be a redistribution of effort and, presumably, catch, along the east side of Kodiak Island. Major changes in expected total removals are not anticipated. Because the amount of harvest is not likely to change and the location of harvest is dispersed outside of the closure area, the proposed Chiniak Gully action is not expected to result in: 1) an increase in incidental take, 2) an increase in competition for key prey species, or 3) an increase in disturbance. All of these criteria are a function of total fishing effort and increases in fishing effort and removals are not expected. Any impacts on marine mammals due to a shift of fishing effort from inside to outside the Chiniak Gully are expected to be insignificant, because of the small amount of effort and harvest dispersement outside of the closure area. It is possible that animals using the closed waters at that time of the year may experience less competition for prey and less disturbance, leading to a reduction in the potential adverse effects of fishing effort and removals.

Re-distribution of trawl testing is not expected to significantly impact SSL, because no SSL prey will be caught during trawl testing. It is possible that trawl testing could disrupt pelagic fish schools due to fish behavioral responses to vessel noise and activity. However, trawl testing will not occur within a designated SSL protection area and the displaced trawl testing will occur over a limit period. Furthermore, it is anticipated that a small number of vessels (approximately 5) would conduct trawl tests during the proposed closure period, August 1 to a date no later than September 20 (Julie Bonney, Alaska Groundfish Data Bank, pers. com.). Because no fish are caught and the amount and duration of vessel activity is expected to be low, re-distribution of trawl testing is not expected to result in: 1) an increase in incidental take, 2) an increase in competition for key prey species, or 3) an increase in disturbance.

The major impact associated with the no action alternative is the loss of opportunity to obtain scientific information and understanding regarding the potential mechanisms through which commercial fishing could impact the recovery of SSLs. The proposed experiment has the potential for improving our understanding of sea lion/fisheries competition and the effects of fisheries on sea lion prey. The establishment of buffer zones is predicated on the assumption that commercial fishing activity near rookeries/haulouts will negatively impact SSLs; therefore, it is imperative that we increase our understanding of the effects of fishing so that current buffer zone parameters can be evaluated. Such an experiment would increase management's ability to avoid jeopardy for SSLs and adverse modification of their critical habitat in the future.

4.2.3 Benthic and Essential Fish Habitat

Appendix B of the EFH EIS contains an evaluation of the potential adverse effects of fishing activities on EFH. The EFH EIS determined an overall fishery impact for each fishery based on the relative impacts of the gear used (which is related to physical and ecological effects), the type of habitat fished (which is related to recovery time), and the proportion of that bottom type used by the fishery. Managed species with EFH defined as benthic habitat include crab, scallops, and groundfish. The significance criteria for evaluating the effects of an action on EFH are described in detail in Section 4.1 of this EA. In brief, NMFS must determine whether fishing adversely affects EFH in a manner that is more than minimal and temporary in nature.

Fishing operations can change the abundance or availability of certain habitat features (e.g., prey availability or the presence of living or non-living habitat structure) used by managed fish species to accomplish spawning, breeding, feeding, and growth to maturity. These changes can reduce or alter the abundance, distribution, or productivity of those species, which in turn can affect the species' ability to "support a sustainable fishery and the managed species' contribution to a healthy ecosystem" (50 CFR 600.10). The outcome of this chain of effects depends on characteristics of the fishing activities, habitat, fish use of the habitat, and fish population dynamics. The duration and degree of fishing's effects on habitat features depend on the intensity of fishing, the distribution of fishing with different gears across habitats, and the sensitivity and recovery rates of habitat features.

Bottom trawls, pelagic trawls, dredges, longlines, pots, and dinglebars may affect EFH. These gear types can damage or capture benthic species and may cause habitat degradation, as described in Appendix B to the EFH EIS (NMFS 2005b).

The 2006-2007 Harvest Specifications EA concluded that the preferred harvest alternative may have an adverse impact on EFH for managed species, but that the potential adverse impact on EFH is not significant (NMFS 2005a). This means that adverse effects may be occurring, but they do not rise to the level requiring additional minimization, that level being established by 50 CFR 600.815(a)(2) as adverse

effects that are more than minimal and not temporary in nature. The Harvest Specifications EA concluded that the effects of groundfish harvest on EFH under the status quo fishery are insignificant.

The primary impact of the proposed action (Chiniak Gully closure) would be a redistribution of effort and associated catch along the east side of Kodiak Island. Major changes in expected total removals are not anticipated. The potential shifts in trawl fishing effort caused by the temporary no trawl zone in Chiniak Gully are not expected to have a significant impact on EFH. The proposed action will primarily impact the distribution of the mid-water pollock trawl fishery, which has little impact on the benthos. Most bottom trawl fisheries will be closed during the time of this experiment (see Section 4.2.1). If bottom trawl fisheries remained open, the displacement of bottom trawl fishing effort due to the no trawl zone in Chiniak Gully would be minor. As described in Section 4.2.1, the expected displacement of flatfish and Pacific cod bottom trawl fishing effort would be 2% and 8% of the total central GOA effort, respectively. These minor shifts in the geographic distribution of bottom trawl fishing effort are not likely to have impacts on essential fish habitat that are more than minimal and temporary in nature. Therefore, the potential effects of Alternatives 2 on EFH are insignificant.

Redistribution of trawl testing is not expected to impact EFH. According to industry representatives, tests are typically only done for pelagic trawls, which would have no impact on benthic habitat (Julie Bonney, Alaska Groundfish Data Bank, pers. com.). In addition, it is anticipated that approximately 5 vessels would use the trawl test area during the proposed closure period (August 1 to a date no later than September 20). The potential impacts on EFH are, thus, likely to be minor.

4.3 Cumulative Effects

The cumulative effects of the current harvest specifications are discussed in detail in the Harvest Specifications EA (NMFS 2005a) and are adopted here by reference. The Harvest Specifications EA is a very recent and broad examination of potential cumulative effects for fisheries throughout Alaskan waters. The findings can therefore be applied to this small portion of the GOA fisheries. That EA concludes that the foreseeable future actions (ecosystem approaches to management, rationalization, traditional management tools, other government actions, and private actions) will all lead to a reduction in the adverse effects of fishing on target species. One exception is the new pollock fisheries in Cook Inlet, the Shumagin Islands area, and the Aleutian Islands, that the State of Alaska is considering. However, these areas are outside the action area of the regulatory amendment proposed in this EA, the Chiniak Gully closure. The Harvest Specifications EA states that continued commercial fishing and subsistence harvest are potentially the most important sources of additional adverse impacts on marine mammals, but concludes that a number of factors will tend to reduce impacts in the future (such as a trend toward ecosystem based management and fisheries rationalization). Similarly, that EA concludes that continued commercial fishing is potentially the most important source of additional impacts on EFH, but that several factors will reduce the adverse effects.

In summary, the conclusion of the Harvest Specifications EA is that the past, present, and reasonably foreseeable future actions do not appear to require a change in the direct-indirect significance determinations with regard to the environmental components considered in that EA, including target species, SSLs, and EFH, which are analyzed in this EA. Based on the harvest specifications' cumulative effects analysis and on the analysis in this EA, no additional past, present, or reasonably foreseeable future actions were identified. Thus, the direct, indirect, and cumulative effects for the proposed action (Chiniak Gully closure) are not likely to significantly impact the human environment.

4.4 Environmental Analysis Conclusions

To determine the significance of the impacts of the action analyzed in this EA, NMFS is required by NEPA and 50 CFR § 1508.27 to consider the following:

Context: The setting of the proposed action is the groundfish trawl fisheries of the GOA on the east side of Kodiak Island. Any effects of the action are limited to this area. The effect on society within this area is isolated to the individuals who may participate in trawl fisheries in the Chiniak Gully. This action has no impacts on society as a whole, or regionally.

Intensity: A listing of considerations to determine intensity of the impacts are in 50 CFR § 1508.27 (b) and in the NOAA Administrative Order 216-6, Section 6. Each consideration is addressed below, in order, as it appears in the regulations.

1. Beneficial and adverse impacts are required to be considered for marine resources, including sustainability of target and nontarget species, damage to ocean or coastal habitat or essential fish habitat, effects on biodiversity and ecosystems, and marine mammals. Effects of the proposed action are in Chapter 4.0 of this EA/RIR/IRFA. The only components of the environment that may be impacted by the proposed action are target species, marine mammals (specifically SSLs), and EFH. The primary impact of the proposed action is the potential redistribution of trawl fishing effort on the east side of Kodiak Island, between August 1 and a date no later than September 20. The potential redistribution of mid-water pollock fishing effort due to the Chiniak Gully closure is likely to be minor and would not be sufficient to cause a significant impact on other groundfish fisheries. Much of the bottom trawl fishery does not operate in this time period because the halibut PSC limit is usually reached by early August. There should be no overall change in the amount of bycatch taken. The potential shift in trawl fishing effort is not expected to have a significant impact on essential fish habitat, or SSLs. The proposed action may have the beneficial effect of providing information about pollock abundance and distribution that could be used in pollock fishery management and SSL protection.

2. Public Health and Safety are not impacted by this action due to the limited duration and coverage of this action.

3. No geographic consideration is included with this action because no activities are required by this action that may affect a geographic area.

4. No comments were received during the public notice of nearly identical regulations proposed in 2000 (65 FR 41044 July 3, 2000). This action is not controversial.

5. No known risks to the human environment will occur by taking this action. In the four years that the experiment was conducted, no risks were identified.

6. The future impacts were discussed as part of the cumulative effects analysis in Section 4.3. No future actions were identified that would result in significant impacts in combination with the potential impacts of this action. The experiment is scheduled to end no later than September 20, 2010, and no extension of the experiment is planned at this time.

7. The cumulative impacts of this action were analyzed in Section 4.3. Cumulatively significant impacts are not anticipated with this action, beyond those already described and analyzed in the 2006 and 2007 Harvest Specifications EA. The significance findings for the direct and indirect effects analysis in that EA are not changed by combining them with the minor effects identified in this EA. Because of the short

duration and the limited area where the experiment is conducted, this action has no long term effect on the fishing practices in the GOA. The results of the experiment may lead to modifications in management of pollock fisheries, but the significance of any modification is unknown at this time and will include NEPA analysis before implementation. This action has no known relation to other actions that may be taken to conserve and manage other groundfish fisheries in the GOA.

8. This action will have no effect on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places, nor cause loss or destruction of significant scientific, cultural, or historical resources. This consideration is not applicable to this action.

9. This action will have no significant effect on ESA listed species in the GOA, because the experiment requires the prohibition of trawling, reducing the likelihood of interaction of the trawl fishery with ESA listed species where the experiment is conducted.

10. This action poses no known violation of Federal, State, or local laws or requirements for the protection of the environment.

11. This action poses no known possibility of the introduction of non-indigenous species, because it does not affect the activities of vessels that may introduce such organisms into the marine environment.

5.0 Regulatory Impact Review

5.1 Introduction

This Regulatory Impact Review (RIR) evaluates the costs and benefits of a proposed rule to impose a seasonal ban on all commercial trawl fishing, which includes a ban on testing trawl gear, in the Chiniak Gully region on the east side of Kodiak Island in the Gulf of Alaska (GOA).

This action would make it possible for NMFS to conduct research into the effects of commercial fishing on walleye pollock distribution and abundance. The proposed regulations could result in commercial trawl fishing closures from August 1 to a date no later than September 20, but likely during only three of the five years from 2006 through 2010. (Although research funding is uncertain beyond 2006, the National Marine Fisheries Service (NMFS) is hopeful that funding can be secured for up to three of the five years.) The portion of the Kodiak trawl gear test area that lies within the proposed research area would also be closed during the experimental period.

The affected fishing industry is in favor of this experiment (Bonney, 2005).

5.2 What is a Regulatory Impact Review?

An RIR is required under Presidential Executive Order (E.O.) 12866 (58 *FR* 51735; October 4, 1993). The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E.O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant". A "significant regulatory action" is one that is likely to:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

5.3 Statutory authority

The statutory authority for this action was described in Section 1.2. The groundfish fisheries of the GOA Management Area in the U.S. exclusive economic zone are managed by NMFS under the groundfish Fishery Management Plans (FMP) for this area. The FMP was prepared by the North Pacific Fishery Management Council (NPFMC) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), 16 U.S.C. 1801 et seq., and are implemented by regulations at 50 CFR part 679. General regulations governing U.S. fisheries also appear at subpart H of 50 CFR part 600.

5.4 Background, purpose, and need for action

The purpose and need for this action are further described in Section 1.4.

This action is needed to facilitate research conducted by NMFS to determine whether commercial trawl fishing results in localized depletion or disturbance of walleye pollock. This is part of a comprehensive investigation of sea lion/fishery interactions. Pollock is an important Steller sea lion (SSL) prey item in most areas and during most seasons. Pollock is also one of the most abundant groundfish in the GOA and supports the largest fishery in waters off the coast of Alaska. The proposed research could improve information on pollock movements and on the potential impacts of commercial pollock harvests on foraging behavior of Steller sea lions.

The proposed experimental design uses control (unfished) and treatment (fished) areas. The east side of Kodiak Island was chosen as the study area for this project because two adjacent submarine gullies with similar topographical features are located there. One gully (Barnabas) serves as a treatment site where commercial fishing is allowed. The other (Chiniak) serves as a control site where fishing is prohibited (Fig. 1). A commercial fishery for pollock occurs within the area.

The fishery interaction experiment occurs in August to mid-September. This period was chosen because post-weaning SSL juveniles (one-year-olds) are considered vulnerable to nutritional stress in late summer, due to their high caloric needs and their inexperience at capturing prey. Additionally, fishery management regulations specify an August opening for the commercial pollock fishery in the area, which would coincide with the experiment.

Because Chiniak Gully and Barnabus Gully are reasonably similar, and geographically proximate, this experimental design allows analysts to differentiate responses due to fishing from responses due to natural variability. Without a control, it would be impossible to determine whether changes in pollock abundance, depth, or school characteristics are caused by fishing or whether they have natural causes. Thus, the proposed closure is critical to the success of the experiment. Additional discussion of the purpose and need for the proposed action may be found in Section 1.4.

NMFS conducted pollock fishery interaction experiments in Chiniak Gully in 2001, 2002, and 2004. These experiments were accompanied by regulatory closures. The closures were provided for in emergency interim rules in 2001 (66 FR 37167, July 17, 2001) and in 2002 (67 FR 956, January 8, 2002); and in a final rule published in 2003 (68 FR 204, January 2, 2003). The closure established by the final rule expired on December 31, 2004.

Results from 2002 were not used, because commercial removals from Barnabus Gully were negligible (~ 300 tons). Results from the two years where sufficient commercial removals occurred (2,000 – 3,000 tons) are equivocal. Results from 2001 do not suggest a significant link between fishing activities and changes in pollock geographical distribution, biomass, vertical distribution, or various school size and

shape related descriptors. In contrast, results from 2004 do suggest a link between fishing activities and pollock biomass.

At least one more year of field work is needed to come to a conclusion about the effects of commercial trawl fishing on pollock distribution and abundance. Even if a third year of the experiment provides a clear result, subsequent years of study will be necessary to investigate the causes of interannual variability in the effects of fishing. Without understanding why similar commercial removals resulted in an effect in some years, but not in others, providing clear management advice regarding the effects of fishing on pollock will be difficult.

5.5 Alternatives considered

Two alternatives were considered. Other measures that would exempt small entities from the closure, reduce the number of days of the closure, or would reduce the number of years in which closure would take place, were considered and rejected because they may not yield the data necessary to come to a conclusion about the effects of commercial trawl fishing on pollock distribution and abundance. These other measures, therefore, would not accomplish the objectives of this action.

Alternative 1: Status quo

This is the no action alternative. This alternative is the baseline alternative against which the costs and benefits for the action alternative have been estimated. Under this alternative, NMFS would be unable to conduct a controlled experiment off Kodiak Island and, therefore, NMFS would be prevented from obtaining information that can be used to further evaluate management actions to protect SSLs and their habitat.

Alternative 2: Chiniak Gully trawl closure

Under this alternative, NMFS proposes to conduct a controlled experiment to improve the information available to evaluate management actions to protect SSLs and their habitat. The control site of Chiniak Gully could be closed to commercial trawling between August 1 and a date no later than September 20 between 2006 and 2010. The control site would be reopened to commercial trawling after the determination is made by the Regional Administrator that the research is over for the year. This reopening is likely to take place before September 20. The information obtained from the experiment may result in more effective and efficient (i.e., less costly) methods to protect SSLs. Until the information is gathered, it is impossible to say exactly what these protection methods would be.

The proposed closure area is shown in Figure 1, Section 1.3. Figure 1 shows the closure area in relation to the northern end of Kodiak Island and the City of Kodiak, the local bathymetry, the State of Alaska statistical areas, the areas closed to fishing by the SSL protection measures, and the Kodiak trawl test area. The portion of the Kodiak trawl Test Area that lies within the proposed Chiniak Gully Research Area also would be closed during the experimental period. During previous experiments, the Kodiak Test Area was open to testing trawl gear, but this was an oversight. Given the many unforeseeable causes of variability in pollock distribution and abundance, it is important to eliminate as many anthropogenic effects on pollock as possible at the control site of Chiniak Gully.

Note that in any particular year, the Regional Administrator would open the area to trawl fishing after the determination is made that the experiment is not to be conducted, or that the experiment has been concluded prior to September 20. NMFS expects to conduct the experiment only in three of the five years from 2006 through 2010. Thus, the closure of Chiniak Gully would likely occur only in those three years.

5.6 Costs and benefits of this action

5.6.1 The Impacted Fisheries

This proposed action is expected to primarily affect the flatfish bottom trawl fishery, the Pacific cod bottom trawl fishery, and the pollock mid-water trawl fishery in the Chiniak Gully closure area (see Section 4.2.1). The other fisheries that are likely to be operating during the experiment are the sablefish Individual Fishing Quota (IFQ) fisheries using hook-and-line gear, and the year round pot and jig groundfish fisheries that principally target Pacific cod and rockfish. The latter, fixed-gear fisheries would be exempt from the proposed action. Specific impacts on the FMP groundfish fisheries are described in Section 4.2.1.

The Kodiak trawl test area is mostly used each year prior to the January 20th trawl fishery opening, when all other waters in the area are closed to trawling.[2] After this point, trawlers may test their gear in any area that is open to fishing with trawl gear, provided the codend of the trawl gear is unzipped and no groundfish are possessed onboard while testing the trawl gear (Hansen, pers. comm. Jan. 2006). Regulations pertaining to trawl gear test areas can be found at § 679.24(d). Fishermen test their gear prior to fishing to ensure their equipment is working properly. Specific tests include how a new net deploys, how new doors are working, if the tension is correct on the net wheel, and if the electronic systems are working correctly. During the August 1 to September 20 timeframe, primarily pelagic gear is tested.

Fishing Operations

Fish ticket data and observer data were used to determine possible impacts on fishing operations. Three Alaska Department of Fish and Game groundfish/shellfish statistical areas (stat areas) encompass the proposed Chiniak Gully closure area: 505700, 515700, and 515730 (Fig. 1). Stat areas 525732 and 525733 were not included because they are within SSL trawl exclusion zones. Fish tickets were used to identify 49 unique trawl catcher vessels that fished at least once in at least one of the three stat areas, between August 1 and September 20, from 1999 through 2005. These are referred to as the "affected vessels," because they have fishing history in the proposed closure area. There was some catcher/processor activity in the area during this period, however, the number of operations involved is small enough that confidentiality rules preclude reporting any information about this activity.[3]

Fishermen self-report the stat areas shown on fish tickets. A preliminary study of the Vessel Monitoring System (VMS) data available for the area suggests that the self- reporting is not always accurate. The VMS data indicate that more vessels may have fished in the Chiniak Gully stat areas than reported fishing there on the fish tickets. However, VMS data cannot provide the value of the fish taken from Chiniak Gully. Therefore, for the purposes of this analysis, fish ticket data were used so that economic analyses

[2] Under §679.23(c), from January 1 through January 20, the fishing with trawl gear is prohibited in the EEZ. Under State of Alaska regulations, a notice is produced which states the rules for state waters mirror federal action for species for which they do not have a specific management plan. Thus, state waters also may be closed to trawl gear type during the same period (Hansen, pers. comm. Jan. 2006).

[3] Federal law specifies that fisheries data collected for Federal fisheries, and the results of analysis of such data, may be reported to the public only when three or more operations (e.g., independently owned vessels and/or plants) are included in the reporting category (as for observer data), while State of Alaska confidentiality limits require no fewer than four independent entities (as for fish ticket data).

could be performed. But it is recognized that the fish ticket data will underestimate the potential impacts estimated in those economic analyses.

An examination of vessel lengths for the affected vessels indicates that there are four unique vessels under 60 feet that fished in one or more of the three stat areas between 2000 and 2005. All are 58 LOA, meaning no observer coverage is required of this vessel class. The rest of the affected vessels fall into the 60 to 125 foot range of vessels, with a requirement for 30% observer coverage. (Thirty percent observer coverage means that of the total number of fishing days for each vessel, 30% of the days must have the catch and by-catch recorded by an observer.) The average length for all vessels is about 86 feet.

The number of affected vessels operating between August 1 and September 20, ranged from 5 in 2002 to 30 in 2004, and averaged 20 over the 7 years. Only 39% of the affected vessels are home-ported in and operate out of the city of Kodiak, adjacent to the proposed closure area, while 47% are home-ported outside of Alaska.

Of the 49 affected vessels, 49% fished the subject areas only once or twice (see Figure 4). Only three vessels fished in the three stat areas for six or seven of the years studied. For all 49 vessels, the average number of years fished in the three stat areas was 2.8 years (see Figure 4).

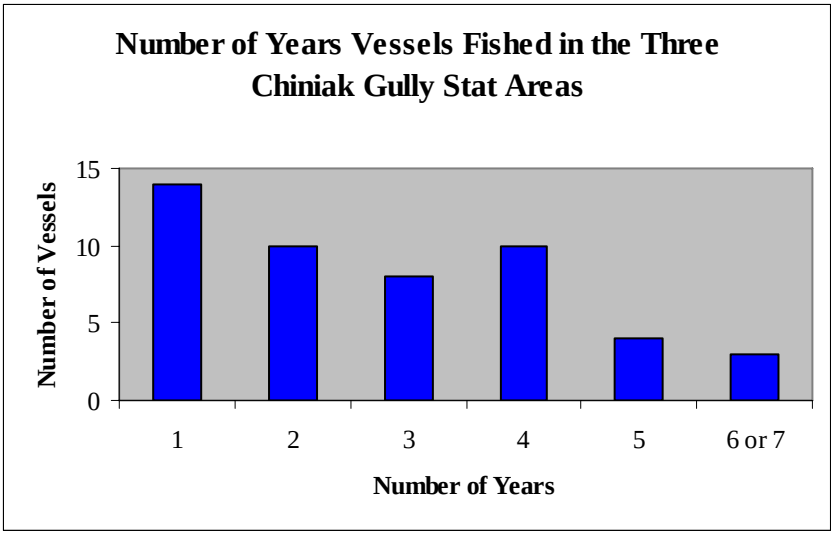

Figure 4. Number of years in which vessels fished in the three stat areas between August 1 and September 20, 2000-2005.

Tables 5.6-1 through 5.6-6 show the total retained, trawl-gear groundfish catch and its value, by species group. The tables are provided for various time frames, groups of vessels, and fishing locations. They are provided here for informational purposes, and used in Section 5.6.2 in the cost analyses.

Table 5.6-1 Total retained, trawl-gear groundfish catch (metric tons) and its value (dollars), by species group, from the three Chiniak Gully stat areas August 1 through September 20, 1999-2005.

SPECIES	1999		2000		2001		2002		2003		2004		2005	
	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)
Pollock	3,172	700,086	629	108,941	16	2,416	c	c	589	90,915	55	10,028	8	1,746
Pacific cod	19	13,191	70	51,174	230	114,729	c	c	121	77,433	1,378	758,008	157	96,803
Flatfish	c	c	170	71,140	267	110,559	c	c	359	100,275	61	18,724	585	282,573
Rockfish	c	c	4	424	c	c	c	c	c	c	0	0	0	0
Sablefish	c	c	c	c	0	0	0	0	0	0	0	0	3	7,596
Other groundfish	0	0	21	6,508	9	608	c	c	54	18,080	0	0	c	c
Total	3,191	713,277	895	238,187	523	228,312	c	c	1,123	286,703	1,494	786,760	753	388,718

Source: groundfish fish tickets summarized at the AFSC on December 20, 2005. **Note:** Confidential data "c" (categories with activity by fewer than 4 vessels) are not reported.

Table 5.6-2 Total retained, trawl-gear groundfish catch (metric tons) and its value (dollars), by species group from the Central Gulf of Alaska (reporting areas 620 and 630), August 1 through September 20, 1999-2005, by the affected vessels.

SPECIES	1999		2000		2001		2002		2003		2004		2005	
	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)
Pollock	5,907	1,290,866	3,338	581,591	3,626	537,310	1,109	176,295	3,193	717,859	4,424	676,195	1,004	258,251
Pacific cod	158	121,473	168	124,142	446	222,150	34	16,268	1,914	1,234,515	4,009	2,221,441	1,182	771,442
Flatfish	15	5,653	605	257,854	526	209,757	c	c	911	174,936	123	38,309	1,726	782,183
Rockfish	984	160,047	26	3,435	c	c	c	c	c	c	c	C	3	761
Sablefish	52	180,892	c	c	0	0	0	0	0	0	c	C	3	9,852
Other groundfish	c	c	93	20,798	15	887	c	c	214	92,179	0	0	c	c
Total	7,116	1,758,931	4,230	987,820	4,613	970,104	1,143	192,563	6,231	2,219,489	8,557	2,935,944	3,919	1,822,489

Source: groundfish fish tickets summarized at the AFSC on December 20, 2005. **Note:** Confidential data "c" (categories with activity by fewer than 4 vessels) are not reported.

Table 5.6-3 Total retained, trawl-gear groundfish catch (metric tons) and its value (dollars), by species group, from the Central Gulf of Alaska (reporting areas 620 and 630), August 1 through September 20, 1999-2005, by all vessels.

SPECIES	1999		2000		2001		2002		2003		2004		2005	
	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)
Pollock	9,994	2,103,209	5,191	907,480	6,427	957,152	8,625	1,410,027	4,770	956,549	6,401	968,874	2,264	555,995
Pacific cod	204	155,324	192	139,903	894	446,648	154	76,315	3,717	2,387,385	4,702	2,600,673	2,227	1,449,435
Flatfish	20	7,555	717	307,369	612	241,109	608	173,791	1,029	209,191	155	49,661	1,775	801,573
Rockfish	1,214	199,221	38	4,951	0	3	2	601	0	52	0	56	4	776
Sablefish	66	224,954	2	7,523	0	0	0	0	0	363	1	1,934	3	9,852
Other groundfish	0	145	98	21,828	15	887	51	8,079	255	106,782	0	0	4	1,949
Total	11,498	2,690,408	6,239	1,389,054	7,948	1,645,799	9,440	1,668,813	9,773	3,660,323	11,259	3,621,198	6,276	2,819,579

Source: groundfish fish tickets summarized at the AFSC on December 20, 2005.

Table 5.6-4 Total retained, trawl-gear groundfish catch (metric tons) and its value (dollars), by species group, from the three Chiniak Gully stat areas from September 6 through September 20, 1999-2005.

SPECIES	1999		2000		2001		2002		2003		2004		2005	
	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)
Pollock	2,404	530,896	0	0	c	c	0	0	c	c	55	10,028	0	0
Pacific cod	8	5,442	0	0	C	c	0	0	66	42,478	516	276,690	0	0
Flatfish	0	0	0	0	c	c	0	0	268	78,719	20	6,165	0	0
Other groundfish	0	0	0	0	0	0	0	0	20	4,388	0	0	0	0
Total	2,412	536,338	0	0	c	c	0	0	359	126,262	592	292,883	0	0

Source: groundfish fish tickets summarized at the AFSC on December 20, 2005 **Note:** Confidential data "c" (categories with activity by fewer than 4 vessels) are not reported.

Table 5.6-5 Total annual retained groundfish catch (metric tons) and its ex-vessel value (dollars), by species group, from the entire Gulf of Alaska by the affected vessels, 1999-2005.

SPECIES	1999		2000		2001		2002		2003		2004		2005	
	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)
Pollock	29,292	6,371,102	25,875	4,713,056	17,717	2,756,473	3,424	536,503	13,542	2,267,249	27,209	4,453,887	20,046	4,208,588
Pacific cod	9,279	5,955,269	5,379	3,952,657	5,347	3,003,083	697	375,113	5,155	3,264,871	9,274	5,190,074	3,895	2,347,704
Flatfish	2,326	733,757	5,142	1,815,964	3,487	1,459,889	483	151,095	2,863	688,025	4,243	734,024	6,804	2,580,997
Rockfish	3,409	612,995	4,674	717,422	2,088	254,074	331	37,940	2,629	303,312	6,026	799,851	4,017	927,154
Sablefish	262	858,287	309	1,076,799	147	485,145	16	50,195	176	598,342	408	1,208,701	242	756,155
Other groundfish	19	3,962	261	55,969	151	13,668	28	4,785	934	408,355	163	48,627	117	19,179
Total	44,587	14,535,372	41,640	12,331,867	28,937	7,972,332	4,980	1,155,631	25,299	7,530,154	47,324	12,435,165	35,121	10,839,777

Source: groundfish fish tickets summarized at the AFSC on December 20, 2005 **Note**: Numbers include catch made with additional gear types.

Table 5.6-6 Total annual catch and its value for the affected vessels, by species, 1999-2004.

SPECIES	1999		2000		2001		2002		2003		2004	
	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)	Catch (mt)	Value ($)
Pollock	37,470	7,853,982	39,217	9,835,986	34,975	8,108,849	10,889	2,459,502	33,041	5,343,533	46,498	10,577,840
Pacific cod	9,581	5,951,222	6,911	4,721,052	5,601	3,232,160	1,541	678,431	6,798	4,088,794	11,925	6,525,580
Flatfish	3,599	795,962	7,150	1,901,502	5,749	1,371,566	868	209,549	4,691	821,004	6,526	857,383
Rockfish	3,656	649,560	5,181	741,153	2,318	260,136	346	38,191	3,349	382,383	6,381	826,679
Sablefish	278	890,411	332	1,089,659	157	479,461	19	52,463	217	705,874	420	1,230,025
Atka mackerel	c	c	1	43	0	0	c	c	6	193	57	1,907
Other groundfish	67	7,305	479	61,308	481	28,069	58	5,637	1,209	410,924	775	168,836
Halibut	256	1,191,977	156	884,280	244	1,068,634	c	c	c	c	261	1,713,778
Salmon	0	0	13	19,723	2	4,421	0	0	4	3,009	c	c
Herring	4	980	c	c	3	106	0	0	2	40	76	2,522
Ling cod	1	194	0	13	2	100	c	c	2	56	6	414
Crab	c	c	c	c	5	23,911	c	c	63	418,558	35	371,760
Other shellfish	c	c	c	c	0	0	0	0	c	c	0	3
Other species	20	1,099	24	1,112	59	2,196	36	1,207	39	1,377	16	499
Total	54,932	17,342,692	59,465	19,255,830	49,595	14,579,609	13,757	3,444,980	49,420	12,175,745	72,976	22,277,226

Source: CFEC fish tickets. **Note:** Confidential data "c" (year/species categories with activity by fewer than 4 vessels) are not reported.

5.6.2 Benefits of the Action

The proposed action will make it possible to conduct a scientific experiment that may improve our understanding of the impact of commercial trawl fishing on pollock behavior. Consequently, NOAA Fisheries' ability to implement effective and efficient measures to protect SSLs may be improved. This may allow NOAA Fisheries to provide better protection to SSLs, and may help NOAA Fisheries provide SSL protection at less cost to society.

Pollock can be an important component of SSL diets. Important classes of SSL protection measures are designed to reduce the potential for fishing operations to deplete or disperse concentrations of pollock near SSL haulouts or rookeries. These measures include apportionments of annual harvest allocations among fishing seasons, and prohibitions on fishing within specified distances of individual haulouts and rookeries. At the time these measures were adopted, not much was known about the impact of different types of fishing on SSL prey, and on the efficacy of these measures.

The Chiniak experiment from 2001 to 2005, was meant to shed light on the impact of trawl fishing on pollock concentrations. Information was collected on the impact that trawling had on pollock behavior, including on the nature of the schooling behavior, and on the length of time it took pollock densities to reestablish themselves, following trawling. This information may have implications for the significance of localized depletion of pollock, and for the energy SSL may have to expend to catch any given amount of pollock.[4]

As noted, the earlier experiment was inconclusive, and left many questions unanswered. The continuation of the experiment that this action would make possible, may help provide better answers to these questions. The information gathered could be used to determine whether there is a link between fishing activity and the ability of SSLs to capture their prey, and the nature of that link.

That information, in turn, may make it possible to design more effective measures for protecting SSLs. It may also permit the design of protection measures that are less costly to industry. These benefits could be substantial.

The recipients of these benefits may include persons who enjoy subsistence use of SSLs. In addition, recipients may include persons who obtain "passive-use" (e.g., existence value) benefit from knowing that the risk of SSL extinction has been reduced, as well as individuals receiving "non-consumptive use" benefits, for example, customers, workers, and firm owners in the eco-tourism industry.

Other beneficiaries may include participants in the groundfish fisheries, and others who benefit from the pollock fisheries, such as consumers, those who provide supplies and secondary services to the fishing industry, etc. Providing timely and effective protection for SSLs may prevent the need for more drastic and costly controls on the pollock fishery, and other groundfish fisheries, in the future. Moreover, better knowledge about the impact of fishing on pollock concentrations may make it possible to design SSL protection measures that are less costly, restrictive, or operationally burdensome for the fishing industry.

[4] Similar research has been carried out for Pacific cod, for similar reasons, in an experiment conducted off Cape Sarichef, in the Aleutian Islands.

GOA pollock fishermen could also benefit from new information on pollock stocks. Fishermen may benefit from information on the behavioral response of pollock schools to trawling. This may suggest gear or fishing tactic modifications that could increase Catch Per Unit Effort (CPUE).

Moreover, fishermen may benefit because of improved annual information about pollock stocks. Annual pollock harvest and overharvest limits are based on trawl and sonar surveys of pollock stocks. The surveys in Barnabus and Chiniak Gullies in the experimental years would provide important additional information on the size of pollock stocks in those years, and on the distribution and age structure of pollock stocks. The surveys would also collect useful oceanographic information, and information on stocks of other species (such as capelin) found in the experimental area. In past years of the experiment, the AFSC has arranged to provide industry with a post-experimental debriefing on the information collected during the experiment.

It is not possible to monetize the value of these benefits at this time. Actual benefits would be contingent on the results of the experiment, which cannot be predicted in advance. Moreover, current information on the value placed on changes in the risk of damage to SSL stocks, and on the incremental costs of different protection regimes to pollock trawl operators, is largely anecdotal and qualitative.

5.6.3 Costs of the Action

Displacement of Vessels from the Chiniak Area

If the proposed Chiniak Gully closure were enacted, vessels that would have fished there in the absence of the closure would not be able to do so. In the past, fishing operations have targeted flatfish, Pacific cod, and pollock, in the Chiniak Gully area. If these vessels did not make up this production by fishing elsewhere, they would lose revenue (but have somewhat lower costs). If, as is more likely, some or all of the displaced fishing effort is redirected to other fishing areas (open during the Chiniak Gully closure period), the vessels may recover some or all of the revenues they lose from Chiniak, but may incur increased costs in running time and fuel, and potentially lower CPUE. In both cases, net returns would be lower for the fishing operations that would have fished in Chiniak Gully in the absence of the closure.

This appraisal of the problem suggests two ways of bounding the potential cost of this action. At one extreme, the revenues typically earned from fishing in the Chiniak Gully area might be used to provide an upper bound estimate of the potential cost. From another point of view, one could assume that fishing operations would shift their operations elsewhere, so as to fully make up the potential revenue loss, and estimate the potential additional costs of doing this, treating these as an estimate of the cost of the action.

The first approach is analyzed using the concept of annual "revenues placed at risk" by this action. The term "revenues at risk" has been used in the Alaska Region in other analyses of area closures (for example, the Steller Sea Lion Protection Measures Final Supplemental Environmental Impact Statement, November 2001). The term highlights the fact that these are not necessarily losses; they are revenues that may be recovered by fishing operations if they fish elsewhere, albeit at possibly higher costs. Therefore, they are believed to provide an upper bound for estimates of potential industry losses. If they are treated as a measure of the true loss, they are believed to have an upward bias.

The potential revenues placed at risk by this action during a year may be represented by the value of groundfish taken from the three stat areas during the August 1 through September 20 period that coincides

with the proposed area closures.[5] From aggregated fish ticket data (which are not reported here separately due to confidentiality concerns), the average value of these revenues during the period 1999 through 2005 can be estimated to be about $395,000.[6] The Chiniak Gully Research Area was open in four of the years during this period, and closed during three of the years. Even during the closed years, it was possible to fish in some parts of the region. An alternative approach to estimating revenues at risk compares average revenues for the boats that fished in Chiniak Gully during the open years and the closed years, and uses the difference as an estimate of revenues at risk. Average revenue in the open years was about $427,000, while average revenue during the closed years was about $351,000. The difference, the alternative measure of revenues at risk in a typical year, was about $76,000. The $427,000 may be taken as an estimate of the maximum "revenues at risk," while the $76,000 may be taken as a minimum estimate (noting that "revenues at risk" are not equivalent to losses, or the cost of the action).

"Revenues at risk" is likely to be greater than the actual reduction in fishing revenues, or than the actual costs of the action, because operations that are forced out of the closure areas may be able to make up lost fish harvest by fishing in stat areas other than the three within which the closure area is located. An examination of maps showing fishing activity by those vessels observed fishing in Chiniak Gully between 1999 and 2005, shows these vessels trawl fished in multiple areas all around Kodiak Island and in areas near the mainland in the Central GOA.[7] Anecdotal information from fishermen active in the fishery suggests that operations displaced from Chiniak Gully would consider fishing in Barnabus Gully and Alitak Bay (both to the southwest of Chiniak Gully), or in Shelikof Straits at Rocky Point (on the northwest side of Kodiak Island). (Burch, Moir, Bonney, pers. comm. Dec. 2005)

Chiniak Gully revenues were a significant share of revenues during the August 1 through September 20 period for the affected vessels. However, even during this period, Chiniak revenues were not the major source of revenues for these vessels. Tables 5.6-3 and 5.6-4 provide information about the availability of other fishing areas in the region during the August through September 20 period. Table 5.6-2 shows the total gross revenues from the Central GOA during this period in each year from 1999 through 2005 for the affected vessels.

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[5] As noted above, the stat area information is taken from fish tickets, which preliminary VMS data suggest may lead to low estimates of Chiniak Gully area activity (see Section 5.6.1). Fish ticket information, which includes information from all vessel sizes, is currently the best available information that combines harvest location with catch data, and has been used routinely in similar analyses in the past. VMS data yield only location information. Observer information may provide a more accurate accounting of individual vessel location and harvest, however, only 30% of the days fished by vessels greater than or equal to 60 feet LOA, but less than 125' LOA, would be covered. That 30% is not area specific, but can be from any location in which the vessel harvests fish. Another shortfall of the observer data is that the data do not include information from vessels smaller than 60 feet LOA.

[6] Because the information is aggregated, and was not subject to data removed from Table 5.6-1 due to confidentiality, the revenues do not match those in Table 5.6-1, but are used because they give a more complete picture.

[7] This analysis has identified data that can be made available and instances where confidentiality prevents inclusion of data. Given this limitation, this analysis has treated the potential effects of the alternatives in a largely qualitative way, while using what data can be made available illustratively.

Tables 5.6-1 and 5.6-2 show that, for the affected vessels, Chiniak Gully revenues were a significant, but never a majority, source of gross revenues, even during the August 1 through September 20 period. In 1999, Chiniak Gully revenues were about 41% of the revenues for these vessels during the proposed closure period; in the other years, the Chiniak Gully share of revenues ranged from 13% in 2003 to 27% in 2004 (information for a comparison in 2002 is confidential). When Chiniak Gully revenues are compared to the revenues from all Central GOA sources for all Central GOA vessels, during the proposed closure period (Tables 5.6-1 and 5.6-3), the percentages drop even lower, ranging from 8% in 2003, to 27% in 1999 (2002 information is confidential).

The fish ticket evidence suggests that trips in which fishing occurred in the Chiniak Gully stat areas also included fishing activity in other areas as well. In some years, it appears that Chiniak Gully accounted for less than half the production of trips that included fishing in the Gully area. Considering only trips that included harvests from the three Chiniak Gully stat areas, the harvest from the Chiniak Gully stat areas ranged from 94% of the total harvest from the trip (1999), to 45% (2005). The Chiniak Gully Research Area was open to trawling in both of these years. The percentage of fish caught in the Chiniak Gully stat areas was actually somewhat higher in years the Chiniak Gully Research Area was closed (about 72%) than in the years it was open (about 62%).

In summary, as noted above, a maximum estimate of "revenues at risk" is $427,000, while a minimum estimate is $76,000. Revenues at risk are not potential losses, and may be interpreted as an upper bound on these, since fishing operations may recover lost revenues by fishing in other areas. Anecdotal evidence and fish ticket evidence indicate that there are other areas in which vessels displaced from Chiniak Gully may operate. Even during the period under consideration, August through September 20, vessels that operate in Chiniak Gully obtain significant parts of their overall revenues from other fishing zones. This diversification occurs not just on a seasonal basis, but also, apparently, frequently occurs within a given fishing trip. Additionally, revenues from the three stat areas may overestimate the revenues at risk, because the stat areas encompass a large region outside the proposed Chiniak Gully Research Area.

These estimates of "revenues at risk" may also be overestimated, if the experiment is finished in early September, such that the Chiniak Gully Research Area may be re-opened from early September to September 20. In the three years during which the experiment was conducted, it had been completed by August 30 in 2001, and by September 6 in 2002 and 2004. The current action contains provisions for a reopening of the Chiniak Gully area to trawling following completion of the experiment. Table 5.6-4 suggests that in some years, opening of the fishery prior to September 20 could have a significant impact on harvests from the Gully area. In some years, significant portions of August 1 through September 20 revenues have been recorded on fish tickets filled out during the period September 6 to September 20.[8] This is only suggestive, since ticket dates lag actual fishing activity. Anecdotal evidence also supports the potential importance of the September period: industry representatives have clearly stated that it is important to them that the area be reopened as soon as possible following the experiment.

The forgoing discussion focuses on the potential to measure the cost of this action by the revenues that might be lost. Alternatively, it is possible to assume that revenues would be entirely made up by fishing in other locations. In this case, the cost of the action would be the increased cost of fishing in these other areas (that is, the costs in excess of the cost of fishing in Chiniak Gully). As noted below, even if fishermen are fully able to make up all the revenues placed at risk by this action, it would nevertheless have increased costs for them, and there would be some adverse impact on their profits.

[8] Actual revenues from this period are not reported here because of concerns about the confidentiality of the data.

Anecdotal information from industry representatives suggests that flatfish fishermen displaced from the Chiniak area would be likely to move on to Barnabus Gully, or down the coast to the Alitak area. Pollock fishermen would be likely to move to Barnabus or Alitak, or to Rocky Point in Shelikov Strait, via Wells Pass. Discussions with industry suggested that the key impact on costs would be on the fuel costs of traveling additional distance to reach alternative fishing grounds.

Travel time from Kodiak to these areas would depend on vessel size and horsepower. Estimates of travel times obtained for a vessel of about 80 feet and 800 horsepower (representative of the mid-range of vessels active in the Chiniak area) suggests that a one way trip from Kodiak to Chiniak Gully would be two to four hours, from Kodiak to Barnabus Gully from eight to 12 hours, from Kodiak to Alitak, about 19 hours, and from Kodiak to Rocky Point, 12 to 14 hours. This vessel used about 34 gallons per hour while traveling, and estimated current (Fall, 2005) fuel costs at $2.65/gallon.

During the years from 1999 to 2005, there were, on average, 37 fishing trips that included activity in the three Chiniak Gully stat areas. In the four years during which the Chiniak Gully Research Area was open, there were, on average, 41 trips in the three stat areas, and in the years when it was closed, there were, on average, 32 trips. Thus, the impact of closure may be a shift of nine trips to some other fishing area. (Note, however, that many of the trips included in these averages may already include fishing activity in an area in addition to the Chiniak Gully). If all of these trips were displaced to the Alitak Bay area (chosen strictly for the sake of example – informants have provided no information that there would be a tendency to choose this area over others), the fuel costs for these trips would have risen from about $6,500 to about $30,800, or an increase of about $24,300. This calculation assumes that all of the trips under both the open and closed scenarios were equivalent. It may be that closed scenario trips were shorter, or were combined with proportionately more fishing activity elsewhere, and associated longer travel times. If so, this cost estimate may be a low one. If all 41 open trips shifted completely to Alitak Bay (a high fuel-cost scenario), the additional fuel costs would be about $111,000.

While industry representatives indicated that the potential additional costs for fuel were likely to be the most significant private cost of the action, they also referred to two additional potential issues. First, flatfish can only be kept on board a short time after they are caught. The need to travel from Alitak (a 19 hour trip) might reduce the available fishing time on an Alitak trip by 15 to 17 hours (deducting 2 to 4 hours for travel time from Chiniak to Kodiak. This was not as serious a problem for pollock. Informants also indicated that weather can have more of an effect on travel time with longer trips.

Table 5.6-5 shows annual groundfish revenues from the GOA for the potentially affected vessels. In conjunction with Tables 5.6-1 and 5.6-6 (revenues from Chiniak Gully during August 1 through September 20, and the total annual harvest of the affected vessels), this table provides perspective on the importance of the Chiniak Gully fishery for the affected vessels, in the context of the annual fishing activity for these vessels. Using the aggregated (non-confidential) fish ticket data from 1999 to 2005, these vessels earned between 1% and 4% of their annual GOA groundfish revenues from the August 1 through September 20 Chiniak Gully fishery. These percentages are upper bounds on the percentages of revenues placed at risk, because, as noted above, fishermen displaced from Chiniak Gully are expected to be able to recover a significant proportion of the revenues by fishing elsewhere.

Increased fishing congestion in other areas

If vessels that would have fished in the Chiniak Gully area in August and September are displaced by this action into other areas, such as Barnabus Gully and Alitak Bay, they may interact with fishing vessels that are already operating in those areas.

For example, if vessels take turns trawling over a given track, an increase in the number of vessels may reduce the frequency with which each of the existing vessels can operate. This could lead to reductions in CPUE for existing vessels, and to an increase in their average costs.

Increased vessel activity in other areas may be associated with increased disturbance to and dispersal of schools of target fish species. This effect may also increase the operating costs of vessels in other areas. The impact of fishing activity on schools of fish is not well understood; the Chiniak experiment should shed light on this.

It is impossible to provide a quantitative measure of this cost impact. Because harvests from Chiniak Gully represent a small part of overall species harvests (See Tables 5.6-2 and 5.6-4), this cost impact is believed to be relatively small compared to the fuel costs incurred by vessels displaced from Chiniak.

Impacts on other private sector entities

Given that the proposed action is expected to have a minimal effect on total catch and bycatch in the Central Gulf, the effects on other entities, such as processors and fishing communities, are expected to be minimal.

Kodiak trawl test area closure

If the proposed closure were enacted, most of the Kodiak trawl-gear test area would be closed during experimental periods (see Fig. 1). Anecdotal information from fishermen active in the fishery suggested that closing the trawl test area would potentially affect 5 to 10 vessels that would test their pelagic trawl gear (Bonney, pers. comm. Jan. 2006). However, fishermen could test their trawl gear in other nearby locations during the experimental closure period, provided they have the cod end open and are not retaining fish, and that the area is not closed to all trawl gear (Hansen, pers. comm. Jan 2006). Historically, in the proposed closure area, a trawl fishery, such as that for grenadiers, has been open during the proposed Chiniak Gully closure period. Therefore, there will be areas open for trawl gear testing, other than the Kodiak trawl test area, during the proposed closure.

Because other areas are available for fishermen to test their trawl gear, the costs of closing the Kodiak trawl test area during the experimental period are expected to be relatively small. There appears to be some misunderstanding currently that trawl tests must be restricted to the Kodiak test area during August and September. If this misunderstanding is dispelled, the actual costs may be smaller, but this would be due to the clarification of the rules, not to the closure of the test area.

The costs of the experiment

In the absence of this rule, it would be impossible to conduct this experiment. Therefore, the costs of the experiment are treated as a consequence of the rule, and are described here.

The proposed Chiniak Gully survey methods are similar to those used during routine echo integration-trawl (EIT) surveys conducted by NMFS/AFSC. Multiple EIT surveys ("passes") of the control and treatment gullies are conducted during daylight hours. The surveys consist of a series of uniformly-spaced (3 nm) parallel transects. The acoustic data are collected with a calibrated Simrad EK 500 echosounder operating at 38, 120 and 200 kHz. Trawls are conducted to identify the species composition of selected echosign and to collect biological samples needed to estimate abundance and distribution patterns.

The AFSC estimates that its annual research costs will be about $292,000. This includes vessel operating costs, scientists' travel and overtime, shipping, and supplies (Logerwell, personal communication, 11/10/05).

As noted earlier, research likely will be conducted in only three years of the five year experimental period, so total direct costs will be approximately $876,000.

Enforcement, Administration, and Management Costs

The proposed research closures of the Chiniak Gully area will require allocation of Agency resources in order to administer the research project, to manage the openings and closings of the Chiniak Gully area to fishing, and to monitor and enforce compliance. Research administration costs are largely embedded in the estimated total direct costs, referenced above. Management and enforcement costs, attributable to adoption of the proposed action, are expected to be quite small, making any numerical estimate of the marginal incremental change, with and without the action, impractical.

6.0 Initial Regulatory Flexibility Analysis

6.1 Introduction

This Initial Regulatory Flexibility Analysis (IRFA) evaluates the adverse economic impacts on small entities of a proposed rule to impose a seasonal ban on all commercial trawl fishing, which includes a ban on testing trawl gear, in the Chiniak Gully region on the east side of Kodiak Island in the Gulf of Alaska (GOA).

This action would facilitate research by NMFS into the effects of commercial trawl fishing on walleye pollock, and would provide information that may be helpful for developing more effective and/or less costly Steller sea lion (SSL) protection measures. The proposed regulations would result in commercial trawl fishing closures from August 1 to a date no later than September 20 from 2006 through 2010, although it is likely that the closure would be rescinded pursuant to the proposed regulations in two of those five years.

This IRFA meets the statutory requirements of the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C. 601-612).

6.2 The purpose of an IRFA

The Regulatory Flexibility Act (RFA), first enacted in 1980, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action.

On March 29, 1996, President Clinton signed the Small Business Regulatory Enforcement Fairness Act. Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file *amicus* briefs in court proceedings involving an agency's alleged violation of the RFA.

In determining the scope, or 'universe', of the entities to be considered in an IRFA, the National Marine Fisheries Service (NMFS) generally includes only those entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this analysis. NMFS interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance.

Data on cost structure, affiliation, and operational procedures and strategies in the fishing sectors subject to the proposed regulatory action are insufficient, at present, to permit preparation of a "factual basis"

upon which to certify that the preferred alternative does not have the potential to result in significant adverse economic impacts on a substantial number of small entities (as those terms are defined under RFA). Because, based on all available information, it is not possible to 'certify' this outcome, should the proposed action be adopted, a formal IRFA has been prepared and is included in this package for Secretarial review.

6.3 What is required in an IRFA?

Under 5 U.S.C., Section 603(b) and (c) of the RFA, each IRFA is required to contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and legal basis for, the proposed rule;
- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule which accomplish the stated objectives (*of the proposed action*), consistent with applicable statutes, and which would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:

    1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;

    2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;

    3. The use of performance rather than design standards; and

    4. An exemption from coverage of the rule, or any part thereof, for such small entities.

6.4 What is a small entity?

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) and small government jurisdictions.

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern,' which is defined under Section 3 of the Small Business Act. 'Small business' or 'small business concern' includes any firm that is independently owned and operated and which is not dominant in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor.… A (small) business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the firm is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of $4.0 million, for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $4.0 million criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities solely because of their common ownership.

Affiliation may be based on stock ownership when (1) A person is an affiliate of a concern if the person owns or controls, or has the power to control 50 percent or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) If two or more persons each owns, controls or has the power to control less than 50 percent of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners controls the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations. The RFA defines "small organizations" as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

6.5 What is this action?

This action would impose a seasonal ban on all commercial trawl fishing in the Chiniak Gully region, on the east side of Kodiak Island in the GOA, to make it possible for NMFS to conduct research into the effects of commercial trawl fishing on walleye pollock. This action is described in detail in Section 1.4 of the EA.

The proposed regulations would result in commercial trawl fishing closures from August 1 to a date no later than September 20 from 2006 through 2010. (Although research funding is uncertain beyond 2006, the National Marine Fisheries Service (NMFS) is hopeful that funding can be secured for three of the five years.) The portion of the Kodiak trawl test area that lies within the proposed research area also would be closed during the experimental period. The action includes provisions to end the closure for any year, once the Regional Administrator makes the determination that the experiment has been completed or that the experiment will not occur. Because NMFS anticipates that the experiment would be conducted in only three of the five years, the closure would likely be imposed only in those three years.

NMFS conducted similar experiments in Chiniak Gully in 2001, 2002, and 2004 under regulatory closures provided for in emergency interim rules in 2001 (66 FR 37167, July 17, 2001) and in 2002 (67 FR 956, January 8, 2002); and in a final rule published in 2003 (68 FR 204, January 2, 2003). The closure established by the final rule expired on December 31, 2004.

6.6 Reason for considering the proposed action

The reasons for considering the proposed action are described in detail in Section 1.4 of the EA and summarized below. This action is being considered to assist NMFS in evaluating the efficacy of current fishery management practices as they relate to stewardship responsibilities toward the western distinct population segment (DPS) of SSLs, listed as endangered under the Endangered Species Act. This action is needed to facilitate research conducted by NMFS to determine whether commercial trawl fishing results in localized depletion or disturbance of walleye pollock. The Kodiak trawl test area also would be closed to eliminate as many anthropogenic effects on pollock as possible at the control site of Chiniak Gully. This research is part of a comprehensive investigation of Steller sea lion/fishery interactions.

6.7 Objectives of, and legal basis for, the proposed action

The objectives of this action are fully described in Section 1.4 of this EA/RIR/IRFA and summarized below. The objective of this action is to facilitate further research into the effects of commercial trawl fishing on pollock distribution and abundance, so definitive conclusions may be reached. The experiment is designed to provide information bearing on the following questions:

1. Do measurable changes exist in the distribution and abundance of pollock during the course of the experiment?

2. Do commercial fisheries for pollock cause short-term (days to weeks) changes in the pollock school dynamics?

3. Do pollock fisheries cause reductions in the availability of sea lion forage (i.e., pollock) in localized regions off the east side of Kodiak Island?

The groundfish fisheries of the GOA Management Area in the U.S. exclusive economic zone are managed by NMFS under the groundfish Fishery Management Plans (FMP) for this area. The FMP was prepared by the North Pacific Fishery Management Council (NPFMC) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), 16 U.S.C. 1801 et seq., and are implemented by regulations at 50 CFR part 679. General regulations governing U.S. fisheries also appear at subpart H of 50 CFR part 600.

6.8 Number and description of small entities affected by the proposed action

What are the directly regulated entities?

In a broad sense, the regulated entities are the commercial fishing entities that operate vessels, with the capability or potential capability to trawl that may participate in the GOA trawl groundfish fisheries. Any of these vessels may trawl for groundfish in the Chiniak Gully area.

In a more precise sense, however, the regulated entities are the fishing entities that are likely to fish in Chiniak Gully in the absence of the proposed action. This group may be approximated by the number of vessels that reported fishing in this area during August and September in recent years.

Number of directly regulated small entities

In 2005, 93 vessels trawled for groundfish in the GOA. Of these, 77 were catcher vessels, and 16 were catcher/processors. All of the catcher vessels are estimated to be small, as defined by the SBA (total annual gross receipts under $4.0 million), while three of the catcher/processors are assumed to be small.[9]

Fewer vessels reported fishing within Chiniak Gully than in the entire GOA. Section 5.6.1 of this EA/RIR/IRFA provides a more detailed discussion of this issue. From 1999 through 2005, 49 unique vessels fished at least once in at least one of the three Alaska Department of Fish and Game groundfish/shellfish statistical areas (stat areas) that include the proposed Chiniak Gully closure, during the period from August 1 through September 20.[10] In 2005, 16 vessels fished in at least one of the three stat areas during this time period. This count of 49 vessels may serve as an alternative estimate of the number of small operations that may be directly regulated by this action, and may be regarded as the relevant 'universe' of entities for purposes of this IRFA.[11]

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[9] These large and small estimates were supplied by Terry Hiatt of the Alaska Fisheries Science Center in a personal communication, dated December 15, 2005. The estimates probably overestimate the number of small entities. First, they are based on revenues from groundfish fishing and do not reflect the revenues these entities might have earned in other activities. Many of these entities may have been involved in other Alaska fisheries, such as salmon, herring, and crab. Second, these estimates are for vessels, and do not reflect affiliations that might exist between vessels. For example, a single person or firm may own multiple vessels, or a vessel may be involved in some sort of joint venture with a fish processor.

[10] This count is based on fish tickets on which stat areas are self-reported by fishermen and may represent an undercounting of the vessels (see Section 5.6.1 for a detailed discussion).

[11] There was some CP activity in this area during this period, however, the number of operations involved is small enough that confidentiality rules preclude reporting any information about this activity.

Description of small regulated entities

A detailed description of the directly regulated entities may be found in Section 5.6.1 of this EA/RIR/IRFA. More than 90% of the vessels that fished in the Chiniak Gully stat areas during the period from 1999 through 2005, were trawl catcher vessels. Table 5.6–6 shows the harvests and gross revenues from all of the fisheries in which the affected vessels participated (groundfish and other) during the period from 1999 through 2005. During the years in which the Chiniak Gully was left open (and in which significant numbers of operations were present), total gross revenues from all sources ranged between $12 million and $19 million. Operations also caught rockfish, flatfish, and sablefish. The table shows that most groundfish revenues came from pollock and Pacific cod. Halibut was the non-groundfish species that contributed most significantly to operational gross revenues. Several hundred thousand dollars of crab revenues were generated in 2003 and 2004, in this area, as well.

6.9 Adverse economic impacts on directly regulated small entities[12]

Revenues from the Chiniak Gully statistical areas were a relatively small part of the total revenues received by participating vessels from all sources. The percentage of total revenues earned by fishing in Chiniak Gully ranged from about 1% in 2002, up to about 5% in 1999. The average percentage of gross revenues earned in the Gully area when the fishery was open was 2.7%. This is probably a high estimate of the likely reduction in revenues associated with the Chiniak Gully closure.

First, these revenue estimates are for the three State of Alaska stat areas within which the Gully is located, not for the Gully itself. Even if the Chiniak Gully Research Area were closed, fishermen may operate within the remaining portions of these stat areas. Thus, the stat area based estimates of revenues placed at risk likely overstate the potential impact of the closure. Note that significant revenues were earned from the stat areas in two of the three years in which the closure was effective. In each of these two years, revenues earned were similar in size to revenues earned in the three open years.

Second, as noted in Section 5.6.3, other fishing areas that are relatively good substitutes for the Chiniak Gully are available for fishing during the August to September 20 period. It is likely that vessels would be able to make up significant portions of any lost revenues, by shifting their fishing operations to these areas. As noted, this shift would not be without cost; fishing operations could expect to have somewhat higher fuel expenses if they were forced to shift to other areas. There may be losses in efficiency (e.g., lower CPUE), crowding externalities, loss of product quality, reduced time-on-the-grounds (owing to fixed holding times for some species), etc. None of these potential effects, whether taken individually or in combination, appear to have the possibility of inflicting significant adverse economic impacts on these directly regulated small entities.

In summary, this action may have a very small adverse impact on the gross annual receipts of some trawl catcher vessels that would have operated in the Chiniak Gully Research Area in August and September, absent the proposed action. The adverse impact is likely to be significantly less than 2.7% of their annual revenues.

[12] This discussion is qualitative since there is no available cost information for these vessels.

Does the preferred alternative impose a disproportionate burden on regulated small entities

All of the trawl catcher vessels in the GOA are believed to be small, for RFA purposes. Some large catcher-processor operations are present in the GOA. The Chiniak Gully experiment regulation is being implemented in a fishery that is prosecuted by small entities. Thus, it is possible that the burden of the regulation would fall relatively more heavily on the small entities in the GOA. However, because of the small share of Chiniak Gully gross revenues in annual gross revenues for these operations, and because of the likelihood that participating operations would be able to make up these revenues by fishing in other operational areas, it does not appear that this action would impose a significantly heavier burden on these operations.

6.10 Recordkeeping and reporting requirements

This regulation does not impose new recordkeeping or reporting requirements on the regulated small entities.

6.11 Federal rules that may duplicate, overlap, or conflict with proposed action

This analysis did not reveal any Federal rules that duplicate, overlap or conflict with the proposed action.

6.12 Description of significant alternatives

Alternative 1, no regulatory change, would have no direct impact on small entities. However, it would make it impossible for NMFS to conduct a controlled experiment off Kodiak Island. Therefore, NMFS would be prevented from obtaining information that may be of use to further evaluate management actions to protect SSLs and their habitat. Because of this, Alternative 1 would not meet the objectives of this action.

An alternative that would exempt small entities from the proposed time/area closure was considered by NMFS, but was rejected. The entities fishing in this area during August and September are all small. Exempting small entities from the closure would result in trawl fishing in the control area of Chiniak Gully. For the experiment to yield usable results, there should be no trawl fishing activity in Chiniak Gully to enable comparison with Barnabus Gully, where trawl fishing will occur. A small entity exemption would undermine the intent of the action to allow a controlled experiment to assess the effects of trawl fishing on the availability of prey for SSLs. It would, thus, not meet the objectives of this action.

Consultation with two fishing industry groups representing about 80% of the small entity vessels that trawled for groundfish in Chiniak Gully during the proposed closure period, indicated that impacts on small entities would be minimized by including a provision to relieve the trawl restrictions when the experiment is concluded for a particular year, rather than continuing the closure automatically until September 20 (Bonney, Burch, Muir, pers. Comm. December 2005; Bonney, pers. Comm., December 21, 2005). This provision is part of Alternative 2, the proposed action.

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Appendix A: Study to assess the effect of commercial fishing on walleye pollock distribution and abundance

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Introduction

The impetus for this work is a need to understand possible mechanisms that produced the precipitous decline in the western stock of Steller sea lions which began in the 1970s. One of several explanations that have been offered to account for the declining Steller sea lion stocks is that large-scale commercial fisheries compete with sea lion populations by reducing the availability of prey in relatively localized areas. The home range of a foraging Steller sea lion could be considered a localized area. A reduction in prey availability may result from a reduction in prey abundance and/or a disruption in the spatial patterns of the sea lion prey. Unfortunately, no data exist to address the potential interactions between commercial fishing, Steller sea lions, and their prey. The purpose of the specific research proposed here is to determine whether commercial fishing results in localized depletion or disturbance of walleye pollock, an important sea lion prey item in most areas and during most seasons.

We have conducted a pollock fishery interaction experiment off Kodiak Island in the Gulf of Alaska during three years: 2001, 2002 and 2004. The sampling design utilizes control (unfished) and treatment (fished) areas. Because the control and treatment sites are reasonably similar, this design allows us to differentiate responses due to fishing from responses due to natural variability. Results from the two years where sufficient commercial removals occurred are equivocal. In 2001 and 2004, substantial (> 1500 t) amounts of adult pollock were removed from our study area during the C season. Results from the 2001 experiment show high temporal variability in adult pollock biomass in the treatment area, but not in response to fishing (Fig. 1). In contrast, results from 2004 show a statistically significant decrease in pollock biomass in the treatment area following the start of commercial fishing (Fig. 1). No concurrent decrease in adult pollock biomass in the control area was observed. Results from 2002 are not shown because fishery removals were very small (roughly 300 tons) in the study area in that year. Fishery removals in 2001 and 2004 were 2853 and 1723 tons, respectively. No differences were detected in the vertical distribution of adult pollock from before to after the start of the fishery in either year (Fig. 2). Statistical power analyses based on the 2004 data show that differences in biomass of 35% could be detected 80% of the time in the treatment area. The analyses also show that differences of 6 to 8 meters in mean distance off-bottom could be detected 80% of the time.

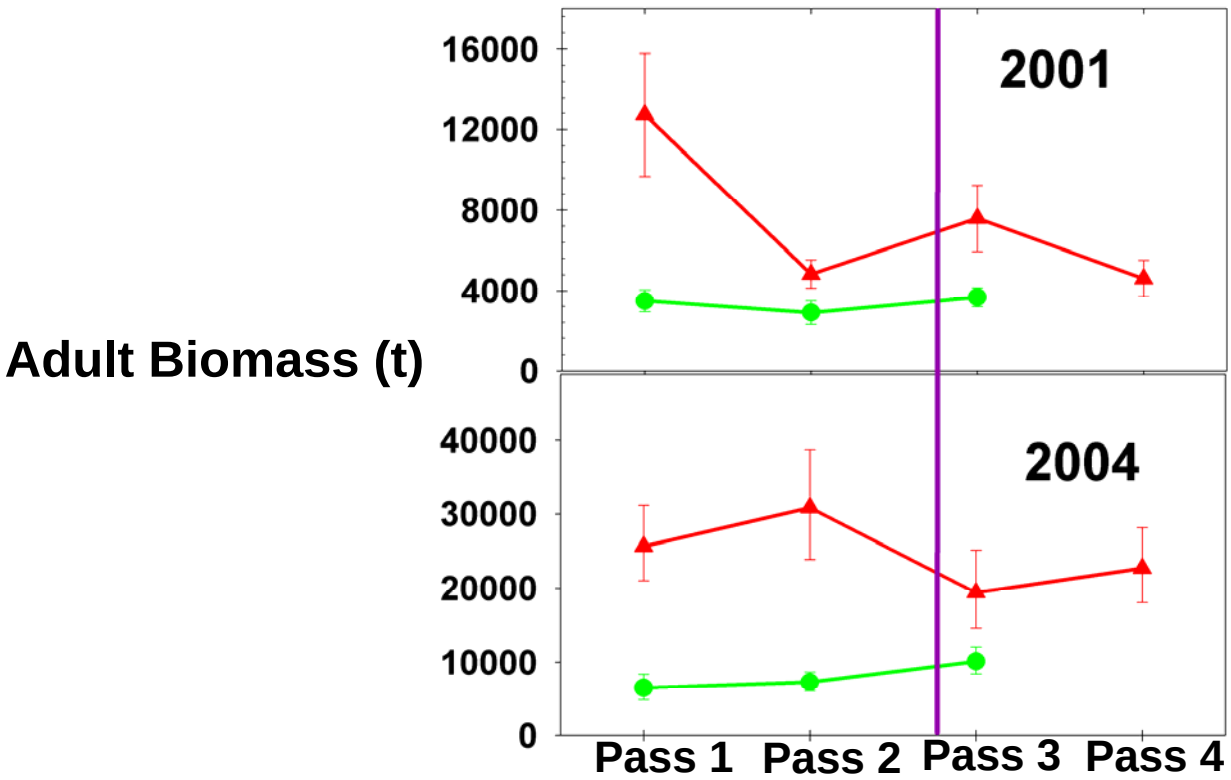

Figure 1. Adult pollock biomass (with 95% confidence intervals) in 2001 and 2004, during passes 1 and 2 (before the start of the commercial fishery) and passes 3 and 4 (after the start of the commercial fishery). Data for treatment (Barnabus Gully) and control (Chiniak Gully) are shown as red triangles and green circles, respectively.

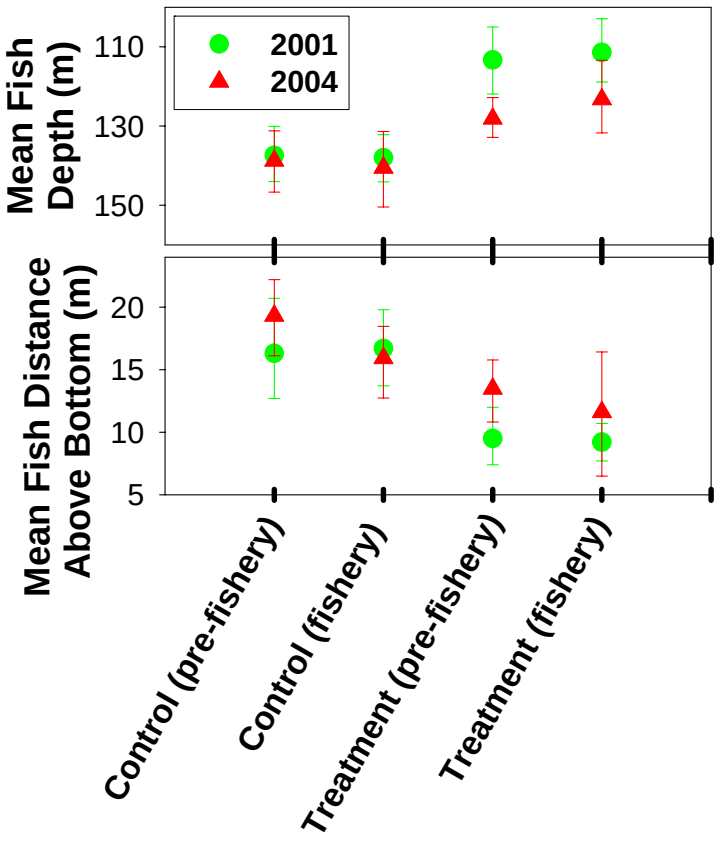

Figure 2. Mean adult pollock depth and distance off bottom (with 95% confidence intervals), in 2001 and 2004 for the control area (Chiniak Gully) and the treatment area (Barnabus Gully) during a pre-fishery and a fishery pass.

Because the results of the two years of fishery interaction experiment are equivocal, additional years of field work are needed to come to a conclusion about the effects of commercial fishing on pollock distribution and abundance.

Bio-physical data collected during all years showed that adult and juvenile pollock had an apparent preference for warmer ocean conditions and regions where production is likely to be concentrated. In addition, intra-annual variability in water mass conditions resulted in shifts in the distribution of juvenile pollock and capelin independent of fishing activity. Continued bio-physical sampling is necessary to determine the causes of natural variability in fish distribution and abundance, and thus to parse natural effects from anthropogenic effects on Steller sea lion prey fields.

We propose to conduct three years of fishery interaction experiment at our study site off Kodiak in August-September in the 2006 – 2010 time frame. This research is contingent on the availability of a NOAA Research Vessel (Miller Freeman or Oscar Dyson) during any given year.

Goals

- Test the hypothesis that commercial pollock fishing results in localized depletion or disruption of Steller sea lion prey fields.
- Identify spatial and temporal variability in the bio-physical features of pollock and capelin habitat.

Methods

The east side of Kodiak Island was chosen as the study area for this fishery-interaction work because two adjacent submarine troughs with similar topographical features are located there. One gully (Barnabas) serves as a treatment site where commercial fishing is allowed and the other (Chiniak) serves as a control site where fishing is prohibited (Fig. 4). A well-established commercial fishery for pollock occurs within the area.

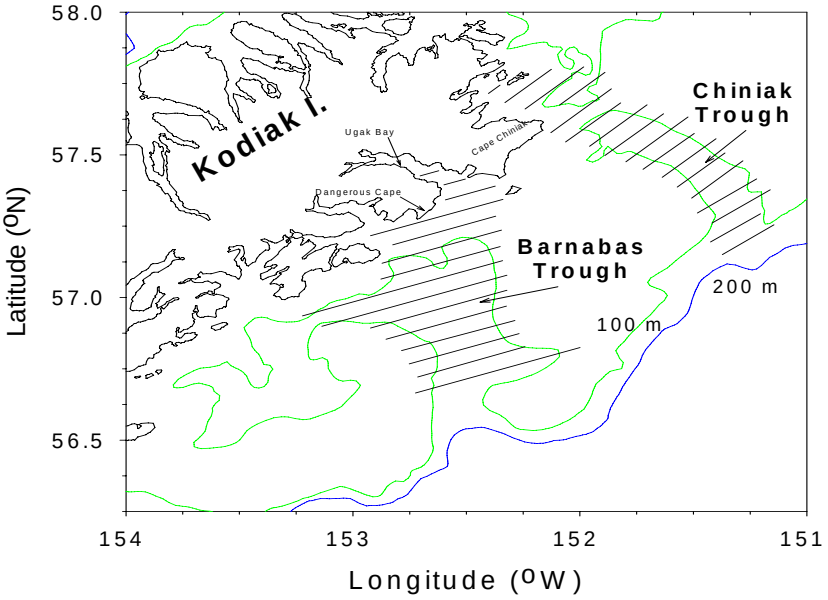

Figure 4. Study area off the east coast of Kodiak Island. Barnabus Gully (a.k.a. "Trough") was open to fishing, Chiniak Gully (a.k.a. "Trough") was closed to fishing. Lines show locations of echo integration-trawl survey transects.

The fishery interaction experiment occurs in August. This period was chosen because post-weaning Steller sea lion juveniles (1 year olds) are considered vulnerable to nutritional stress in late summer due to their high caloric needs and their inexperience at capturing prey. Additionally, fishery management regulations specify an August opening for the commercial pollock fishery in the area which coincided with the experiment.

The survey methods are similar to those used during routine echo integration-trawl (EIT) surveys conducted by AFSC scientists. Multiple EIT surveys ("passes") of the control and treatment troughs are conducted during daylight hours, before and after the start of "C" season commercial fishing (August 25). The surveys consist of a series of uniformly-spaced (3 nmi) parallel transects. The acoustic data are collected with a calibrated Simrad EK 500 echosounder operating at 38, 120 and 200 kHz. Trawls are conducted to identify the species composition of selected echosign and to collect biological samples needed to estimate abundance and distribution patterns. A large midwater Aleutian wing trawl is used to target midwater echosign, and a poly Nor'eastern bottom trawl is used to target near-bottom echosign. The codends of the both nets are fitted with a 32 mm (1 1/4 in.) mesh codend liner. A relatively small Methot midwater net with a 1 mm mesh codend liner is used to determine whether some scattering layers consist of macrozooplankton and/or micronekton. Standard catch sorting and biological sampling procedures are used to provide weight and number by species for all hauls. Pollock are further sampled for stomach contents and to determine sex, fork length, age, maturity, body and ovary weights. Capelin are also sampled for individual body weights and lengths.

Estimates of variance for all point estimates are represented by 95% confidence intervals generated using a model-based one-dimensional geostatistical procedure for biomass estimates, bootstrapping methods for fish depth estimates, and traditional sample-based methods for fractal estimates of pollock aggregations.

A commercial software package (SonarData Echoview Ltd., Tasmania, Australia) that included patch recognition algorithms is utilized for the identification and analyses of the spatial patterns of the fish aggregations. Patches are identified using objective criteria and various patch size and shape related variables are extracted to determine the influence that fishing and bio-physical factors have in generating the observed spatial patterns. Fractal measurements of schools, which relate school perimeter to school area, are also calculated. Statistical significance among fractal estimates is based on ANOVA test results.

Oceanographic data to characterize the physical environment and its influence on the distribution of pollock and other important species is collected with a trawl-mounted temperature-depth instrument, conductivity-temperature-depth probes (CTD), expendable bathythermographs (XBT), and a vessel-mounted thermosalinograph.

Products

Presentations to the Kodiak community
Detailed cruise reports
Presentations at Marine Science Symposium
Presentations to NPFMC
Manuscripts submitted to peer-reviewed journals:
Wilson et al. The effects of commercial fishing on local abundance and school characteristics of walleye pollock, an important Steller sea lion prey item.
Logerwell, Stabeno et al. Interannual variability in the oceanographic structure of the central Gulf of Alaska shelf and its effects on walleye pollock, capelin and their interaction.