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Pacific Cod Pot Studies 2002-2003

by

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Contents

Introduction	1
Overview of the AFSC Cod Pot Study	1
Preliminary Studies and Need for Experiment	3
Study Objectives	5
Study Area.....	7
Experimental Design.....	8
Cruise Reports for 2001-2003	12
Initial Feasibility Trial, June 13-22, 2001, FV <i>Big Valley</i>	12
Pilot Study, March 30 – April 25, 2002, FV <i>Fierce Allegiance</i>	12
Gear and Equipment Trial, Sept. 23 – Oct. 7, 2002, FV <i>Pacific Star</i>	13
“Before” Cruise: Dec. 28, 2002 – Jan. 12, 2003, FV <i>Pacific Star</i>	14
Tagging Cruise: Feb. 5 - 16, 2003, FV <i>Pacific Star</i>	15
“After” Cruise: March 14 – April 2, 2003, FV <i>Pacific Star</i>	16
Results.....	18
Results of Feasibility and Equipment Trials	18
Results of Pilot Study – Variance Components of Cod Pot Catch Data.....	20
Results of Observer Special Project	22
Initial Sample Size Estimation Based on Observed Variance	23
Results from Winter 2003 Cruises	24
Cod Catch Data	24
Biological Data Collection	25
Tagging Studies.....	26
Tagging Mortality Studies.....	27
Results – Measures of Change in Catch Before/After.....	28
Definition of Catch Measures and Comparisons	28
2003 Before/After Data.....	29
Simulation – Power and Sample Size Estimates	30
Discussion	33
Hypothesis Testing and Inference in Observational Studies	33
Conclusions from the Winter 2003 Experiment	36
Citations	39

Introduction

Overview of the AFSC Cod Pot Study

Management strategies for fisheries in the Bering Sea and in the Gulf of Alaska have been severely altered in recent years in response to the listing of the Steller sea lion as endangered under the Endangered Species Act. The Fisheries Interaction Team (FIT) of the Alaska Fisheries Science Center (AFSC) has been charged with investigating the effectiveness of these changes in fishery management. Currently the information available to evaluate alternative methods for protecting Steller sea lions and their habitat is very limited. The FIT has proposed a field experiment to improve the information available to assess further management actions to protect Steller sea lions. This study is an integral part of a comprehensive research program designed to evaluate effects of fishing on prey availability for Steller sea lions.

The goal of the experiment is to evaluate the effects of commercial trawl fishing on the local abundance of Pacific cod (*Gadus macrocephalus*), which aggregate over spawning grounds in the Aleutian Islands and southeastern Bering Sea during winter months. Cod have been found to be a frequent prey item in winter scat samples from Steller sea lions in the eastern Aleutians (Sinclair and Zeppelin 2002). The same dense aggregations of cod that attract commercial fishing may provide an important seasonal food resource for sea lions. Localized depletion of Pacific cod has been suggested as a mechanism for adverse effects of the commercial fishery on availability of prey for Steller sea lions. This experiment is designed to look at effects of the intensive winter trawl fishery on local abundance of Pacific cod in the vicinity of Unimak Pass in the eastern Bering Sea (Fig. 1). A successful experiment will provide data for a quantitative statistical test of the presence or absence of a localized depletion effect from this fishery, which will help to define appropriate management action. The localized depletion study also provides a platform for sample collection and observation of spawning cod that is not available from regular summer surveys. A cod tagging program focused on winter spawning aggregations is also being developed to collect information on both small-scale movements and long-range seasonal migrations. Data from tagging studies may be useful to help formulate a model of cod behavior and distribution. Such a model might then be used to provide specific hypotheses and predictions of effects of various management alternatives.

The study uses standardized pot-fishing gear to collect an index of local cod abundance. Pot gear is well-proven for Pacific cod and can be fished at fine spatial resolution. Most importantly, pot catch data have statistical properties that make them much more amenable to statistical testing than trawl samples. The large number of pots that can be worked within a sea day allows a larger sample size than would be feasible with a trawl study, which increases statistical precision. Feasibility studies have also shown that pot catches of cod have a much lower variance than trawl data, which also increases the power of a statistical test.

Many uncontrolled factors play a role in determining local cod abundance, including habitat variation, seasonal and short-term fish movement, and effects of climate, circulation, and weather events. The study is designed as a comparison between sites within an area subject to intensive seasonal trawling (the “treatment”) and “control” sites in a nearby zone where trawling is prohibited. Each area is to be surveyed before and immediately after the main trawling season. While there are many factors that may contribute to a change in local abundance between the two surveys, these factors are expected to have similar effects on trawled and control areas. Thus, the experiment is designed to look at the rate of change in local abundance between the “before” and “after” surveys, and to test whether this rate of change is the same in trawled and untrawled areas.

Current regulations prohibit directed trawling for walleye pollock or Pacific cod within 10 nautical miles (nmi) of specified Steller sea lion rookery and haulout sites, including haulouts at Akun Head on Akun Island and at Cape Sarichef on Unimak Island. These trawl exclusion zones bracket the northeastern and northwestern sides, respectively, of Unimak Pass. The Cape Sarichef zone, in particular, intersects the area that has historically been the main site of the winter cod trawl fishery. The study areas selected for the local abundance experiment include the outer portion of the Cape Sarichef no-trawl zone and the open trawling grounds just outside this boundary.

Initial gear trials for research pot fishing were conducted off Kodiak Island in June 2001. A pilot study was conducted in Unimak Pass in March-April 2002, in order to estimate the variance of pot fishing data and finalize the study design. Final feasibility tests of equipment and fishing methods were performed in September-October 2002. Three cruises were conducted in winter 2003: a December-January “before” cruise and a March “after” cruise for the local abundance experiment, and a separate February cruise for tagging studies. This report documents the study design and the results of the winter 2003 experiment. The full experiment is scheduled

for repetition in winter 2004. Continuation in winter 2005 and 2006 is anticipated, contingent on funding.

The AFSC requested a special regulatory amendment in fall 2002 to create a short-term closure in the vicinity of the cod pot study. The regulatory amendment prohibits all trawl, pot, and longline fishing in the experimental area from March 15 through March 31 of each year (2003 through 2006). This closure was requested due to the incompatible nature of trawling and fixed-gear fisheries. In order to conduct the “after” survey in the trawled zone, field crews need to set and haul experimental pots at the trawled sites without having research gear picked up or disturbed by trawls. This request and the project study design were presented to the North Pacific Fishery Management Council (Council) in October 2002 and the regulatory amendment was approved. A full EA/RIR/IRFA for the special closure has been prepared (NMFS 2002).

Preliminary Studies and Need for Experiment

Section 7(a) of the Endangered Species Act requires that any Federal agency action “.....is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat.” As the action agency for management of groundfish fisheries in the BSAI and GOA, NMFS has responsibility for ensuring that fishery regulations in these regions comply with the ESA. This study is part of a NMFS research effort to examine possible effects of the Pacific cod fishery on prey availability for endangered Steller sea lions.

Sea lion diet analysis (Sinclair and Zeppelin 2002) shows that Pacific cod are a frequent component of sea lion diets during the winter months. A preliminary discussion paper on the potential for interactions between the BSAI and GOA cod fisheries and Steller sea lions was prepared by the Protected Resources Division of NMFS and discussed at the June 2000 Council meeting. This paper concluded that spatial and temporal overlap exists between commercial cod fisheries and use of cod by Steller sea lions during the winter months, and that a substantial fraction of the pre-2000 commercial catch was taken within Steller sea lion critical habitat. The spatial and temporal intensity of the cod fishery, especially the trawl fishery, was noted and a possibility of localized depletion of Pacific cod in critical habitat was raised. The August 2000 injunction closing Steller sea lion critical habitat to trawl fishing included trawling for Pacific cod. The November 2000 Biological Opinion (NMFS 2000; pages 233 and 260) identified three major groundfish fisheries as having the greatest potential for affecting the endangered western

stock of Steller sea lions: the walleye pollock, Atka mackerel, and Pacific cod fisheries. The 2000 Biological Opinion cited temporal concentration of fishing effort for walleye pollock, Pacific cod, and Atka mackerel as resulting in high local harvest rates, which may reduce the quality of the habitat for Steller sea lions on a seasonal time scale. This possibility of “localized depletion” from the trawl fishery was the basis for recommendations regarding seasonal and regional apportionment of total allowable catch for these three species, and seasonal no-trawl zones around Steller sea lion rookeries and haulouts.

A statistical evaluation of NMFS observer data examined catch per unit effort (CPUE) of commercial cod trawls within the Sea Lion Conservation Area of the southeast Bering Sea (AFSC unpublished internal document, August 2000, contact Lowell Fritz). This analysis concluded that CPUE showed statistically significant declines over the course of a fishing season in this region, consistent with localized depletion of Pacific cod. The analysis was, however, unable to distinguish between localized depletion and seasonal dispersion of cod from high-density spawning assemblages to a lower-density spatial pattern. Previous tagging studies with Pacific cod (Shimada and Kimura 1994) suggest a substantial seasonal migration, with aggregation near the edge of the southeast Bering Sea shelf in winter. Beyond this study, few data are available for studying cod spawning processes. Since most scientific data in the Bering Sea are collected during the spring and summer, documented observations of spawning locations, spawning behavior, post-spawning dispersal, and seasonal migration are generally lacking. A workshop on Pacific cod spawning processes was held in Anchorage in March 2002; one of the principal conclusions of this workshop was that a much better understanding is needed of cod spawning habitat, spawning behavior, size and age at maturity, and fecundity.

Congressional appropriation of funding for Steller sea lion research specifically mentions testing of the localized depletion hypothesis as a research goal, and the AFSC Draft Framework for FY2001 Steller Sea Lion Research noted a need to “Construct studies associated with commercial fishing that characterize the prey field before, during, and after fishing”. The Fisheries Interaction Team at the AFSC proposed a field experiment to examine effects of the winter Pacific cod trawl fishery on local abundance of cod. This experiment was designed both as a general test of the localized depletion hypothesis and as a specific study of possible localized depletion of Pacific cod within sea lion critical habitat. The study is designed as a comparison between sites subject to intensive seasonal trawling and nearby “control” sites where trawling is prohibited. The experiment is designed to examine the rate of change in local abundance between

the “before” and “after” surveys, and to test whether this rate of change is the same in trawled and untrawled areas. The study will use pot catch of Pacific cod as an index of local abundance. Coupled with the localized depletion experiment are preliminary tagging studies and sample collection to gather better information on cod spawning habitat, behaviors, seasonal movement rates, and maturity/fecundity.

This study was funded through 2003 as an integral part of a NMFS comprehensive research program designed to evaluate effects of fishing on prey availability for Steller sea lions. The spatial and temporal scales of the study are based on the scales of existing sea lion protection zones and fishing seasons. A study result that clearly demonstrates localized changes in fish abundance due to commercial harvest would support the current limitations on commercial catch of cod in Steller sea lion critical habitat areas. A negative result would suggest that fishing effects are less pronounced or occur at a different scale than is assumed by existing protection measures. This project will also provide initial feasibility work for scientific studies using pot gear, which could be used to address questions of spatial variation for cod and other demersal species. NMFS cod studies in the Unimak Pass area are being coordinated with physical oceanographic studies by the Pacific Marine Environmental Laboratory, other NMFS fisheries interaction studies, and projects of AFSC’s National Marine Mammal Laboratory.

Study Objectives

The study objectives fit broadly into three categories:

- 1) Test of the localized depletion hypothesis. One of the mechanisms suggested by which commercial fishing may adversely affect Steller sea lions is by localized depletion of sea lion prey. The overall harvest level for groundfish in the BSAI is regulated at a sustainable level by the FMP, based on current single-species assessment techniques. What is not known is whether intensive fishing within a small area can create a localized depletion of groundfish at spatial and temporal scales relevant to Steller sea lions. The winter trawl fishery for Pacific cod in the southeastern Bering Sea is strongly localized over both space and time; a large percentage of the catch is taken in the area immediately north of Unimak Pass in February and March of each year. Some manner of localized depletion by this fishery has been suggested by preliminary analysis of commercial CPUE data. The experiment is designed to look for effects of the intensive winter trawl fishery near Unimak Pass on local abundance of Pacific cod. A successful

experiment will provide data for a quantitative statistical test of the presence or absence of a localized depletion effect over this study area.

2) Biological information on cod spawning habitat, spawning behaviors, and seasonal movement. A recent meeting of cod researchers identified several areas of basic biological information about cod reproduction that are still unknown. The localized depletion study provides a platform for sample collection and observation of spawning cod that is not available from regular summer surveys. Investigations already initiated in conjunction with the study include collection of length frequencies, sex ratios, and maturity data from cod on spawning grounds; sample collection for proximate analysis and fecundity studies of cod at different ages and spawning stages; and collection of tissue samples for genetic studies. Cod pot cruises in 2002 and 2003 have also included feasibility and development work for a cod tagging program. The goals of the tagging program are to examine both small-scale movements of cod during spawning season and long-range seasonal migrations. These studies may also help to distinguish seasonal patterns of aggregation and dispersion among Pacific cod, which will help in the interpretation of local abundance and CPUE data. Another goal of tagging studies is to parameterize cod movement for individual-based models of Steller sea lion foraging. Expanded knowledge of seasonal movement, spawning habitat, and behaviors may improve future stock assessment modeling and management of BSAI Pacific cod.

3) Development of experimental pot-fishing gear. Current stock assessments rely primarily on data from trawl surveys, which allow estimation of total biomass over a region or management unit. However, the high variability and slower sampling rate associated with research trawling limit its use for comparative studies where large numbers of samples are needed. Fixed-gear experiments are limited by an inability to translate catches to an absolute estimate of fish abundance in Kg/ha. For comparative studies, however, an absolute abundance estimate is not necessary. An index-type measurement is sufficient, as long as the index consistently tracks abundance over the range of conditions included in the study. This experiment provides feasibility testing and development for experimental use of pot gear in a comparative study, where absolute abundance estimates are not necessary but high sample sizes are desired. Pot gear is also suitable for studies comparing abundance indices over small spatial and temporal scales. Development of trigger timers and pot-mounted water-quality sensors for this experiment may also be useful for studies of diel and tidal movement and foraging of groundfish.

Study Area

The area selected for the localized depletion study is along the outer Bering Sea shelf on the north side of Unimak Pass and Unimak Island (Fig. 1). This area is known to be an area of high biological productivity, probably because of unique physical/chemical features (National Research Council 1996). Some northward transport of North Pacific water through the pass occurs as the Alaskan coastal current passes along the south side of the Alaska Peninsula. Upwelling of deep Bering Sea waters is also believed to occur as the eastward-flowing Aleutian current encounters the “horseshoe” at edge of Bering Sea shelf. The physical and chemical structure of waters in the study area is also subject to annual climate variation and strongly affected by ice dynamics and weather-driven thermal structuring of the southeastern Bering Sea (Stabeno et al. 2001).

Examination of commercial catch data for 1993-2002 showed that the area north and northeast of Unimak Pass was consistently a source of high catches of Pacific cod (Fig. 2). Prior to creation of no-trawl zones in 1999, over 50% of the winter catch of Pacific cod came from within Steller sea lion critical habitat (NMFS 2000). Even after the implementation of sea lion protection measures, as much as 15% of the annual cod catch comes from Federal Area 517 during the winter quarter (Jan.-March). The Unimak Pass area was selected for the study because the trawl fishery there has historically been highly focused in both space and time, conditions which are believed most likely to result in localized depletion of target fish. The area that has historically been heavily fished is a plateau at 70-100 m depth (40-50 fathoms) directly north of the pass and north of Cape Sarichef on the eastern tip of Unimak Island. A popular trawl alley includes this plateau and generally parallels the 100 m depth contour north and east from the pass.

Since 1999, 3 nmi no-transit zones and 10-20 nmi no-trawl zones have been established around known locations of Steller sea lion rookeries or haulouts in the GOA and BSAI (NMFS 2001b). From 1999 through 2001, these zones included a 20 nmi no-trawl boundary around the Billings Head rookery on Akun Island and a rookery on Ugamak Island, on the south side of Unimak Pass. The eastern and northern edges of these zones reach the edge of the plateau region north of the pass, and for 2000—2001 these boundaries defined the fished zone. For 2002, a sea lion haulout at Cape Sarichef on Unimak Island (54.5717 N, 164.9467 W) was added to the list of protected sites, and the no-trawl zones at Billings Head was reduced to 10 nmi. Figure 2 shows the placement of the regulatory boundaries both before and after this change, and shows haul locations for observed bottom trawls in 2001 and 2002, respectively. The figure clearly illustrates

the intense use of the area just outside the no-trawl boundary. In designing the study, we made use of this regulatory boundary to provide “treatment” and “control” areas that have similar habitat and physical conditions but very different levels of fishery exploitation.

Experimental Design

The major difficulty in design of this experiment is that there are many factors that might affect the local abundance and/or the rate of pot catch of Pacific cod at any given time or place. Known factors that might affect catch rates include local variation in physical and chemical habitat characteristics, bottom currents, and orientation of pot openings in relation to bottom currents. Fish behaviors that are poorly understood but might affect pot catch include diel and tidal patterns in feeding and movement, differences in feeding rates with spawning stage, and changes in response to bait odors at different levels of satiation. Cod are believed to undergo a large-scale seasonal migration pattern in the Bering Sea (Shimada and Kimura 1994), but the timing of seasonal and short-term migration and aggregation are not known, and may vary from year to year. The experimental design addresses the uncontrollable variation in three ways. The first is to use not the absolute catch rate, but the percentage change in catch rate at a site, as the measured variable. This allows for different sites to have differences in absolute abundance due to local habitat characteristics, and to show changes in abundance between the “before” and “after” portions of the study due to seasonal migration patterns. The assumption is that, in the absence of any fishery effect, the local abundance of cod will change at the same relative rate over all of the study sites. The second component of the design is the use of “treatment” and “control” areas on either side of the 10 nmi no-trawl boundary around Cape Sarichef (Fig. 3). The 10 nmi limit conveniently intersects the area that has historically been heavily trawled for cod (Fig. 2). By using catch rates within the “control” area as a baseline, we hope to account for such regional factors as climate and circulation events, seasonal migration and dispersion patterns, and background feeding levels. The remaining variation (primarily short-term temporal and diel variation, and measurement error due to variation in fishing efficiency of each pot-set) is addressed by replication of sites within the treatment and control zones and use of multiple pot-sets to compute the measurement at each site. In pilot studies, day-to-day variation was one of the major components of variance. Using an average over several pot-sets as the measure at each site provides smoothing over this source of nuisance variation and reduces the likelihood of zero catches in the final data set.

A basic outline to the experimental design for the local abundance study is as follows:

The experiment is conducted in two legs. A “before” survey is conducted during January, before the beginning of trawl season; and an identical “after” survey is conducted in late March. This schedule is designed to bracket the typically most intensive period of trawl fishing in late February and early March. Each survey covers a number of sites inside the 10 nmi no-trawl zone (the “control”) and an equal number of sites outside the no-trawl zone in the heavily trawled region (the “treatment”). While it is not possible to match treatment and control sites exactly with respect to depth, habitat, bottom currents, etc., each group of sites cover a similar range of depths and habitats, as nearly as can be determined. The final comparison will be between the population of study sites in the control zone and the population of study sites in the treatment zone.

A “site” consists of a fixed position in latitude/longitude coordinates. Site locations are selected randomly or systematically before the January survey. The same sites are fished again during the March survey. The number of sites fished is somewhat subject to weather and sea conditions during the surveys. The initial target is to fish at least 30 sites in each zone, with a maximum target of 60 sites per zone (120 sites total).

In order to smooth over short-term temporal variation, each site (physical location) is fished on at least three different days during each survey. The catch measure at each site is the average of catch over all of the days this site is fished during the survey. Each day’s fishing is balanced with sites in both the treatment and control areas, so that any short-term changes in abundance do not show up as differences between treatment and control groups. Standardized pots with identical mesh, openings, and trigger configurations are fished at all sites. Bait is standardized to a fixed weight of chopped frozen herring.

The measured quantity for each site is the ratio of the average catch (in numbers or weight of cod) at that position during the “after” survey to the average catch during the “before” survey. This measure is intended to reflect the change in abundance between the two surveys at a particular site. This quantity is referred to as the “delta” for the site:

$$\delta = \frac{(\bar{X}_{After} - \bar{X}_{Before})}{\bar{X}_{Before}} .$$

This quantity will be near zero if the catch rate is the same at a given site during both the before and after surveys, positive if the catch rate increases, and negative if the catch rate decreases over the season. For example, a δ of -0.50 represents a 50% decrease in catch rate, and a δ of +1.00 represents a 100% increase.

It would be preferable to set and haul all pots at the same point on diel and tidal cycles, but it is not feasible to do this with a large number of pots. Variation due to the time of day or tide on which a pot is fished is part of the short-term temporal variance that we are smoothing by averaging over pots fished on different days of the survey. Each day's fishing will be balanced between treatment and control sites so that any diel and tide effects are represented in both data subsets.

Examination of both pilot study data and NMFS observer data indicates that there is not a strong relationship between length of pot soak and catch over a time span of 2-12 hours. For this reason, catch rates are not expressed as CPUE in fish/hour, but simply as total catch in number or kilograms of cod. All pots for the experiment are fished as closely as possible to a standard soak time of 6 hours; actual soak times may range from 4 to 8 hours.

Both raw catch data and calculated δ s need to be examined for spatial dependence. Since all of the hypothesis testing procedures assume independence between the sites, it is important to verify this assumption. If strong spatial dependence is present, the variance-covariance structure of the data can be estimated using spatial models (geostatistics).

After examination of the distributional characteristics and independence of the δ s, appropriate methods are selected for hypothesis testing. Hypothesis tests take the form of a test for equality of means between δ s for sites in the control and treatment zones, with a null hypothesis that the two sets of δ s are drawn from the same distribution. As a first approach, the nonparametric, rank-based Mann-Whitney test (Ott 1993) is used. This test is highly robust to non-normality and the presence of outliers, but is less sensitive than other approaches. Depending on the structure of the δ 's, parametric and modified t-tests or a Fisher randomization test (Manly 1991, Chapter 1) may also be used. The power of the selected test under several alternative hypotheses will be examined using simulations from the field data.

In addition to collecting cod catch data for the local abundance experiment, field operations are planned to allow for the collection of additional biological data and to support several complementary studies. All fish catch is counted and weighed by species; any incidental catch of invertebrates is also recorded. Catch not used for biological samples will be returned live to the sea. A subset of each days catch (all fish from randomly chosen pots) will be examined for length, sex, and gross sexual maturity stage. A length-based subsample will be taken for more detailed analysis, including calculating a gonadosomatic index and preserving gonad samples for laboratory analysis. Tissue samples for genetic studies will also be collected.

In conjunction with the local abundance experiment, the AFSC is also conducting tagging studies of Pacific cod in and around Unimak Pass. During fishing for the “before” and “after” abundance surveys, pots will be handled as rapidly as possible in order to maximize sample size. Depending on available time for deck crews, some opportunistic tagging of captured cod may be performed during these surveys. Additional data will also be collected, however, during fishing days devoted to tagging studies. In some cases, pots fished for tagging will use the same protocols as during the experiment and can be used to increase replication of samples from particular locations. All pots whose fish are to be collected for tagging will be lifted at as slow a rate as possible with the boat’s hydraulic gear, in order to minimize damage from pressure changes. Data collected during tagging operations will provide additional points from which to look at changing abundance over time.

Cruise Reports for 2001-2003

Initial Feasibility Trial, June 13-22, 2001, FV *Big Valley*

Preliminary gear trials were conducted from June 12 – 22, 2001 out of Kodiak on the chartered vessel FV *Big Valley* (Table 1). This cruise was the first step in developing pots as a sampling gear for cod. The foci of the feasibility study were methods for handling fishing gear in a research context, deployment and retrieval of research instruments, data collection methods, maximizing the efficiencies of all operations, and data management. As an important step to evaluating feasibility of the localized abundance experiment, the number of research pot lifts that could be conducted in a regular working day needed to be determined. A less rigorous goal was to acquire hands-on experience with this gear as a research instrument.

The goals of the study were all met. Prototypes of event timers mounted on the entry triggers to the pot were tested extensively. After some experimentation, these devices were shown to work under field conditions and to successfully capture times when fish entered the pot. The timing of the various aspects of research fishing with pots indicated that as many as 60 pot lifts can be accomplished in a single sea day, though 30 or 40 daily pot lifts is likely to be a more reasonable pace to expect during an extended voyage under winter conditions. This preliminary study indicated that the experimental pot gear works well for Pacific cod, and that field operations of the scope needed for the study are feasible.

Pilot Study, March 30 – April 25, 2002, FV *Fierce Allegiance*

A pilot pot fishing and tagging study was performed March 30-April 25, 2002, aboard the chartered vessel FV *Fierce Allegiance*. The cruise was conducted in two legs from March 30 – April 14 and April 15-25. The principal goal of the first leg was a pilot study on the level of variability in pot catch under research conditions. Estimates of variability and spatial dependence in pot catch were critical to final design and power estimation for the localized depletion experiment. The focus of the second leg of the cruise was to test field feasibility and develop methods for cod tagging work using pots for fish collection.

The pilot study fished more than 550 pot-sets over 3-6 hour soaks. Pots were baited with a standard commercial bait of chopped frozen herring. All fish captured in the pots were

identified to species, with the number and total weight recorded by species for each pot (Table 2). Pots were fished on either side of Unimak Pass (Fig. 4a) in a cluster pattern designed to examine spatial dependence. Clusters on either side of the pass were fished on alternating days, with 39 pots three clusters of 13 pots) fished each day. The catch of Pacific cod during the pilot study was consistently good, with most pots containing between 15 and 50 cod. Only three pots had zero catches, and the pattern of catch indicated no problems from saturation of the fishing gear. Procedures for collecting length and sex data from a subsample of the pots fished each day were established. Catches of species other than Pacific cod were small (Table 2). Yellow Irish lord were commonly found in the pots, and yellowfin sole, walleye pollock, Atka mackerel, and assorted flatfish and rockfish species were occasionally caught. Giant Pacific octopus were also found on several occasions either inside the pot or clinging to the outside.

The second leg of the cruise included completion of the pilot study and several days devoted to fish tagging. Tagging was conducted on either side of Unimak Pass near the pilot study locations and further east in the vicinity of Amak Island (Fig. 4b). Procedures for retrieving pots, handling fish, and recording tag data were developed. Preliminary mortality studies of Pacific cod held in on-deck storage tanks and ship holding tanks were conducted. A total of 200 data-storage tags and over 1,600 spaghetti tags were released during this portion of the cruise.

Gear and Equipment Trial, Sept. 23 – Oct. 7, 2002, FV *Pacific Star*

A brief cruise was conducted in Sept.-Oct. 2002 to perform final feasibility test on specially constructed research fishing pots. Catch rates of the research pots were compared with those from standard commercial pots. The final configuration for modular trigger assemblies and trigger sensors were also tested. Following completion of research/commercial pot comparisons, some data were also collected on diel variability in catch by leaving pots in position for 48 hours, pulling, emptying, and rebaiting each pot every 4-6 hours. Data collected indicated that the research pot catch was consistent with catch from the commercial pots and did not have the problem of frequent empty pots. Catches were generally too low in both research and commercial pots to permit conclusions regarding gear saturation. Modular trigger assemblies and trigger sensors performed consistently and provided usable data on the timing of fish entries within the overall soak time. Trigger sensor records were generally consistent with observed numbers of fish in the pots but were not always exactly correlated with catch.

“Before” Cruise: Dec. 28, 2002 – Jan. 12, 2003, FV *Pacific Star*

The objective of this cruise was to collect local abundance data in the Cape Sarichef experimental area prior to the January 2003 opening of the cod trawl fishery. This cruise was intended as the “before” leg of the “before/after” experimental design; pre-cruise targets were to pot-fish 60 pot positions within the no-trawl zone and 60 positions outside the no-trawl zone at a rate of 30-40 pot sets per day. Positions to be fished were set up according to a systematic design with random start (Fig. 3, Fig. 5).

This cruise was the first full use of the AFSC’s new research pots. During the final gear feasibility trial in October 2002, it was discovered that the research pots, which are slightly larger than the commercial pots normally used by the *Pacific Star*, would not fit properly on the vessel’s pot launcher. The pots sit on the launcher and can be launched and emptied, but the “pot dogs” that clamp the pot firmly in the launcher would not extend far enough to accommodate the research pots. A new launcher that can accommodate the research pots was ordered, but was not delivered in time to install before the scheduled departure date. As a result, the pots could be fished, but without the added safety provided by the pot dogs.

Execution of the intended sampling plan was severely hampered by bad weather and mechanical problems. Problems with the main lifting crane delayed departure from the dock. Fishing began with a run of eight pots on the evening of December 29 and a full set of 40 pots on December 30-31. Weather in the study area was rough and became rougher as the work progressed. The Captain and the Field Party Chief together determined that seas were too rough to fish on December 31. Another full set of 40 pots was set on January 1. As these pots were being retrieved, rough seas shifted pots in the launcher several times; on two occasions, pots came completely free of the launcher. The combination of rough seas and the lack of pot dogs raised safety concerns and fishing was suspended. For January 2-3 the vessel moved to the south side of Unimak Island (in the lee of the weather) and tagged cod in the vicinity of Unimak Bight (Fig. 5). On January 4 we returned to the study area and fished a full set of 40 pots. After this set, worsening seas and forecasts for storm-force winds caused the vessel to seek shelter in Akutan harbor. On January 7, winds finally abated enough to attempt fishing again. Upon leaving Akutan harbor, mechanical problems forced shutdown of one of the two main engines on the vessel. Because of safety concerns with reduced maneuverability of the vessel and the lack of

pot dogs, the decision was made to return to Dutch Harbor and attempt repairs. When it was discovered that three main cylinders in the engine needed to be replaced, the charter was terminated on January 9.

Overall, 127 pots were fished on this cruise in the local abundance study area. An additional seven pots were fished near the study area and 16 pots south of Unimak Island for collection of cod for tagging (Fig. 5). A total of 10 data recording tags and 420 orange spaghetti tags were released. A total of 3,537 Pacific cod and a scattering of other species were collected (Table 2). Approximately 35% of the cod collected were examined for individual lengths, sex, and maturity class. Fifty-nine cod were dissected for collection of biological specimens and genetic tissue samples.

Tagging Cruise: Feb. 5 - 16, 2003, FV *Pacific Star*

The intent of the second Pacific cod cruise, originally scheduled for mid-February, was to conduct tagging studies to observe seasonal and small scale movement of Pacific cod. Due to problems experienced during the January cruise, the start date was moved forward for a second attempt at the “before” abundance experiment. Industry representatives were contacted and efforts were made to minimize gear conflicts with cod trawl fleets as the new time frame would put research on the fishing grounds during the trawl season. AFSC scientists realized that research pot gear would impede trawling, and that if trawl fishing efforts were high during the cruise, attempts to work around the fishing fleet would likely fail. Upon arriving at the experimental site, researchers found extensive pollock trawling. On February 5-7, pots were fished at experimental sites within the no-trawl zone while trawl activity was observed. After 3 days, it was clear that setting pots outside the no-trawl zone was not feasible; abundance experiment fishing was abandoned and the research focus was switched back to tagging studies.

Fish for tagging were collected with the same research pots used in the local abundance experiment. Abundance experiment protocols for setting distance between pots and bait weight were used for all tagging pots, but soak times varied. Pots fished for tagging were hauled back as slowly as equipment allowed, in order to reduce pressure trauma to the fish. Pacific cod were tagged in three separate locations near Unimak Pass to look for 1) movement northeast along the north west coast of the Aleutian chain, 2) deep to shallow movement, and 3) movement from no-trawl zones into trawl zones. Figure 5 shows the areas where tags were released. A total of 3,442

spaghetti tags were released during this cruise. In addition to released fish, 500 cod were used in tag mortality studies, 600 were examined for sex and maturity class, and 300 were dissected for biological specimens and genetic tissue samples. Length was collected on all tagged and specimen fish.

“After” Cruise: March 14 – April 2, 2003, FV *Pacific Star*

The objective of this cruise was to collect local abundance data in the Cape Sarichef experimental area after the period of heaviest cod trawling. The cruise was originally intended to be the “after” leg of the “before/after” experimental design, in which stations fished prior to the cod trawl fishery were sampled again. We adhered to the “before/after” construct but we also modified the experimental design somewhat, concentrating on the 80 stations in the northeastern two-thirds of the original 120 stations, 40 within the no-trawl zone and 40 outside the no-trawl zone (Fig. 5). There were several reasons for shifting to the northeast. Comparisons of research catches from before and after the trawl fishery were likely to be inconclusive due to the low sample size and attendant uncertainty in the “before” data. In short, there was nothing to jeopardize by deviating slightly from the sampling structure of the “before” leg. The difficulties of the first leg taught us that the “worst case” scenario was worse than we had anticipated and that we needed to define primary goals that could be attained in very few fishing days. We were not sure if it was better to have fewer stations and more replication at each station, or vice versa. We chose to reduce the station number and preserve or increase replication at each station since the data collected under that scheme could be used to evaluate the question of allocation of field effort among stations and station replication per se in the “before/after” construct. Once we had decided to reduce the station number from 120 to 80, those in the northeastern portion of the original station pattern were preferred because all had been fished at least once during the “before” leg. To best arm ourselves for bootstrap simulations we decided to fish on those 80 stations as many times as possible. Thus, if smooth operations and favorable weather permitted, we were willing to deploy a pot as many as 7 or 8 times at each site.

The scheduled charter dates for this cruise were March 14 through April 2, 2003. This period encompassed the temporary closure to fishing in the vicinity of the Cape Sarichef experimental site. Severe weather hampered operations in this cruise, just as it had for the “before” leg. Initial departure from Dutch Harbor was delayed until March 18 because flights from Anchorage to Dutch Harbor were cancelled for over a week due to high winds, stranding all

of the vessel's crew and part of the field party in Anchorage. Once embarked, operations were suspended for March 23 - 25 due to seas built up by a northeasterly that blew 50 to 70 knots throughout that time. Despite time lost to weather, we were able to launch and retrieve pots at least five times on almost all 80 stations.

On this cruise, 425 pots were launched and retrieved as part of the "before/after" experiment. During the period of bad weather, another 53 pots were deployed to capture cod for tagging studies in the vicinity of Scotch Cap/Arch Point/Seal Cape in Unimak Pass and near Lost Harbor in Akutan Bay (Fig. 5). Trigger sensors were deployed on pots in the "before/after" experiment and additional deployments were dedicated to collecting trigger sensor data independently of the experiment.

Over all of the pot deployments in this cruise, a total of 4,188 cod and a scattering of other species were collected (Table 2). All cod were measured individually for length. Other than those released as part of tagging research, all cod were examined individually for gender and gonad maturity was evaluated. One hundred and sixty-three specimens were dissected for more detailed biological sampling. Tissue was collected from approximately 1,500 cod as part of a genetics investigation.

Results

Results of Feasibility and Equipment Trials

The cod pot project involved extensive feasibility trials. Although fixed gear has a long history of use for index-type fisheries surveys, the AFSC has not used fixed gear for research fishing for Pacific cod. Feasibility studies were conducted both to familiarize the project scientists with the working of pot gear and to verify the consistency of pot catch as a suitable abundance index for the local depletion study.

Pot gear is widely used for commercial fishing for both crab and Pacific cod in the Bering Sea and GOA. Figure 6 shows a standard commercial fishing pot. Commercial pots were used during initial feasibility trials in June 2001 and for the pilot study in March-April 2002 (see preceding section for detailed cruise reports). The goals of the initial feasibility study were to develop methods for handling fishing gear in a research context, deployment and retrieval of research instruments, data collection methods, and data management. Initial feasibility studies indicated that approximately 30 or 40 pots can be fished per sea day under experimental protocols. After observation of commercial pot configurations, a standardized experimental pot design was developed. The research pots are 7.5 feet by 7.5 feet by 4 feet, with 2 inch stretched mesh and two entrance tunnels with 27 by 9 inch tunnel eyes. The tunnel eyes are designed to mount a modular unit with a modified Hilty-style stainless-steel trigger (Fig. 7). Experimental pots were fished with buoy configurations and mesh bait bags as used for commercial pots.

There have been two important concerns in using pot catch as an index for fish abundance. The relationship between catch and abundance breaks down at either very low or very high fish densities. A major objective of gear trials was to ensure that research protocols did not result in either excessive numbers of empty pots or “gear saturation”, where the number of fish in the pot becomes so high that catchability of further fish is affected. Feasibility experiments indicated that both extremes could be avoided by using soak times of 4 to 8 hours. Empty pots were rare during the 2002 pilot study and infrequent in the 2003 cruises.

To guard against gear saturation and to provide detail on the timing of fish catch, instruments referred to as “trigger timers” were developed. These instruments involve a magnetic reed switch mounted on the triggers of the pot and an electronic event timer that records when the

triggers are pushed open. Prototype trigger timers were developed and tested on feasibility cruises through October 2003. After experimentation and adjustment of the final design, these devices were shown to work under field conditions and to successfully capture times when fish entered the pot. Figure 7 shows two of the modular trigger assemblies with trigger timers mounted. The modular trigger assembly allows instruments to be mounted and dismounted in pots without slowing down the pace of fishing.

The final gear feasibility trial in October 2003 tested the experimental pots and modular trigger assemblies against standard commercial pots. Strings of alternating commercial and experimental pots showed no significant difference in catch rate. Experimental trigger timers provided reliable data on fish entry times. There is some noise in the data from trigger timers, since fish can “bump” the triggers without entering the pot. In general, however, there was good correspondence between the number of trigger events recorded and the number of fish in the pot. Data from these sensors in winter 2003 shows patterns that suggest pot catch rates are strongly affected by tide, as has been observed by many pot fishers. Future work with trigger timers may help identify patterns in pot catch times related to day/night cycles, tides, and bottom conditions.

Because pots depend on the scent plume from the bait to attract fish, the direction and strength of bottom currents is expected to be an important factor in catch efficiency. Work planned for 2004 includes developing a ‘sensor pot’ that includes water chemistry monitors and a Doppler current sensor. With direct means of measuring bottom currents and trigger timers, it may be possible to account for much of the variance in pot catches. Plans for the future also include development of water quality instrumentation, so that we can track oceanographic features (fronts, mixing of Pacific and Bering Sea water masses) that may be important to cod abundance and/or catch efficiency. Cruises in 2002 and 2003 have included use of micro-bathythermograph (MBT) instruments mounted in pots to record both temperature and salinity profiles in the study area (Fig. 8) and bottom chemistry during pot soak periods. Continuous monitoring of temperature and salinity of surface water during cruises was also conducted. Plans for 2004 include collection of water column profiles of temperature, salinity, dissolved oxygen, and turbidity; and continuous monitoring of surface water temperature, salinity, and fluorescence.

Results of Pilot Study – Variance Components of Cod Pot Catch Data

The principal goal of the pilot study was to fish pots according to research protocols and collect data on the level of variability in pot catch under these conditions. Estimates of variability and spatial dependence in pot catch were critical to final design and power estimation for the localized depletion experiment. This cruise was also used to test field feasibility and develop methods for cod tagging work using pots for fish collection. The pilot study fished more than 700 pot-sets over 3-6 hour soaks. Pots were baited with a standard commercial bait of chopped frozen herring. All fish captured in the pots were identified to species, with the number and total weight recorded by species for each pot. The catch of Pacific cod was consistently good, with most pots containing between 15 and 50 cod (Fig. 9, Table 3). Out of over 500 pot sets with standardized gear and soak times, only three had zero catches. The largest catch was 103 cod. The distribution of catches was slightly right-skewed; 21 pots (3%) contained 70 or more cod. The overall average for the pilot study pots was 30.1 cod and 107.8 kg cod per pot. The consistency of catches in the pilot study suggested that good precision could be attained in the full experiment.

Catches of species other than Pacific cod were small. Yellow Irish lord were commonly found in pots in both sides of the pass. Yellowfin sole, Pacific halibut, walleye pollock, sablefish, and assorted flatfish and rockfish species were occasionally caught. Tanner crabs (*Chionoecetes bairdi*) were fairly common at one of the study sites but were absent at most sites. Giant Pacific octopus were caught in 12 pots and observed clinging onto the outside of other pots as they were brought up. Miscellaneous bottom fauna (starfish, brittle stars, horsehair crabs, and scallops) were also present in some pots.

Pot placement for the pilot study was designed to allow examination of the components of variance in the pot catch data. Locations were divided into two strata, on either side of Unimak Pass (referred to in Tables 3-5 as Akun and Sarichef sides). Each stratum had three clusters of 13 pots laid out in an asterisk-shaped pattern (Fig. 4a). Pots within each cluster were spaced at 0.3 and 0.9 nmi from the center of the cluster, so that clusters were approximately 1.8 nmi in diameter. Clusters within a stratum were placed approximately 5 nmi apart, and the two groupings (strata) were separated by approximately 15 nmi. Each set of three clusters was fished within a single day, with days alternating between the two strata. Ten days of fishing (5 for each stratum) were devoted to the variance component experiment.

Catch data from this experiment were examined using linear model (ANOVA) techniques to examine the effects of fishing day, stratum, cluster, position within cluster, and day-cluster interactions (Table 4). A coded ‘crowding’ factor was added to indicate whether a pot was an ‘inner’ pot (surrounded by other pots within 3 nmi) or on the ‘outer’ portion of the cluster (0.6 nmi from the nearest pot). For both numbers and weight of cod per pot, there was a significant stratum effect, with pots on the Sarichef side of the Pass having, on average, a slightly higher catch. There were also significant differences between clusters within strata, indicating the expected small-scale spatial variation. Pots at the outer edges of the star-shaped clusters had a higher catch, on average, than pots in the center of the cluster, giving a significant crowding effect. This suggests that there may be some competition for catch between closely spaced pots, a concern sometimes raised by commercial fishermen. Other than this crowding effect, the relative position of the pots within the cluster was not important. Day-to-day variation was also a significant factor in pot catch; both the day and the day-cluster interaction factors were significant, and the sequential sums of squares for these two factors are very large.

A variance components analysis of the balanced data, using stratum, array, and day as random factors, indicates that the largest components of variation in the pot catch data were day-to-day variation and array/day interactions. This result illustrates the importance of small-scale spatial and temporal variation in catch data. We suspect, based on observation by experienced pot fishers, that this small-scale variation is related to tidal and diel cycles of movement and activity of cod, as well as to other uncontrolled factors. The final experimental design will not be able to control for this variation, but will balance its effects evenly between treatment and control sites.

Data from all of the clusters were examined for spatial correlation patterns in pot catch. An attempt to estimate variograms for individual clusters was unsuccessful, as there was no observable pattern in variance as a function of distance between pots. The data were also broken down into pairs spaced at 0.3, 0.6, and 0.9 nmi, and correlations between catch (using only pairs within the same fishing day and cluster) were estimated. Catches between pots at 0.3 nmi showed weak negative correlation of -0.3, supporting the idea that there is some competition between pots spaced at this distance. Correlation between pots spaced at 0.6 nmi were weakly positive but not significant, and correlations at greater distances were virtually nonexistent. Combined with the ANOVA results, these data suggest that pots at 0.3 nmi or smaller spacing may compete with each other for catch, and are not independent. Pots spaced at least 0.6 nmi apart appear to be

reasonably independent sampling units. Testing for independence of study sites will be conducted as part of data analysis from the experiment.

Pilot data were aggregated in different ways to get a rough idea of the effects of averaging multiple pot-sets on the variance of the estimated mean. If pots within a cluster and stratum and fished on different days were completely independent, then the variance of the mean catch over n pots should be $1/\sqrt{n}$ times the variance of the individual pot catches. Table 5 compares the variance and CV for several different methods of averaging the pilot data. CVs for raw data are on the order of 0.5, whether the data are separated by stratum or pooled. Taking an average over each cluster of 13 pots for each fishing day reduces the CV considerably, to 0.25. This reduction in variance is somewhat less than would be expected based on independent samples, which suggests that there is some dependence between pots within a cluster. An almost equal reduction in variance can be achieved by averaging catches for a given pot position over the 5 days each position was fished, even though the number of pot-sets going into each average is smaller. This is consistent with the observation that day-to-day variance is a larger component of variation in the data than positioning within the cluster. Going a further step to averaging pots from all three clusters within a stratum into a single metric reduces the CV only slightly further, at a cost of a much smaller overall sample size.

Results of Observer Special Project

One of the initial feasibility goals for the study was to estimate the variance in pot catch of cod and estimate sample sizes that would be needed to detect a change in pot catch. Data on commercial catches of cod with pots are included in the NMFS Observer Program database. It was not feasible to estimate the variance of pot catch from these data, however, because observer data from pot boats are recorded as total catch per string, where a string may be anywhere from one to over 100 pots. In order to provide variance estimates for catch on a pot-by-pot basis, the observer program carried out a special project during winter 2002. In addition to their regular duties, observers aboard selected pot boats collected counts and total weights of cod for individual pots. The goal of this project was to supplement pilot data collections and increase the data set from which variance of single-pot cod catch could be estimated. In particular, the observer special project added valuable replication over variations in fishing location, vessel, and season that could not be obtained through the pilot study.

Three observers on three different pot vessels participated in the special project. These observers reported individual pot catches of Pacific cod for a total of 553 pots, fished between February 21 and March 15, 2002. The three observed vessels fished pots in slightly different areas along the shelf break in the vicinity of the Pribilof Islands, and so provide a good contrast in area with the experimental site near Unimak Pass. Observed catches of Pacific cod on the three vessels ranged from 0 to 80 cod per pot, with average catches for the three vessels of 15, 23, and 26 cod per pot. CVs for individual vessels were 0.42, 0.50, and 0.82.

Cod catch data provided by the special project served as a valuable collaboration of results from the pilot study. The observer data came from a different area in the southeast Bering Sea, different vessels, and a different portion of the season than pilot study catches, but included several of the same key features. The observer data showed consistency with pilot study data in the overall shape and range of the distribution of catch numbers, and had a similar variance structure. The observer data also confirmed two important characteristics of pot catch data: infrequent occurrence of zero catches, and an extended right tail of the distribution indicating absence of a gear saturation effect (Fig. 10). Like the pilot study data, the observer data showed some indication of correlation between adjacent pots but lacked any consistent pattern of covariance as a function of the distance between pots.

The observation of these patterns in different areas and times supports the assumption that pot catch data provide a consistent index of local abundance of Pacific cod for the proposed experiment over the winter season, and that this index can be used to compare catch rates in different areas and times as a surrogate for local abundance.

Initial Sample Size Estimation Based on Observed Variance

Following the completion of the pilot study and observer special project, a preliminary analysis was made to estimate the approximate sample size needed to statistically detect a change in local cod abundance as measured by research pots. Given the estimated rate of 40 pots per working day of field cruise, would it be feasible to collect enough samples to reliably detect a change in local abundance? Perhaps even more importantly, would a feasible sample size provide enough power to infer that the absence of a measured change would be an indication of a true absence of effect? As an initial evaluation, sample size formulas for the standard parametric

two-sample t-test were used to examine the relationship of sample size, sensitivity, and power for cod pot data Table 6.

Examination of pilot study results showed that the cod pot data, like many types of fishery data, have a fairly constant coefficient of variation or CV (the ratio of standard deviation to the mean). CVs of both observer project and pilot study data from individual pots were on the order of 0.5-0.8. For data with a CV of 0.5, with both Type I and Type II error probabilities set at 0.05, it would take at least 80 measurements in each group (160 total) to detect a 20% difference in mean abundance. A sample size of 35 measurements per group (70 total) would be adequate to detect a 30% difference in mean, but it would take over 300 samples per group (650 total) to detect a 10% difference in means. At higher CVs, the sample size needed to detect a 20% difference is over 150 samples per group (360 total). At lower CVs (such as those observed for averages of several pot catches from the pilot study) sample sizes as low as 20 per group could be effective. The needed sample size can be reduced by allowing larger error probabilities, but the CV of the data is the primary determining factor. This analysis indicates that a two-week survey could be sufficient for the experiment, but that keeping the CV of the measured quantity small is critical to meeting this goal. This conclusion led to continuation of the project for 2003 and influenced the final design of the experiment. A later section of this report describes power estimation based on the percentage change metric and 2003 field data.

Results from Winter 2003 Cruises

Cod Catch Data

The catch rate of Pacific cod declined in the study area from January through March 2003 (Fig. 11, Table 7); this pattern was evident both in the overall distribution of catches and at the majority of the individual pot sites. Catches during the December-January cruise averaged 17-30 cod per pot, but catches in March averaged less than 15 fish per pot. Day-to-day variation in catch continued to be substantial, especially during the March cruise (Table 7). Variations in the average length and weight of fish caught per day during March may indicate that different groups of fish move into and out of the study area over time spans of days. On a seasonal basis, the gradual decline in mean length may be a result fishing effects or of larger fish leaving the study area after spawning. Catch rates and overall variability cod catch were similar in the treatment and control areas. For the March cruise, where there was a total of over 400 pot-sets, pots inside

the no-trawl zone averaged 8.85 cod per pot, while pots outside the zone averaged 8.82 cod per pot. As in the pilot study, the CV of the raw catch data in March was approximately 0.5.

In general, cod catch continued to look like a reasonable index of local cod abundance (Fig. 11). The March cruise included a few more empty pots than previously seen (9 empty pots out of 404 sets), but still did not have enough empty pots to be a problem. Using the research pots with a 4-8 hour soak period, there was no evidence of gear saturation. There were no immediately evident patterns in catch with pot location (North-South or East-West), depth, soak time, or time of day. Appendix Table 1 provides a complete listing of pots fished on 2002/2003 cruises, including pot locations and the catch of Pacific cod in numbers and weight for each pot.

Biological Data Collection

The AFSC cod pot studies also provide a platform for the collection of important information on cod movement and spawning biology. Two types of subsampling were conducted during the pot studies. For the larger subsample, a systematic subsample of pots was chosen (every second or third pot, with a randomized starting pot) and every cod from the selected pots was processed. This subsample provided data on the composition of the cod catch in terms of sex, length, and gross maturity stage (based on visual inspection of gonad). A smaller length-based subsample of “specimen” fish was also collected. Specimen fish were individually lengthed and weighed; samples of gonads, liver, and skin (for genetic study) were taken and otoliths were collected. These fish provide a valuable integrated data set that is being used for a variety of cooperative biological studies within the AFSC and at the University of Alaska. These studies include examination of cod fecundity and effects of age and water temperature on fecundity; age at 50% maturity (an important parameter in the cod stock assessment model); aging techniques for Pacific cod; and studies on population genetics and stock structure of cod.

Figure 12 shows a summary of the length data. Cod caught during the study were predominantly 50-80 cm, with few fish smaller than 45 cm and a few large females over 100 cm. The sex ratio was close to 1.2:1 (males:females) for all three cruises. There is a slight trend toward smaller fish in the later cruises, which may be a result of fishing effects or spawned fish leaving the study area. The gross maturity data (Table 8), as expected, show a strong seasonal progression from January through March. In January and February approximately 15% of the catch of both sexes was immature fish, with the majority of the catch in either early (stage 2) or late (stage 3) developing stages. Males were consistently slightly more developed than females.

In March, the major portion of the catch was either ripe (stage 4) or recently spent (stage 5). The proportion of immature fish in March catches was higher while overall catch rates were lower, perhaps reflecting some emigration of spawned-out adults away from the study area.

A total of 411 specimen samples were collected during 2003 (Table 9). Length-weight regressions for each sex and age-length relationships based on otolith aging are presented in Figures 13 and 14. The age data suggest that the majority of the fish caught during the study were between 4 and 7 years old, with the largest fish more than 10 years old. A complete listing of 2003 specimen data is included in Appendix Table 2.

Tagging Studies

Feasibility studies for research on cod movements by tagging were also conducted in 2002 and 2003. Tagging work included development of capture and handling methods for cod using pot gear, development of tagging procedures and data formats, release of cod tagged with archival data-storage tags and standard spaghetti tags, and preliminary tagging mortality studies. The goal of this effort is to collect information on both seasonal migration patterns and small-scale cod movements during the spawning season. These movement questions are important to the interpretation of the local abundance study, as well as to overall understanding of cod biology.

The February 2003 tagging cruise released tagged fish at a series of four locations along the 100m depth contour north of Unimak Pass (see Fig. 5) in order to examine east-west movement through the study area. Fish were also tagged at deep offshore locations and within the no-trawl zone to try to assess movement from deep to shallow areas during the spawning season and across the no-trawl zone boundary. Bad-weather days during both the January and March cruises were used opportunistically to tag and release fish on the south side of the Pass to look for movement between the Bering Sea and the GOA. In total, 295 archival tags and nearly 6,000 spaghetti tags have been released (Table 1). Approximately 1,000 tags have been returned as of September 2003. Tag return data is being analyzed; a preliminary plot of returns from fish released in 2002 (Fig. 15) shows that many fish were recaptured in the same general area as they were released, but some fish traveled northward onto the middle shelf as far as St. Matthew's Island.

Tagging Mortality Studies

The primary objectives of the Pacific cod tagging mortality experiments were to 1) determine mortality associated with tagging Pacific cod caught with pot gear, 2) estimate tag loss from tagged cod, and 3) evaluate and improve cod handling and holding methods to identify and reduce mortality associated with these activities. Cod used for mortality studies were subjected to the same tagging procedures as released tagged fish. To assess the effects of pot capture and tagging methods, cod were placed in holding tanks on board the vessel rather than being released overboard. Tagged cod were held for various lengths of time in three different live tank arrangements including portable deck live tanks, the vessel's live holds, and live holds with mesh liners. At the end of the experiment, each cod and tag were evaluated for damage and condition.

The mortality experiment results are summarized in Table 10. In general, the portable deck tanks had mortality rates ranging from 0 to 2.6%. The unlined vessel hold had a mortality rate of 3.8%, even though this was by far the longest running experiment. Vessel holds lined with net mesh, however, had mortality rates ranging from 2 to 35%, with the mortality rate increasing as the number of days captive increased. The mesh lined vessel holds, while allowing for an increased sample size, showed a much higher mortality rate. The mortality rate increased as the length of captivity increased, suggesting mortality may be attributed to tank conditions such as abrasion rather than to the effects of capture, tagging, and handling. Future mortality experiment should focus on variations in pot retrieval speed, soak time, water surface and ambient temperature at the time of capture, and fish conditions due to maturity.

Additionally, criteria for selecting fish in the best condition for tagging, or for culling (removing) fish in less than optimum conditions were developed. To reduce the mortality rate of tagged fish, attempts were made to identify and eliminate fish less likely to survive from the tagging process. Cod damaged or in poor condition typically floated to the top of the tanks. They were often distended ventrally indicating swim bladder damage. To increase the chance of tagged fish survival, fish that appeared to be injured or in poor condition were removed or culled from the tanks prior to tagging.

Results – Measures of Change in Catch Before/After

Definition of Catch Measures and Comparisons

This experimental design uses pot catch of cod as an index of local abundance. This section describes how pot catches are used to compare the rate of change in local abundance between treatment (trawled) and control (untrawled) parts of the study area. Catch of cod by weight and numbers was strongly correlated and analysis using either measure would give similar results; the analyses presented here are based on numbers of cod caught in each pot.

Prior to the start of the 2003 field season, 120 possible study sites were selected according to a systematic design with random start (see Fig. 3). A “site” is a particular location specified by Latitude/Longitude coordinates that can be fished several times over the course of the study. This layout of study sites is symmetric across the no-trawl zone boundary, so that half the sites are within the no-trawl zone (control area) and half outside the boundary in the treatment area. The goal of the field effort is to measure cod catch at each site three or more times during each two-week survey (“before” in Dec.-Jan. and “after” during March). For each site, an average catch rate for the survey is calculated. The “before” and “after” catch rates at each site are used to calculate a percentage change in abundance (delta) over the period between the two surveys (see Experimental Design). Hypothesis testing for the presence or absence of a fishing effect is based on comparing the set of deltas measured in the treatment zone to the set of deltas measured in the control (untrawled) zone.

This catch measure and the subsequent tests are based on some important assumptions. One assumption is that the absolute abundance of cod may vary both between sites and over time, but the percentage change in abundance due to natural causes should be consistent over the entire study area. While there may be small-scale variation in abundance due to microhabitat factors, we are assuming that relative changes in abundance due to seasonal migrations and weather events will not differ between the treatment and control areas. There is also a critical assumption of scale inherent in the study design. The physical and temporal scales of the experiment were selected to match the physical and temporal scales believed to be most relevant to the issue of Steller sea lion foraging. The experiment is designed to detect a localized depletion effect at a scale on the order of 10 nmi that persists over several weeks. If the trawl fishery creates this type of localized depletion in the treatment area, we would expect the percentage change to be lower at our treatment sites than at control sites. It is possible, however, that fishing effects take place at

different temporal or spatial scales than those examined. For example, if a fishing effect extended over a spatial area larger than our treatment and control zones, our tests of mean δ may not show a significant difference.

2003 Before/After Data

Because of the bad weather and mechanical problems encountered, the sample size for the December/January “before” survey was much smaller than the target level. Instead of fishing each site three or more times, many sites were fished only once during this cruise. A larger number of sites were fished in March with three to six replications at each site. For calculation of the percentage change over the season, however, only the sites that have January data on catch rates can be used. There are two data sets that can be examined for change in catch. These data sets are used to illustrate the computations for hypothesis testing according to the experimental design for the study. Because of the small sample size in 2003, tests constructed from these data are expected to have low power and be difficult to interpret. A simulation study and discussion of the overall power of the procedure is included in a later section of this report.

The first data set calculates the percentage change in abundance (δ) at each site based on one day of fishing in each survey. A total of 56 sites were fished once during the period of January 1-4 and once during the period March 18-20, 2003. Half of these sites were inside the no-trawl zone, and half in the treatment area. The second, much smaller data set calculates the change in catch over the season by using the average of three pot sets at each site during each survey. There are 16 sites available for this comparison, half of which are treatment and half control.

When the change in catch was calculated from a single pot catch in each survey, we observed values of δ ranging from -1.00 to +3.36 (Table 11a). The median value for single-catch changes in 2003 was -0.65 for stations in the control zone and -0.66 for stations in the treatment area. A non-parametric Wilcoxon Rank-Sum test indicates strongly that there was no statistically significant difference in the change in catch between the treatment and control groups for 2003 (p-value of 0.95). When the catch metric for each survey was composed of an average over three pot sets (Table 11b), the percentage changes ranged from -0.37 to -0.84, with medians of -0.62 for the treatment sites and -0.57 for the control. The rank sum test also strongly indicated no significant difference between the two groups based on this measure (p-value of 0.51). A pooled

frequency distribution of the deltas for all sites from the single-pot data set is shown in Figure 16. Exploratory analysis of the change-in-catch measures did not show any consistent trends with depth, position (E-W), or soak time.

Simulation – Power and Sample Size Estimates

The data collected in these cruises affords us our first opportunity to evaluate the experimental design directly, especially with regard to sample size and the power of the test. The “after” leg provided sufficient and properly configured data to permit simulations of a “before/after” experiment, employing the measure of trawling effect described earlier in this report. Bootstrap methods (resampling the data, with replacement) were used to simulate 1,000 experiments under a variety of sampling constraints. The following algorithm was used:

1. Compute mean catch in the “before” data, \bar{C}_{Before} , ignoring trawled and untrawled categorizations.
2. Compute mean catch in the “after” data, \bar{C}_{After} , ignoring trawled and untrawled categorizations.
3. Compute the seasonal effect observed in the “before” and “after” legs (the underlying change in abundance from before the fishery to after the fishery due to all factors other than removals by a trawl fishery).

$$\hat{S} = \frac{\bar{C}_{Before}}{\bar{C}_{After}}$$

4. Randomly select X stations, with replacement, from the stations visited in the “after” leg, ignoring trawled and untrawled categorization.
5. For each station selected in Step 4, randomly select m catches, with replacement, from the catches made at that station during the “after” leg. These will be used to simulate “before” catches.
6. Multiply each catch selected in Step 5 by the factor representing seasonal change, \hat{S} (computed in Step 3). These simulated data constitute the “before” leg of a simulated “before/after” experiment.
7. For each station selected in Step 4 randomly select m “after” catches, with replacement, from the catches made at that station during the “after” leg.
8. Of the stations selected in Step 4, assign one-half of them to the trawled category.
9. For the “after” catches at the stations assigned to the trawled category, impose a fishing effect, F , a constant factor representing the fraction remaining after removals by a trawl

fishery. For example, if 20 percent of the cod were harvested in the trawled area, the factor F would be 0.8.

10. For each station selected in Step 4 compute δ_i .

$$\delta_i = \frac{\bar{C}_{i,Before} - \bar{C}_{i,After}}{\bar{C}_{i,Before}}$$

where

$$\bar{C}_{i,Before} = \left(\frac{1}{m_{Before}} \right) \sum_{j=1}^{m_{Before}} C_{i,j},$$

$$\bar{C}_{i,After} = \left(\frac{1}{m_{After}} \right) \sum_{k=1}^{m_{After}} C_{i,k},$$

$C_{i,j}$ = the j th of the simulated “before” catches at station i , and

$C_{i,k}$ = the k th of the m “after” catches at station i , modified by the fishing effect F .

11. Conduct the Wilcoxon Rank Sum test of the null hypothesis:

$$\delta_{Trawled} = \delta_{Untrawled}$$

where

$\delta_1, \delta_2, \dots, \delta_{\frac{x}{2}}$ constitute the simulated δ s within the no-trawl zone, and

$\delta_{\left(\frac{x}{2}\right)+1}, \delta_{\left(\frac{x}{2}\right)+2}, \dots, \delta_x$ constitute the simulated δ s outside the no-trawl zone.

This algorithm was repeated 1,000 times for each of the combinations of sampling effort and fishing effect. The p-values computed in Step 11 were used to compute probabilities of rejecting the null hypothesis for $\alpha = 0.05, 0.1, \text{ and } 0.2$ at each of the levels of sampling effort. The results are plotted in Figure 17.

Sample size was held constant at 80 stations for all simulations. This represents two fishing days with one pot per station. (Forty pots can be deployed and retrieved on any day that weather permits fishing.) To achieve five replications per station at 80 stations would require 10 successful fishing days. This number of fishing days is achievable. Were it not for the

mechanical difficulties of the first leg, the 2003 experiment would have had this sampling level in both legs, not just in the “after” leg.

The simulation results in Figure 17 show that, with Cs based on one fishing day per station, the rank sum test has good power only at fishing effects on the order of 40-50% removal. For this reason, the results of the hypothesis test for 2003 are considered inconclusive (The test showed no significant difference, but they would not have been able to detect a difference unless the fishing effect was very large). When sampling in the simulation is set at the original design level of 80 stations, fishing each station three times, the test can reliably detect fishing effects in the range of a 30% removal. We also investigated the effects of increasing the sampling to five pots per station; this increase provides a slight improvement in power, but is still unlikely to detect differences at fishing effects smaller than about 25% removal.

Discussion

Hypothesis Testing and Inference in Observational Studies

The main objective of this study is to document the effect of a trawl fishery on local abundance of Pacific cod. It is hoped that the end products of the study will include a defensible quantitative test for presence or absence of localized depletion at the scales examined. This is a specific case of a general problem common in environmental impact assessment: that of trying to document the effect of an anthropogenic disturbance on an ecosystem. In this section, we review the scientific literature on statistical designs and hypothesis testing for this type of study. We then describe how the design and inference principles apply specifically within the context of the cod study.

First, it is important to note that the cod study, like all studies of the natural environment, is what is statistically termed an observational or mensurative experiment. We can select areas of the natural environment, then observe or measure what happens there over time. This type of study does NOT meet the conditions of a true manipulative experiment, in that the “treatment” (trawl fishing) is not applied uniformly by the experimenter and the experimental units cannot be randomly assigned to treatment and control. Statistical inference from a mensurative experiment is more restricted than in a manipulative experiment, and assumptions of independence may be more difficult to meet. As discussed by Hurlbert (1984), “assuring that replicate samples or measurements are dispersed in space (or time) in a manner appropriate to the hypothesis being tested is the most critical aspect of the design of a mensurative experiment”.

Most attempts at environmental impact studies compare conditions at a potentially impacted site before and after the startup of the disturbance, or compare the impacted site to a similar but unaffected control. It was recognized early (Eberhart 1976) that classical methods of statistical inference are difficult to apply in this setting, because it is rarely possible to study more than one disturbed site. Green (1979) described a basic study design known as Before-After-Control-Impact (BACI). In this design, measurements (frequently of animal density) are made at both control and impact sites before the start-up of the disturbance and after it has been established. The four sets of measurements are then subjected to a balanced analysis of variance (ANOVA), with time (before/after) and treatment (control/impact) as main factors. A significant interaction term would imply that the change over time differs between the treatment and control

sites, suggesting a significant impact at the disturbed site. Hurlbert (1984) pointed out that this design is “pseudoreplicated” because it involves only one treatment and one control site. While there may be a large number of measurements taken within each site, there are only four “experimental units” and insufficient degrees of freedom for the ANOVA. Stewart-Oaten and several coauthors (1986, 1992, 2001) developed an extended version of the basic BACI design that does allow hypothesis testing in some settings. Their design calls for paired measurements at the treatment and control sites to be made at several points over time, both before and after the start of the supposed impact. If these sampling times are considered to be independent, then the set of differences between the treatment and control measurements can be subjected to a standard t-test or nonparametric test. If the mean of the treatment/control difference changes significantly between the before and after periods, this is interpreted as an impact effect. Underwood (1991) pointed out that this extended design still suffers from the limitation of single treatment and control sites, and requires virtually synoptic sampling in the two areas. Underwood (1991, 1992, 1994) described designs for environmental monitoring studies based on asymmetric analysis of variance. These designs use multiple control sites to estimate the error term for hypothesis testing, and do not necessarily require paired data. Underwood’s designs are more complex than the BACI approach, but have the potential to detect effects other than a change in mean. More recently, several authors have examined methods for estimation of temporal and spatial variability in environmental monitoring data (Hewitt et al. 2001, Stewart-Oaten and Bence, 2001, Lichstein et al. 2002) and power analysis of tests used for impact assessment (Osenberg et al. 1994, Ortiz 2002, Benedetti-Cecchi 2001). The overriding consensus among all of this work is that experimental design must be carefully matched to the hypothesis to be tested, and that assumptions crucial to the testing procedures, such as additivity of effects and independence of replicate samples, must be directly tested for each application. Proper inference is also based on matching the scale of sampling to the physical and temporal scale of the presumed impact.

The cod local abundance project uses many of the components of a BACI design, but differs substantially from the BACIP designs of Stewart-Oaten et al. (1991, 1992). As discussed above, this project includes only two experimental units, in the sense that the “treatment” (trawling) is applied to one region and the other (no-trawl zone) is used as an untreated control. Like BACIP, our design collapses the untestable four-way ANOVA into a comparison between two populations to allow valid hypothesis testing. Unlike BACIP, the measured quantity is not the difference between treatment and control sites (replicated over time), but the percentage difference over time (replicated in space over multiple sites). The reasons for this difference are

both practical and biological. Our treatment and control areas are matched in the sense that they are physically adjacent and subject to the same climate and circulation factors, but it is not feasible to pair individual sites within the treatment and control areas as in the BACIP design. The difficulty and expense of getting to the study area preclude many surveys over time, while the likelihood of strong serial correlation prevents the use of multiple days within a survey period as independent samples.

More importantly, there are strong biological reasons to expect variation in local abundance between sites due to small-scale habitat variation and a significant change in abundance over time due to seasonal factors. What is biologically reasonable is that the relative direction and magnitude of the seasonal changes will be consistent over the broad spatial region that includes both treatment and control zones. Because of the expected site-to-site variation in abundance our design uses percentage change (δ) at each site as its main response. Because of the observed strong day-to-day variation in catch, we hope to use a mean over several catches within each survey to calculate δ for each site. The result is two populations of observed δ s, one made up of sites within the treatment zone, and one of sites within the control zone. The statistical hypothesis test is a test for differences between the two populations of δ s.

Data analysis will include explicit checking for independence between study sites; if spatial covariance structure is present between the study sites, it may be possible to estimate the covariance structure with spatial models (Cox et al. 1997, Meot et al. 1998). The selection of the best test for significant differences between treatment and control zones will be based on the form of the observed δ s; choices include the rank-based Mann-Whitney test, original and modified parametric t-tests, and two-sample randomization tests. Computation of power estimates for any test used will be important since absence of a difference between treatment and control areas will be perhaps a more important result than a significant difference.

The issue of scale of the presumed impact is an important one in interpreting results of this study. Statistical tests performed on our data will detect effects that occur at the spatial and temporal scales implicit in the study design. By using treatment and control areas that are physically adjacent, we are assuming that the spatial scale of any fishing effect will be large enough to be seen over at least part of the treatment area but not large enough to include the control area. “Localized depletion”, in this context, is a decline in average abundance that occurs within a few nmi of trawling locations and persists for at least two weeks. The current

experimental design will not detect effects on cod abundance that dissipate within a week or less, and will not detect fishing effects that are dispersed over areas larger than 5-10 nmi. The scale of this experiment was selected based on scales of the existing fishery and current regulatory measures for protecting Steller sea lions. Once effects at this scale have been evaluated, experiments to examine effects at other spatial scales may be appropriate.

As pointed out by Hurlbert (1984), in an observational study with only one treatment and one control area, a statistical test constitutes evidence only for a difference between the two observed areas. The observation of an effect (or lack of effect) must be combined with biological knowledge of the system to extend inference from the observed areas to other parts of the system. In the case of cod alley, the experimental area was selected not as a representative location for the entire BSAI, but as a “worst-case” location. The area north and east of Unimak Pass has high concentrations of commercial fish and is convenient to commercial ports and processing plants. As a result, it is one of the most heavily fished areas in the BSAI. The winter trawl fishery in Federal Area 517 (containing the experimental area) is the source of approximately 8% of all cod taken annually in the entire BSAI (NMFS 2002). We selected this area in the belief that if localized depletion occurs, it will occur here. If the cod alley winter trawl fishery does not produce measurable local depletion, it is unlikely other cod fisheries in the BSAI would do so.

In this design, we use averaging over time within surveys and replication over space within the treatment and control zones to overcome a large uncontrolled variance in measured catch and to allow reliable statistical testing for a difference between treatment and control zones. Inference about the role of the treatment (trawling) in creating a significant difference and the extension of results in the study area to other BSAI fisheries will be based on careful consideration of the biology of the system.

Conclusions from the Winter 2003 Experiment

Hypothesis tests on the available data from 2003 suggest that there is no measurable difference between the trawled and untrawled portions of the study area. These results should, however, be interpreted with caution. Because of the small sample size, the power of the tests for 2003 is low, and failure to detect a difference is not strong evidence that no effect exists. The simulation study shows that sampling once per survey at 80 stations would detect a 20% change in the mean less than 50% of the time. At this level of sampling, a fishery effect would have to

approach a 50% reduction in catch rates before it could be reliably detected (Fig. 17). The experiment will be repeated in 2004, and the results are expected to be more conclusive. Simulations suggest that if a sample size of 80 stations can be fished at least three times (approximately six fishing days) in each survey, it should be possible to reliably detect a fishing effect that produces a 25-30% reduction in local abundance.

Operations in February 2003 clearly demonstrated the need for the special closure of the study area for the March “after” leg of the experiment. The February tagging cruise was moved up in the hope that we could use the ship time to collect a larger set of “before” data than was obtained in January. The intent was to try to work around any active cod trawling in the study area, perhaps by setting experimental gear at night. When the charter vessel got on-site, however, the area outside the no-trawl zone was being actively trawled by several vessels, including pollock trawlers that were working around the clock. It was clear that there was simply too much trawl traffic to risk putting fixed gear outside the no-trawl zone. During the March cruise, with the closure in place, there was no difficulty in working experimental gear at all of the study sites. Vessels were observed trawling along the outer side of the special closure area, but there were no problems with gear conflict. The continuation of the Cape Sarichef special closure in 2004 and later years is necessary to perform the experiment.

The main improvement suggested by our 2003 experience is to increase the effort to get an adequate “before” sample. While weather conditions cannot be predicted or avoided, the charter proposal for the winter 2004 work is being revised to provide the best opportunities possible for flexibility of schedule and ability to work in rough conditions. Issues of soak time and at-sea work schedule will be reviewed based on the 2003 data to see if there is any way to increase the number of pots that can be fished in a day without compromising the study design. The simulation study suggests that it is highly beneficial to get at least three replicated acts of fishing at each station; fishing in 2004 will be oriented toward this goal. The simulation suggests that a reliable hypothesis test may be reached if at least 6 days of fishing can be attained in each survey.

Maturity code data collected in 2003 provided some interesting insights; we hope to develop this approach further and gain more knowledge about the timing of cod spawning in the Unimak Pass area. Biological specimen collection and cooperative research will continue. The initial work done with cod tagging suggests that this approach is highly feasible. Current plans

for 2004 do not include vessel charter time especially devoted to tagging, but opportunistic tagging of fish during field studies will continue. Return data from preliminary tagging studies will be used to examine questions of small-scale movement that might affect the local abundance study. Tagging data may be critical to understanding the correct scale of fishery impacts. Efforts to continue the development of trigger timers and oceanographic instruments in conjunction with the pot studies will continue. Use of these instruments to explain part of the variance in catch data may yield even greater precision for statistical comparisons.

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Figure 1. General location of the Unimak Pass study area in the southeast Bering Sea.

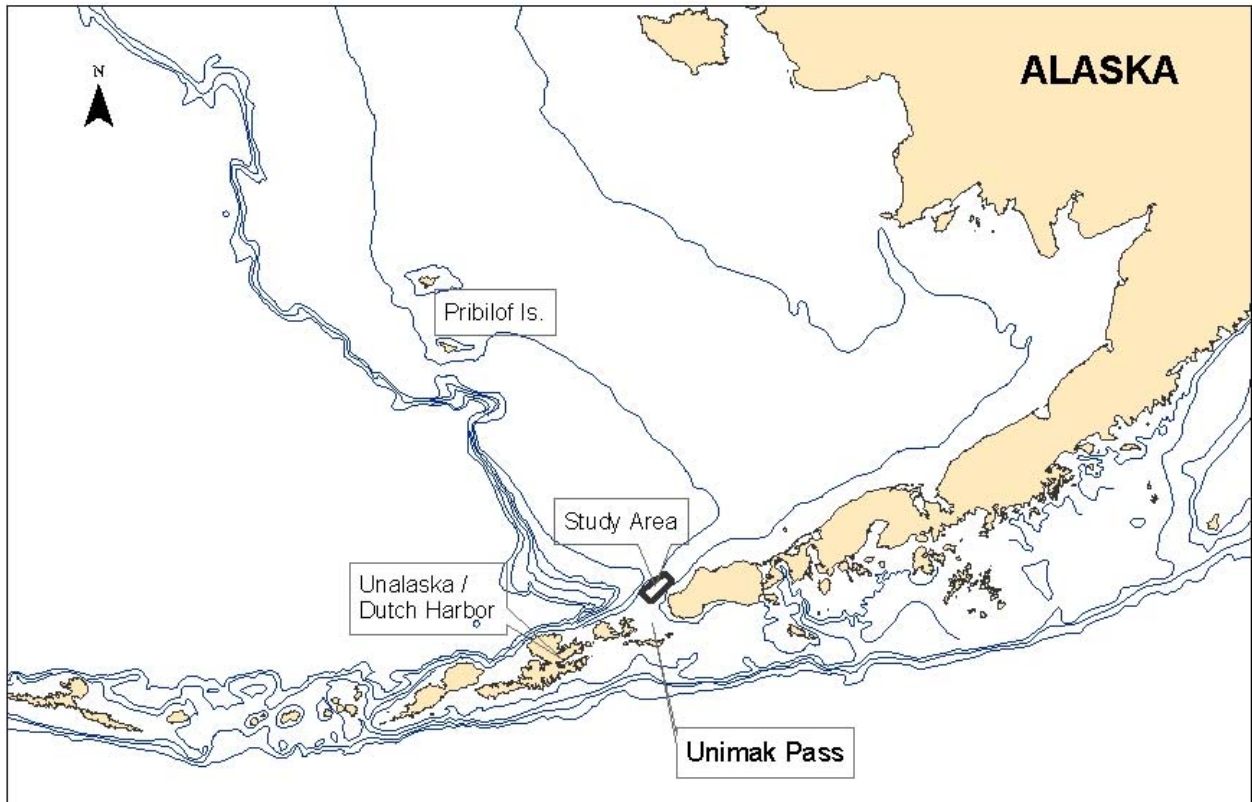
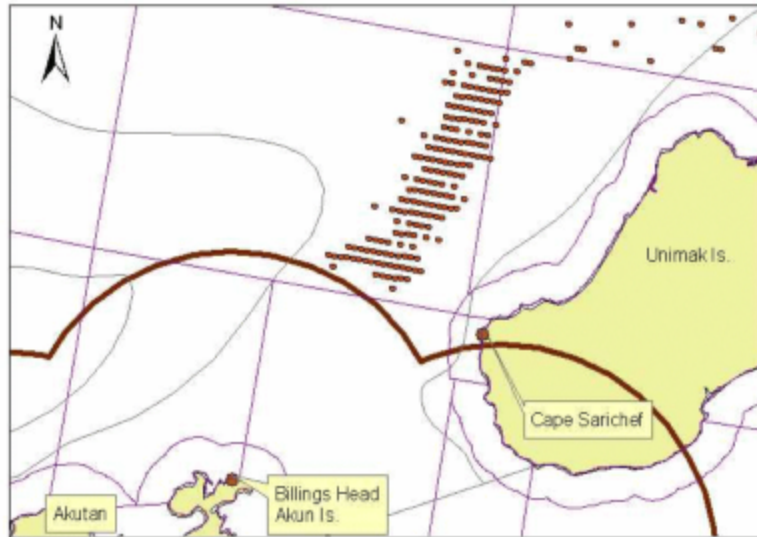


Figure 2. Comparison of no-trawl boundaries and observed bottom trawl hauls in the vicinity of Unimak Pass during 2000 (upper map) and 2002 (lower map). Each plotted point represents hauls from three or more vessels.

**Unimak Pass SSL 20 nm No-Trawl Zones for 1999/2001
and Location of Observed Bottom Trawls in Jan-Apr 2000**



**Unimak Pass SSL 10 nm No-Trawl Zones for 2002
and Location of Observed Bottom Trawls in Jan-Apr 2002**



Table 1. Summary of cruises and fishing effort for AFSC cod pot studies, 2001-2003.

Cruise	Cruise Dates	Cruise Purpose	Number Days Fishing	Number Pots Fished	Average Number Cod/Pot	Average Weight (Kg) Cod/Pot	Number Tags Released
BV200101	June 12 - 22, 2001	Initial Feasibility	9	170	3.5	15.9	
FA200201	Mar. 30 - Apr. 25, 2002	Pilot Study & Tagging	21	703	28.8	103.4	2,070
PS200201	Sept. 23 - Oct. 7, 2002	Final Gear Trials	12	536	10.9	42.5	
PS200301	Dec. 28, 2002 - Jan. 8, 2003	Abundance Experiment "Before"	4	160	22.1	85.5	430
PS200302	Feb. 4 - 17, 2003	Tagging & Some Abundance	11	336	22.3	78.3	3,442
PS200303	March 12 - 31, 2003	Abundance Experiment "After"	14	475	8.8	25.6	105

Table 2a. Catch summary (total weight) by species for the 2002-2003 AFSC cod pot cruises.

Species / Cruise	Catch by Weight (Kg)					Total
	FA200201	PS200201	PS200301	PS200302	PS200303	
Pacific cod	72,669	22,754	13,678	26,325	12,174	147,599
yellow Irish lord	326.5	25.0	46.4	649.5	208.1	1255
giant octopus	210.4	317.6	80.3	387.4	88.0	1084
Tanner crab (bairdi)	54.3	120.4	2.0	89.9	5.6	272
Bering wolffish	56.0	11.5			106.1	174
Pacific halibut	10.4	106.0	4.0	32.3	10.9	164
Atka mackerel	11.4	18.7	1.1	90.4	9.2	131
starfish unident.		3.9		103.9		108
yellowfin sole	42.1	24.0		32.1	8.9	107
walleye pollock	14.1	25.7	13.7	27.7	12.8	94
sablefish		50.2				50
prowfish		30.8	0.6	6.0		37
great sculpin	5.4	4.7			15.0	25
northern rockfish	1.1	6.3		8.2		16
arrowtooth flounder		15.1	0.2			15
light dusky rockfish		9.8				10
kelp greenling		4.8		1.8	2.3	8.9
snail unident.			0.8	7.5		8.3
searcher		1.7		5.5	0.6	7.7
Pacific lyre crab		5.7		0.6		6.3
sculpin unident.				5.1		5.1
horsehair crab	2.1	0.5				2.6
hermit crab unident.			1.3			1.3
Pacific ocean perch	1.2					1.2
red Irish lord	1.0					1.0
butter sole					0.8	0.8
dusky rockfishes unid.	0.6					0.6
hair crab	0.4					0.4
flathead sole	0.4					0.4
sand sole	0.3					0.3
Tanner crab (opilio)		0.3				0.3
helmet crab				0.2		0.2
triton						0.0
All Species	73,406	23,536	13,829	27,773	12,642	151,186
Pct Pacific Cod	99.0%	96.7%	98.9%	94.8%	96.3%	97.6%

Table 2b. Catch summary (counts) by species for the 2002-2003 AFSC cod pot cruises.

Species / Cruise	Catch in Numbers					Total
	FA200201	PS200201	PS200301	PS200302	PS200303	
Pacific cod	20,257	5,857	3,537	7,490	4,188	41,329
yellow Irish lord	336	24	76	749	314	1499
giant octopus	12	19	6	26	11	74
Tanner crab (bairdi)	51	815	183	153	75	1277
Bering wolffish	6	1			18	25
Pacific halibut	4	25	4	9	5	47
Atka mackerel	7	14	1	86	10	118
starfish unident.		15		662		677
yellowfin sole	90	47		69	12	218
walleye pollock	7	20	9	27	14	77
sablefish		31				31
prowfish		4	1	3		8
great sculpin	1	1			3	5
northern rockfish	1	7		9		17
arrowtooth flounder		7	1			8
Light dusky rockfish		10				10
Kelp greenling		5		2	2	9
snail unident.			3	142		145
searcher		4		10	1	15
Pacific lyre crab		74	4	9	30	117
sculpin unident.				5		5
horsehair crab	4	1				5
hermit crab unident.			8			8
Pacific ocean perch	1					
red Irish lord	1					
butter sole					1	1
dusky rockfishes unid.	1					
hair crab	1					
flathead sole	1					
sand sole	1					
Tanner crab (opilio)		1				1
helmet crab				1		
triton					4	4
All Species	20,782	6,982	3,833	9,452	4,688	45,737
Pct Pacific Cod	97.5%	83.9%	92.3%	79.2%	89.3%	90.4%

Figure 3. Cod pot local abundance study area in the southeast Bering Sea. Red circles indicate the 10 nmi no-trawl zone boundaries around Cape Sarichef on Unimak Island and Billings Head on Akun Island. Rectangular polygon shows coordinates of the 15-31 March special closure for the project. Shaded area indicates depths between 70 and 100 m. Yellow squares show location of pre-selected sampling sites for the 2003 experiment, laid out in 15 transects with eight sites per transect.

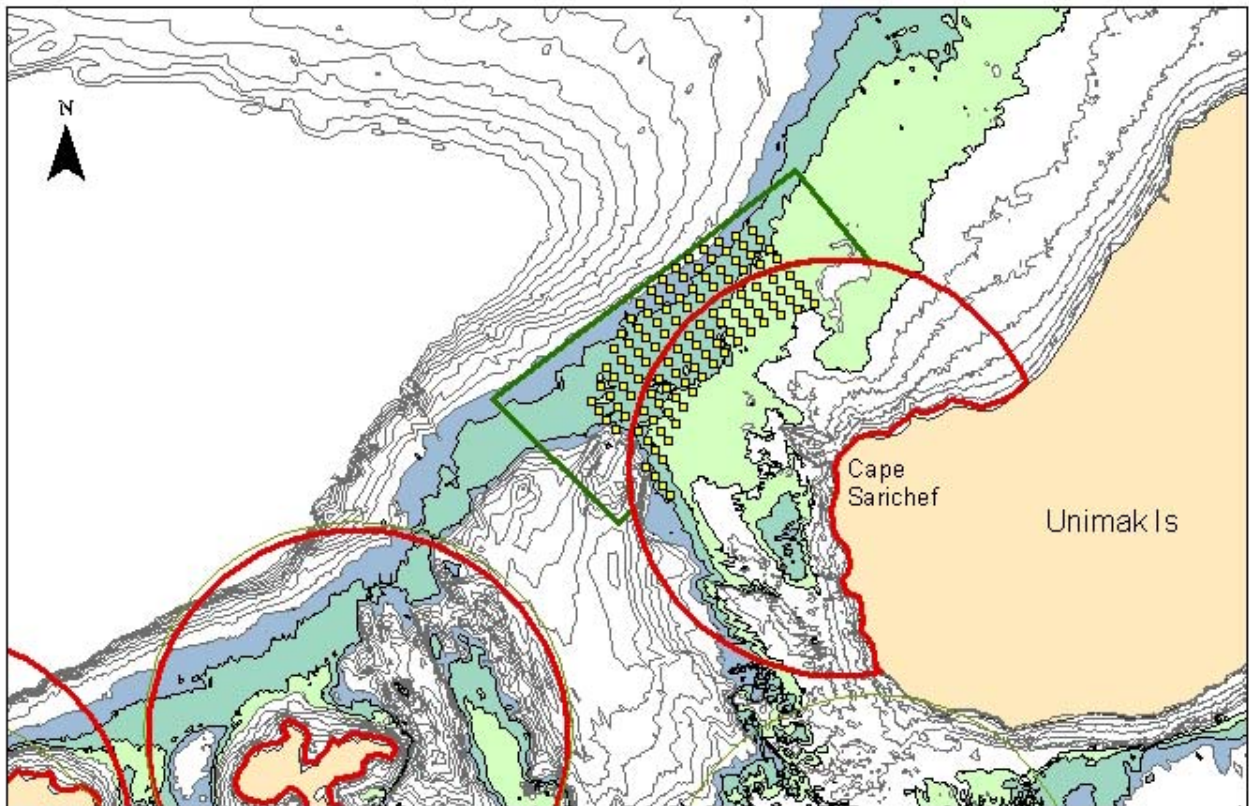


Figure 4. Pot-fishing locations for the April 2022 pilot study: a) locations for variance component experiment and layout of pot “cluster”, b) locations for preliminary tagging feasibility study. Red circles indicate the 10 nmi no-trawl zone boundaries around Cape Sarichef on Unimak Island and Billings Head on Akun Island

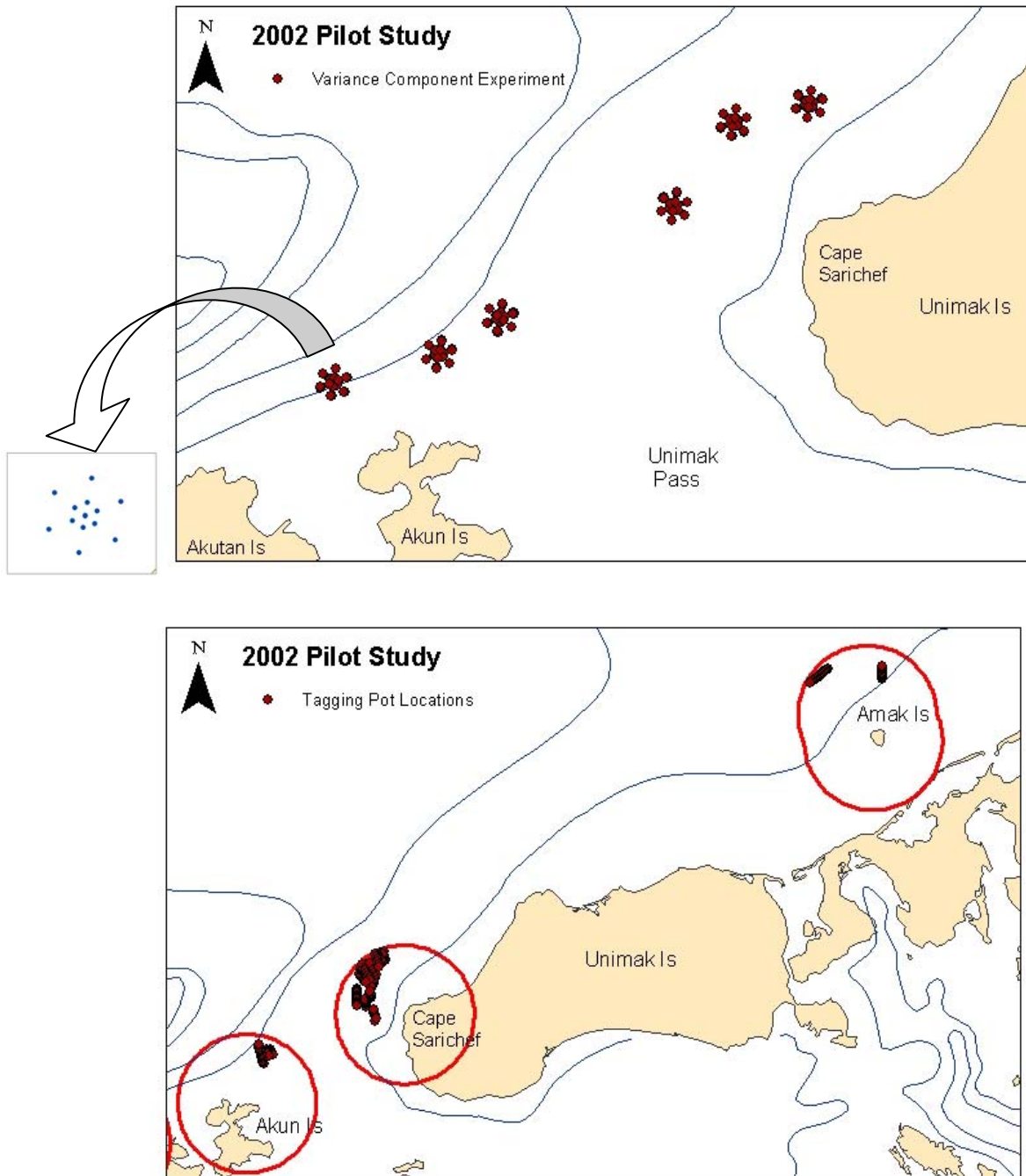


Figure 5. Pot-Fishing locations for winter 2003 cruises. Yellow triangles indicate sites for local abundance before/after experiment, purple squares indicate tagging locations. Red circles indicate the 10 nmi no-trawl zone boundaries around Cape Sarichef on Unimak Island and Billings Head on Akun Island. Rectangular polygon shows coordinates of the 15-31 March special closure for the project.

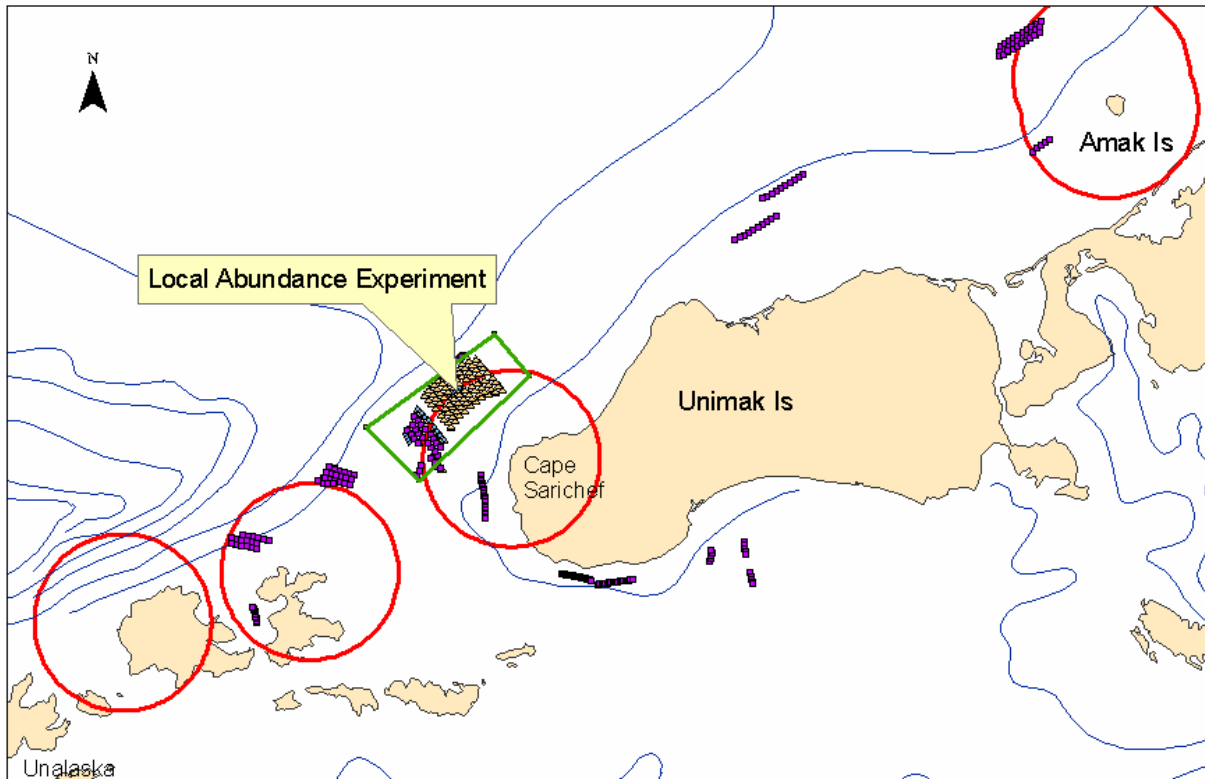


Figure 6. Commercial cod fishing pot in pot launcher. Bait is suspended in the center of the pot. Fish enter the pot by swimming up the indented tunnels and pushing through one-way triggers (orange “fingers” in photo).



Figure 7. Two modular trigger assemblies with trigger timers mounted.



Figure 8. Water temperature profiles from the 2003 AFSC cod pot cruises.

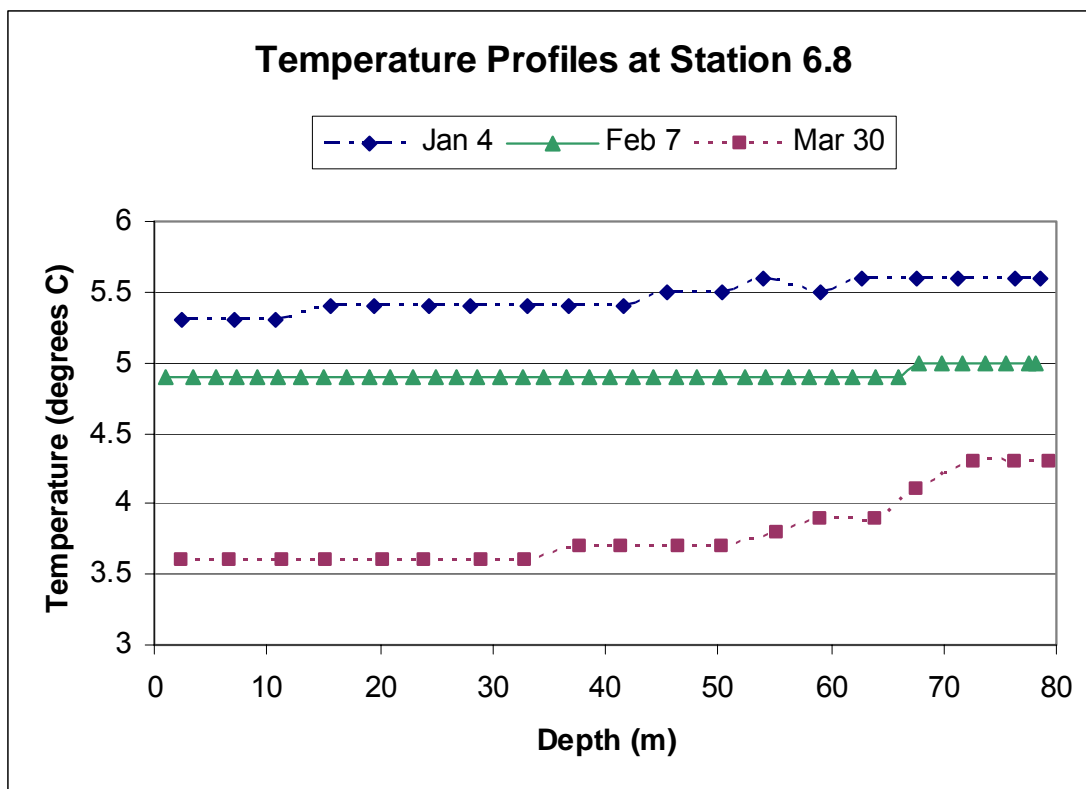


Figure 9. Frequency distribution of numbers of cod per pot during pilot study (AFSC Cruise FA200201). Includes all pots fished according to standard protocols.

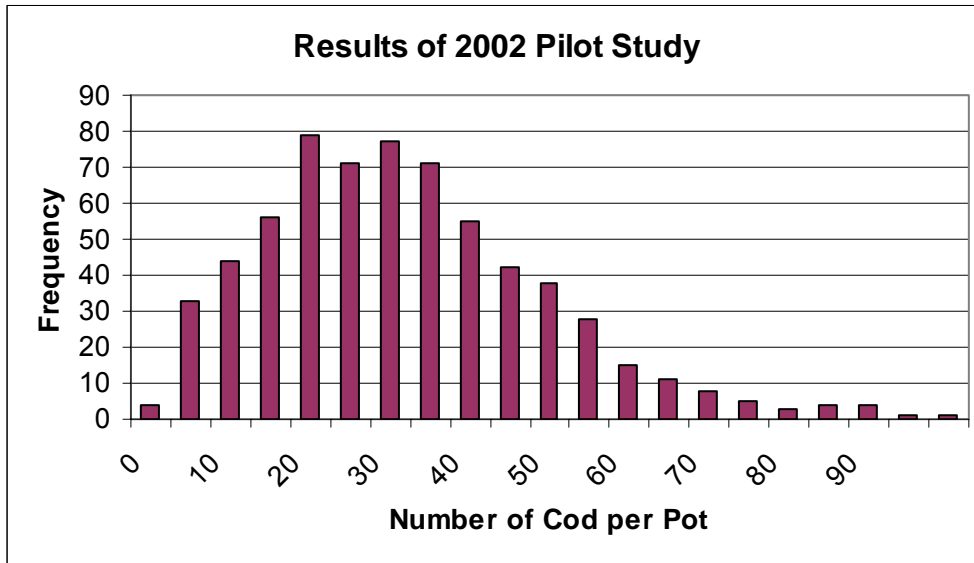


Table 3. Results of Pot Fishing Pilot Study near Unimak Pass, April 2002. Analysis includes all pots fished according to standard protocols.

Stratum	Array	Number of Pots	Number of Cod/Pot		Weight of Cod (Kg)	
			Average	StDev	Average	StDev
1	1	96	33.2	21.7	116.1	88.0
	2	96	26.3	19.0	90.6	69.2
	3	80	32.0	18.8	111.0	68.5
2	1	119	28.2	15.3	100.8	59.2
	2	105	31.5	12.1	118.3	49.6
	3	109	34.3	18.4	127.3	73.3
	4	22	25.1	11.5	93.0	40.5
	5	2	25.0	7.1	88.0	28.4
3	1	10	4.6	3.4	10.6	7.2
	2	10	22.0	11.6	66.5	35.8
All Strata		650	30.1	17.7	107.8	68.8

Table 4. Results of variance component analysis and linear modeling from 2002 pilot study.

Response: Number

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Stratum	1	1261.21	1261.210	5.24311	0.02261504
Crowd	1	3414.43	3414.430	14.19451	0.00019270
Array.nested %in% Stratum	4	3844.34	961.086	3.99544	0.00348196
day.code %in% Stratum	8	7654.16	956.769	3.97749	0.00015645
Array.nested:day.code %in% Stratum	15	7916.62	527.775	2.19407	0.00633740
Residuals	358	86115.43	240.546		

Response: Kilograms

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Stratum	1	49102	49102.05	15.38034	0.0001053580
Crowd	1	54095	54094.77	16.94422	0.0000478249
Array.nested %in% Stratum	4	98766	24691.46	7.73416	0.0000054913
day.code %in% Stratum	8	108603	13575.43	4.25226	0.0000678320
Array.nested:day.code %in% Stratum	15	179324	11954.96	3.74468	0.0000036991
Residuals	358	1142922	3192.52		

Table 5. Coefficients of variation (CV) for different catch measures, based on 2002 pilot study data. * Expected CV is based on the expected variance of the calculated average in each approach, based on overall sample variance and the number of pots contributing to the average.

	Number Pots per Sample	Number of Samples	Sample Mean	Sample StDev	Sample CV	Expected CV*
<u>Simple Average of all Pots during Study</u>						
Both Strata - all pots/days	1	414	30.76	16.57	0.54	0.50
Akun all cluster all days	1	193	29.42	18.17	0.62	
Sarichef all clusters/days	1	221	31.93	14.98	0.47	
<u>Average by Cluster and Date</u>						
Both Strata Combined	13	31	31.08	7.52	0.24	0.15
Akun: Clusters 1-3	13	14	30.04	6.93	0.23	
Sarichef: Clusters 4-6	13	17	31.93	8.08	0.25	
<u>Average by Site over 5 Fishing Days</u>						
Both Strata Combined	5	78	30.70	8.24	0.27	0.24
Akun: Clusters 1-3	5	39	29.60	9.39	0.32	
Sarichef: Clusters 4-6	5	39	31.80	6.86	0.22	
<u>Avg for Date of all pots in Stratum</u>						
Combined	39	10	30.56	5.41	0.18	0.09
Akun	39	5	29.47	4.73	0.16	
Sarichef	39	5	31.01	6.81	0.22	

Figure 10. Results of AFSC Observer Program special project: frequency distribution of cod catch in commercial fishing pots.

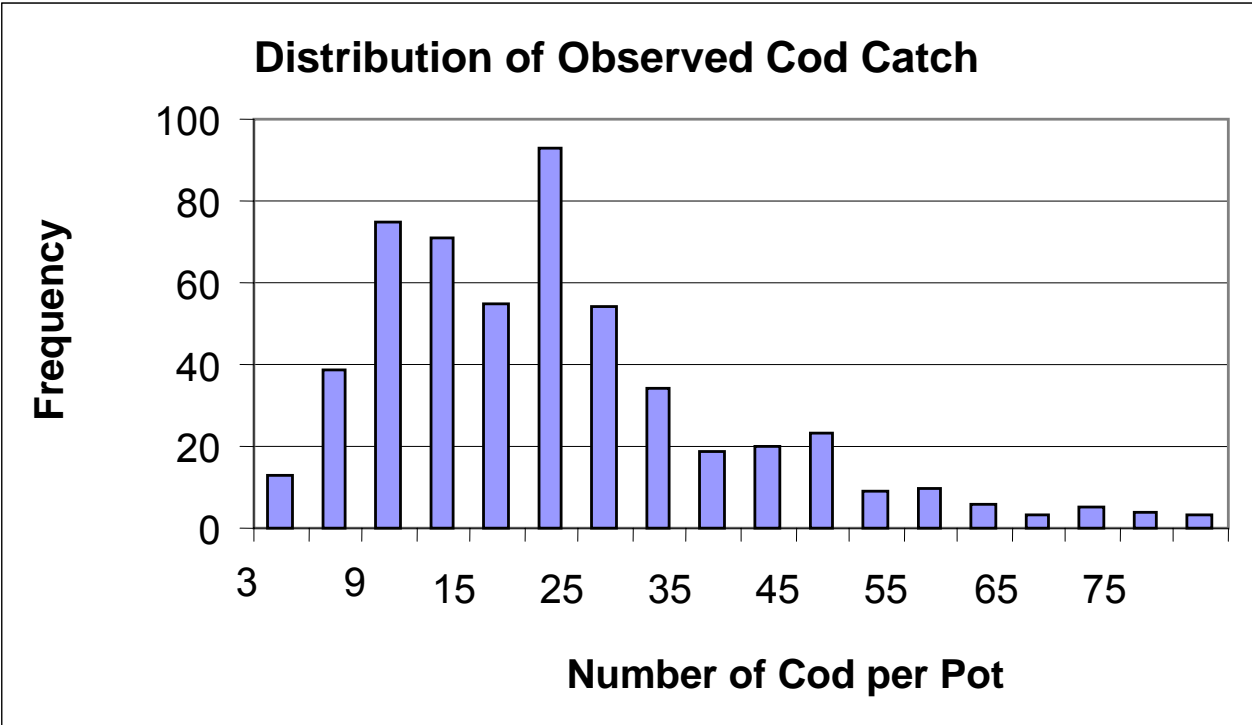


Table 6. Relationship of coefficient of variation (CV) of data to sample size needed for a two sided t-test for difference in means. First three lines in table show total sample size (both treatment and control groups) for a test with Type I and II errors each set to 5%. Last row (*) shows sample sizes with errors both at 10%.

CV of Data	Difference in Means		
	30%	20%	10%
0.25	18	41	162
0.50	72	162	650
0.75	162	366	1462
0.50*	48	107	428

Figure 11. Frequency distribution of catch data (number of cod per pot) from the 2003 AFSC cruises.

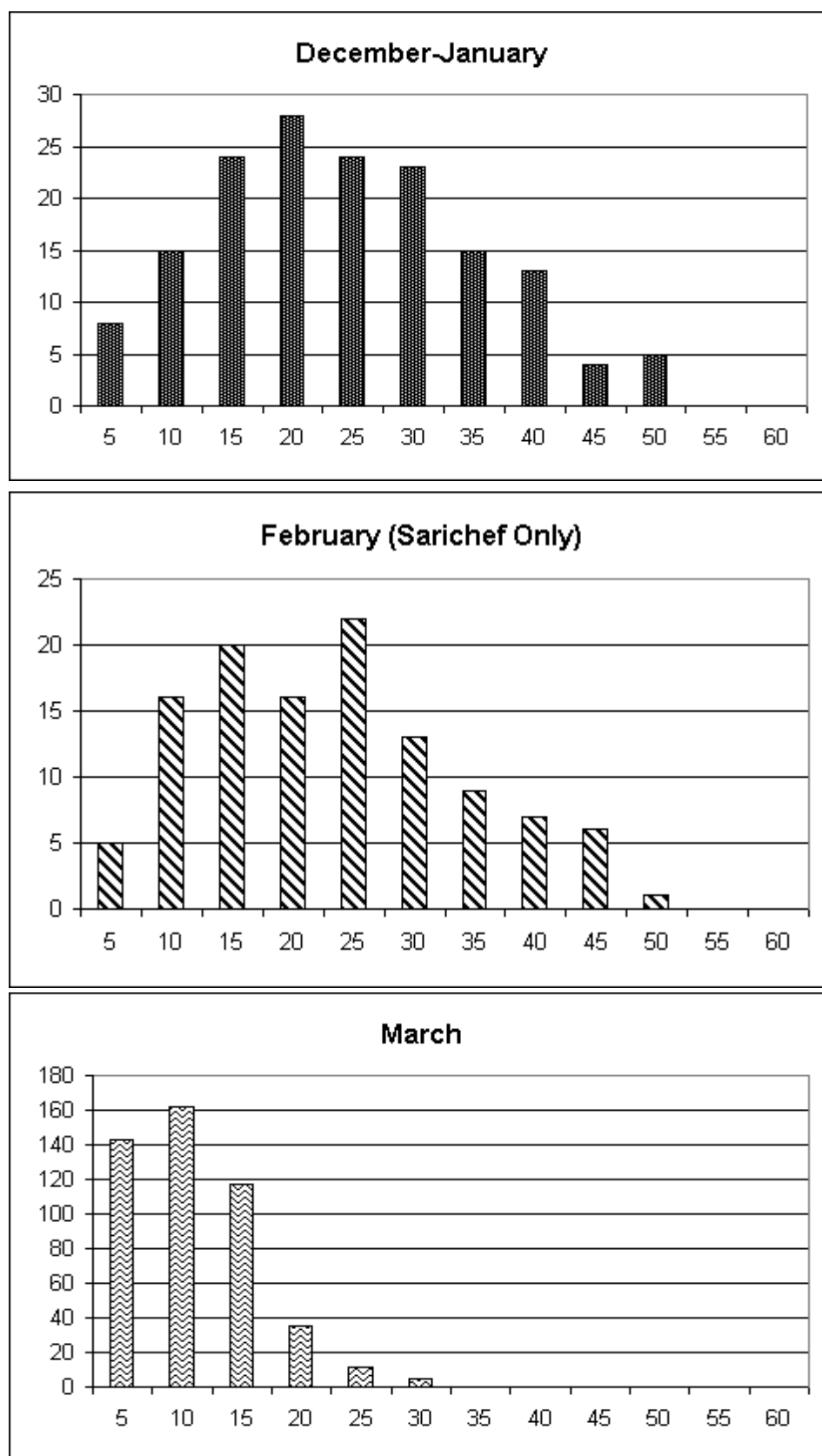


Table 7. Daily variation in catch at the Cape Sarichef local abundance experimental area for the winter 2003 AFSC cruises.

Cruise	Date	Number of Pots Fished	Number of Cod Caught	Weight of Cod (Kg)	Daily Averages			
					Number per Pot	Weight Pot	Weight per Fish	Length (cm)
PS200301	12/29/02	8	136	685.2	17.00	85.65	5.04	70.3
	12/30/02	44	722	3538.0	16.41	80.41	4.90	70.8
	1/1/03	40	818	3611.8	20.45	90.30	4.42	67.4
	1/4/03	40	1203	5843.4	30.08	146.09	4.86	70.1
PS200302	2/5/03	24	202	767.3	8.42	31.97	3.80	66.2
	2/6/03	20	381	1655.7	19.05	82.79	4.35	67.8
	2/7/03	44	1137	4681.6	25.84	106.40	4.12	64.9
PS200303	3/18/03	16	133	452.8	8.31	28.30	3.40	65.2
	3/19/03	40	456	1459.3	11.40	36.48	3.20	62.9
	3/20/03	41	340	1218.7	8.29	29.72	3.58	65.8
	3/21/03	41	292	974.6	7.12	23.77	3.34	64.3
	3/22/03	41	333	1114.7	8.12	27.19	3.35	64.5
	3/26/03	25	202	695.8	8.08	27.83	3.44	67.1
	3/27/03	41	276	768.5	6.73	18.74	2.78	62.4
	3/28/03	45	297	642.5	6.60	14.28	2.16	63.0
	3/29/03	45	283	638.2	6.29	14.18	2.26	62.8
	3/30/03	40	444	1438.9	11.10	35.97	3.24	64.2
	3/31/03	41	604	2121.6	14.73	51.75	3.51	65.6

Figure 12. Comparison of length distributions (in cm) for cod caught during 2003 AFSC cruises.

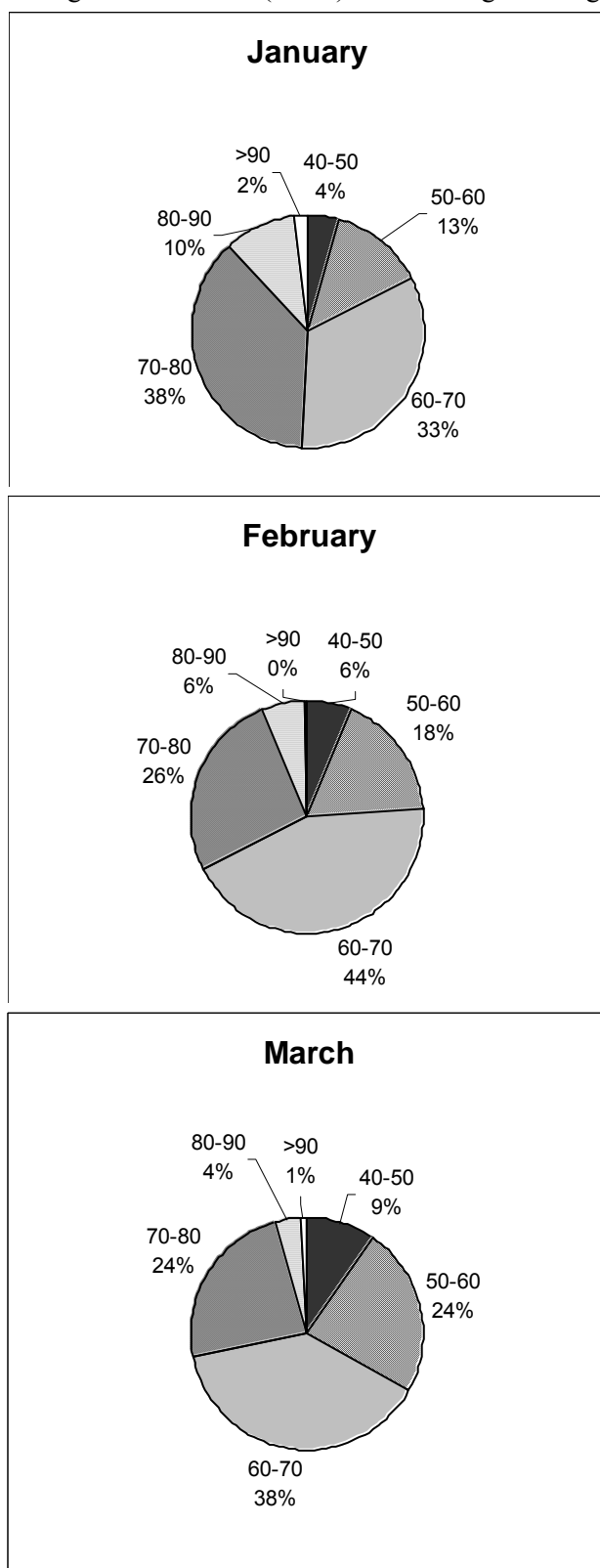


Table 8. Gross maturity data from the winter 2003 AFSC cruises. Maturity codes are based on visual examination of the gonad only: F=female, M=male, 1=immature, 2=early developing, 3=pre-spawn, 4=ripe (spawning), 5=spent (post-spawning), 7=resting (mature fish with undeveloped ovary).

Cruise	Females						Males					Total	Total	All
	F1	F2	F3	F4	F5	F7	M1	M2	M3	M4	M5	F	M	
Jan	73	380	13	0	0	8	72	275	182	4	0	474	533	1007
Feb	45	68	144	3	2	0	47	28	196	49	0	262	320	582
Mar	394	31	378	69	647	0	416	6	176	355	917	1407	1870	3277
Jan	15%	80%	3%	0%	0%	2%	14%	52%	34%	1%	0%	47%	53%	1007
Feb	17%	26%	55%	1%	1%	0%	15%	9%	61%	15%	0%	45%	55%	582
Mar	28%	2%	27%	5%	46%	0%	22%	0%	9%	19%	49%	43%	57%	1727

Table 9. Numbers of Pacific cod specimens collected during 2003 AFSC cruises by sex and size range. Percentage immature in each size range based on visual examination of gonad.

Length (cm)	No. Specimens		Pct. Immature	
	Males	Females	Males	Females
<= 35	1	0	100%	---
40	1	3	100%	100%
45	5	13	100%	100%
50	8	18	63%	89%
52	3	9	33%	78%
54	7	9	29%	78%
56	6	11	33%	64%
58	9	16	11%	69%
60	7	19	29%	42%
62	5	14	0%	36%
64	7	18	29%	17%
66	8	14	0%	7%
68	4	15	25%	27%
70	9	12	22%	8%
75	8	34	0%	9%
80	3	18	0%	0%
85	7	14	0%	7%
90	2	14	0%	7%
95	0	8	---	0%
100	0	6	---	0%
>100	1	3	0%	0%

Figure 13. Length-weight regressions for Pacific cod specimens collected during winter 2003 AFSC cruises.

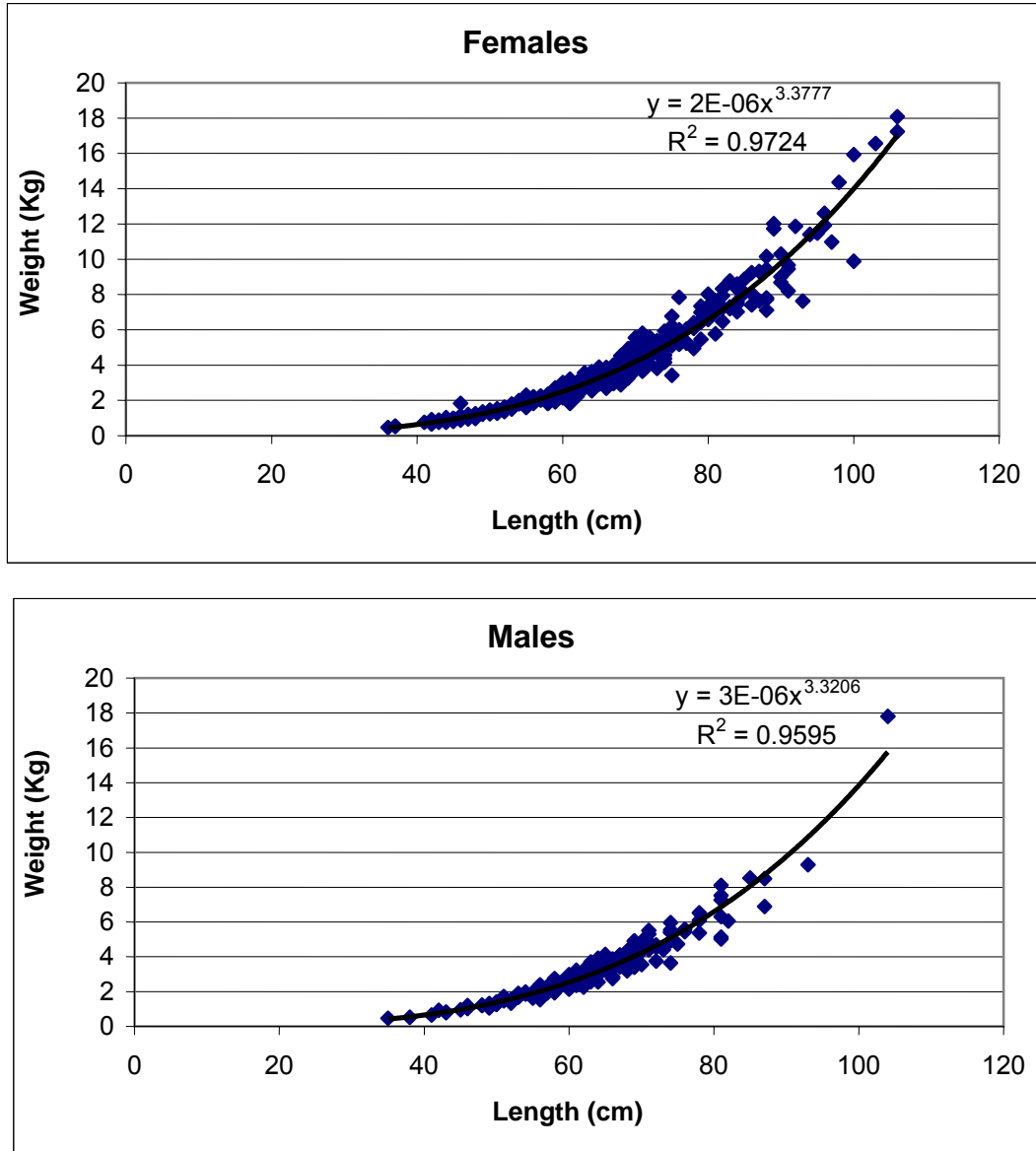


Figure 14. Age-length relationships from cod specimen data.

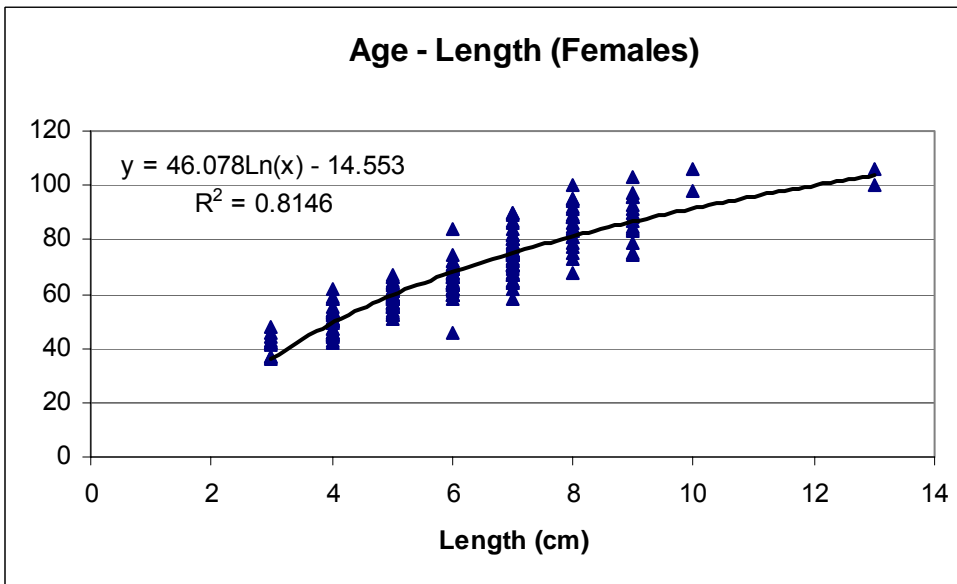
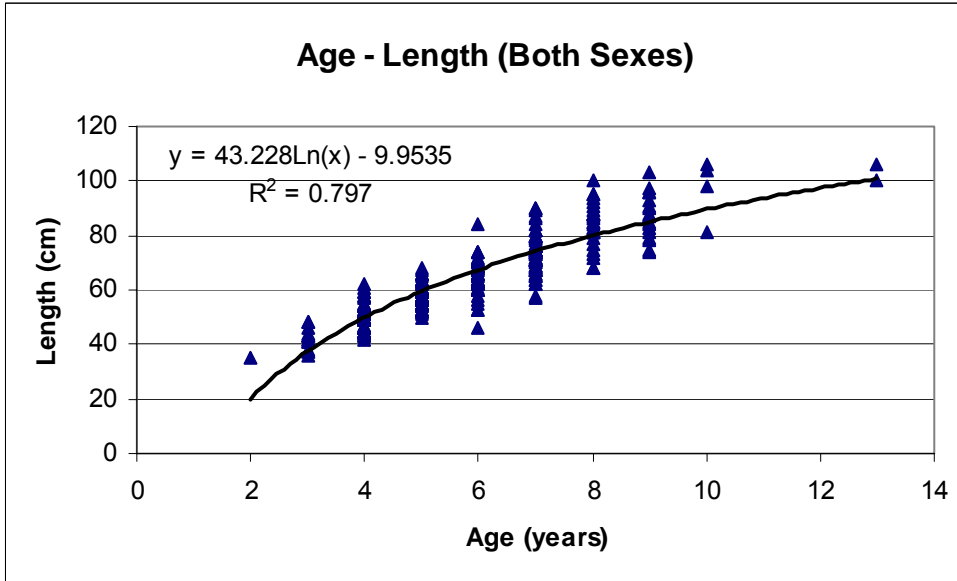
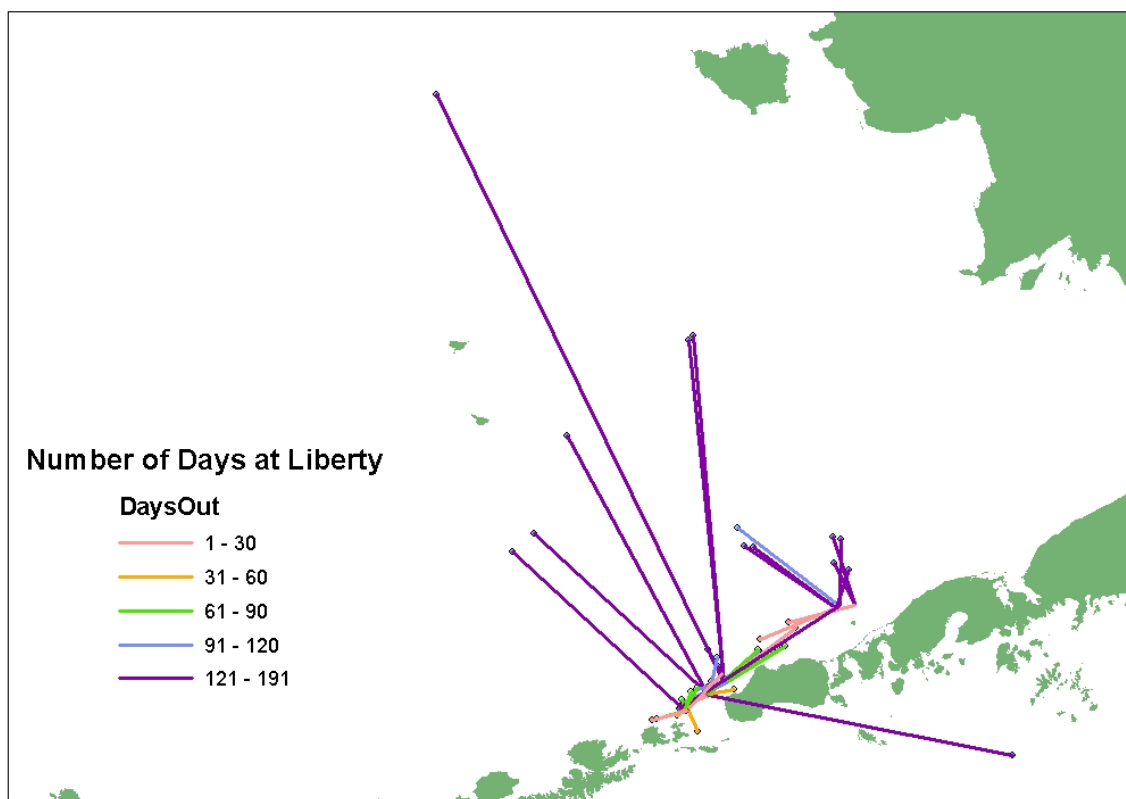


Figure 15. Example of cod tag recovery data (from April 2002 releases).



Preliminary Data: Capture Locations for Pacific Cod Tagged in April 2002

Table 10. Results of tag mortality studies.

Experiment No.	Cruise	Tank Type	Days Captive Tagged	% Mortality	Sample size
20101	April 2002	Portable Deck	3	0	79
20102	April 2002	Vessel Live	9	18	50
20101	April 2002	Vessel Live	22	3.8	79
30101	Jan 2003	Vessel Live	6	11	52
30201	Feb 2003	Vessel Live	3	2	50
30201	Feb 2003	Vessel Live	9	35	74
30201	Feb 2003	Vessel Live	6	17	77
30202	Feb 2003	Portable Deck		2.6	38
30301	Mar 2003	Portable Deck	3	unknown	17
30302	Mar 2003	Portable Deck	4	0	16

Table 11a. Calculated Deltas for the 2003 cod local abundance experiment: single pot per station.

Stations Inside the No-Trawl Zone				Stations Outside the No-Trawl Zone			
Station	Number of Cod Caught (per pot)		Delta	Station	Number of Cod Caught (per pot)		Delta
	Jan1-4	Mar18-20			Jan1-4	Mar18-20	
4.1	21	8	-0.619	4.5	21	12	-0.429
4.2	9	7	-0.222	4.6	31	14	-0.548
4.3	13	14	0.077	4.7	10	17	0.700
4.4	14	11	-0.214	4.8	25	9	-0.640
6.1	40	7	-0.825	6.5	27	8	-0.704
6.2	11	6	-0.455	6.6	32	2	-0.938
6.3	38	8	-0.789	6.7	30	3	-0.900
6.4	46	6	-0.870	6.8	36	6	-0.833
7.1	31	11	-0.645	7.5	25	9	-0.640
7.2	41	11	-0.732	7.6	17	6	-0.647
7.3	38	7	-0.816	7.7	19	15	-0.211
7.4	39	10	-0.744	7.8	21	4	-0.810
8.1	23	7	-0.696	8.5	23	6	-0.739
8.2	47	2	-0.957	8.6	26	9	-0.654
8.3	35	0	-1.000	8.7	21	7	-0.667
8.4	49	6	-0.878	8.8	21	8	-0.619
9.1	39	11	-0.718	9.5	28	8	-0.714
9.2	21	15	-0.286	9.6	33	9	-0.727
9.3	16	16	0.000	9.7	25	7	-0.720
9.4	22	9	-0.591	9.8	28	5	-0.821
10.1	38	9	-0.763	10.5	44	4	-0.909
10.2	47	10	-0.787	10.6	30	10	-0.667
10.3	28	27	-0.036	10.7	18	12	-0.333
10.4	36	12	-0.667	10.8	12	8	-0.333
13.1	27	22	-0.185	13.5	24	24	0.000
13.2	9	22	1.444	13.6	12	24	1.000
13.3	21	36	0.714	13.7	9	28	2.111
13.4	11	48	3.364	13.8	15	20	0.333

Table 11b. Calculated Deltas for the 2003 cod local abundance experiment: average of three pots per station.

Stratum	Station	Number of Cod Caught (per pot)											JanAvg	MarAvg	Delta	
		12/30	1/1	1/4	2/5	2/6	2/7	3/18	3/20	3/22	3/26	3/28				3/30
0	7.1	1	9	31				1	11	11	6	0	6	13.667	7.333	-0.463
0	7.2	3	15	41				8	11	4	12	7	13	19.667	7.333	-0.627
0	7.3	6	17	38				1	7	6	11	6	15	20.333	6.333	-0.689
0	7.4	7	5	39				9	10	13	13	9	22	17.000	10.667	-0.373
0	10.1	18	17	38					9	1		6	19	24.333	5.333	-0.781
0	10.2	15	21	47					10	1		2	5	27.667	4.333	-0.843
0	10.3	11	22	28					27	4		2	5	20.333	11.000	-0.459
0	10.4	23	16	36					12	6		2	13	25.000	6.667	-0.733
1	7.5	14	31	25	10	18	12	4	9	16	18	6	12	23.333	10.333	-0.557
1	7.6	14	29	17	4	15	18	7	6	13	14	5	13	20.000	8.000	-0.600
1	7.7	15	18	19	8	27	21	8	15	8	7	5	8	17.333	9.333	-0.462
1	7.8	35	28	21	6	24	13	3	4	10	15	4	5	28.000	6.000	-0.786
1	10.5	17	13	44	11	20	13		4	14		7	5	24.667	8.333	-0.662
1	10.6	8	21	30	6	23	23		10	7		4	6	19.667	7.000	-0.644
1	10.7	18	17	18	8	15	21		12	7		10	17	17.667	9.667	-0.453
1	10.8	7	18	12	10	8	10		8	8		7	9	12.333	7.667	-0.378

Figure 16. Frequency distribution of percentage change in catch (all stations), January-March 2003

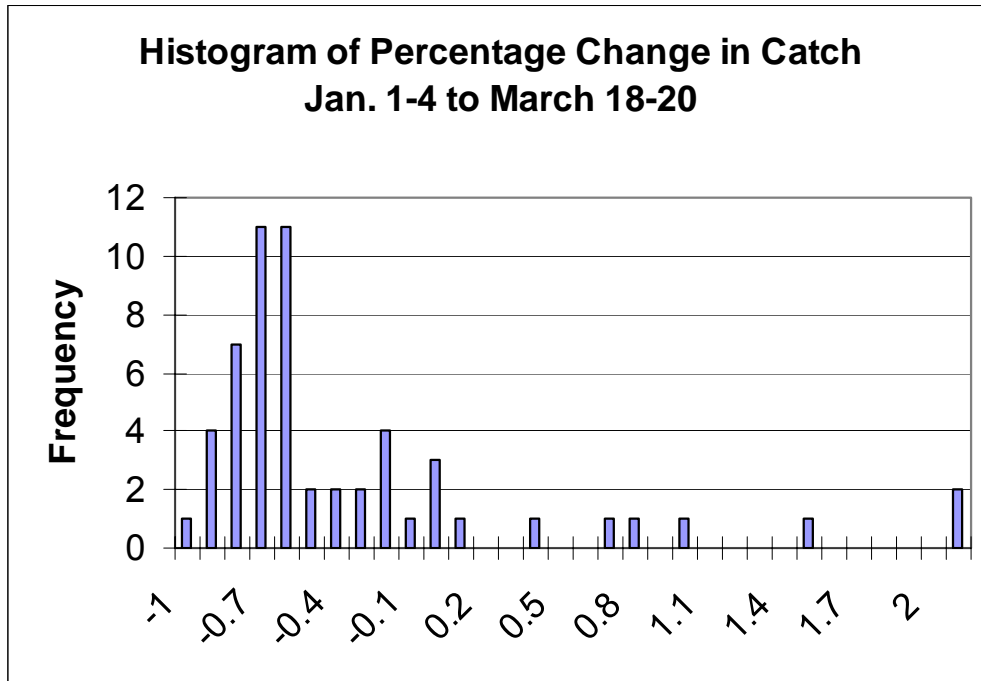


Figure 17. Power curves from simulation study based on 2003 data. Each graph shows the probability of rejecting the null hypothesis of no trawling effect when, in fact, a trawling effect of the size indicated on the x-axis exists. Top figure is one replicate of pot catch per station, middle figure is three replicates, bottom figure is five replicates. Each plot shows alphas of 5%, 10%, and 20%.

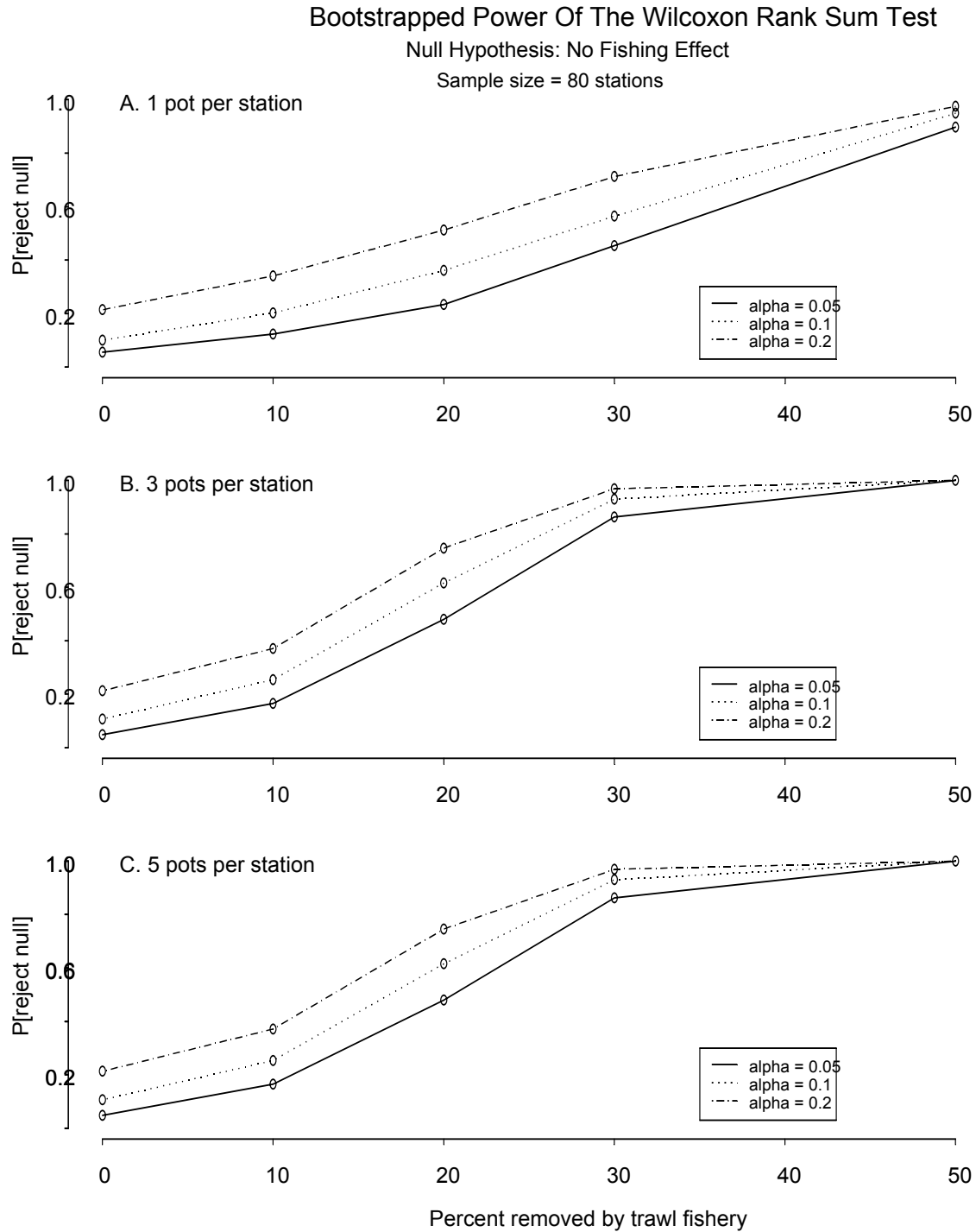


Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	1	04/02/02	54.43900	-165.51960	87.0	4.2	92		19	77.8
FA200201	2	04/02/02	54.43506	-165.53211		4.3	92		39	155.7
FA200201	3	04/02/02	54.43093	-165.54103	87.1	4.5	92		40	121.4
FA200201	4	04/02/02	54.42725	-165.55173	87.1	4.6	92		31	104.6
FA200201	5	04/02/02	54.42343	-165.56252	87.1	4.8	92		48	182.3
FA200201	6	04/02/02	54.41958	-165.57400	87.1	4.9	92		25	98.1
FA200201	7	04/02/02	54.41568	-165.58537	91.0	5.1	92		90	390.7
FA200201	8	04/02/02	54.41182	-165.59667	91.0	5.2	92		83	357.0
FA200201	9	04/02/02	54.40807	-165.60800	93.1	5.4	92		61	238.2
FA200201	10	04/02/02	54.40435	-165.61970	84.0	5.5	92		79	288.9
FA200201	11	04/02/02	54.34815	-165.70015	104.0	15.5	92		30	104.0
FA200201	12	04/02/02	54.34223	-165.70940	86.1	15.6	92		45	148.4
FA200201	13	04/02/02	54.33642	-165.71810	86.1	15.7	92		31	120.2
FA200201	14	04/02/02	54.33037	-165.72688	86.0	15.9	92		65	230.2
FA200201	15	04/02/02	54.32472	-165.73630	84.1	16.1	92		40	129.7
FA200201	16	04/02/02	54.31883	-165.74508	80.0	16.1	92		49	190.9
FA200201	17	04/02/02	54.31290	-165.75365	84.0	16.2	92		32	114.5
FA200201	18	04/02/02	54.30658	-165.76293	84.1	16.3	92		28	110.2
FA200201	19	04/02/02	54.29987	-165.77252	82.1	16.4	92		25	94.5
FA200201	20	04/03/02	54.43208	-165.60790	113.0	6.9	92		66	266.1
FA200201	21	04/03/02	54.42765	-165.61900	117.1	6.9	92		40	155.9
FA200201	22	04/03/02	54.42247	-165.62995	119.1	7.0	92		37	162.8
FA200201	23	04/03/02	54.41727	-165.64080	113.1	7.0	92		87	328.2
FA200201	24	04/03/02	54.41195	-165.65143	118.0	7.1	92		88	327.6
FA200201	25	04/03/02	54.40677	-165.66157	124.1	7.2	92		85	313.1
FA200201	26	04/03/02	54.40102	-165.67135	144.0	7.4	92		37	152.3
FA200201	27	04/03/02	54.39522	-165.68030	124.0	7.5	92		65	249.7
FA200201	28	04/03/02	54.38900	-165.68908	118.0	7.6	92		87	362.6
FA200201	29	04/03/02	54.38280	-165.69778	115.1	7.7	92		63	272.1
FA200201	30	04/03/02	54.32597	-165.77447		6.0	92		24	87.6
FA200201	31	04/03/02	54.32097	-165.76258	87.1	6.0	92		6	16.2
FA200201	32	04/03/02	54.31857	-165.75820	87.0	5.3	92		5	19.9
FA200201	33	04/03/02	54.31610	-165.75362	84.1	5.9	92		16	55.3
FA200201	34	04/03/02	54.31137	-165.74485	84.1	6.2	92		15	50.1
FA200201	35	04/03/02	54.31070	-165.75713	86.0	5.2	92		15	51.8
FA200201	36	04/03/02	54.31797	-165.75812	86.1	4.9	92		6	28.0
FA200201	37	04/03/02	54.32167	-165.75750		4.7	92		12	50.3
FA200201	38	04/03/02	54.32862	-165.75828	87.1	4.6	92		53	207.1
FA200201	39	04/03/02	54.32627	-165.74603	98.1	5.4	92		10	30.2
FA200201	40	04/03/02	54.32083	-165.75263	86.1	5.3	92		19	60.7
FA200201	41	04/03/02	54.31555	-165.76002	86.1	4.4	92		17	57.0
FA200201	42	04/03/02	54.31078	-165.76825	87.0	4.4	92		16	61.7
FA200201	43	04/03/02	54.31733	-165.77347	87.0	4.3	92		1	6.5
FA200201	44	04/03/02	54.31828	-165.76125	87.1	4.5	92		13	36.9
FA200201	45	04/03/02	54.31853	-165.74888	84.1	4.8	92		28	112.1
FA200201	46	04/03/02	54.31900	-165.73705	86.1	4.9	92		23	86.3
FA200201	47	04/04/02	54.71350	-164.86425	58.0	8.6	91		33	104.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	48	04/04/02	54.71498	-164.87035	58.1	8.6	91		6	18.7
FA200201	49	04/04/02	54.71657	-164.87657	62.0	8.7	91		21	63.5
FA200201	50	04/04/02	54.71815	-164.88282	62.1	8.8	91		6	15.4
FA200201	51	04/04/02	54.71983	-164.88927	65.0	8.9	91		10	28.6
FA200201	52	04/04/02	54.72160	-164.89578	66.1	8.9	91		20	64.7
FA200201	53	04/04/02	54.72342	-164.90248	67.1	9.0	91		9	28.3
FA200201	54	04/04/02	54.72528	-164.90935	69.1	9.1	91		29	88.2
FA200201	56	04/04/02	54.72700	-164.91563	71.1	9.1	91		13	34.9
FA200201	58	04/04/02	54.72882	-164.92235	73.0	9.4	91		9	27.3
FA200201	59	04/04/02	54.73065	-164.92923	73.1	9.4	91		16	47.7
FA200201	60	04/04/02	54.73247	-164.93610	73.1	11.1	91		25	82.6
FA200201	61	04/04/02	54.70765	-165.07943	75.0	10.9	91		19	59.6
FA200201	62	04/04/02	54.70417	-165.08558	75.1	10.8	91		34	121.5
FA200201	63	04/04/02	54.70068	-165.09205	75.1	10.5	91		5	19.1
FA200201	64	04/04/02	54.69683	-165.10078	76.0	10.3	91		34	107.6
FA200201	65	04/04/02	54.69377	-165.10723	76.0	10.1	91		18	91.6
FA200201	66	04/04/02	54.69045	-165.11355	76.1	9.9	91		70	269.3
FA200201	67	04/04/02	54.68697	-165.12025	76.1	9.3	91		32	95.7
FA200201	67	04/04/02	54.68232	-165.12963	78.1	9.8	91		16	59.4
FA200201	68	04/04/02	54.67943	-165.13583	78.0	9.6	91		23	86.1
FA200201	69	04/04/02	54.67633	-165.14198	78.0	9.5	91		26	96.0
FA200201	70	04/04/02	54.67303	-165.14832	78.1	9.3	91		23	87.6
FA200201	71	04/04/02	54.66973	-165.15472	78.0	9.2	91		42	150.3
FA200201	72	04/04/02	54.54780	-165.18568	82.0	10.8	91		103	375.3
FA200201	73	04/04/02	54.54333	-165.18393	84.1	10.8	91		55	221.7
FA200201	74	04/04/02	54.53868	-165.18228	84.1	10.8	91		28	115.9
FA200201	75	04/04/02	54.53382	-165.18043	85.0	10.9	91		51	203.6
FA200201	76	04/04/02	54.52895	-165.17858	84.0	10.9	91		72	261.3
FA200201	77	04/04/02	54.52412	-165.17727	82.1	10.9	91		82	325.2
FA200201	78	04/04/02	54.51928	-165.17638	87.1	10.9	91		46	189.0
FA200201	79	04/04/02	54.51448	-165.17610	89.1	10.9	91		60	235.9
FA200201	80	04/04/02	54.50960	-165.17590	84.1	10.9	91		72	317.3
FA200201	81	04/04/02	54.50473	-165.17548	85.0	11.0	91		52	212.1
FA200201	82	04/04/02	54.49977	-165.17525	87.0	11.0	91		52	208.0
FA200201	83	04/04/02	54.49472	-165.17587	91.1	11.2	91		31	114.2
FA200201	84	04/04/02	54.48930	-165.17763	100.0	11.3	91		18	80.3
FA200201	85	04/04/02	54.48438	-165.17692	113.1	11.3	91		53	205.5
FA200201	86	04/05/02	54.44095	-165.50582	86.0	5.9	92	1.06	26	76.6
FA200201	87	04/05/02	54.43593	-165.49145	82.1	5.9	92	1.07	24	64.2
FA200201	88	04/05/02	54.43313	-165.48337	82.0	6.0	92	1.03	24	61.2
FA200201	89	04/05/02	54.43075	-165.47582	80.1	6.0	92	1.08	24	68.8
FA200201	90	04/05/02	54.42573	-165.46097	85.0	6.0	92	1.09	31	90.4
FA200201	91	04/05/02	54.41785	-165.48248	82.0	6.0	92	1.05	17	52.1
FA200201	92	04/05/02	54.42773	-165.48337	82.1	6.1	92	1.04	24	79.5
FA200201	93	04/05/02	54.43862	-165.48323	82.1	6.2	92	1.02	14	33.9
FA200201	94	04/05/02	54.44813	-165.48315	84.0	6.3	92	1.01	13	38.4
FA200201	95	04/05/02	54.44068	-165.46065	118.0	6.2	92	1.13	27	72.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	96	04/05/02	54.43562	-165.47562	80.1	6.3	92	1.12	25	63.4
FA200201	97	04/05/02	54.43072	-165.49092	82.1	6.5	92	1.11	25	75.6
FA200201	98	04/05/02	54.42583	-165.50518	86.0	6.5	92	1.10	9	20.7
FA200201	99	04/05/02	54.39068	-165.60475	86.1	6.5	92	2.06	8	28.7
FA200201	100	04/05/02	54.38598	-165.59100	84.1	6.6	92	2.07	13	48.2
FA200201	101	04/05/02	54.38360	-165.58365	82.0	6.6	92	2.03	0	0.0
FA200201	102	04/05/02	54.38078	-165.57592	80.1	6.7	92	2.08	55	155.3
FA200201	103	04/05/02	54.37562	-165.56147	80.0	6.7	92	2.09	29	106.0
FA200201	104	04/05/02	54.36840	-165.58355	80.0	6.7	92	2.05	25	75.6
FA200201	105	04/05/02	54.37863	-165.58335	82.0	6.7	92	2.04	40	132.9
FA200201	106	04/05/02	54.38865	-165.58322	80.1	6.7	92	2.02	34	121.6
FA200201	107	04/05/02	54.39878	-165.58332	84.0	6.8	92	2.01	42	169.6
FA200201	108	04/05/02	54.39107	-165.56085	82.1	6.8	92	2.13	26	86.0
FA200201	109	04/05/02	54.38612	-165.57557	82.0	6.8	92	2.12	32	101.0
FA200201	110	04/05/02	54.38092	-165.59120	82.0	6.9	92	2.11	45	161.9
FA200201	111	04/05/02	54.37603	-165.60587	80.1	7.1	92	2.10	41	115.5
FA200201	112	04/05/02	54.34087	-165.74462	89.1	7.3	92	3.13	64	234.5
FA200201	113	04/05/02	54.33598	-165.75912	91.1	7.3	92	3.12	40	133.3
FA200201	114	04/05/02	54.33350	-165.76650	91.1	7.5	92	3.03	41	134.5
FA200201	115	04/05/02	54.33070	-165.77470	91.1	7.5	92	3.11	52	190.2
FA200201	116	04/05/02	54.32582	-165.78905	91.1	7.6	92	3.10	45	176.6
FA200201	117	04/05/02	54.34070	-165.78902	98.1	7.6	92	3.06	67	278.2
FA200201	118	04/05/02	54.33627	-165.77492	93.1	7.6	92	3.07	47	161.3
FA200201	120	04/05/02	54.32587	-165.74422	87.0	7.8	92	3.09	19	64.9
FA200201	121	04/05/02	54.31850	-165.76613	87.0	7.8	92	3.05	34	139.2
FA200201	122	04/05/02	54.32870	-165.76667	89.0	7.9	92	3.04	51	166.4
FA200201	123	04/05/02	54.33835	-165.76650	93.1	8.0	92	3.02	5	20.2
FA200201	124	04/05/02	54.34863	-165.76645	98.1	8.0	92	3.01	53	185.0
FA200201	125	04/06/02	54.72390	-165.00663	67.1	5.8	91	4.06	60	214.4
FA200201	126	04/06/02	54.71927	-164.99117	65.1	5.8	91	4.07	10	41.7
FA200201	127	04/06/02	54.71662	-164.98328	66.1	5.8	91	4.03	31	105.3
FA200201	128	04/06/02	54.71422	-164.97575	69.0	5.8	91	4.08	9	25.9
FA200201	129	04/06/02	54.70935	-164.96120	71.1	5.9	91	4.09	27	114.5
FA200201	130	04/06/02	54.70170	-164.98293	67.1	5.9	91	4.05	35	106.3
FA200201	131	04/06/02	54.71202	-164.98318	69.0	5.9	91	4.04	20	66.9
FA200201	132	04/06/02	54.72180	-164.98357	65.0	6.1	91	4.02	35	128.1
FA200201	133	04/06/02	54.73157	-164.98337	66.1	6.1	91	4.01	49	187.7
FA200201	134	04/06/02	54.72457	-164.96120	67.0	6.2	91	4.13	18	67.0
FA200201	135	04/06/02	54.71933	-164.97592	67.1	6.2	91	4.12	9	25.6
FA200201	136	04/06/02	54.71433	-164.99095	65.0	6.2	91	4.11	13	49.8
FA200201	137	04/06/02	54.70925	-165.00595	67.0	6.3	91	4.10	28	104.4
FA200201	138	04/06/02	54.69078	-165.09420	75.1	6.9	91	5.13	22	81.6
FA200201	139	04/06/02	54.68572	-165.10937	76.1	7.0	91	5.12	14	47.6
FA200201	140	04/06/02	54.68310	-165.11738	76.1	6.9	91	5.03	19	51.2
FA200201	141	04/06/02	54.68080	-165.12442	78.0	7.0	91	5.11	28	104.1
FA200201	142	04/06/02	54.67588	-165.13940	78.1	7.0	91	5.10	33	121.0
FA200201	143	04/06/02	54.69033	-165.13943	78.1	8.2	91	5.06	27	90.8

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	144	04/06/02	54.68593	-165.12412	76.1	7.9	91	5.07	37	144.5
FA200201	145	04/06/02	54.68112	-165.10993	76.0	7.7	91	5.08	30	112.0
FA200201	146	04/06/02	54.67572	-165.09423	75.1	7.5	91	5.09	31	126.3
FA200201	147	04/06/02	54.66862	-165.11603	76.1	7.2	91	5.05	25	84.3
FA200201	148	04/06/02	54.67838	-165.11667	76.1	7.1	91	5.04	31	114.2
FA200201	149	04/06/02	54.68860	-165.11682	76.1	6.8	91	5.02	22	67.9
FA200201	150	04/06/02	54.69860	-165.11672	78.0	6.5	91	5.01	34	113.1
FA200201	151	04/06/02	54.59100	-165.17813	76.0	8.2	91	6.13	75	297.2
FA200201	152	04/06/02	54.58583	-165.19277	76.1	8.0	91	6.12	29	115.6
FA200201	153	04/06/02	54.58337	-165.20012	78.1	8.9	91	6.03	53	240.7
FA200201	154	04/06/02	54.58072	-165.20808	78.0	8.8	91	6.11	30	139.3
FA200201	155	04/06/02	54.57585	-165.22262	80.1	8.6	91	6.10	30	122.8
FA200201	156	04/06/02	54.59012	-165.22278	80.1	9.2	91	6.06	32	114.0
FA200201	157	04/06/02	54.58568	-165.20782	80.0	8.6	91	6.07	59	238.3
FA200201	158	04/06/02	54.58097	-165.19287	76.1	7.4	91	6.08	66	244.0
FA200201	159	04/06/02	54.57607	-165.17760	75.0	7.3	91	6.09	44	174.5
FA200201	160	04/06/02	54.56877	-165.20008	75.1	7.8	91	6.05	67	265.0
FA200201	161	04/06/02	54.57878	-165.20025	75.1	7.9	91	6.04	36	135.0
FA200201	162	04/06/02	54.58855	-165.20010	78.1	8.3	91	6.02	49	192.9
FA200201	163	04/06/02	54.59820	-165.20005	78.1	8.4	91	6.01	51	215.2
FA200201	164	04/07/02	54.32615	-165.74527	87.0	6.0	92	3.09	32	126.4
FA200201	165	04/07/02	54.33100	-165.75918	91.0	6.0	92	3.08	23	76.9
FA200201	166	04/07/02	54.33363	-165.76682	91.1	6.0	92	3.03	18	64.4
FA200201	167	04/07/02	54.33613	-165.77437	95.0	6.1	92	3.07	13	45.3
FA200201	168	04/07/02	54.34090	-165.78928	100.0	6.1	92	3.06	33	131.9
FA200201	169	04/07/02	54.34863	-165.76658	98.1	6.3	92	3.01	8	36.8
FA200201	170	04/07/02	54.33875	-165.76647	95.0	6.3	92	3.02	64	250.4
FA200201	171	04/07/02	54.32857	-165.76668	89.0	6.4	92	3.04	42	140.1
FA200201	172	04/07/02	54.31865	-165.76685	87.1	6.8	92	3.05	58	204.8
FA200201	173	04/07/02	54.32587	-165.78898	91.1	6.4	92	3.10	51	191.5
FA200201	174	04/07/02	54.33105	-165.77433	91.1	6.2	92	3.11	27	99.8
FA200201	175	04/07/02	54.33583	-165.75878	91.0	6.6	92	3.12	4	16.3
FA200201	176	04/07/02	54.34093	-165.74408	91.0	6.7	92	3.13	15	61.5
FA200201	177	04/07/02	54.37600	-165.60567	82.0	7.0	92	2.10	13	36.4
FA200201	178	04/07/02	54.38093	-165.59102	82.0	7.7	92	2.11	14	42.5
FA200201	179	04/07/02	54.38355	-165.58325	82.1	7.6	92	2.03	9	24.6
FA200201	180	04/07/02	54.38603	-165.57567	82.0	8.2	92	2.12	24	55.2
FA200201	181	04/07/02	54.39088	-165.56083	82.0	8.3	92	2.13	61	214.9
FA200201	182	04/07/02	54.37598	-165.56162	78.1	7.0	92	2.09	29	70.7
FA200201	183	04/07/02	54.38100	-165.57640	80.1	7.1	92	2.08	25	61.8
FA200201	184	04/07/02	54.38603	-165.59128	84.0	7.4	92	2.07	20	49.5
FA200201	185	04/07/02	54.39122	-165.60595	86.1	7.6	92	2.06	35	142.3
FA200201	186	04/07/02	54.39835	-165.58320	84.1	7.6	92	2.01	31	123.0
FA200201	187	04/07/02	54.38883	-165.58322	82.0	7.2	92	2.02	23	60.4
FA200201	188	04/07/02	54.37870	-165.58342	82.0	6.9	92	2.04	34	78.8
FA200201	189	04/07/02	54.36855	-165.58338	78.0	6.3	92	2.05	7	22.5
FA200201	190	04/07/02	54.42583	-165.50522	84.1	7.8	92	2.10	52	155.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	191	04/07/02	54.43090	-165.49087	82.1	7.8	92	2.11	26	94.0
FA200201	192	04/07/02	54.43352	-165.48323	82.0	7.2	92	2.03	33	84.5
FA200201	193	04/07/02	54.43603	-165.47582	80.1	7.9	92	2.12	18	53.8
FA200201	194	04/07/02	54.44098	-165.46075	117.1	8.3	92	2.13	18	42.7
FA200201	195	04/07/02	54.42583	-165.46115	84.1	7.9	92	2.09	11	34.8
FA200201	196	04/07/02	54.43102	-165.47623	82.0	6.8	92	2.08	5	12.8
FA200201	197	04/07/02	54.43603	-165.49128	84.0	7.5	92	2.07	35	108.4
FA200201	198	04/07/02	54.44117	-165.50623	86.1	7.0	92	2.06	45	146.0
FA200201	199	04/07/02	54.44835	-165.48348	84.0	6.8	92	2.01	0	0.0
FA200201	200	04/07/02	54.43793	-165.48318	82.0	6.5	92	2.02	4	12.5
FA200201	201	04/07/02	54.42845	-165.48335	82.0	6.3	92	2.04	2	4.8
FA200201	202	04/07/02	54.41843	-165.48343	82.1	6.1	92	2.05	7	19.2
FA200201	203	04/08/02	54.59847	-165.20002	78.1	5.7	91	6.01	47	185.5
FA200201	204	04/08/02	54.58850	-165.20015	78.1	6.9	91	6.02	49	185.5
FA200201	205	04/08/02	54.58342	-165.20008	80.0	6.9	91	6.03	29	119.6
FA200201	206	04/08/02	54.57860	-165.19998	76.0	6.4	91	6.04	46	159.8
FA200201	207	04/08/02	54.56848	-165.20003	76.0	6.0	91	6.05	44	170.9
FA200201	208	04/08/02	54.57605	-165.17777	75.1	6.0	91	6.09	49	191.0
FA200201	209	04/08/02	54.58098	-165.19303	78.0	6.1	91	6.08	5	19.7
FA200201	210	04/08/02	54.58615	-165.20873	80.1	6.3	91	6.07	26	102.8
FA200201	211	04/08/02	54.59085	-165.22237	82.0	5.3	91	6.06	54	190.5
FA200201	212	04/08/02	54.57622	-165.22203	80.1	5.3	91	6.10	3	9.5
FA200201	213	04/08/02	54.58095	-165.20762	78.0	6.0	91	6.11	11	43.3
FA200201	214	04/08/02	54.58590	-165.19252	78.0	5.8	91	6.12	40	146.7
FA200201	215	04/08/02	54.59090	-165.17748	75.1	6.2	91	6.13	38	156.2
FA200201	216	04/08/02	54.67593	-165.09462	76.0	7.3	91	5.09	37	129.2
FA200201	217	04/08/02	54.68102	-165.10960	76.1	8.2	91	5.08	40	146.7
FA200201	218	04/08/02	54.68372	-165.11713	76.1	8.4	91	5.03	19	94.1
FA200201	219	04/08/02	54.68602	-165.12408	76.1	7.9	91	5.07	18	70.3
FA200201	220	04/08/02	54.69115	-165.13920	80.0	7.6	91	5.06	49	173.6
FA200201	221	04/08/02	54.69867	-165.11697	78.0	7.3	91	5.01	31	106.3
FA200201	222	04/08/02	54.68853	-165.11660	76.1	7.6	91	5.02	16	59.2
FA200201	223	04/08/02	54.67862	-165.11690	76.1	8.0	91	5.04	24	87.1
FA200201	224	04/08/02	54.66862	-165.11675	76.1	6.5	91	5.05	33	115.4
FA200201	225	04/08/02	54.67570	-165.13877	78.1	6.2	91	5.10	10	42.6
FA200201	226	04/08/02	54.68100	-165.12410	78.0	7.6	91	5.11	14	57.3
FA200201	227	04/08/02	54.68605	-165.10898	76.0	7.3	91	5.12	30	116.5
FA200201	228	04/08/02	54.69115	-165.09420	75.1	6.5	91	5.13	21	70.8
FA200201	229	04/08/02	54.70918	-165.00612	67.0	9.0	91	4.10	32	95.8
FA200201	230	04/08/02	54.71448	-164.99058	65.0	8.4	91	4.11	9	33.1
FA200201	231	04/08/02	54.71692	-164.98323	65.1	8.2	91	4.03	13	52.5
FA200201	232	04/08/02	54.71947	-164.97575	67.0	8.0	91	4.12	10	34.3
FA200201	233	04/08/02	54.72428	-164.96037	67.0	5.5	91	4.13	15	49.2
FA200201	234	04/08/02	54.70942	-164.96067	71.1	7.3	91	4.09	43	153.2
FA200201	235	04/08/02	54.71412	-164.97680	69.0	7.7	91	4.08	45	162.2
FA200201	236	04/08/02	54.71928	-164.99160	65.0	8.2	91	4.07	19	64.4
FA200201	237	04/08/02	54.72425	-165.00592	67.1	8.2	91	4.06	25	110.4

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	238	04/08/02	54.73190	-164.98340	65.1	7.2	91	4.01	21	91.5
FA200201	239	04/08/02	54.72180	-164.98350	64.1	7.2	91	4.02	39	102.4
FA200201	240	04/08/02	54.71155	-164.98358	67.1	7.6	91	4.04	47	186.8
FA200201	241	04/08/02	54.70178	-164.98330	67.0	6.5	91	4.05	24	100.1
FA200201	242	04/09/02	54.39085	-165.60547	86.1	7.0	92	2.06	11	37.5
FA200201	243	04/09/02	54.38592	-165.59093	84.0	6.3	92	2.07	27	87.3
FA200201	244	04/09/02	54.38333	-165.58340	82.1	6.3	92	2.03	27	69.6
FA200201	245	04/09/02	54.38108	-165.57648	80.1	6.4	92	2.08	7	17.6
FA200201	246	04/09/02	54.37597	-165.56135	80.0	5.6	92	2.09	0	0.0
FA200201	247	04/09/02	54.36863	-165.58382	80.0	5.6	92	2.05	16	41.1
FA200201	248	04/09/02	54.37882	-165.58332	82.0	6.0	92	2.04	6	21.1
FA200201	249	04/09/02	54.38888	-165.58332	82.0	6.2	92	2.02	18	61.2
FA200201	250	04/09/02	54.39847	-165.58345	84.1	6.3	92	2.01	16	56.9
FA200201	251	04/09/02	54.39083	-165.56115	82.1	4.8	92	2.13	29	103.1
FA200201	252	04/09/02	54.38582	-165.57588	82.1	5.8	92	2.12	32	73.9
FA200201	253	04/09/02	54.38080	-165.59117	82.0	5.4	92	2.11	35	106.6
FA200201	254	04/09/02	54.37575	-165.60603	82.0	5.2	92	2.10	19	45.0
FA200201	255	04/09/02	54.34098	-165.74465	91.0	7.9	92	3.13	49	165.6
FA200201	256	04/09/02	54.33598	-165.75937	93.0	7.2	92	3.12	4	7.8
FA200201	257	04/09/02	54.33322	-165.76703	91.1	6.8	92	3.03	24	68.4
FA200201	258	04/09/02	54.33090	-165.77443	91.1	6.9	92	3.11	4	12.7
FA200201	259	04/09/02	54.32590	-165.78893	91.1	6.4	92	3.10	1	2.7
FA200201	260	04/09/02	54.34105	-165.78935	100.0	6.0	92	3.06	62	237.5
FA200201	261	04/09/02	54.33592	-165.77405	93.1	6.7	92	3.07	16	55.7
FA200201	262	04/09/02	54.33082	-165.75938	91.0	7.0	92	3.08	19	62.4
FA200201	263	04/09/02	54.32573	-165.74442	87.0	7.1	92	3.09	25	94.6
FA200201	264	04/09/02	54.31848	-165.76690	87.0	6.0	92	3.05	18	67.4
FA200201	265	04/09/02	54.32887	-165.76678	89.1	6.1	92	3.04	10	29.6
FA200201	266	04/09/02	54.33857	-165.76680	95.0	6.4	92	3.02	15	53.8
FA200201	267	04/09/02	54.34863	-165.76650	98.1	5.3	92	3.01	66	238.6
FA200201	268	04/09/02	54.42583	-165.50502	84.1	7.2	92	1.10	34	112.7
FA200201	269	04/09/02	54.43083	-165.49073	82.1	7.1	92	1.11	17	57.5
FA200201	270	04/09/02	54.43360	-165.48252	82.0	7.7	92	1.03	37	130.9
FA200201	271	04/09/02	54.43590	-165.47593	80.1	7.5	92	1.12	23	65.0
FA200201	272	04/09/02	54.44095	-165.46077	113.1	8.2	92	1.13	25	86.2
FA200201	273	04/09/02	54.42607	-165.46092	84.1	7.8	92	1.09	9	29.1
FA200201	274	04/09/02	54.43097	-165.47623	82.0	7.3	92	1.08	43	150.6
FA200201	275	04/09/02	54.43612	-165.49085	84.0	7.0	92	1.07	37	131.6
FA200201	276	04/09/02	54.44112	-165.50597	86.1	6.8	92	1.06	43	171.5
FA200201	277	04/09/02	54.44857	-165.48342	84.0	7.8	92	1.01	85	323.8
FA200201	278	04/09/02	54.43842	-165.48335	82.0	6.7	92	1.02	41	136.8
FA200201	279	04/09/02	54.42837	-165.48313	82.0	6.3	92	1.04	19	76.9
FA200201	280	04/09/02	54.41837	-165.48323	82.0	5.0	92	1.05	1	2.7
FA200201	281	04/10/02	54.67613	-165.09437	76.0	6.4	91	5.09	24	94.1
FA200201	282	04/10/02	54.68098	-165.10925	76.0	6.4	91	5.08	33	118.4
FA200201	283	04/10/02	54.68345	-165.11683	76.1	6.5	91	5.03	5	16.9
FA200201	284	04/10/02	54.68605	-165.12410	78.0	6.7	91	5.07	22	86.2

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	285	04/10/02	54.69108	-165.13932	80.0	6.7	91	5.06	37	115.8
FA200201	286	04/10/02	54.69820	-165.11723	78.0	6.7	91	5.01	52	186.2
FA200201	287	04/10/02	54.68840	-165.11668	76.1	6.3	91	5.02	19	65.9
FA200201	288	04/10/02	54.67850	-165.11680	76.1	6.2	91	5.04	16	50.4
FA200201	289	04/10/02	54.66868	-165.11672	76.1	5.4	91	5.05	35	123.3
FA200201	290	04/10/02	54.67602	-165.13922	78.0	5.4	91	5.10	3	9.0
FA200201	291	04/10/02	54.68100	-165.12417	76.1	5.4	91	5.11	21	63.7
FA200201	292	04/10/02	54.68630	-165.10885	76.1	5.8	91	5.12	6	21.3
FA200201	293	04/10/02	54.69105	-165.09423	75.1	6.3	91	5.13	41	147.8
FA200201	294	04/10/02	54.70928	-165.00555	67.0	6.9	91	4.10	35	126.5
FA200201	295	04/10/02	54.71433	-164.99078	64.1	7.4	91	4.11	20	69.8
FA200201	296	04/10/02	54.71678	-164.98300	65.0	7.4	91	4.03	22	79.5
FA200201	297	04/10/02	54.71933	-164.97578	65.1	7.5	91	4.12	15	57.8
FA200201	298	04/10/02	54.72433	-164.96058	67.1	7.9	91	4.13	28	107.7
FA200201	299	04/10/02	54.70935	-164.96108	71.0	7.8	91	4.09	19	68.3
FA200201	300	04/10/02	54.71433	-164.97628	69.0	6.8	91	4.08	14	50.8
FA200201	301	04/10/02	54.71928	-164.99113	65.0	7.2	91	4.07	26	100.1
FA200201	302	04/10/02	54.72435	-165.00615	67.1	6.1	91	4.06	25	90.4
FA200201	303	04/10/02	54.73158	-164.98402	66.1	7.1	91	4.01	13	50.6
FA200201	304	04/10/02	54.72160	-164.98330	64.1	6.8	91	4.02	55	219.0
FA200201	305	04/10/02	54.71162	-164.98343	69.0	6.3	91	4.04	51	174.7
FA200201	306	04/10/02	54.70170	-164.98335	67.0	4.1	91	4.05	42	159.1
FA200201	307	04/10/02	54.59088	-165.17758	75.1	7.4	91	6.13	51	214.7
FA200201	308	04/10/02	54.58617	-165.19265	78.0	7.7	91	6.12	28	116.9
FA200201	309	04/10/02	54.58345	-165.19975	78.1	8.1	91	6.03	29	118.1
FA200201	310	04/10/02	54.58082	-165.20788	78.0	8.2	91	6.11	29	100.3
FA200201	311	04/10/02	54.57592	-165.22245	80.1	8.8	91	6.10	26	103.8
FA200201	312	04/10/02	54.59055	-165.22330	80.0	7.6	91	6.06	18	69.3
FA200201	313	04/10/02	54.58595	-165.20782	80.0	7.6	91	6.07	25	97.0
FA200201	314	04/10/02	54.58078	-165.19270	76.1	7.7	91	6.08	42	148.1
FA200201	315	04/10/02	54.57590	-165.17787	75.0	8.0	91	6.09	37	142.6
FA200201	316	04/10/02	54.56837	-165.19978	75.1	8.1	91	6.05	29	116.5
FA200201	317	04/10/02	54.57860	-165.20003	76.0	7.6	91	6.04	21	76.4
FA200201	318	04/10/02	54.58852	-165.19993	78.0	6.8	91	6.02	22	82.1
FA200201	319	04/10/02	54.59847	-165.19998	76.1	6.6	91	6.01	10	33.8
FA200201	320	04/11/02	54.44107	-165.50605	86.1	6.8	92	1.06	19	56.9
FA200201	321	04/11/02	54.43590	-165.49080	82.1	7.8	92	1.07	23	59.9
FA200201	322	04/11/02	54.43355	-165.48365	82.0	8.2	92	1.03	14	33.0
FA200201	323	04/11/02	54.43110	-165.47638	80.1	7.9	92	1.08	32	81.6
FA200201	324	04/11/02	54.42592	-165.46128	85.0	7.1	92	1.09	45	148.0
FA200201	325	04/11/02	54.41915	-165.48377	82.0	7.1	92	1.05	25	82.5
FA200201	326	04/11/02	54.42885	-165.48305	82.0	7.7	92	1.04	18	54.4
FA200201	327	04/11/02	54.43858	-165.48338	82.0	7.4	92	1.02	18	47.1
FA200201	328	04/11/02	54.44858	-165.48328	84.1	6.4	92	1.01	20	62.8
FA200201	329	04/11/02	54.44072	-165.46173	115.1	6.4	92	1.13	8	20.4
FA200201	330	04/11/02	54.43578	-165.47608	80.1	7.1	92	1.12	18	46.7
FA200201	331	04/11/02	54.43085	-165.49087	82.1	6.9	92	1.11	60	213.4

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	332	04/11/02	54.42583	-165.50567	86.1	6.7	92	1.10	79	220.4
FA200201	333	04/11/02	54.39867	-165.58378	84.1	9.3	92	2.01	21	77.6
FA200201	334	04/11/02	54.38880	-165.58358	82.0	8.5	92	2.02	4	18.0
FA200201	335	04/11/02	54.38343	-165.58340	82.1	8.6	92	2.03	2	6.0
FA200201	336	04/11/02	54.37863	-165.58345	82.0	8.1	92	2.04	5	15.3
FA200201	337	04/11/02	54.36843	-165.58343	78.1	7.9	92	2.05	4	8.4
FA200201	338	04/11/02	54.37583	-165.60612	82.0	8.6	92	2.10	44	156.2
FA200201	339	04/11/02	54.38093	-165.59053	80.1	8.3	92	2.11	27	102.0
FA200201	340	04/11/02	54.38605	-165.57532	80.1	7.9	92	2.12	32	99.1
FA200201	341	04/11/02	54.39087	-165.56077	73.1	7.2	92	2.13	95	332.4
FA200201	342	04/11/02	54.37582	-165.56133	78.1	7.1	92	2.09	37	97.9
FA200201	343	04/11/02	54.38123	-165.57630	80.1	7.5	92	2.08	6	24.7
FA200201	344	04/11/02	54.38607	-165.59123	84.0	7.6	92	2.07	43	173.3
FA200201	345	04/11/02	54.39115	-165.60552	86.1	8.1	92	2.06	19	72.5
FA200201	346	04/11/02	54.34077	-165.74462	89.1	8.4	92	3.13	60	227.1
FA200201	347	04/11/02	54.33595	-165.75930	87.1	9.3	92	3.12	36	123.9
FA200201	348	04/11/02	54.33343	-165.76678	91.0	9.6	92	3.03	47	173.2
FA200201	349	04/11/02	54.33100	-165.77408	93.0	9.7	92	3.11	54	175.9
FA200201	350	04/11/02	54.32607	-165.78883	91.1	8.7	92	3.10	29	114.8
FA200201	351	04/11/02	54.34063	-165.78923	100.0	8.4	92	3.06	30	119.8
FA200201	352	04/11/02	54.33597	-165.77447	93.0	9.1	92	3.07	23	100.7
FA200201	353	04/11/02	54.33097	-165.75940	91.0	8.8	92	3.08	18	68.3
FA200201	354	04/11/02	54.32573	-165.74423	86.1	9.4	92	3.09	31	90.8
FA200201	355	04/11/02	54.31843	-165.76593	87.0	8.3	92	3.05	14	32.7
FA200201	356	04/11/02	54.32857	-165.76678	89.0	8.3	92	3.04	40	146.7
FA200201	357	04/11/02	54.33847	-165.76665	93.1	8.5	92	3.02	35	126.9
FA200201	358	04/11/02	54.34847	-165.76667	98.1	7.5	92	3.01	46	181.1
FA200201	359	04/12/02	54.72423	-165.00575	67.1	6.9	91	4.06	61	195.3
FA200201	360	04/12/02	54.71917	-164.99118	65.0	6.4	91	4.07	41	143.5
FA200201	361	04/12/02	54.71668	-164.98378	65.1	6.2	91	4.03	33	94.7
FA200201	362	04/12/02	54.71425	-164.97623	69.1	5.9	91	4.08	36	117.1
FA200201	363	04/12/02	54.70942	-164.96138	71.1	7.1	91	4.09	39	128.8
FA200201	364	04/12/02	54.70197	-164.98285	67.0	5.5	91	4.05	6	17.1
FA200201	365	04/12/02	54.71193	-164.98332	69.0	5.5	91	4.04	53	160.8
FA200201	366	04/12/02	54.72180	-164.98323	65.1	5.8	91	4.02	52	167.1
FA200201	367	04/12/02	54.73160	-164.98322	67.0	6.4	91	4.01	42	140.0
FA200201	368	04/12/02	54.72467	-164.96138	67.0	6.5	91	4.13	37	133.9
FA200201	369	04/12/02	54.71937	-164.97563	67.0	5.3	91	4.12	20	65.5
FA200201	370	04/12/02	54.71430	-164.99095	65.0	5.7	91	4.11	50	156.6
FA200201	371	04/12/02	54.70913	-165.00607	67.0	5.7	91	4.10	45	153.4
FA200201	372	04/12/02	54.69108	-165.09420	75.1	6.9	91	5.13	56	217.4
FA200201	373	04/12/02	54.68600	-165.10950	76.1	7.9	91	5.12	36	141.1
FA200201	374	04/12/02	54.68352	-165.11685	76.1	7.7	91	5.03	32	112.5
FA200201	375	04/12/02	54.68087	-165.12445	78.0	7.3	91	5.11	28	106.7
FA200201	376	04/12/02	54.67577	-165.13948	78.1	7.1	91	5.10	39	147.5
FA200201	377	04/12/02	54.69082	-165.13910	78.1	6.8	91	5.06	48	177.6
FA200201	378	04/12/02	54.68602	-165.12418	76.1	7.0	91	5.07	38	161.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	379	04/12/02	54.68092	-165.10918	76.0	7.5	91	5.08	48	171.5
FA200201	380	04/12/02	54.67600	-165.09463	76.0	6.1	91	5.09	55	187.7
FA200201	381	04/12/02	54.66882	-165.11637	76.1	5.8	91	5.05	61	205.0
FA200201	382	04/12/02	54.67845	-165.11685	76.1	6.9	91	5.04	57	214.4
FA200201	383	04/12/02	54.68853	-165.11675	76.0	6.7	91	5.02	54	198.9
FA200201	384	04/12/02	54.69860	-165.11682	76.1	6.0	91	5.01	43	157.2
FA200201	385	04/12/02	54.59848	-165.19995	78.0	7.0	91	6.01	58	197.4
FA200201	386	04/12/02	54.58840	-165.20003	78.0	7.0	91	6.02	34	130.2
FA200201	387	04/12/02	54.58342	-165.20005	78.1	7.2	91	6.03	49	186.1
FA200201	388	04/12/02	54.57858	-165.20013	75.1	7.4	91	6.04	15	54.4
FA200201	389	04/12/02	54.56832	-165.19993	75.1	7.4	91	6.05	15	57.9
FA200201	390	04/12/02	54.57582	-165.22237	80.0	8.5	91	6.10	50	185.5
FA200201	391	04/12/02	54.58087	-165.20735	78.0	8.3	91	6.11	55	214.0
FA200201	392	04/12/02	54.58590	-165.19268	76.0	7.8	91	6.12	15	44.9
FA200201	393	04/12/02	54.59088	-165.17713	75.1	7.5	91	6.13	11	33.8
FA200201	394	04/12/02	54.57607	-165.17765	75.0	7.1	91	6.09	50	171.0
FA200201	395	04/12/02	54.58090	-165.19262	76.1	7.6	91	6.08	48	164.9
FA200201	396	04/12/02	54.58600	-165.20777	80.0	7.7	91	6.07	31	113.8
FA200201	397	04/12/02	54.59098	-165.22267	80.0	8.1	91	6.06	46	151.7
FA200201	398	04/13/02	54.32542	-165.74488	87.0	7.0	92	3.09	49	176.9
FA200201	399	04/13/02	54.33090	-165.75912	89.1	7.0	92	3.08	35	115.8
FA200201	400	04/13/02	54.33353	-165.76725	91.1	7.0	92	3.03	37	120.8
FA200201	401	04/13/02	54.33600	-165.77413	93.0	7.1	92	3.07	36	120.1
FA200201	402	04/13/02	54.34100	-165.78923	100.0	7.2	92	3.06	41	154.0
FA200201	403	04/13/02	54.34833	-165.76730	98.0	7.2	92	3.01	37	140.8
FA200201	404	04/13/02	54.33848	-165.76652	95.0	7.3	92	3.02	18	64.1
FA200201	405	04/13/02	54.32835	-165.76682	89.0	7.6	92	3.04	24	89.2
FA200201	406	04/13/02	54.31857	-165.76685	95.0	7.8	92	3.05	28	91.0
FA200201	407	04/13/02	54.32608	-165.78880	91.1	7.2	92	3.10	32	123.5
FA200201	408	04/13/02	54.33100	-165.77423	91.1	7.5	92	3.11	28	87.0
FA200201	409	04/13/02	54.33617	-165.75908	91.1	6.9	92	3.12	21	72.0
FA200201	410	04/13/02	54.34102	-165.74475	89.1	7.6	92	3.13	67	215.8
FA200201	411	04/13/02	54.37565	-165.60627	82.0	8.0	92	2.10	48	189.8
FA200201	412	04/13/02	54.38088	-165.59075	82.0	8.9	92	2.11	48	163.6
FA200201	414	04/13/02	54.38592	-165.57545	82.0	8.4	92	2.12	17	70.4
FA200201	415	04/13/02	54.39068	-165.56105	82.0	7.4	92	2.13	75	289.2
FA200201	416	04/13/02	54.37590	-165.56135	80.0	8.3	92	2.09	74	266.3
FA200201	417	04/13/02	54.38108	-165.57610	80.1	7.8	92	2.08	17	73.4
FA200201	418	04/13/02	54.38617	-165.59158	84.1	8.5	92	2.07	14	60.3
FA200201	419	04/13/02	54.39105	-165.60587	86.1	8.6	92	2.06	25	111.0
FA200201	420	04/13/02	54.39807	-165.58365	84.0	8.6	92	2.01	23	107.7
FA200201	421	04/13/02	54.38833	-165.58342	82.0	7.6	92	2.02	39	158.1
FA200201	422	04/13/02	54.37867	-165.58345	82.0	7.2	92	2.04	29	96.3
FA200201	423	04/13/02	54.36843	-165.58320	78.1	7.0	92	2.05	25	87.9
FA200201	424	04/13/02	54.41872	-165.48367	82.0	8.3	92	1.05	14	38.7
FA200201	425	04/13/02	54.42857	-165.48338	80.1	9.2	92	1.04	37	139.2
FA200201	426	04/13/02	54.43350	-165.48320	82.0	9.5	92	1.03	23	84.4

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	427	04/13/02	54.43857	-165.48322	82.0	9.4	92	1.02	28	89.2
FA200201	428	04/13/02	54.44850	-165.48342	82.1	8.6	92	1.01	55	214.6
FA200201	429	04/13/02	54.44048	-165.46108	117.0	8.3	92	1.13	28	98.3
FA200201	430	04/13/02	54.43593	-165.47608	80.1	8.9	92	1.12	58	207.6
FA200201	431	04/13/02	54.43087	-165.49092	82.1	8.6	92	1.11	16	51.2
FA200201	432	04/13/02	54.42565	-165.50622	86.0	9.2	92	1.10	58	180.5
FA200201	433	04/13/02	54.44128	-165.50573	86.0	8.2	92	1.06	44	169.7
FA200201	434	04/13/02	54.43597	-165.49050	82.1	8.2	92	1.07	22	87.4
FA200201	435	04/13/02	54.43078	-165.47592	82.0	8.4	92	1.08	50	175.3
FA200201	436	04/13/02	54.42592	-165.46133	84.0	7.5	92	1.09	48	157.6
FA200201	437	04/16/02	54.57607	-165.17788	75.0	7.2	91	6.09	57	251.7
FA200201	438	04/16/02	54.58100	-165.19277	78.0	7.3	91	6.08	42	177.3
FA200201	439	04/16/02	54.58358	-165.20038	80.0	7.3	91	6.03	45	180.5
FA200201	440	04/16/02	54.58602	-165.20803	80.0	6.1	91	6.07	24	103.6
FA200201	441	04/16/02	54.59108	-165.22278	82.0	6.1	91	6.06	38	152.1
FA200201	442	04/16/02	54.59868	-165.19995	78.1	5.5	91	6.01	23	97.7
FA200201	443	04/16/02	54.58863	-165.19995	78.1	5.7	91	6.02	34	142.2
FA200201	444	04/16/02	54.57863	-165.20008	76.0	6.3	91	6.04	11	55.1
FA200201	445	04/16/02	54.56847	-165.19982	76.0	6.4	91	6.05	26	90.2
FA200201	446	04/16/02	54.57612	-165.22265	80.1	5.8	91	6.10	17	62.4
FA200201	447	04/16/02	54.58117	-165.20747	78.0	5.9	91	6.11	32	142.1
FA200201	448	04/16/02	54.58602	-165.19230	78.0	6.8	91	6.12	70	275.7
FA200201	449	04/16/02	54.59098	-165.17680	75.1	6.9	91	6.13	78	323.7
FA200201	450	04/16/02	54.67613	-165.09467	76.0	9.2	91	5.09	48	198.4
FA200201	451	04/16/02	54.68097	-165.10935	76.1	8.5	91	5.08	45	236.2
FA200201	452	04/16/02	54.68375	-165.11702	76.1	8.5	91	5.03	35	140.7
FA200201	453	04/16/02	54.68613	-165.12425	78.0	8.0	91	5.07	29	121.4
FA200201	454	04/16/02	54.69102	-165.13943	80.0	7.5	91	5.06	38	162.8
FA200201	455	04/16/02	54.69868	-165.11668	78.0	7.5	91	5.01	45	188.8
FA200201	456	04/16/02	54.68835	-165.11678	76.1	7.6	91	5.02	38	146.1
FA200201	457	04/16/02	54.67855	-165.11687	76.1	7.8	91	5.04	36	166.3
FA200201	458	04/16/02	54.66887	-165.11682	78.0	6.7	91	5.05	22	82.1
FA200201	459	04/16/02	54.67627	-165.13962	78.1	6.8	91	5.10	52	225.9
FA200201	460	04/16/02	54.68110	-165.12402	78.0	7.3	91	5.11	57	241.3
FA200201	461	04/16/02	54.68588	-165.10882	84.1	7.6	91	5.12	30	127.4
FA200201	462	04/16/02	54.69102	-165.09405	75.1	8.0	91	5.13	42	173.7
FA200201	463	04/16/02	54.70970	-165.00608	67.0	9.3	91	4.10	15	49.7
FA200201	464	04/16/02	54.71435	-164.99082	65.0	10.0	91	4.11	29	96.8
FA200201	465	04/16/02	54.71677	-164.98253	67.0	10.2	91	4.03	31	80.1
FA200201	466	04/16/02	54.71937	-164.97507	67.1	9.5	91	4.12	21	61.5
FA200201	467	04/16/02	54.72427	-164.96030	67.0	10.3	91	4.13	29	96.9
FA200201	468	04/16/02	54.70972	-164.96098	71.1	10.3	91	4.09	27	75.5
FA200201	469	04/16/02	54.71418	-164.97603	69.0	9.4	91	4.08	27	90.5
FA200201	470	04/16/02	54.71933	-164.99090	65.0	9.6	91	4.07	39	122.7
FA200201	471	04/16/02	54.72417	-165.00610	67.0	8.5	91	4.06	26	94.8
FA200201	472	04/16/02	54.73182	-164.98337	66.1	8.6	91	4.01	46	133.4
FA200201	473	04/16/02	54.72185	-164.98335	64.1	8.7	91	4.02	17	50.4

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	474	04/16/02	54.71308	-164.98333	67.1	9.0	91	4.04	17	62.8
FA200201	475	04/16/02	54.70185	-164.98347	67.0	9.9	91	4.05	27	85.9
FA200201	476	04/17/02	55.55353	-163.15993	58.0	3.8	50		4	8.0
FA200201	477	04/17/02	55.55658	-163.16068	58.1	3.9	50		4	7.5
FA200201	478	04/17/02	55.56025	-163.16143	58.0	4.0	50		6	12.7
FA200201	479	04/17/02	55.56355	-163.16205	58.1	4.1	50		1	3.9
FA200201	480	04/17/02	55.56730	-163.16267	58.1	4.2	50		1	4.0
FA200201	481	04/17/02	55.57115	-163.16327	58.1	4.2	50		4	10.2
FA200201	482	04/17/02	55.57497	-163.16382	58.1	4.4	50		7	15.0
FA200201	483	04/17/02	55.57857	-163.16432	60.0	4.5	50		1	2.9
FA200201	484	04/17/02	55.58170	-163.16482	60.0	4.5	50		6	15.1
FA200201	485	04/17/02	55.58463	-163.16523	60.1	4.6	50		12	26.5
FA200201	486	04/17/02	55.56207	-163.39638	67.0	7.3	50		10	28.8
FA200201	487	04/17/02	55.55908	-163.40138	67.0	6.8	50		19	58.2
FA200201	488	04/17/02	55.55607	-163.40635	67.0	6.6	50		32	93.1
FA200201	489	04/17/02	55.55278	-163.41030	67.1	6.4	50		3	12.1
FA200201	490	04/17/02	55.54973	-163.41542	73.1	6.2	50		42	121.8
FA200201	491	04/17/02	55.54625	-163.41942	67.0	6.0	50		4	12.7
FA200201	492	04/17/02	55.54328	-163.42440	67.0	5.9	50		30	109.5
FA200201	493	04/17/02	55.53983	-163.42883	67.1	5.6	50		1	1.4
FA200201	494	04/17/02	55.53713	-163.43337	67.0	5.5	50		33	96.1
FA200201	495	04/17/02	55.53420	-163.43857	67.0	5.3	50		7	22.8
FA200201	496	04/17/02	55.53197	-163.44427	67.1	5.1	50		8	28.6
FA200201	497	04/17/02	55.52932	-163.44945	67.0	4.9	50		4	19.1
FA200201	498	04/17/02	55.52683	-163.45478	67.1	4.8	50		10	25.7
FA200201	499	04/17/02	55.52377	-163.45937	67.0	4.7	50		17	50.0
FA200201	500	04/17/02	55.52058	-163.46365	69.0	4.4	50		19	53.5
FA200201	501	04/18/02	54.43347	-165.47765	82.0	5.9	92		6	24.5
FA200201	502	04/18/02	54.43077	-165.47413	82.1	5.9	92		5	11.3
FA200201	503	04/18/02	54.42802	-165.47035	82.1	5.5	92		7	20.6
FA200201	504	04/18/02	54.42527	-165.46650	82.0	5.3	92		24	60.4
FA200201	505	04/18/02	54.42243	-165.46253	82.0	5.1	92		14	49.4
FA200201	506	04/18/02	54.43022	-165.48988	82.1	6.3	92		13	43.1
FA200201	507	04/18/02	54.42723	-165.48672	84.0	6.0	92		4	13.0
FA200201	508	04/18/02	54.42415	-165.48358	93.0	5.8	92		11	43.3
FA200201	509	04/18/02	54.42102	-165.48047	82.0	5.6	92		3	7.9
FA200201	510	04/18/02	54.41780	-165.47733	84.0	5.4	92		21	61.7
FA200201	511	04/18/02	54.39442	-165.49335	91.0	5.9	92		19	61.0
FA200201	512	04/18/02	54.39823	-165.49572	89.1	5.9	92		70	207.9
FA200201	513	04/18/02	54.40213	-165.49870	89.0	6.0	92		57	151.7
FA200201	514	04/18/02	54.40665	-165.50248	89.0	6.1	92		3	15.5
FA200201	515	04/18/02	54.41020	-165.50545	87.1	6.2	92		41	139.0
FA200201	516	04/18/02	54.41407	-165.50827	89.0	6.2	92		0	0.0
FA200201	517	04/18/02	54.41757	-165.51145	87.1	6.3	92		3	15.5
FA200201	518	04/18/02	54.42102	-165.51480	87.1	6.3	92		0	0.0
FA200201	519	04/18/02	54.42490	-165.51698	87.0	6.4	92		15	44.3
FA200201	520	04/18/02	54.42840	-165.52018	89.0	6.4	92		0	0.0

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	521	04/18/02	54.43203	-165.52315	87.1	6.5	92		6	21.5
FA200201	522	04/18/02	54.43565	-165.52597	87.0	6.6	92		5	14.2
FA200201	523	04/18/02	54.43945	-165.52893	89.1	6.6	92		32	117.3
FA200201	524	04/19/02	54.62582	-165.09980	75.0	5.3	91		40	140.5
FA200201	525	04/19/02	54.63020	-165.09915	76.0	5.4	91		40	139.5
FA200201	526	04/19/02	54.63438	-165.09902	76.0	5.4	91		46	166.6
FA200201	527	04/19/02	54.63817	-165.09797	76.0	5.4	91		20	66.3
FA200201	528	04/19/02	54.64227	-165.09782	76.0	5.5	91		29	101.9
FA200201	529	04/19/02	54.64727	-165.09733	76.1	5.5	91		24	77.3
FA200201	530	04/19/02	54.65147	-165.09707	76.1	5.6	91		30	106.3
FA200201	531	04/19/02	54.65613	-165.09622	76.0	5.7	91		20	62.4
FA200201	532	04/19/02	54.66023	-165.09637	76.1	5.8	91		40	112.0
FA200201	533	04/19/02	54.66423	-165.09692	75.1	5.8	91		14	52.3
FA200201	534	04/19/02	54.66890	-165.09688	73.1	5.9	91		23	77.1
FA200201	535	04/19/02	54.67325	-165.09568	76.0	5.9	91		28	91.9
FA200201	536	04/19/02	54.67813	-165.09598	76.0	6.0	91		37	126.7
FA200201	537	04/19/02	54.68242	-165.09613	76.0	6.0	91		24	72.4
FA200201	538	04/19/02	54.68667	-165.09653	76.0	6.1	91		29	95.3
FA200201	539	04/19/02	54.68722	-165.11545	78.0	6.1	91		36	106.2
FA200201	540	04/19/02	54.69340	-165.10953	76.1	6.2	91		33	116.9
FA200201	541	04/19/02	54.70013	-165.10307	76.1	6.3	91		24	84.0
FA200201	542	04/19/02	54.70538	-165.09802	76.0	6.3	91		32	126.1
FA200201	543	04/19/02	54.71188	-165.09188	75.1	6.4	91		43	135.1
FA200201	544	04/19/02	54.71348	-165.07628	73.1	6.4	91		43	131.5
FA200201	545	04/19/02	54.70677	-165.07600	75.0	6.5	91		27	92.6
FA200201	546	04/19/02	54.69967	-165.07588	75.0	6.6	91		26	87.4
FA200201	547	04/19/02	54.69255	-165.07600	75.0	6.7	91		28	96.5
FA200201	548	04/19/02	54.68575	-165.07617	75.1	6.7	91		28	98.8
FA200201	549	04/19/02	54.67593	-165.13910	78.0	6.8	91		48	186.4
FA200201	550	04/19/02	54.67412	-165.12933	78.0	6.7	91		15	49.2
FA200201	551	04/20/02	54.69500	-165.06343	73.0	5.0	91		37	134.9
FA200201	552	04/20/02	54.69795	-165.06630	73.0	5.0	91		35	138.2
FA200201	553	04/20/02	54.70073	-165.06950	73.1	5.1	91		32	117.9
FA200201	554	04/20/02	54.70397	-165.07285	75.0	5.2	91		43	173.8
FA200201	555	04/20/02	54.70690	-165.07590	75.0	5.2	91		39	149.8
FA200201	556	04/20/02	54.70972	-165.07885	75.0	5.3	91		5	18.3
FA200201	557	04/20/02	54.70623	-165.10265	76.0	5.9	91		32	124.9
FA200201	558	04/20/02	54.70350	-165.09863	75.1	5.7	91		30	114.5
FA200201	559	04/20/02	54.70080	-165.09482	75.1	5.6	91		17	54.3
FA200201	560	04/20/02	54.69807	-165.09060	76.0	5.5	91		49	197.6
FA200201	561	04/20/02	54.69547	-165.08642	75.1	5.3	91		36	123.8
FA200201	562	04/20/02	54.69277	-165.08233	75.0	5.2	91		18	64.5
FA200201	563	04/20/02	54.67353	-165.10990	76.1	6.3	91		31	116.8
FA200201	564	04/20/02	54.67025	-165.10795	76.1	6.2	91		23	85.0
FA200201	565	04/20/02	54.66687	-165.10552	75.1	6.1	91		20	59.5
FA200201	566	04/20/02	54.66357	-165.10325	75.1	6.0	91		43	134.6
FA200201	567	04/20/02	54.66027	-165.10107	75.1	5.9	91		51	156.4

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	568	04/20/02	54.65682	-165.09890	76.1	5.7	91		43	147.9
FA200201	569	04/20/02	54.63467	-165.13383		3.6	91		0	0.0
FA200201	570	04/20/02	54.63727	-165.13933	80.0	3.7	91		30	118.3
FA200201	571	04/20/02	54.63970	-165.14442	78.1	3.8	91		20	82.9
FA200201	572	04/20/02	54.64288	-165.15032	78.1	3.8	91		5	18.8
FA200201	573	04/20/02	54.64537	-165.15507	80.0	3.9	91		23	93.9
FA200201	574	04/20/02	54.64822	-165.16018	78.0	4.0	91		15	62.5
FA200201	575	04/20/02	54.65275	-165.16052	75.1	4.0	91		16	56.7
FA200201	576	04/20/02	54.65713	-165.16038	80.1	4.1	91		9	30.0
FA200201	577	04/20/02	54.66117	-165.15935	80.0	4.0	91		41	143.2
FA200201	578	04/20/02	54.66515	-165.15935	80.0	4.0	91		34	120.3
FA200201	579	04/20/02	54.66915	-165.15908	78.1	4.1	91		1	5.7
FA200201	580	04/20/02	54.67320	-165.15953	78.1	4.2	91		17	58.9
FA200201	581	04/21/02	54.62677	-165.10595	73.0	5.4	91		14	50.0
FA200201	582	04/21/02	54.63475	-165.13440	80.0	5.7	91		20	81.1
FA200201	583	04/21/02	54.63780	-165.13923	80.1	5.7	91		1	2.3
FA200201	584	04/21/02	54.64073	-165.14423	80.0	5.6	91		28	116.1
FA200201	585	04/21/02	54.64338	-165.14970	76.1	5.7	91		5	22.8
FA200201	586	04/21/02	54.64603	-165.15473	78.1	5.7	91		13	51.5
FA200201	587	04/21/02	54.64918	-165.16047	80.0	5.8	91		7	31.2
FA200201	588	04/21/02	54.65350	-165.16060	78.1	5.8	91		13	57.3
FA200201	589	04/21/02	54.65762	-165.15983	80.1	5.8	91		3	13.2
FA200201	590	04/21/02	54.66173	-165.15973	80.0	5.9	91		26	101.2
FA200201	591	04/21/02	54.66568	-165.15958	78.1	5.9	91		20	67.1
FA200201	592	04/21/02	54.66973	-165.15925	80.0	5.9	91		22	65.5
FA200201	593	04/21/02	54.67373	-165.15927	80.0	6.0	91		20	59.8
FA200201	594	04/21/02	54.66938	-165.14153	78.0	6.9	91		25	93.3
FA200201	595	04/21/02	54.66385	-165.13555	78.0	6.7	91		21	73.4
FA200201	596	04/21/02	54.65820	-165.13005	76.1	6.6	91		13	48.8
FA200201	597	04/21/02	54.65250	-165.12460	78.1	6.4	91		27	93.5
FA200201	598	04/21/02	54.64672	-165.11893	78.0	6.2	91		44	173.9
FA200201	599	04/21/02	54.64112	-165.11345	76.1	6.0	91		21	63.0
FA200201	600	04/21/02	54.65685	-165.09290	75.1	6.7	91		33	123.1
FA200201	601	04/21/02	54.66142	-165.09937	86.0	6.8	91		34	138.5
FA200201	602	04/21/02	54.66610	-165.10532	75.1	6.9	91		47	189.0
FA200201	603	04/21/02	54.67085	-165.11167	75.1	7.0	91		35	123.7
FA200201	604	04/21/02	54.67552	-165.11810	76.0	7.2	91		36	141.5
FA200201	605	04/21/02	54.68002	-165.12493	76.1	7.3	91		62	246.6
FA200201	606	04/21/02	54.70562	-165.10903	76.0	8.0	91		29	106.5
FA200201	607	04/21/02	54.70038	-165.10460	76.0	7.9	91		37	130.2
FA200201	608	04/21/02	54.69510	-165.09958	75.1	7.7	91		30	116.8
FA200201	609	04/21/02	54.68903	-165.09423	76.1	7.5	91		29	101.8
FA200201	610	04/21/02	54.68288	-165.08937	75.0	7.2	91		11	49.8
FA200201	611	04/21/02	54.67708	-165.08445	75.0	7.0	91		24	90.7
FA200201	612	04/21/02	54.63358	-165.12932	80.0	4.7	91		30	108.0
FA200201	613	04/22/02	54.54513	-165.06313	71.0	4.5	91		9	30.9
FA200201	614	04/22/02	54.55547	-165.06907	71.1	7.9	91		12	38.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	615	04/22/02	54.55893	-165.07162	71.0	8.0	91		12	33.3
FA200201	616	04/22/02	54.56232	-165.07357	71.1	8.0	91		40	124.2
FA200201	617	04/22/02	54.56565	-165.07553	71.0	8.0	91		15	44.9
FA200201	618	04/22/02	54.56910	-165.07752	73.0	8.1	91		21	71.6
FA200201	619	04/22/02	54.57228	-165.07935	71.1	8.1	91		20	61.1
FA200201	620	04/22/02	54.57572	-165.11322	75.1	7.4	91		46	143.2
FA200201	621	04/22/02	54.57907	-165.11498	75.0	7.1	91		28	81.4
FA200201	622	04/22/02	54.58237	-165.11640	75.0	7.0	91		16	54.0
FA200201	623	04/22/02	54.58542	-165.11762	75.0	6.8	91		17	59.1
FA200201	624	04/22/02	54.58875	-165.11887	75.1	6.6	91		17	54.9
FA200201	625	04/22/02	54.59208	-165.12008	75.0	6.5	91		25	69.7
FA200201	626	04/22/02	54.59810	-165.09615	71.0	6.1	91		29	104.3
FA200201	627	04/22/02	54.60125	-165.09797	71.1	6.0	91		7	22.5
FA200201	628	04/22/02	54.60445	-165.09983	73.0	5.8	91		26	85.3
FA200201	629	04/22/02	54.60747	-165.10158	73.0	5.7	91		22	79.0
FA200201	630	04/22/02	54.61115	-165.10362	71.0	5.4	91		32	99.7
FA200201	631	04/22/02	54.61443	-165.10552	71.1	5.3	91		33	111.8
FA200201	632	04/22/02	54.61517	-165.15962	76.1	7.8	91		16	61.7
FA200201	633	04/22/02	54.61133	-165.15893	73.1	7.6	91		15	72.8
FA200201	634	04/22/02	54.60752	-165.15788	75.1	7.5	91		15	67.8
FA200201	635	04/22/02	54.60378	-165.15673	75.0	7.4	91		10	41.2
FA200201	636	04/22/02	54.60000	-165.15555	75.0	7.2	91		30	109.7
FA200201	637	04/22/02	54.59627	-165.15512	73.1	7.0	91		5	20.1
FA200201	638	04/22/02	54.59237	-165.15355	73.1	6.9	91		16	69.6
FA200201	639	04/22/02	54.58850	-165.15197	73.1	6.7	91		37	108.4
FA200201	640	04/22/02	54.58463	-165.15100	75.0	6.5	91		31	114.3
FA200201	641	04/22/02	54.58082	-165.15060	75.0	6.3	91		31	116.9
FA200201	642	04/22/02	54.57692	-165.14958	73.0	6.2	91		16	62.6
FA200201	643	04/22/02	54.57282	-165.14797	73.0	6.1	91		12	53.8
FA200201	644	04/22/02	54.55067	-165.05983		6.4	91		20	67.9
FA200201	645	04/23/02	54.67588	-165.13863	78.1	6.6	91	5.10	18	62.0
FA200201	646	04/23/02	54.68098	-165.12432	78.0	7.1	91	5.11	20	64.8
FA200201	647	04/23/02	54.68357	-165.11670	76.1	7.3	91	5.03	17	69.9
FA200201	648	04/23/02	54.68605	-165.10925	76.1	7.4	91	5.12	15	50.6
FA200201	649	04/23/02	54.69112	-165.09392	76.0	5.7	91	5.13	14	47.2
FA200201	650	04/23/02	54.67610	-165.09418	76.0	6.5	91	5.09	19	59.5
FA200201	651	04/23/02	54.68097	-165.10958	76.0	7.1	91	5.08	23	118.3
FA200201	652	04/23/02	54.68608	-165.12438	76.1	6.8	91	5.07	26	77.0
FA200201	653	04/23/02	54.69098	-165.13942	78.1	5.7	91	5.06	17	47.7
FA200201	654	04/23/02	54.69850	-165.11738	78.0	5.3	91	5.01	18	72.8
FA200201	655	04/23/02	54.68840	-165.11695	76.1	6.5	91	5.02	25	69.9
FA200201	656	04/23/02	54.67838	-165.11658	76.1	6.2	91	5.04	11	41.8
FA200201	657	04/23/02	54.66858	-165.11653	76.1	5.7	91	5.05	19	57.7
FA200201	658	04/23/02	54.59102	-165.17778	75.1	8.1	91	6.13	23	88.4
FA200201	659	04/23/02	54.58597	-165.19275	76.1	8.2	91	6.12	29	130.5
FA200201	660	04/23/02	54.58345	-165.20010	78.1	8.4	91	6.03	27	98.5
FA200201	661	04/23/02	54.58075	-165.20777	78.0	10.6	91	6.11	31	127.9

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
FA200201	662	04/23/02	54.57562	-165.22263	80.0	7.3	91	6.10	16	66.3
FA200201	663	04/23/02	54.59095	-165.22260	80.0	6.9	91	6.06	31	120.4
FA200201	664	04/23/02	54.58580	-165.20737	78.1	8.1	91	6.07	31	110.4
FA200201	665	04/23/02	54.58097	-165.19263	73.1	7.8	91	6.08	40	173.4
FA200201	666	04/23/02	54.57592	-165.17762	76.0	10.5	91	6.09	47	183.1
FA200201	667	04/23/02	54.56833	-165.19967	75.1	10.2	91	6.05	27	101.5
FA200201	668	04/23/02	54.57857	-165.20003	75.0	7.5	91	6.04	19	65.6
FA200201	669	04/23/02	54.58867	-165.19977	78.0	9.7	91	6.02	35	145.1
FA200201	670	04/23/02	54.59912	-165.19987	78.1	6.2	91	6.01	18	51.1
FA200201	671	04/23/02	54.61977	-165.21600	78.0	8.5	91		10	43.7
FA200201	672	04/23/02	54.62033	-165.20912	80.1	8.2	91		12	44.3
FA200201	673	04/23/02	54.62097	-165.20210	78.1	8.1	91		0	0.0
FA200201	674	04/23/02	54.62160	-165.19478	78.0	8.0	91		3	8.4
FA200201	675	04/23/02	54.62223	-165.18728	78.0	7.8	91		1	3.8
FA200201	676	04/23/02	54.62273	-165.18055	80.0	7.7	91		6	16.8
FA200201	677	04/23/02	54.62352	-165.17323	76.1	7.6	91		5	24.5
FA200201	678	04/23/02	54.62403	-165.16608	78.0	7.4	91		8	33.6
FA200201	679	04/23/02	54.62480	-165.15927	78.1	7.2	91		6	18.4
FA200201	680	04/23/02	54.62520	-165.15188	78.0	6.9	91		4	17.1
FA200201	681	04/23/02	54.62607	-165.14493	76.0	6.8	91		11	48.2
FA200201	682	04/23/02	54.62675	-165.13768	78.1	6.7	91		6	16.9
FA200201	683	04/24/02	54.43147	-165.50018	86.0	6.4	92		36	123.0
FA200201	684	04/24/02	54.43310	-165.49507	84.0	5.9	92		36	100.1
FA200201	685	04/24/02	54.43497	-165.49012	82.0	6.5	92		47	164.1
FA200201	686	04/24/02	54.43653	-165.48447	82.0	6.5	92		34	106.8
FA200201	687	04/24/02	54.43817	-165.47957	80.0	6.6	92		27	86.3
FA200201	688	04/24/02	54.43987	-165.47437	85.0	6.6	92		38	131.8
FA200201	689	04/24/02	54.42163	-165.46278	82.1	7.0	92		39	100.8
FA200201	690	04/24/02	54.42018	-165.46713	82.0	6.9	92		22	60.4
FA200201	691	04/24/02	54.41855	-165.47180	82.1	6.8	92		15	37.8
FA200201	692	04/24/02	54.41695	-165.47610	84.0	6.7	92		34	103.6
FA200201	693	04/24/02	54.41528	-165.48032	84.1	6.6	92		35	115.9
FA200201	694	04/24/02	54.41343	-165.48485	100.1	6.5	92		56	170.6
FA200201	695	04/24/02	54.32962	-165.71270	84.0	7.8	92		12	40.9
FA200201	696	04/24/02	54.33153	-165.70633	87.0	7.4	92		10	35.0
FA200201	697	04/24/02	54.33322	-165.69983	86.1	7.1	92		6	21.0
FA200201	698	04/24/02	54.33562	-165.69378	87.0	7.0	92		1	12.7
FA200201	699	04/24/02	54.33793	-165.68768	86.0	6.9	92		8	27.7
FA200201	700	04/24/02	54.33997	-165.68140	85.0	6.7	92		2	6.2
FA200201	701	04/24/02	54.34222	-165.67575	84.1	6.5	92		0	0.0
FA200201	702	04/24/02	54.34443	-165.67020	86.0	6.3	92		12	39.7
FA200201	703	04/24/02	54.34632	-165.66422	84.1	6.2	92		33	115.6
FA200201	704	04/24/02	54.34853	-165.65815	84.0	5.9	92		27	98.3
FA200201	705	04/24/02	54.35027	-165.65182	104.0	5.8	92		47	152.2
FA200201	706	04/24/02	54.35257	-165.64600	86.1	5.6	92		37	128.4
PS200201	1100	09/24/02	54.95098	-164.86450	77.1	6.3	40		12	48.9

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1101	09/24/02	54.95364	-164.85475	75.1	6.5	40		13	56.6
PS200201	1102	09/24/02	54.95856	-164.75461	70.0	6.6	40		9	23.6
PS200201	1103	09/24/02	54.95878	-164.74723	69.6	6.4	40		8	21.4
PS200201	1104	09/24/02	54.94753	-164.66901	57.9	7.0	40		16	37.8
PS200201	1105	09/24/02	54.94747	-164.65115	57.2	6.7	40		18	36.9
PS200201	1106	09/24/02	54.98450	-164.68295	62.5	6.9	40		20	51.6
PS200201	1107	09/24/02	54.99048	-164.69271	64.7	6.9	40		14	30.2
PS200201	1108	09/24/02	55.04719	-164.77355	80.1	7.0	40		18	77.9
PS200201	1109	09/24/02	55.05125	-164.77740	81.7	7.1	40		2	9.5
PS200201	1110	09/24/02	55.07723	-164.78147	95.0	7.3	40		8	19.9
PS200201	1111	09/24/02	55.08065	-164.78194	95.6	7.2	40		10	31.2
PS200201	1112	09/24/02	55.11110	-164.71448	94.3	7.3	40		16	72.4
PS200201	1113	09/24/02	55.10842	-164.71007	93.2	7.4	40		24	104.7
PS200201	1114	09/24/02	55.07305	-164.92165	104.9	7.3	40		2	13.7
PS200201	1115	09/24/02	55.07375	-164.91434	104.7	7.2	40		4	15.9
PS200201	1116	09/24/02	55.07308	-164.90636	104.4	7.0	40		8	28.7
PS200201	1117	09/26/02	54.36176	-165.70210	88.5	3.1	20		13	31.2
PS200201	1118	09/26/02	54.35941	-165.70680	92.7	3.2	20		24	61.6
PS200201	1119	09/26/02	54.35684	-165.71275	97.2	3.2	20		6	13.5
PS200201	1120	09/26/02	54.35450	-165.71831	96.0	3.3	20		24	79.9
PS200201	1121	09/26/02	54.35280	-165.72370	96.0	3.3	20		5	16.3
PS200201	1122	09/26/02	54.35125	-165.72900	96.5	3.3	20		9	37.3
PS200201	1123	09/26/02	54.34963	-165.73541	98.3	3.3	20		4	16.3
PS200201	1124	09/26/02	54.34815	-165.74074	94.1	3.4	20		8	25.1
PS200201	1125	09/26/02	54.34665	-165.74625	95.6	3.4	20		6	15.4
PS200201	1126	09/26/02	54.34523	-165.75160	95.4	3.5	20		16	43.1
PS200201	1127	09/26/02	54.34390	-165.75700	94.9	3.5	20		12	28.1
PS200201	1128	09/26/02	54.29284	-165.76912	83.3	3.8	20		12	23.2
PS200201	1129	09/26/02	54.29043	-165.77541	85.0	3.8	20		18	35.2
PS200201	1130	09/26/02	54.28836	-165.78093	84.3	3.8	20		11	25.3
PS200201	1131	09/26/02	54.28657	-165.78589	85.5	3.8	20		8	16.9
PS200201	1132	09/26/02	54.28498	-165.79091	83.7	3.9	20		10	22.6
PS200201	1133	09/26/02	54.28337	-165.79595	85.5	3.9	20		15	30.1
PS200201	1134	09/26/02	54.28173	-165.80116	84.1	3.9	20		22	48.5
PS200201	1135	09/26/02	54.28010	-165.80662	85.0	4.0	20		23	46.7
PS200201	1136	09/26/02	54.27854	-165.81181	86.6	4.0	20		17	40.6
PS200201	1137	09/26/02	54.27697	-165.81715	84.8	4.0	20		18	38.0
PS200201	1138	09/26/02	54.30429	-165.88530	104.6	4.1	20		8	22.1
PS200201	1139	09/26/02	54.30238	-165.88917	108.8	4.1	20		15	33.1
PS200201	1140	09/26/02	54.30060	-165.89379	105.8	4.2	20		6	21.0
PS200201	1141	09/26/02	54.29868	-165.89853	105.8	4.2	20			
PS200201	1142	09/26/02	54.29683	-165.90276	107.5	4.2	20		10	27.8

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1143	09/26/02	54.29503	-165.90752	106.6	4.3	20		7	17.2
PS200201	1144	09/26/02	54.29314	-165.91200	106.8	4.3	20		10	18.5
PS200201	1145	09/26/02	54.29106	-165.91695	105.7	6.1	20		20	59.9
PS200201	1146	09/26/02	54.28951	-165.92244	106.0	4.2	20		16	37.2
PS200201	1147	09/26/02	54.28775	-165.92798	106.8	5.6	20		41	108.7
PS200201	1148	09/26/02	54.30880	-165.82887	94.3	4.3	20		14	49.0
PS200201	1149	09/27/02	54.32276	-165.86042	111.0	11.4	20		5	5.6
PS200201	1150	09/27/02	54.31926	-165.84720	102.7	11.1	20		13	30.9
PS200201	1151	09/27/02	54.31738	-165.83252	99.4	10.9	20		19	53.0
PS200201	1152	09/27/02	54.31725	-165.81850	95.0	10.8	20		17	59.4
PS200201	1153	09/27/02	54.31773	-165.80433	94.1	10.5	20		14	46.8
PS200201	1154	09/28/02	54.29658	-165.85001	92.5	10.9	20		8	10.0
PS200201	1155	09/28/02	54.30308	-165.84071	92.9	10.8	20		4	19.1
PS200201	1156	09/28/02	54.30873	-165.82972	93.2	10.6	20		23	63.0
PS200201	1157	09/28/02	54.31435	-165.81857	95.4	10.5	20		17	49.7
PS200201	1158	09/28/02	54.31989	-165.80741	92.7	10.3	20		22	73.3
PS200201	1159	09/28/02	54.45469	-165.60039	128.3	4.4	20		9	36.9
PS200201	1160	09/28/02	54.45085	-165.60546	132.2	4.5	20		18	58.6
PS200201	1161	09/28/02	54.44728	-165.60988	125.6	4.5	20		0	0.0
PS200201	1162	09/28/02	54.44455	-165.61367	128.7	4.6	20		11	31.7
PS200201	1163	09/28/02	54.44238	-165.61867	129.2	4.6	20		22	77.0
PS200201	1164	09/28/02	54.44029	-165.62373	133.5	4.6	20		14	44.7
PS200201	1165	09/28/02	54.43665	-165.62999	135.5	4.7	20		11	39.2
PS200201	1166	09/28/02	54.43401	-165.63380	131.4	4.7	20		16	61.3
PS200201	1167	09/28/02	54.43179	-165.63816	126.3	4.8	20		19	65.4
PS200201	1168	09/28/02	54.42973	-165.64334	123.6	4.8	20		10	36.0
PS200201	1169	09/28/02	54.35880	-165.70016	94.7	4.8	20		5	8.3
PS200201	1170	09/28/02	54.35618	-165.70534	96.3	4.9	20		16	47.6
PS200201	1171	09/28/02	54.35397	-165.70971	94.5	4.9	20		16	40.1
PS200201	1172	09/28/02	54.35187	-165.71399	93.4	5.0	20		6	19.2
PS200201	1173	09/28/02	54.34974	-165.71847	95.0	5.0	20		4	11.9
PS200201	1174	09/28/02	54.34771	-165.72323	94.0	5.0	20		5	9.7
PS200201	1175	09/28/02	54.34575	-165.72804	85.2	5.1	20		3	5.7
PS200201	1176	09/28/02	54.34362	-165.73362	87.7	5.1	20		0	0.0
PS200201	1177	09/28/02	54.34178	-165.73881	87.9	5.1	20		0	0.0
PS200201	1178	09/28/02	54.33986	-165.74415	88.5	5.2	20		6	16.9
PS200201	1179	09/28/02	54.29741	-165.76678	84.3	5.2	20		8	14.4
PS200201	1180	09/28/02	54.29604	-165.77229	84.4	5.2	20		5	11.7
PS200201	1181	09/28/02	54.29455	-165.77767	85.0	5.3	20		11	23.2
PS200201	1182	09/28/02	54.29307	-165.78319	85.2	5.3	20		2	3.9
PS200201	1183	09/28/02	54.29158	-165.78884	83.3	5.3	20		9	16.9
PS200201	1184	09/28/02	54.29005	-165.79403	85.9	5.3	20		4	9.5

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1185	09/28/02	54.28846	-165.79988	85.2	5.4	20		6	14.4
PS200201	1186	09/28/02	54.28690	-165.80546	84.4	5.4	20		6	13.0
PS200201	1187	09/28/02	54.28541	-165.81117	84.4	5.4	20		11	23.9
PS200201	1188	09/28/02	54.28389	-165.81688	85.2	5.5	20		14	33.6
PS200201	1189	09/28/02	54.30435	-165.88337	103.3	5.5	20		27	73.5
PS200201	1190	09/28/02	54.30213	-165.88818	103.5	5.5	20		35	85.7
PS200201	1191	09/28/02	54.29994	-165.89278	104.4	5.6	20		5	10.9
PS200201	1192	09/28/02	54.29756	-165.89712	104.4	5.6	20		19	49.6
PS200201	1193	09/28/02	54.29516	-165.90136	104.9	5.6	20		9	21.2
PS200201	1194	09/28/02	54.29284	-165.90577	104.4	5.7	20		18	49.1
PS200201	1195	09/28/02	54.29051	-165.91000	102.9	5.7	20		17	42.0
PS200201	1196	09/28/02	54.28817	-165.91450	103.6	5.7	20		14	31.3
PS200201	1197	09/28/02	54.28581	-165.91922	103.8	5.8	20		23	57.1
PS200201	1198	09/28/02	54.28360	-165.92358	102.9	5.8	20		19	58.4
PS200201	1199	09/28/02	54.17160	-166.18687	102.4	21.3	10		13	32.7
PS200201	1200	09/28/02	54.16613	-166.19799	102.7	21.1	10		13	25.8
PS200201	1201	09/28/02	54.16079	-166.20959	103.8	20.9	10		16	41.1
PS200201	1202	09/28/02	54.15534	-166.22022	101.3	20.8	10		5	13.6
PS200201	1203	09/28/02	54.15175	-166.23262	99.6	20.6	10		8	19.6
PS200201	1204	09/29/02	54.28393	-165.92434	103.5	14.5	20		20	51.9
PS200201	1205	09/29/02	54.28664	-165.91958	104.2	14.4	20		13	28.1
PS200201	1206	09/29/02	54.28906	-165.91488	104.7	14.3	20		5	13.2
PS200201	1207	09/29/02	54.29142	-165.90966	104.9	14.2	20		15	39.4
PS200201	1208	09/29/02	54.29380	-165.90457	104.7	14.1	20		5	18.4
PS200201	1209	09/29/02	54.29627	-165.89923	104.7	14.0	20		8	19.6
PS200201	1210	09/29/02	54.29818	-165.89463	104.6	13.9	20		7	16.0
PS200201	1211	09/29/02	54.30008	-165.88979	104.0	13.8	20		13	34.8
PS200201	1212	09/29/02	54.30202	-165.88469	103.5	13.6	20		11	34.5
PS200201	1213	09/29/02	54.30394	-165.87975	103.1	13.6	20		7	13.9
PS200201	1214	09/29/02	54.29561	-165.85688	91.4	13.1	20		4	9.9
PS200201	1215	09/29/02	54.29814	-165.85247	94.1	12.9	20		26	74.9
PS200201	1216	09/29/02	54.30044	-165.84817	94.0	12.8	20		26	73.8
PS200201	1217	09/29/02	54.30268	-165.84381	94.1	12.7	20		13	55.4
PS200201	1218	09/29/02	54.30493	-165.83942	93.6	12.6	20		23	51.6
PS200201	1219	09/29/02	54.30722	-165.83491	95.0	12.5	20		24	57.8
PS200201	1220	09/29/02	54.30955	-165.83022	95.2	12.4	20		37	133.4
PS200201	1221	09/29/02	54.31175	-165.82566	94.5	12.3	20		15	53.2
PS200201	1222	09/29/02	54.31387	-165.82115	92.9	12.2	20		7	22.0
PS200201	1223	09/29/02	54.31609	-165.81627	95.0	12.1	20		15	55.7
PS200201	1224	09/29/02	54.34122	-165.73381	92.1	14.8	20		9	20.9
PS200201	1225	09/29/02	54.34333	-165.72927	92.5	14.8	20		14	43.8
PS200201	1226	09/29/02	54.34587	-165.72307	92.5	14.8	20		12	31.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1227	09/29/02	54.34814	-165.71786	93.6	14.9	20		14	28.1
PS200201	1228	09/29/02	54.35015	-165.71298	89.4	14.9	20		12	42.0
PS200201	1229	09/29/02	54.35245	-165.70765	94.7	14.9	20		16	48.8
PS200201	1230	09/29/02	54.35457	-165.70279	95.2	15.0	20		13	30.2
PS200201	1231	09/29/02	54.35657	-165.69824	95.0	15.0	20		9	22.3
PS200201	1232	09/29/02	54.35866	-165.69361	94.5	15.1	20		17	51.1
PS200201	1233	09/29/02	54.36074	-165.68920	94.3	15.1	20		9	18.1
PS200201	1234	09/29/02	54.36962	-165.70034	97.2	16.4	20		5	8.8
PS200201	1235	09/29/02	54.36767	-165.70565	96.3	16.3	20		7	15.1
PS200201	1236	09/29/02	54.36507	-165.71208	96.5	16.2	20		7	19.3
PS200201	1237	09/29/02	54.36300	-165.71717	97.8	15.7	20		3	4.1
PS200201	1238	09/29/02	54.36085	-165.72253	98.2	15.8	20		9	24.8
PS200201	1239	09/29/02	54.35882	-165.72722	98.9	15.6	20		0	0.0
PS200201	1240	09/29/02	54.35691	-165.73206	100.7	15.5	20		9	27.2
PS200201	1241	09/29/02	54.35490	-165.73679	99.8	15.3	20		1	0.8
PS200201	1242	09/29/02	54.35297	-165.74163	101.8	15.2	20		11	27.2
PS200201	1243	09/29/02	54.35103	-165.74616	99.8	15.1	20		10	40.2
PS200201	1244	09/30/02	54.28382	-165.92639	102.7	5.5	20		12	31.5
PS200201	1245	09/30/02	54.28562	-165.92160	103.1	5.5	20		6	12.6
PS200201	1246	09/30/02	54.28775	-165.91667	103.3	5.6	20		4	9.7
PS200201	1247	09/30/02	54.29037	-165.91171	104.2	5.6	20		8	20.1
PS200201	1248	09/30/02	54.29278	-165.90611	104.4	5.6	20		18	50.7
PS200201	1249	09/30/02	54.29500	-165.90141	104.0	5.6	20		6	17.5
PS200201	1250	09/30/02	54.29678	-165.89568	103.3	5.6	20		10	28.4
PS200201	1251	09/30/02	54.29839	-165.89215	102.9	5.6	20		11	30.4
PS200201	1252	09/30/02	54.30124	-165.88605	102.5	5.7	20		7	15.9
PS200201	1253	09/30/02	54.30305	-165.88101	101.8	5.7	20		14	40.8
PS200201	1254	09/30/02	54.29499	-165.85833	93.0	7.6	20		11	37.9
PS200201	1255	09/30/02	54.29656	-165.85375	92.7	7.6	20		11	38.2
PS200201	1256	09/30/02	54.29940	-165.84964	93.0	7.7	20		3	9.1
PS200201	1257	09/30/02	54.30156	-165.84439	93.4	7.7	20		9	25.7
PS200201	1258	09/30/02	54.30362	-165.84045	92.5	7.7	20		20	66.7
PS200201	1259	09/30/02	54.30617	-165.83602	92.9	7.7	20		10	27.8
PS200201	1260	09/30/02	54.30817	-165.83221	93.6	7.7	20		8	23.2
PS200201	1261	09/30/02	54.31125	-165.82740	94.3	7.8	20		4	10.7
PS200201	1262	09/30/02	54.31331	-165.82230	92.3	7.8	20		4	15.4
PS200201	1263	09/30/02	54.31602	-165.81859	94.0	7.8	20		9	35.3
PS200201	1264	09/30/02	54.34280	-165.73259	91.4	6.2	20		3	15.0
PS200201	1265	09/30/02	54.34563	-165.72631	92.7	6.2	20		6	24.1
PS200201	1266	09/30/02	54.34811	-165.72120	93.0	6.2	20		11	42.0
PS200201	1267	09/30/02	54.35044	-165.71578	94.3	6.2	20		9	22.2
PS200201	1268	09/30/02	54.35210	-165.71140	94.3	6.2	20		9	24.3

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1269	09/30/02	54.35434	-165.70680	93.8	6.2	20		15	41.4
PS200201	1270	09/30/02	54.35700	-165.70009	94.9	6.2	20		6	23.1
PS200201	1271	09/30/02	54.35887	-165.69623	93.4	6.2	20		17	45.9
PS200201	1272	09/30/02	54.36046	-165.69276	93.8	6.3	20		5	8.9
PS200201	1273	09/30/02	54.36248	-165.68873	92.9	6.2	20		10	29.6
PS200201	1274	09/30/02	54.37234	-165.69959	101.3	5.3	20		0	0.0
PS200201	1275	09/30/02	54.37019	-165.70473	99.1	5.4	20		7	21.5
PS200201	1276	09/30/02	54.36791	-165.70972	98.2	5.6	20		7	25.2
PS200201	1277	09/30/02	54.36572	-165.71437	96.7	5.7	20		9	19.8
PS200201	1278	09/30/02	54.36334	-165.71899	95.4	5.9	20		16	36.3
PS200201	1279	09/30/02	54.36036	-165.72593	97.6	6.3	20		3	6.4
PS200201	1280	09/30/02	54.35904	-165.73078	98.9	6.5	20		7	16.4
PS200201	1281	09/30/02	54.35733	-165.73424	100.0	6.7	20		9	23.2
PS200201	1282	09/30/02	54.35491	-165.73990	101.6	6.9	20		12	32.1
PS200201	1283	09/30/02	54.35321	-165.74465	102.4	7.0	20		13	35.5
PS200201	1284	09/30/02	54.31700	-165.73214	83.5	12.5	20		3	8.6
PS200201	1285	09/30/02	54.32184	-165.74287	88.1	12.3	20		14	32.3
PS200201	1286	09/30/02	54.32715	-165.75428	89.6	12.1	20		5	9.2
PS200201	1287	09/30/02	54.33318	-165.76513	93.0	11.9	20		4	12.3
PS200201	1288	09/30/02	54.33959	-165.77537	98.0	11.7	20		8	28.5
PS200201	1289	10/01/02	55.08840	-164.77120	95.2	11.0	40		9	39.3
PS200201	1290	10/01/02	55.09231	-164.75910	94.7	10.8	40		12	67.4
PS200201	1291	10/01/02	55.09767	-164.74689	94.9	10.6	40		17	78.4
PS200201	1292	10/01/02	55.10304	-164.73524	94.9	10.5	40		34	143.9
PS200201	1293	10/01/02	55.10830	-164.72354	91.9	10.3	40		29	107.5
PS200201	1294	10/01/02	55.11327	-164.71245	93.4	9.1	40		9	38.3
PS200201	1295	10/01/02	55.11528	-164.70729	93.8	9.0	40		17	74.0
PS200201	1296	10/01/02	55.11731	-164.70194	93.6	8.9	40		13	58.5
PS200201	1297	10/01/02	55.11928	-164.69685	94.0	8.8	40		8	38.9
PS200201	1298	10/01/02	55.12126	-164.69176	93.4	8.7	40		9	25.6
PS200201	1299	10/01/02	55.12312	-164.68687	93.6	8.7	40		7	27.1
PS200201	1300	10/01/02	55.12605	-164.67989	94.0	8.5	40		11	47.1
PS200201	1301	10/01/02	55.12759	-164.67456	93.0	8.4	40		11	67.5
PS200201	1302	10/01/02	55.12960	-164.66902	94.0	8.4	40		14	47.7
PS200201	1303	10/01/02	55.13148	-164.66399	94.0	8.3	40		10	43.2
PS200201	1304	10/01/02	55.15628	-164.67658	96.9	7.1	40		16	59.8
PS200201	1305	10/01/02	55.15394	-164.68209	96.9	7.1	40		24	99.6
PS200201	1306	10/01/02	55.15176	-164.68695	96.3	7.1	40		18	68.3
PS200201	1307	10/01/02	55.14941	-164.69208	96.7	7.2	40		15	79.6
PS200201	1308	10/01/02	55.14680	-164.69774	96.9	7.2	40		15	63.7
PS200201	1309	10/01/02	55.14430	-164.70350	96.3	7.2	40		28	117.9
PS200201	1310	10/01/02	55.14176	-164.70915	97.6	7.3	40		17	77.1

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1311	10/01/02	55.13898	-164.71522	97.1	7.3	40		18	98.3
PS200201	1312	10/01/02	55.13667	-164.71985	97.4	7.3	40		16	75.5
PS200201	1313	10/01/02	55.13422	-164.72527	97.4	7.3	40		16	67.6
PS200201	1314	10/01/02	55.12299	-164.75138	98.3	8.4	40		21	94.8
PS200201	1315	10/01/02	55.12086	-164.75605	97.2	8.4	40		18	71.1
PS200201	1316	10/01/02	55.11875	-164.76116	98.2	8.4	40		9	52.0
PS200201	1317	10/01/02	55.11659	-164.76629	97.8	8.4	40		12	70.4
PS200201	1318	10/01/02	55.11408	-164.77244	98.2		40			
PS200201	1319	10/01/02	55.11200	-164.77722	98.2	8.5	40		9	50.3
PS200201	1320	10/01/02	55.10926	-164.78379	97.8	8.5	40		6	39.6
PS200201	1321	10/01/02	55.10714	-164.78862	98.0	8.5	40		11	55.2
PS200201	1322	10/01/02	55.10526	-164.79322	98.2	8.6	40		23	84.9
PS200201	1323	10/01/02	55.10294	-164.79906	98.2	8.6	40		15	78.2
PS200201	1324	10/02/02	55.12796	-164.71286	96.9	11.7	40		17	95.63
PS200201	1325	10/02/02	55.12274	-164.72328	97.4	11.7	40		21	73.37
PS200201	1326	10/02/02	55.11894	-164.73248	97.2	11.7	40		16	75.59
PS200201	1327	10/02/02	55.12391	-164.75054	99.1	3.1	40		9	40.11
PS200201	1328	10/02/02	55.12100	-164.75731	98.9	3.0	40		4	12.5
PS200201	1329	10/02/02	55.11915	-164.76202	99.1	2.9	40		9	50.5
PS200201	1330	10/02/02	55.11724	-164.76711	99.3	2.8	40		6	21.66
PS200201	1331	10/02/02	55.11551	-164.77172	99.4	2.7	40		5	14.75
PS200201	1332	10/02/02	55.10618	-164.73207	95.8	3.5	40		11	35.2
PS200201	1333	10/02/02	55.10843	-164.72670	95.2	3.1	40		11	56.2
PS200201	1334	10/02/02	55.11119	-164.72224	95.2	3.2	40		7	35.6
PS200201	1335	10/02/02	55.11259	-164.71679	94.9	3.2	40		12	48.1
PS200201	1336	10/02/02	55.11434	-164.71037	95.0	3.2	40		10	44.2
PS200201	1337	10/02/02	55.14344	-164.70576	97.4	3.3	40		10	41.0
PS200201	1338	10/02/02	55.14017	-164.71254	97.1	3.2	40		6	23.5
PS200201	1339	10/02/02	55.13810	-164.71663	98.0	3.1	40		0	0.0
PS200201	1340	10/02/02	55.13610	-164.72072	98.0	3.0	40		1	4.7
PS200201	1341	10/02/02	55.13387	-164.72523	97.8	2.9	40		2	11.0
PS200201	1342	10/02/02	55.11638	-164.76978	98.7	3.0	40		14	70.5
PS200201	1343	10/02/02	55.11871	-164.76353	99.1	3.0	40		9	40.8
PS200201	1344	10/02/02	55.12053	-164.75896	98.7	3.0	40		6	24.8
PS200201	1345	10/02/02	55.12247	-164.75553	98.3	3.0	40		0	0.0
PS200201	1346	10/02/02	55.12418	-164.75023	98.3	3.0	40		21	123.3
PS200201	1347	10/02/02	55.10795	-164.72871	94.0	2.9	40		3	18.3
PS200201	1348	10/02/02	55.11063	-164.72438	94.0	2.9	40		0	0.0
PS200201	1349	10/02/02	55.11204	-164.71915	94.1	2.9	40		8	49.4
PS200201	1350	10/02/02	55.11344	-164.71325	93.6	2.9	40		7	28.6
PS200201	1351	10/02/02	55.11562	-164.70751	93.8	2.9	40		1	1.1
PS200201	1352	10/02/02	55.13541	-164.72334	97.4	2.9	40		6	36.0

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1353	10/02/02	55.13752	-164.71918	97.1	2.9	40		5	28.8
PS200201	1354	10/02/02	55.13967	-164.71517	97.1	2.9	40		9	39.3
PS200201	1355	10/02/02	55.14208	-164.70996	96.7	2.9	40		2	6.9
PS200201	1356	10/02/02	55.14465	-164.70466	96.7	2.9	40		5	22.3
PS200201	1357	10/02/02	55.11814	-164.76667	98.2	2.8	40		6	28.1
PS200201	1358	10/02/02	55.11957	-164.76255	98.0	2.9	40		7	34.4
PS200201	1359	10/02/02	55.12190	-164.75824	98.2	2.8	40		5	35.5
PS200201	1360	10/02/02	55.12352	-164.75351	97.6	2.9	40		4	25.8
PS200201	1361	10/02/02	55.12579	-164.74903	97.2	2.9	40		8	47.8
PS200201	1362	10/02/02	55.10885	-164.72805	94.3	2.9	40		12	57.3
PS200201	1363	10/02/02	55.11150	-164.72203	94.0	2.9	40		9	43.1
PS200201	1364	10/02/02	55.11290	-164.71584	93.6	3.0	40		6	29.2
PS200201	1365	10/02/02	55.11490	-164.71050	93.4	3.0	40		16	94.2
PS200201	1366	10/02/02	55.11606	-164.70577	93.2	3.0	40		7	50.5
PS200201	1367	10/02/02	55.13715	-164.72130	97.1	3.3	40		16	95.2
PS200201	1368	10/02/02	55.13914	-164.71824	97.1	3.2	40		13	67.0
PS200201	1369	10/02/02	55.14181	-164.71278	96.1	3.1	40		7	35.3
PS200201	1370	10/02/02	55.14399	-164.70856	92.9	2.9	40		5	26.8
PS200201	1371	10/02/02	55.14601	-164.70280	94.1	2.7	40		8	49.1
PS200201	1372	10/02/02	55.12504	-164.71862	96.9	24.3	40		33	183.66
PS200201	1373	10/02/02	55.12082	-164.72780	97.1	24.1	40		28	130.49
PS200201	1374	10/02/02	55.11969	-164.76532	98.5	15.8	40		21	119.3
PS200201	1375	10/02/02	55.12204	-164.76190	98.7	15.6	40		7	30.8
PS200201	1376	10/02/02	55.12329	-164.75727	98.0	15.5	40		12	42.7
PS200201	1377	10/02/02	55.12507	-164.75254	97.6	15.3	40		13	70.9
PS200201	1378	10/02/02	55.12686	-164.74783	97.1	15.2	40		16	80.5
PS200201	1379	10/02/02	55.11135	-164.72485	94.9	15.5	40		21	108.6
PS200201	1380	10/02/02	55.11361	-164.71934	95.0	15.4	40		7	26.0
PS200201	1381	10/02/02	55.11522	-164.71311	94.5	15.2	40		23	150.6
PS200201	1382	10/02/02	55.11721	-164.70868	94.9	15.1	40		17	99.9
PS200201	1383	10/02/02	55.11868	-164.70413	94.9	14.9	40		26	170.7
PS200201	1384	10/02/02	55.14555	-164.70467	97.8	15.0	40		15	78.0
PS200201	1385	10/02/02	55.14322	-164.71010	97.6	15.0	40		11	63.0
PS200201	1386	10/02/02	55.14069	-164.71628	97.4	15.0	40		18	93.8
PS200201	1387	10/02/02	55.13828	-164.71930	98.0	15.0	40		17	79.8
PS200201	1388	10/02/02	55.13583	-164.72277	95.8	15.1	40		12	66.0
PS200201	1389	10/03/02	55.14162	-164.71408	96.9	2.8	40		7	39.3
PS200201	1390	10/03/02	55.14385	-164.71047	95.2	2.9	40		10	41.7
PS200201	1391	10/03/02	55.14559	-164.70674	95.8	2.9	40		12	38.5
PS200201	1392	10/03/02	55.11747	-164.74168	98.2	11.8	40		32	155.69
PS200201	1393	10/03/02	55.11947	-164.73375	97.8	11.6	40		3	19.23
PS200201	1394	10/03/02	55.11565	-164.77131	99.4	2.1	40		6	18

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1395	10/03/02	55.11779	-164.76654	99.6	2.1	40		3	14.19
PS200201	1396	10/03/02	55.12005	-164.76231	99.6	2.2	40		7	11.87
PS200201	1397	10/03/02	55.12216	-164.75823	99.8	2.2	40		6	39.82
PS200201	1398	10/03/02	55.12466	-164.75348	99.4	2.2	40		4	15.66
PS200201	1399	10/03/02	55.10778	-164.73400	96.0	2.3	40		6	18.2
PS200201	1400	10/03/02	55.10973	-164.72887	95.8	2.3	40		3	10.3
PS200201	1401	10/03/02	55.11147	-164.72363	95.4	2.3	40		3	21.4
PS200201	1402	10/03/02	55.11344	-164.71788	95.4	2.4	40		10	43.1
PS200201	1403	10/03/02	55.11526	-164.71256	95.2	2.4	40		12	37.8
PS200201	1404	10/03/02	55.13441	-164.72295	98.0	2.4	40		0	0.0
PS200201	1405	10/03/02	55.13664	-164.71946	98.0	2.5	40		7	41.3
PS200201	1406	10/03/02	55.13878	-164.71553	98.0	2.5	40		12	48.6
PS200201	1407	10/03/02	55.14099	-164.71134	97.8	2.5	40		5	16.1
PS200201	1408	10/03/02	55.14305	-164.70715	97.8	2.6	40		3	21.4
PS200201	1409	10/03/02	55.11699	-164.76864	99.3	2.8	40		13	58.5
PS200201	1410	10/03/02	55.11913	-164.76519	99.3	2.8	40		7	36.4
PS200201	1411	10/03/02	55.12129	-164.76165	99.3	2.8	40		6	44.2
PS200201	1412	10/03/02	55.12310	-164.75746	99.1	2.8	40		11	44.3
PS200201	1413	10/03/02	55.12593	-164.75346	99.1	2.8	40		0	0.0
PS200201	1414	10/03/02	55.10889	-164.73133	95.2	3.0	40		15	80.5
PS200201	1415	10/03/02	55.11082	-164.72677	95.0	3.0	40		8	29.4
PS200201	1416	10/03/02	55.11245	-164.72156	94.9	3.0	40		12	66.0
PS200201	1417	10/03/02	55.11463	-164.71519	94.7	3.0	40		12	68.9
PS200201	1418	10/03/02	55.11670	-164.71177	94.7	2.9	40		12	74.8
PS200201	1419	10/03/02	55.13525	-164.72209	97.2	2.9	40		0	0.0
PS200201	1420	10/03/02	55.13818	-164.71964	97.2	2.9	40		5	25.0
PS200201	1421	10/03/02	55.14024	-164.71480	97.2	2.9	40		9	58.4
PS200201	1422	10/03/02	55.14201	-164.71101	97.2	2.9	40		4	21.1
PS200201	1423	10/03/02	55.14441	-164.70788	96.9	2.9	40		12	61.6
PS200201	1424	10/03/02	55.11789	-164.76912	98.3	2.9	40		18	109.6
PS200201	1425	10/03/02	55.12031	-164.76553	98.5	2.9	40		9	52.9
PS200201	1426	10/03/02	55.12226	-164.76209	98.5	3.4	40		10	53.9
PS200201	1427	10/03/02	55.12453	-164.75789	98.3	3.4	40		7	20.7
PS200201	1428	10/03/02	55.12605	-164.75330	98.3	3.4	40		1	6.1
PS200201	1429	10/03/02	55.11078	-164.72833		2.9	40		4	24.5
PS200201	1430	10/03/02	55.11179	-164.72456	94.3	2.9	40		3	11.1
PS200201	1431	10/03/02	55.11345	-164.72089	94.3	2.9	40		9	39.0
PS200201	1432	10/03/02	55.11590	-164.71579	94.3	2.9	40		6	31.3
PS200201	1433	10/03/02	55.11744	-164.71156	94.5	2.9	40		8	44.6
PS200201	1434	10/03/02	55.13751	-164.72245	96.5	2.8	40		2	9.0
PS200201	1435	10/03/02	55.13942	-164.71863	97.1	2.8	40		12	72.2
PS200201	1436	10/03/02	55.12141	-164.72635	96.7	12.7	40		23	114.54

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1437	10/03/02	55.11952	-164.73063	97.1	12.5	40		14	82.32
PS200201	1438	10/03/02	55.12028	-164.76831	98.5	15.9	40		24	126.6
PS200201	1439	10/03/02	55.12269	-164.76454	99.3	15.3	40		17	79.9
PS200201	1440	10/03/02	55.12474	-164.75998	96.7	15.1	40		32	179.76
PS200201	1441	10/03/02	55.12604	-164.75610	98.3	14.9	40		20	89.24
PS200201	1442	10/03/02	55.12769	-164.75204	98.3	14.8	40		32	177.88
PS200201	1443	10/03/02	55.11128	-164.72842	95.0	15.2	40		15	58.05
PS200201	1444	10/03/02	55.11363	-164.72292	95.2	15.2	40		13	74.15
PS200201	1445	10/03/02	55.11579	-164.71780	95.2	15.2	40		20	119.03
PS200201	1446	10/03/02	55.11714	-164.71344	95.2	15.3	40		14	77.16
PS200201	1447	10/03/02	55.11926	-164.70984	95.4	15.3	40		16	73.43
PS200201	1448	10/03/02	55.13890	-164.72043	98.0	14.9	40		14	69.87
PS200201	1449	10/03/02	55.14089	-164.71598	97.6	15.0	40		16	70.28
PS200201	1450	10/03/02	55.14290	-164.71238	98.0	15.0	40		21	118.58
PS200201	1451	10/03/02	55.14534	-164.70849	97.8	15.0	40		8	38.08
PS200201	1452	10/03/02	55.14753	-164.70445	97.6	15.0	40		22	126.43
PS200201	1453	10/04/02	55.12592	-164.71850	97.2	11.4	40		25	106.7
PS200201	1454	10/04/02	55.12293	-164.72323	97.2	11.5	40		17	65.4
PS200201	1455	10/04/02	55.12626	-164.75105	100.0	2.7	40		7	19.69
PS200201	1456	10/04/02	55.12477	-164.75613	99.8	2.5	40		3	15.7
PS200201	1457	10/04/02	55.12313	-164.76045	99.8	2.3	40		4	29.04
PS200201	1458	10/04/02	55.12156	-164.76534	100.2	2.1	40		5	26.8
PS200201	1459	10/04/02	55.11943	-164.76992	100.2	2.0	40		2	8.4
PS200201	1460	10/04/02	55.11190	-164.72630	95.8	2.8	40		6	18.1
PS200201	1461	10/04/02	55.11372	-164.72011	96.1	2.8	40		11	25.9
PS200201	1462	10/04/02				2.9	40		3	10.5
PS200201	1463	10/04/02	55.11666	-164.71070	95.8	2.7	40		8	28.8
PS200201	1464	10/04/02	55.11868	-164.70618	95.6	2.6	40		6	18.7
PS200201	1465	10/04/02				2.9	40		2	6.5
PS200201	1466	10/04/02	55.14175	-164.71406	97.4	2.9	40		0	0.0
PS200201	1467	10/04/02	55.14404	-164.71036	98.9	2.9	40		13	48.8
PS200201	1468	10/04/02	55.14645	-164.70619	98.5	2.8	40		1	4.2
PS200201	1469	10/04/02	55.14875	-164.70232	98.2	2.8	40		6	20.2
PS200201	1470	10/04/02	55.12145	-164.76683	100.0	3.0	40		2	5.5
PS200201	1471	10/04/02	55.12370	-164.76237	99.8	3.0	40		12	69.3
PS200201	1472	10/04/02	55.12559	-164.75755	99.6	3.0	40		16	83.9
PS200201	1473	10/04/02	55.12741	-164.75323	99.6	3.0	40		7	29.5
PS200201	1474	10/04/02	55.12919	-164.74792	99.1	2.9	40		12	66.4
PS200201	1475	10/04/02	55.11406	-164.72375	95.0	2.9	40		17	49.2
PS200201	1476	10/04/02	55.11566	-164.71870	95.8	2.9	40		15	61.7
PS200201	1477	10/04/02	55.11769	-164.71458	95.4	2.8	40		13	58.0
PS200201	1478	10/04/02	55.11891	-164.70945	95.2	2.8	40		18	54.9

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1479	10/04/02	55.12047	-164.70558	95.8	2.8	40		7	22.6
PS200201	1480	10/04/02	55.14136	-164.71676	98.7	3.0	40		10	49.7
PS200201	1481	10/04/02	55.14355	-164.71261	97.8	2.9	40		12	58.3
PS200201	1482	10/04/02	55.14584	-164.70858	98.7	2.9	40		24	105.6
PS200201	1483	10/04/02	55.14826	-164.70463	97.8	2.9	40		15	70.4
PS200201	1484	10/04/02	55.15008	-164.70025	97.6	3.0	40		16	96.6
PS200201	1485	10/04/02	55.12235	-164.76560	98.3	3.0	40		17	72.3
PS200201	1486	10/04/02	55.12454	-164.76122	97.8	3.1	40		6	27.8
PS200201	1487	10/04/02	55.12633	-164.75642	97.8	3.1	40		12	58.6
PS200201	1488	10/04/02	55.12842	-164.75141	98.5	3.1	40		5	28.7
PS200201	1489	10/04/02	55.13054	-164.74710	97.8	3.1	40		17	85.0
PS200201	1490	10/04/02	55.11518	-164.72216	95.0	2.9	40		9	24.6
PS200201	1491	10/04/02	55.11704	-164.71799	94.9	2.9	40		11	40.5
PS200201	1492	10/04/02	55.11898	-164.71295	95.4	2.9	40		15	28.4
PS200201	1493	10/04/02	55.12045	-164.70826	94.5	2.9	40		6	13.2
PS200201	1494	10/04/02	55.12200	-164.70372	94.1	2.9	40		5	24.6
PS200201	1495	10/04/02	55.14208	-164.71591	97.4	3.2	40		11	47.4
PS200201	1496	10/04/02	55.14495	-164.71231	97.1	3.0	40		14	56.6
PS200201	1497	10/04/02	55.14655	-164.70798	96.7	2.9	40		9	29.8
PS200201	1498	10/04/02	55.14914	-164.70443	97.2	2.8	40		15	73.2
PS200201	1499	10/04/02	55.15118	-164.70069	96.7	2.6	40		8	32.9
PS200201	1500	10/04/02	55.11650	-164.71984	95.4	15.0	40		16	70.55
PS200201	1501	10/04/02	55.11902	-164.71609	95.8	15.1	40		20	76.56
PS200201	1502	10/04/02	55.12085	-164.71205	95.2	15.2	40		22	94
PS200201	1503	10/04/02	55.12242	-164.70686	95.6	15.3	40		12	53.82
PS200201	1504	10/04/02	55.12425	-164.70249	94.7	15.3	40		20	75.43
PS200201	1505	10/04/02	55.15030	-164.70196	97.4	15.9	40		22	111.21
PS200201	1506	10/04/02	55.14816	-164.70630	98.0	15.9	40		31	167.12
PS200201	1507	10/04/02	55.14584	-164.71016	97.8	15.8	40		33	146.14
PS200201	1508	10/04/02	55.14363	-164.71431	98.0	15.9	40		24	106.55
PS200201	1509	10/04/02	55.14122	-164.71817	97.8	15.9	40		25	135.66
PS200201	1510	10/04/02	55.12350	-164.76459	98.9	15.4	40		29	153.2
PS200201	1511	10/04/02	55.12557	-164.76076	98.9	15.2	40		19	88.1
PS200201	1512	10/04/02	55.12759	-164.75572	98.9	15.0	40		11	52.7
PS200201	1513	10/04/02	55.12963	-164.75116	98.7	14.9	40		17	86.6
PS200201	1514	10/04/02	55.13221	-164.74710	97.8	14.7	40		11	36.9
PS200201	1515	10/04/02	55.12964	-164.70995	96.1	12.5	40		6	20.1
PS200201	1516	10/04/02	55.12764	-164.71440	96.7	12.4	40		22	96.6
PS200201	1517	10/05/02	55.12360	-164.71932	96.7	11.7	40		26	123.3
PS200201	1518	10/05/02	55.12626	-164.71825	97.1	11.6	40		15	31.1
PS200201	1519	10/05/02	55.12237	-164.71255	94.3	4.3	40		0	0.0
PS200201	1520	10/05/02	55.11654	-164.76727	99.6	3.2	40		7	32.18

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1521	10/05/02	55.11878	-164.76247	99.1	3.1	40		6	31.03
PS200201	1522	10/05/02	55.12076	-164.75754	99.8	3.0	40		7	46.97
PS200201	1523	10/05/02	55.12276	-164.75290	99.6	2.9	40		1	2.1
PS200201	1524	10/05/02	55.12528	-164.74671	99.8	2.8	40		7	55.6
PS200201	1525	10/05/02	55.10986	-164.71898	95.6	2.4	40		11	42.8
PS200201	1526	10/05/02	55.10823	-164.72395	95.6	2.4	40		4	20.2
PS200201	1527	10/05/02	55.10617	-164.72914	95.8	2.4	40		7	29.7
PS200201	1528	10/05/02	55.10415	-164.73386	95.8	2.5	40		3	4.4
PS200201	1529	10/05/02	55.10215	-164.73854	96.1	2.5	40		6	32.8
PS200201	1530	10/05/02	55.13869	-164.71821	98.5	1.7	40		4	14.6
PS200201	1531	10/05/02	55.14107	-164.71293	99.1	1.7	40		0	0.0
PS200201	1532	10/05/02	55.14316	-164.70782	98.3	1.7	40		2	13.8
PS200201	1533	10/05/02	55.14510	-164.70344	98.2	1.8	40		0	0.0
PS200201	1534	10/05/02	55.14708	-164.69895	98.2	1.8	40		1	3.8
PS200201	1535	10/05/02	55.12392	-164.75050	99.6	2.5	40		4	27.9
PS200201	1536	10/05/02	55.12160	-164.75465	99.6	2.4	40		13	56.0
PS200201	1537	10/05/02	55.11989	-164.75960	99.1	2.2	40		1	1.4
PS200201	1538	10/05/02	55.11823	-164.76428	100.4	2.1	40		1	3.3
PS200201	1539	10/05/02	55.11620	-164.76879	99.3	2.0	40		4	13.8
PS200201	1540	10/05/02	55.10911	-164.72153	95.4	3.0	40		10	55.2
PS200201	1541	10/05/02	55.10777	-164.72572	95.2	2.8	40		11	52.7
PS200201	1542	10/05/02	55.10590	-164.73076	95.0	2.7	40		8	33.0
PS200201	1543	10/05/02	55.10426	-164.73577	95.8	2.5	40		12	59.5
PS200201	1544	10/05/02	55.10234	-164.74081	96.9	2.4	40		0	0.0
PS200201	1545	10/05/02	55.14099	-164.71496	97.1	2.9	40		9	41.3
PS200201	1546	10/05/02	55.14276	-164.70979	97.8	2.9	40		8	33.1
PS200201	1547	10/05/02	55.14482	-164.70471	98.2	2.9	40		11	45.5
PS200201	1548	10/05/02	55.14684	-164.70008	97.8	2.9	40		9	37.2
PS200201	1549	10/05/02	55.14873	-164.69682	97.6	2.9	40		10	65.4
PS200201	1550	10/05/02	55.11821	-164.76708	97.8	2.9	40		12	78.3
PS200201	1551	10/05/02	55.12004	-164.76239	97.6	2.9	40		9	38.4
PS200201	1552	10/05/02	55.12155	-164.75764	98.3	3.0	40		2	4.7
PS200201	1553	10/05/02	55.12315	-164.75363	99.1	3.0	40		9	38.6
PS200201	1554	10/05/02	55.12504	-164.75035	98.5	3.0	40		6	22.9
PS200201	1555	10/05/02	55.10307	-164.73907	96.1	3.0	40		9	34.9
PS200201	1556	10/05/02	55.10539	-164.73476	95.4	3.0	40		10	41.8
PS200201	1557	10/05/02	55.10694	-164.73014	95.2	3.0	40		10	46.0
PS200201	1558	10/05/02	55.10873	-164.72422	94.0	3.0	40		1	7.4
PS200201	1559	10/05/02	55.11055	-164.71987	94.1	3.0	40		8	17.9
PS200201	1560	10/05/02	55.14178	-164.71275	97.4	3.2	40		9	34.7
PS200201	1561	10/05/02	55.14348	-164.70776	97.1	3.1	40		9	36.2
PS200201	1562	10/05/02	55.14556	-164.70332	96.9	2.9	40		7	22.9

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1563	10/05/02	55.14797	-164.69761	97.2	2.8	40		1	1.8
PS200201	1564	10/05/02	55.14944	-164.69496	96.7	2.7	40		7	16.2
PS200201	1565	10/05/02	55.12821	-164.70743	96.5	12.4	40		13	39.36
PS200201	1566	10/05/02	55.12671	-164.71204	95.6	12.4	40		10	36.15
PS200201	1567	10/05/02	55.10486	-164.73783	95.2	15.3	40		23	63.96
PS200201	1568	10/05/02	55.10619	-164.73286	95.4	15.1	40		16	72.3
PS200201	1569	10/05/02	55.10785	-164.72778	94.5	15.0	40		12	31.7
PS200201	1570	10/05/02	55.10980	-164.72312	95.4	14.9	40		10	25.55
PS200201	1571	10/05/02	55.11114	-164.71842	92.9	14.7	40		10	38.87
PS200201	1572	10/05/02	55.14773	-164.69671	97.4	15.0	40		19	81.52
PS200201	1573	10/05/02	55.14589	-164.70136	97.6	15.0	40		18	88.37
PS200201	1574	10/05/02	55.14384	-164.70554	97.4	15.0	40		21	87.29
PS200201	1575	10/05/02	55.14193	-164.71035	97.8	15.1	40		10	51.33
PS200201	1576	10/05/02	55.13976	-164.71448	98.0	15.1	40		10	48.04
PS200201	1577	10/05/02	55.11862	-164.76653	99.3	15.5	40		14	47.7
PS200201	1578	10/05/02	55.12026	-164.76202	97.6	15.4	40		20	66.9
PS200201	1579	10/05/02	55.12214	-164.75729	98.9	15.2	40		19	55.3
PS200201	1580	10/05/02	55.12421	-164.75300	99.1	15.0	40		12	56.2
PS200201	1581	10/05/02	55.12594	-164.74852	98.3	14.9	40		20	74.7
PS200201	1582	10/06/02	55.12267	-164.72233	96.4	36.9	40		33	107.3
PS200201	1583	10/06/02	55.12450	-164.73283	96.4	36.8	40		6	30.8
PS200201	1584	10/06/02	55.13683	-164.72100	98.8	34.3	40		22	74.3
PS200201	1585	10/06/02	55.13467	-164.72567	98.9	34.3	40		20	64.7
PS200201	1586	10/06/02	55.11867	-164.75033	99.3	26.8	40		7	17.2
PS200201	1587	10/06/02	55.12350	-164.75550	99.5	26.8	40		9	30.0
PS200201	1588	10/06/02	55.12167	-164.75950	99.7	26.8	40		3	4.2
PS200201	1589	10/06/02	55.12000	-164.76433	99.7	26.8	40		4	20.5
PS200201	1590	10/06/02	55.11783	-164.76933	98.9	26.8	40		9	17.6
PS200201	1591	10/06/02	55.11083	-164.71950	95.5	26.8	40		12	28.0
PS200201	1592	10/06/02	55.10933	-164.72650	96.0	26.8	40		6	11.7
PS200201	1593	10/06/02	55.10767	-164.72950	96.0	26.8	40		2	10.6
PS200201	1594	10/06/02	55.10617	-164.73417	96.4	26.8	40		7	23.4
PS200201	1595	10/06/02	55.10417	-164.73867	96.4	26.8	40		7	9.9
PS200201	1596	10/06/02	55.14700	-164.69867	98.0	26.9	40		6	15.8
PS200201	1597	10/06/02	55.14483	-164.71983	97.8	26.9	40		3	6.9
PS200201	1598	10/06/02	55.14300	-164.70783	98.6	26.9	40		4	15.5
PS200201	1599	10/06/02	55.14100	-164.71200	98.6	26.8	40		6	19.0
PS200201	1600	10/06/02	55.13867	-164.71650	98.6	26.8	40		5	25.7
PS200201	1601	10/06/02	55.12467	-164.75250	99.9	27.0	40		9	29.7
PS200201	1602	10/06/02	55.12300	-164.75700	99.3	27.0	40		8	23.4
PS200201	1603	10/06/02	55.12117	-164.76117	100.2	26.9	40		4	10.4
PS200201	1604	10/06/02	55.11933	-164.76667	99.9	27.0	40		8	21.6

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200201	1605	10/06/02	55.11733	-164.77100	100.2	26.9	40		6	6.5
PS200201	1606	10/06/02	55.11033	-164.72067	95.8	27.0	40		13	67.1
PS200201	1607	10/06/02	55.10883	-164.72567	96.0	27.0	40		6	16.1
PS200201	1608	10/06/02	55.10683	-164.73000	96.0	27.0	40		9	28.7
PS200201	1609	10/06/02	55.10533	-164.73483	96.6	27.0	40		6	38.6
PS200201	1610	10/06/02	55.10350	-164.73850	96.0	27.0	40		7	38.8
PS200201	1611	10/06/02	55.14633	-164.70100	98.4	26.9	40		2	6.7
PS200201	1612	10/06/02	55.14450	-164.70533	98.2	26.9	40		1	3.7
PS200201	1613	10/06/02	55.14283	-164.70967	98.6	26.9	40		4	18.5
PS200201	1614	10/06/02	55.14067	-164.71483	98.4	26.9	40		12	42.6
PS200201	1615	10/06/02	55.13850	-164.71950	98.9	26.9	40		5	10.3
PS200201	1616	10/06/02	55.12350	-164.75400	98.9	26.9	40		5	25.2
PS200201	1617	10/06/02	55.12150	-164.75900	98.9	26.9	40		5	19.0
PS200201	1618	10/06/02	55.11983	-164.76400	99.5	26.9	40		5	29.1
PS200201	1619	10/06/02	55.11800	-164.76800	99.7	26.8	40		4	15.8
PS200201	1620	10/06/02	55.11617	-164.77200	98.9	26.9	40		1	5.8
PS200201	1621	10/06/02	55.10933	-164.72383	94.9	27.2	40		15	58.0
PS200201	1622	10/06/02	55.10733	-164.72850	94.9	27.1	40		12	43.2
PS200201	1623	10/06/02	55.10533	-164.73367	94.9	27.0	40		9	31.8
PS200201	1624	10/06/02	55.10417	-164.73683	95.3	26.8	40		5	27.5
PS200201	1625	10/06/02	55.10233	-164.74167	95.5	26.6	40		6	20.4
PS200201	1626	10/06/02	55.14550	-164.70300	97.1	27.4	40		16	42.6
PS200201	1627	10/06/02	55.14350	-164.70750	97.5	27.2	40		9	20.3
PS200201	1628	10/06/02	55.14167	-164.71233	97.7	27.1	40		6	18.7
PS200201	1629	10/06/02	55.13900	-164.71700	98.0	26.9	40		8	19.7
PS200201	1630	10/06/02	55.13717	-164.72150	97.7	26.8	40		4	17.1
PS200201	1631	10/06/02	55.12083	-164.75717	98.2	26.9	40		8	34.0
PS200201	1632	10/06/02	55.11917	-164.76317	98.6	26.9	40		6	20.8
PS200201	1633	10/06/02	55.11717	-164.76733	98.8	26.9	40		9	45.9
PS200201	1634	10/06/02	55.11517	-164.77167	98.9	26.9	40		10	41.5
PS200201	1635	10/06/02	55.11333	-164.77767	46.7	26.9	40		7	28.3
PS200301	501	12/29/02	54.55473	-165.18173	77.3	3.2	1	2.8	26	122.8
PS200301	502	12/29/02	54.56157	-165.19490	78.0	3.3	1	2.7	25	141.9
PS200301	503	12/29/02	54.56780	-165.20783	80.4	3.3	1	2.6	19	101.5
PS200301	504	12/29/02	54.57405	-165.22093	82.2	3.6	1	2.5	15	86.9
PS200301	505	12/29/02	54.58469	-165.24262	83.7	3.7	2	2.4	16	77.1
PS200301	506	12/29/02	54.59102	-165.25568	82.4	3.8	2	2.3	19	89.3
PS200301	507	12/29/02	54.59740	-165.26909	77.1	3.9	2	2.2	8	25.5
PS200301	508	12/29/02	54.60433	-165.28304	82.4	4.0	2	2.1	8	40.2
PS200301	509	12/30/02	54.73457	-165.15652	94.9	5.5	2	13.1	2	6.7
PS200301	510	12/30/02	54.72775	-165.14330	87.2	5.6	2	13.2	3	5.7
PS200301	511	12/30/02	54.72160	-165.12940	81.4	5.6	2	13.3	11	43.5
PS200301	512	12/30/02	54.71500	-165.11653	78.8	5.6	2	13.4	5	23.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200301	513	12/30/02	54.70400	-165.09442	76.4	5.7	1	13.5	4	11.6
PS200301	514	12/30/02	54.69782	-165.08125	74.6	5.7	1	13.6	10	52.6
PS200301	515	12/30/02	54.69123	-165.06778	75.7	5.8	1	13.7	10	56.2
PS200301	516	12/30/02	54.68503	-165.05482	73.0	5.8	1	13.8	17	84.7
PS200301	517	12/30/02	54.65873	-165.10743	76.1	5.9	1	10.8	7	41.5
PS200301	518	12/30/02	54.66467	-165.12063	78.1	5.9	1	10.7	18	98.1
PS200301	519	12/30/02	54.67110	-165.13397	77.2	6.0	1	10.6	8	36.0
PS200301	520	12/30/02	54.67737	-165.14712	78.6	6.1	1	10.5	17	75.8
PS200301	521	12/30/02	54.68817	-165.16927	82.7	6.1	2	10.4	23	113.3
PS200301	522	12/30/02	54.69483	-165.18222	88.1	6.3	2	10.3	11	68.1
PS200301	523	12/30/02	54.70110	-165.19523	91.4	6.4	2	10.2	15	76.7
PS200301	524	12/30/02	54.70780	-165.20870	103.3	6.4	2	10.1	18	98.2
PS200301	525	12/30/02	54.67542	-165.24710	91.8	6.6	2	7.1	1	1.9
PS200301	526	12/30/02	54.66885	-165.23582	89.1	6.6	2	7.2	3	12.7
PS200301	527	12/30/02	54.66185	-165.22257	87.2	6.7	2	7.3	6	39.8
PS200301	528	12/30/02	54.65542	-165.20918	85.0	6.7	2	7.4	7	44.5
PS200301	529	12/30/02	54.64458	-165.18687	81.0	6.7	1	7.5	14	68.1
PS200301	530	12/30/02	54.63842	-165.17432	80.3	6.8	1	7.6	14	58.8
PS200301	531	12/30/02	54.63178	-165.16095	78.8	6.8	1	7.7	15	77.0
PS200301	532	12/30/02	54.62535	-165.14672	0.0	6.8	1	7.8	35	148.9
PS200301	533	12/30/02	54.58595	-165.17300	76.1	7.3	1	4.8	15	62.2
PS200301	534	12/30/02	54.59267	-165.18773	78.8	7.3	1	4.7	27	130.7
PS200301	535	12/30/02	54.59878	-165.19985	78.6	7.5	1	4.6		
PS200301	536	12/30/02	54.60570	-165.21340	80.5	7.5	1	4.5	17	75.6
PS200301	537	12/30/02	54.61602	-165.23483	81.0	7.6	2	4.4	18	92.4
PS200301	538	12/30/02	54.62265	-165.24808	82.1	7.7	2	4.3	20	67.2
PS200301	539	12/30/02	54.62888	-165.26157	83.0	7.7	2	4.2	15	90.2
PS200301	540	12/30/02	54.63527	-165.27467	87.1	7.7	2	4.1	14	48.9
PS200301	541	12/30/02	54.59177	-165.29308	80.1	7.9	2	1.1	24	133.8
PS200301	542	12/30/02	54.58575	-165.28072	83.2	7.9	2	1.2	21	86.7
PS200301	543	12/30/02	54.57948	-165.26763	83.9	7.9	2	1.3	18	86.9
PS200301	544	12/30/02	54.57260	-165.25467	96.9	8.0	2	1.4	3	18.9
PS200301	545	12/30/02	54.54802	-165.20335	95.6	8.0	1	1.5	16	61.5
PS200301	546	12/30/02	54.54147	-165.18998	87.4	8.1	1	1.6	27	148.6
PS200301	547	12/30/02	54.53497	-165.17700	85.6	8.1	1	1.7	32	172.7
PS200301	548	12/30/02	54.52838	-165.16363	85.0	8.1	1	1.8	40	225.8
PS200301	549	12/30/02	54.74156	-165.17040	107.3	33.9	4		44	225.9
PS200301	550	12/30/02	54.74540	-165.16471	105.5	34.0	4	NA	40	204.2
PS200301	551	12/30/02	54.74886	-165.16128	105.7	34.2	4	NA	35	166.8
PS200301	552	12/30/02	54.75234	-165.15708	105.5	34.3	4	NA	22	94.9
PS200301	553	12/31/02	54.74087	-165.17093	106.9	102.2	4	NA	28	
PS200301	554	12/31/02	54.74543	-165.16595	106.0	102.1	4	NA	36	
PS200301	555	12/31/02	54.74895	-165.16142	107.1	102.1	4	NA	37	
PS200301	556	01/01/03	54.73427	-165.15656	0.0	7.9	2	13.1	27	122.4
PS200301	557	01/01/03	54.72795	-165.14332	0.0	8.0	2	13.2	9	31.7
PS200301	558	01/01/03	54.72148	-165.12950	0.0	8.1	2	13.3	21	94.4
PS200301	559	01/01/03	54.71546	-165.11686	0.0	8.1	2	13.4	11	49.6

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200301	560	01/01/03	54.70467	-165.09460	0.0	8.2	1	13.5	24	137.3
PS200301	561	01/01/03	54.69760	-165.08113	0.0	8.2	1	13.6	12	66.7
PS200301	562	01/01/03	54.69119	-165.06767	0.0	8.3	1	13.7	9	37.9
PS200301	563	01/01/03	54.68478	-165.05464	0.0	8.3	1	13.8	15	86.0
PS200301	564	01/01/03	54.65834	-165.10758	0.0	9.7	1	10.8	18	88.5
PS200301	565	01/01/03	54.66446	-165.12078	0.0	9.5	1	10.7	17	75.4
PS200301	566	01/01/03	54.67106	-165.13377	0.0	9.3	1	10.6	21	112.3
PS200301	567	01/01/03	54.67722	-165.14657	0.0	9.1	1	10.5	13	57.6
PS200301	568	01/01/03	54.68818	-165.16917	0.0	8.8	2	10.4	16	53.7
PS200301	569	01/01/03	54.69461	-165.18261	0.0	8.6	2	10.3	22	76.0
PS200301	570	01/01/03	54.70111	-165.19580	0.0	8.4	2	10.2	21	84.1
PS200301	571	01/01/03	54.70776	-165.20883	0.0	8.2	2	10.1	17	86.1
PS200301	572	01/01/03	54.67465	-165.24855	0.0	10.1	2	7.1	9	33.4
PS200301	573	01/01/03	54.66822	-165.23539	0.0	10.0	2	7.2	15	63.4
PS200301	574	01/01/03	54.66187	-165.22226	0.0	9.7	2	7.3	17	58.8
PS200301	575	01/01/03	54.65535	-165.20923	0.0	9.5	2	7.4	5	18.9
PS200301	576	01/01/03	54.64476	-165.18745	0.0	9.2	1	7.5	31	134.7
PS200301	577	01/01/03	54.63826	-165.17392	0.0	9.0	1	7.6	29	124.6
PS200301	578	01/01/03	54.63185	-165.16074	0.0	8.8	1	7.7	18	71.4
PS200301	579	01/01/03	54.62547	-165.14768	0.0	8.6	1	7.8	28	116.4
PS200301	580	01/01/03	54.63501	-165.27549	0.0	9.3	2	4.1	21	89.3
PS200301	581	01/01/03	54.62880	-165.26165	0.0	9.4	2	4.2	9	35.1
PS200301	582	01/01/03	54.62246	-165.24873	0.0	9.4	2	4.3	13	43.7
PS200301	583	01/01/03	54.61588	-165.23529	0.0	9.5	2	4.4	14	58.8
PS200301	584	01/01/03	54.60514	-165.21312	0.0	9.5	1	4.5	21	94.2
PS200301	585	01/01/03	54.59878	-165.19987	0.0	9.6	1	4.6	31	141.0
PS200301	586	01/01/03	54.59207	-165.18655	0.0	9.6	1	4.7	10	45.5
PS200301	587	01/01/03	54.58590	-165.17362	0.0	9.7	1	4.8	25	94.5
PS200301	588	01/01/03	54.59207	-165.29378	0.0	9.8	2	1.1	28	125.4
PS200301	589	01/01/03	54.58567	-165.28071	0.0	9.6	2	1.2	39	139.3
PS200301	590	01/01/03	54.57939	-165.26751	0.0	9.4	2	1.3	48	217.6
PS200301	591	01/01/03	54.57280	-165.25389	0.0	9.1	2	1.4	31	132.9
PS200301	592	01/01/03	54.54781	-165.20299	0.0	8.5	1	1.5	33	160.1
PS200301	593	01/01/03	54.54139	-165.18978	0.0	8.2	1	1.6	19	99.8
PS200301	594	01/01/03	54.53493	-165.17702	0.0	8.0	1	1.7	28	144.4
PS200301	595	01/01/03	54.52866	-165.16345	0.0	7.8	1	1.8	23	108.9
PS200301	596	01/03/03	54.43904	-164.24645	136.2	3.9	80		14	
PS200301	597	01/03/03	54.44407	-164.24609	88.6	4.0	80		26	
PS200301	598	01/03/03	54.45009	-164.24592	87.2	4.1	80		34	
PS200301	599	01/03/03	54.45535	-164.24579	87.2	4.2	80		16	
PS200301	600	01/03/03	54.46044	-164.24730	116.6	4.3	80		21	
PS200301	601	01/03/03	54.48481	-164.14687	85.5	4.9	80		41	
PS200301	602	01/03/03	54.47969	-164.14437	106.0	4.7	80		29	
PS200301	603	01/03/03	54.47353	-164.14098	106.0	4.4	80		28	
PS200301	604	01/03/03	54.46822	-164.13760	106.0	4.2	80		27	
PS200301	605	01/03/03	54.46246	-164.13388	145.3	4.1	80		14	
PS200301	606	01/03/03	54.42799	-164.11178	127.6	5.8	80		32	

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200301	607	01/03/03	54.42203	-164.10795	136.4	5.5	80		17	
PS200301	608	01/03/03	54.41739	-164.10435	140.4	5.3	80		15	
PS200301	609	01/03/03	54.41267	-164.10017	140.4	5.2	80		27	
PS200301	610	01/03/03	54.40785	-164.09622	140.4	5.0	80		26	
PS200301	611	01/03/03	54.43762	-164.24691	136.2	4.0	80		34	
PS200301	612	01/04/03	54.61317	-165.15810	0.0	6.0	1	6.8	36	177.3
PS200301	613	01/04/03	54.61951	-165.17136	0.0	6.0	1	6.7	30	121.3
PS200301	614	01/04/03	54.62582	-165.18431	0.0	6.1	1	6.6	32	159.5
PS200301	615	01/04/03	54.63242	-165.19733	0.0	6.1	1	6.5	27	147.2
PS200301	616	01/04/03	54.64279	-165.21812	0.0	6.1	2	6.4	46	220.3
PS200301	617	01/04/03	54.64905	-165.23155	0.0	6.2	2	6.3	38	195.4
PS200301	618	01/04/03	54.65602	-165.24587	0.0	6.2	2	6.2	11	46.6
PS200301	619	01/04/03	54.66252	-165.25929	0.0	6.2	2	6.1	40	191.6
PS200301	620	01/04/03	54.67468	-165.24894	0.0	6.2	2	7.1	31	150.5
PS200301	621	01/04/03	54.66826	-165.23558	0.0	6.3	2	7.2	41	217.7
PS200301	622	01/04/03	54.66186	-165.22199	0.0	6.3	2	7.3	38	198.6
PS200301	623	01/04/03	54.65538	-165.20906	0.0	6.4	2	7.4	39	202.0
PS200301	624	01/04/03	54.64468	-165.18702	0.0	6.4	1	7.5	25	141.4
PS200301	625	01/04/03	54.63828	-165.17369	0.0	6.5	1	7.6	17	74.8
PS200301	626	01/04/03	54.63184	-165.16031	0.0	6.5	1	7.7	19	89.2
PS200301	627	01/04/03	54.62531	-165.14750	0.0	6.6	1	7.8	20	87.2
PS200301	628	01/04/03	54.63716	-165.13614	0.0	6.7	1	8.8	21	131.0
PS200301	629	01/04/03	54.64375	-165.14950	0.0	6.7	1	8.7	21	87.4
PS200301	630	01/04/03	54.65002	-165.16263	0.0	6.8	1	8.6	26	127.2
PS200301	631	01/04/03	54.65651	-165.17529	0.0	6.8	1	8.5	23	110.2
PS200301	632	01/04/03	54.66726	-165.19754	0.0	6.9	2	8.4	49	225.1
PS200301	633	01/04/03	54.67366	-165.21068	0.0	7.0	2	8.3	35	195.4
PS200301	634	01/04/03	54.68028	-165.22430	0.0	7.0	2	8.2	47	227.6
PS200301	635	01/04/03	54.68676	-165.23764	0.0	7.1	2	8.1	26	123.2
PS200301	636	01/04/03	54.69742	-165.22426	0.0	8.3	2	9.1	39	178.6
PS200301	637	01/04/03	54.69100	-165.21069	0.0	8.1	2	9.2	21	95.8
PS200301	638	01/04/03	54.68469	-165.19768	0.0	8.0	2	9.3	16	94.8
PS200301	639	01/04/03	54.67824	-165.18424	0.0	7.8	2	9.4	22	117.1
PS200301	640	01/04/03	54.66747	-165.16226	0.0	7.5	1	9.5	28	146.8
PS200301	641	01/04/03	54.66098	-165.14900	0.0	7.3	1	9.6	33	158.0
PS200301	642	01/04/03	54.65459	-165.13594	0.0	7.2	1	9.7	25	105.1
PS200301	643	01/04/03	54.64821	-165.12277	0.0	7.0	1	9.8	28	91.6
PS200301	644	01/04/03	54.65842	-165.10736	0.0	8.2	1	10.8	12	49.1
PS200301	645	01/04/03	54.66468	-165.12069	0.0	8.2	1	10.7	18	89.3
PS200301	646	01/04/03	54.67113	-165.13384	0.0	8.3	1	10.6	30	127.3
PS200301	647	01/04/03	54.67738	-165.14721	0.0	8.4	1	10.5	44	216.7
PS200301	648	01/04/03	54.68834	-165.16891	0.0	8.5	2	10.4	36	157.9
PS200301	649	01/04/03	54.69458	-165.18221	0.0	8.5	2	10.3	28	147.8
PS200301	650	01/04/03	54.70119	-165.19549	0.0	8.5	2	10.2	47	247.1
PS200301	651	01/04/03	54.70759	-165.20893	0.0	8.6	2	10.1	38	172.7
PS200301	652	01/03/03	54.44407	-164.24609	88.6	4.0	80		32	
PS200301	653	01/03/03	54.45009	-164.24592	87.2	4.0	80		16	

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200301	654	01/03/03	54.45535	-164.24579	87.2	4.0	80		7	
PS200301	655	01/03/03	54.46044	-164.24730	116.6	4.0	80		11	
PS200301	656	01/03/03	54.48481	-164.14687	85.5	3.8	80		23	
PS200301	657	01/03/03	54.47969	-164.14437	106.0	3.9	80		13	
PS200301	658	01/03/03	54.47353	-164.14098	106.0	3.9	80		9	
PS200301	659	01/03/03	54.46822	-164.13760	106.0	4.0	80		20	
PS200301	660	01/03/03	54.46246	-164.13388	145.3	3.9	80		25	
PS200302	701	02/05/03	54.56964	-165.28604	89.0	3.6	2		13	67.8
PS200302	702	02/05/03	54.57403	-165.29167	83.5	3.6	2		7	28.3
PS200302	703	02/05/03	54.57863	-165.29770	83.5	3.7	2		9	34.9
PS200302	704	02/05/03	54.58299	-165.30316	83.9	3.8	2		9	34.3
PS200302	705	02/05/03	54.61332	-165.15777	79.5	4.9	1	6.8	10	39.1
PS200302	706	02/05/03	54.61963	-165.17131	136.6	5.0	1	6.7	4	17.7
PS200302	707	02/05/03	54.62603	-165.18441		5.1	1	6.6	8	36.4
PS200302	708	02/05/03	54.63248	-165.19774		5.2	1	6.5	6	9.9
PS200302	709	02/05/03	54.64466	-165.18690	84.3	5.8	1	7.5	11	49.6
PS200302	710	02/05/03	54.63816	-165.17378	81.5	5.5	1	7.6	6	31.7
PS200302	711	02/05/03	54.63177	-165.16071	80.8	5.3	1	7.7	3	15.9
PS200302	712	02/05/03	54.62537	-165.14758	102.4	5.1	1	7.8	8	26.5
PS200302	713	02/05/03	54.63775	-165.13615		5.6	1	8.8	13	39.2
PS200302	714	02/05/03	54.64366	-165.14935	81.5	5.7	1	8.7	14	45.6
PS200302	715	02/05/03	54.65003	-165.16256		5.6	1	8.6	17	54.8
PS200302	716	02/05/03	54.65648	-165.17572	82.2	5.8	1	8.5	11	40.4
PS200302	717	02/05/03	54.66752	-165.16207	84.3	6.4	1	9.5	10	41.3
PS200302	718	02/05/03	54.66105	-165.14933	81.1	6.2	1	9.6	8	30.5
PS200302	719	02/05/03	54.65466	-165.13612	81.5	5.9	1	9.7	6	23.4
PS200302	720	02/05/03	54.64788	-165.12213	80.2	5.7	1	9.8	11	39.2
PS200302	721	02/05/03	54.65833	-165.10761	79.0	6.3	1	10.8	4	15.1
PS200302	722	02/05/03	54.66466	-165.12111	83.2	6.4	1	10.7	2	6.9
PS200302	723	02/05/03	54.67121	-165.13423	82.6	6.4	1	10.6	2	6.8
PS200302	724	02/05/03	54.67747	-165.14729	79.9	6.5	1	10.5	10	32.0
PS200302	725	02/06/03	54.61238	-165.15780		2.7	1	6.8	25	100.7
PS200302	726	02/06/03	54.61949	-165.17118	86.5	5.8	1	6.7	28	121.3
PS200302	727	02/06/03	54.62605	-165.18460	71.3	5.9	1	6.6	27	108.6
PS200302	728	02/06/03	54.63238	-165.19746		6.0	1	6.5	13	57.5
PS200302	729	02/06/03	54.64481	-165.18741	84.3	6.2	1	7.5	18	86.2
PS200302	730	02/06/03	54.63833	-165.17381	81.9	6.3	1	7.6	15	56.8
PS200302	731	02/06/03	54.63186	-165.16069		6.4	1	7.7	27	124.7
PS200302	732	02/06/03	54.62535	-165.14719	80.6	6.5	1	7.8	24	112.5
PS200302	733	02/06/03	54.65650	-165.17599	83.9	6.4	1	8.5	16	65.6
PS200302	734	02/06/03	54.65000	-165.16279	82.6	6.5	1	8.6	15	75.8
PS200302	735	02/06/03	54.64354	-165.14916	82.2	6.6	1	8.7	29	139.7
PS200302	736	02/06/03	54.63709	-165.13583	81.9	6.7	1	8.8	15	64.2
PS200302	737	02/06/03	54.66736	-165.16236	82.4	6.6	1	9.5	19	79.4
PS200302	738	02/06/03	54.66079	-165.14864	80.8	6.7	1	9.6	8	27.6
PS200302	739	02/06/03	54.65447	-165.13590	81.3	6.8	1	9.7	23	92.8
PS200302	740	02/06/03	54.64816	-165.12269	82.2	6.9	1	9.8	13	68.8

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	741	02/06/03	54.67745	-165.14703	82.2	6.8	1	10.5	20	71.3
PS200302	742	02/06/03	54.67069	-165.13341	80.4	6.9	1	10.6	23	98.9
PS200302	743	02/06/03	54.66465	-165.12066	79.9	6.9	1	10.7	15	67.9
PS200302	744	02/06/03	54.65813	-165.10733	78.6	7.1	1	10.8	8	35.4
PS200302	745	02/07/03	54.65816	-165.10758	79.3	6.4	1	10.8	10	41.8
PS200302	746	02/07/03	54.66462	-165.12078	80.6	6.5	1	10.7	21	83.5
PS200302	747	02/07/03	54.67108	-165.13403	79.3	6.5	1	10.6	23	89.3
PS200302	748	02/07/03	54.67743	-165.14724	82.4	6.6	1	10.5	13	50.5
PS200302	749	02/07/03	54.66732	-165.16227	93.4	6.6	1	9.5	23	86.9
PS200302	750	02/07/03	54.66093	-165.14906	81.1	6.7	1	9.6	19	64.7
PS200302	751	02/07/03	54.65454	-165.13584	83.0	6.7	1	9.7	21	82.3
PS200302	752	02/07/03	54.64814	-165.12270	80.1	6.8	1	9.8	19	80.9
PS200302	753	02/07/03	54.63712	-165.13653	83.2	6.9	1	8.8	15	56.1
PS200302	754	02/07/03	54.64376	-165.14952	81.5	6.9	1	8.7	21	85.0
PS200302	755	02/07/03	54.65018	-165.16276	83.2	7.3	1	8.6	12	42.9
PS200302	756	02/07/03	54.65658	-165.17583	84.1	7.1	1	8.5	21	79.3
PS200302	757	02/07/03	54.64472	-165.18695	83.2	7.2	1	7.5	12	43.9
PS200302	758	02/07/03	54.63830	-165.17401	83.2	7.2	1	7.6	18	72.8
PS200302	759	02/07/03	54.63186	-165.16059	81.9	7.3	1	7.7	21	91.1
PS200302	760	02/07/03	54.62546	-165.14739	81.9	7.4	1	7.8	13	40.3
PS200302	761	02/07/03	54.61266	-165.15794	79.3	7.5	1	6.8	23	86.0
PS200302	762	02/07/03	54.61949	-165.17095	102.2	7.6	1	6.7	24	92.7
PS200302	763	02/07/03	54.62601	-165.18444	81.1	7.7	1	6.6	19	70.8
PS200302	764	02/07/03	54.63249	-165.19732	81.7	7.9	1	6.5	20	57.9
PS200302	765	02/07/03	54.62061	-165.28056	84.4	21.1	2	3.1	29	115.4
PS200302	766	02/07/03	54.61445	-165.26700	84.8	21.4	2	3.2	31	154.6
PS200302	767	02/07/03	54.60781	-165.25379	84.4	21.5	2	3.3	21	95.3
PS200302	768	02/07/03	54.60155	-165.24037	84.4	21.6	2	3.4	27	109.0
PS200302	769	02/07/03	54.59066	-165.21816	81.7	21.7	1	3.5	28	136.5
PS200302	770	02/07/03	54.58428	-165.20486	81.0	21.9	1	3.6	31	140.6
PS200302	771	02/07/03	54.57786	-165.19185	76.9	22.0	1	3.7	36	162.8
PS200302	772	02/07/03	54.57132	-165.17810	72.7	22.1	1	3.8	41	185.1
PS200302	773	02/07/03	54.55445	-165.18193	78.0	24.3	1	2.8	37	164.5
PS200302	774	02/07/03	54.56129	-165.19467	79.1	24.4	1	2.7	22	109.3
PS200302	775	02/07/03	54.56780	-165.20801		24.7	1	2.6	22	102.4
PS200302	776	02/07/03	54.57420	-165.22116	98.2	24.8	1	2.5	42	206.1
PS200302	777	02/07/03	54.58477	-165.24300		25.0	2	2.4	24	106.4
PS200302	778	02/07/03	54.59127	-165.25621	82.2	25.1	2	2.3	29	133.0
PS200302	779	02/07/03	54.59776	-165.26940	82.2	25.2	2	2.2	19	74.1
PS200302	780	02/07/03	54.60439	-165.28282	83.3	25.5	2	2.1	20	77.1
PS200302	781	02/07/03	54.59191	-165.29361	82.1	25.6	2	1.1	45	163.4
PS200302	782	02/07/03	54.58568	-165.28043	85.7	25.7	2	1.2	41	165.1
PS200302	783	02/07/03	54.57897	-165.26716	86.1	25.9	2	1.3	43	137.8
PS200302	784	02/07/03	54.57261	-165.25408	98.2	26.1	2	1.4	36	146.9
PS200302	785	02/07/03	54.54791	-165.20305	96.0	26.3	1	1.5	41	177.9
PS200302	786	02/07/03	54.54147	-165.19004	88.5	26.5	1	1.6	47	188.9
PS200302	787	02/07/03	54.53498	-165.17667	86.1	26.7	1	1.7	32	123.4

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	788	02/07/03	54.53075	-165.16722	85.5	26.7	1	1.8	25	107.5
PS200302	789	02/08/03	54.51084	-165.23753	149.0	17.0	2	1.41	30	56.0
PS200302	790	02/08/03	54.52088	-165.23533	142.6	16.7	2	1.42	21	66.7
PS200302	791	02/08/03	54.53107	-165.23314	110.6	16.3	2	1.43	37	138.6
PS200302	792	02/08/03	54.62061	-165.28056		22.2	2	3.1	18	71.8
PS200302	793	02/08/03	54.61445	-165.26700		22.1	2	3.2	27	111.7
PS200302	794	02/08/03	54.60781	-165.25379		22.0	2	3.3	30	117.3
PS200302	795	02/08/03	54.60155	-165.24037		22.0	2	3.4	30	135.8
PS200302	796	02/08/03	54.59066	-165.21816		22.0	1	3.5	38	144.7
PS200302	797	02/08/03	54.58428	-165.20486		22.0	1	3.6	12	48.6
PS200302	798	02/08/03	54.57786	-165.19185		22.0	1	3.7	9	42.5
PS200302	799	02/08/03	54.57132	-165.17810		21.9	1	3.8	33	155.0
PS200302	800	02/08/03	54.55445	-165.18193		19.9	1	2.8	16	71.1
PS200302	801	02/08/03	54.56129	-165.19467		19.8	1	2.7	28	110.8
PS200302	802	02/08/03	54.56780	-165.20801		19.6	1	2.6	33	159.5
PS200302	803	02/08/03	54.57420	-165.22116		19.6	1	2.5	35	168.2
PS200302	804	02/08/03	54.58477	-165.24300		23.1	2	2.4	25	88.4
PS200302	805	02/08/03	54.59127	-165.25621		22.9	2	2.3	17	73.9
PS200302	806	02/08/03	54.59776	-165.26940		22.9	2	2.2	14	55.3
PS200302	807	02/08/03	54.60439	-165.28282		22.6	2	2.1	38	112.5
PS200302	808	02/08/03	54.59191	-165.29361		22.7	2	1.1	31	99.3
PS200302	809	02/08/03	54.58568	-165.28043		22.8	2	1.2	36	122.6
PS200302	810	02/08/03	54.57897	-165.26716		22.7	2	1.3	33	131.7
PS200302	811	02/08/03	54.57261	-165.25408		21.0	2	1.4	34	121.0
PS200302	812	02/08/03	54.54791	-165.20305		20.2	1	1.5	19	74.0
PS200302	813	02/08/03	54.54147	-165.19004		19.8	1	1.6	22	92.1
PS200302	814	02/08/03	54.53498	-165.17667		19.4	1	1.7	24	92.3
PS200302	815	02/08/03	54.53075	-165.16722		18.8	1	1.8	15	61.3
PS200302	816	02/10/03	55.49379	-163.54616	73.5	11.1	50		18	35.9
PS200302	817	02/10/03	55.49983	-163.53349	73.1	11.3	50		30	77.6
PS200302	818	02/10/03	55.50640	-163.51977	72.9	11.4	50		32	103.7
PS200302	819	02/10/03	55.51287	-163.50645	72.0	11.4	50		39	119.4
PS200302	820	02/10/03	55.51935	-163.49301	71.5	11.8	50		32	113.9
PS200302	821	02/10/03	55.52575	-163.47948	71.3	11.8	50		51	164.1
PS200302	822	02/10/03	55.53200	-163.46600	71.1	12.0	50		27	79.9
PS200302	823	02/10/03	55.53864	-163.45251	71.1	12.1	50		33	116.7
PS200302	824	02/10/03	55.54515	-163.43937	71.1	12.3	50		44	155.2
PS200302	825	02/10/03	55.55190	-163.42541	70.9	12.5	50		21	79.7
PS200302	826	02/10/03	55.54129	-163.42481	69.6	15.2	50		35	107.3
PS200302	827	02/10/03	55.53484	-163.43826	69.8	14.9	50		44	139.1
PS200302	828	02/10/03	55.52842	-163.45168	70.4	14.7	50		35	98.7
PS200302	829	02/10/03	55.52205	-163.46538	70.5	14.4	50		33	120.0
PS200302	830	02/10/03	55.51578	-163.47881	70.9	14.2	50		50	166.8
PS200302	831	02/10/03	55.50943	-163.49257	71.1	13.9	50		21	69.9
PS200302	832	02/10/03	55.50293	-163.50623	71.6	13.7	50		32	77.8
PS200302	833	02/10/03	55.49668	-163.51980	72.4	13.5	50		23	61.0
PS200302	834	02/10/03	55.49039	-163.53334	72.9	13.2	50		23	68.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	835	02/10/03	55.48379	-163.54723	73.7	12.9	50		21	56.5
PS200302	836	02/10/03	55.47392	-163.54661	73.7	15.1	50		28	85.0
PS200302	837	02/10/03	55.48017	-163.53367	72.6	15.2	50		34	84.7
PS200302	838	02/10/03	55.48665	-163.52013	71.8	15.3	50		44	129.9
PS200302	839	02/10/03	55.49299	-163.50678	71.5	15.4	50		42	124.6
PS200302	840	02/10/03	55.49934	-163.49295	70.7	15.6	50		48	171.4
PS200302	841	02/10/03	55.50591	-163.47912	70.5	15.8	50		35	123.3
PS200302	842	02/10/03	55.51235	-163.46581	69.8	15.9	50		30	110.5
PS200302	843	02/10/03	55.51860	-163.45204	69.6	16.0	50		39	143.2
PS200302	844	02/10/03	55.52492	-163.43846	69.3	16.2	50		36	114.7
PS200302	845	02/10/03	55.53131	-163.42485	68.9	16.3	50		36	137.4
PS200302	846	02/10/03	55.49333	-163.54710	73.7	27.7	50		31	105.0
PS200302	847	02/10/03	55.50015	-163.53372	73.3	27.6	50		32	104.6
PS200302	848	02/10/03	55.50642	-163.52007	72.9	27.5	50		42	126.6
PS200302	849	02/10/03	55.51286	-163.50734	72.6	27.4	50		42	147.2
PS200302	850	02/10/03	55.52011	-163.49460	72.6	27.3	50		51	179.3
PS200302	851	02/10/03	55.52632	-163.47920	71.8	27.4	50		31	113.6
PS200302	852	02/10/03	55.53229	-163.46596	71.5	27.4	50		46	159.5
PS200302	853	02/10/03	55.53884	-163.45308	71.3	27.3	50		51	165.4
PS200302	854	02/10/03	55.54542	-163.43914	71.5	27.3	50		29	108.5
PS200302	855	02/10/03	55.55220	-163.42548	70.9	27.1	50		27	88.4
PS200302	856	02/10/03	55.48374	-163.54705	73.1	21.5	50		30	114.9
PS200302	857	02/10/03	55.49026	-163.53340	72.4	21.5	50		24	72.3
PS200302	858	02/10/03	55.49662	-163.51997		21.5	50		27	102.2
PS200302	859	02/10/03	55.50339	-163.50646		21.6	50		48	171.0
PS200302	860	02/10/03	55.50921	-163.49285		21.6	50		24	95.8
PS200302	861	02/10/03	55.51579	-163.47913		21.7	50		24	77.7
PS200302	862	02/10/03	55.52247	-163.46540	69.8	22.8	50		28	90.4
PS200302	863	02/10/03	55.52876	-163.45206		22.9	50		40	145.5
PS200302	864	02/10/03	55.53492	-163.43844		22.9	50		27	79.4
PS200302	865	02/10/03	55.54147	-163.42511		22.9	50		29	88.6
PS200302	866	02/10/03	55.47408	-163.54733		17.4	50		15	52.0
PS200302	867	02/10/03	55.48017	-163.53430		17.3	50		13	41.8
PS200302	868	02/10/03	55.48683	-163.52027		17.3	50		16	50.8
PS200302	869	02/10/03	55.49320	-163.50659		17.3	50		16	54.9
PS200302	870	02/10/03	55.49935	-163.49312		17.1	50		10	42.2
PS200302	871	02/10/03	55.51219	-163.46645		17.0	50		19	67.2
PS200302	872	02/10/03	55.50608	-163.47914		17.1	50		9	35.4
PS200302	873	02/10/03	55.51858	-163.45273	68.3	17.0	50		13	40.1
PS200302	874	02/10/03	55.52508	-163.43901	67.8	16.8	50		22	73.0
PS200302	875	02/10/03	55.53109	-163.42574	67.4	16.9	50		19	68.4
PS200302	876	02/10/03	55.30288	-163.39226	47.1	11.8	50		15	36.9
PS200302	877	02/10/03	55.31144	-163.37780	47.3	11.9	50		4	10.3
PS200302	878	02/10/03	55.31680	-163.36662	47.9	11.9	50		16	47.4
PS200302	879	02/10/03	55.32340	-163.35343	46.8	12.0	50		18	50.3
PS200302	880	02/10/03	55.33014	-163.34066	44.9	12.1	50		27	97.4
PS200302	881	02/11/03	55.19606	-164.13721	56.3	15.6	40		32	133.6

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	882	02/11/03	55.18969	-164.15106	56.1	15.4	40		30	109.6
PS200302	883	02/11/03	55.18320	-164.16484	57.7	15.2	40		27	108.8
PS200302	884	02/11/03	55.17696	-164.17825	58.8	14.9	40		29	114.2
PS200302	885	02/11/03	55.17060	-164.19162	60.5	14.7	40		25	103.0
PS200302	886	02/11/03	55.16433	-164.20559	60.1	14.5	40		26	113.1
PS200302	887	02/11/03	55.15806	-164.21912	59.4	14.1	40		23	120.9
PS200302	888	02/11/03	55.15167	-164.23288	57.7	13.9	40		26	98.8
PS200302	889	02/11/03	55.14518	-164.24585		11.9	40		30	107.9
PS200302	890	02/11/03	55.13917	-164.25981	53.9	12.1	40		33	131.2
PS200302	891	02/11/03	55.10949	-164.20627	47.0	11.3	40		8	23.4
PS200302	892	02/11/03	55.10266	-164.21976	47.0	11.1	40		39	118.0
PS200302	893	02/11/03	55.09647	-164.23284	47.5	10.9	40		36	124.7
PS200302	894	02/11/03	55.09019	-164.24658	47.5	10.6	40		34	114.9
PS200302	895	02/11/03	55.08403	-164.26015	48.2	10.4	40		43	148.7
PS200302	896	02/11/03	55.07732	-164.27431	44.6	10.2	40		42	147.9
PS200302	897	02/11/03	55.07118	-164.28714	43.3	10.0	40		19	52.9
PS200302	898	02/11/03	55.06486	-164.30095	43.3	9.8	40		40	124.7
PS200302	899	02/11/03	55.05865	-164.31441	42.7	9.6	40		42	126.9
PS200302	900	02/11/03	55.05224	-164.32820	48.4	9.4	40		27	83.3
PS200302	901	02/12/03	54.49152	-165.44327	91.2	13.7	30		8	22.2
PS200302	902	02/12/03	54.49211	-165.45935	87.4	13.4	30		27	77.5
PS200302	903	02/12/03	54.49361	-165.47734	87.4	13.1	30		16	35.4
PS200302	904	02/12/03	54.49467	-165.49392	92.5	12.9	30		17	44.8
PS200302	905	02/12/03	54.49598	-165.51033	96.7	12.6	30		10	28.2
PS200302	906	02/12/03	54.49718	-165.52777	99.6	12.3	30		18	59.1
PS200302	907	02/12/03	54.48661	-165.53390	100.2	14.5	30		8	39.1
PS200302	908	02/12/03	54.48534	-165.51623	94.9	14.2	30		9	29.0
PS200302	909	02/12/03	54.48442	-165.49939	90.3	14.0	30		12	49.5
PS200302	910	02/12/03	54.48328	-165.48233	89.9	13.7	30		25	77.7
PS200302	911	02/12/03	54.48236	-165.46532	87.5	13.5	30		19	45.4
PS200302	912	02/12/03	54.48126	-165.44833	87.4	13.2	30		22	72.6
PS200302	913	02/12/03	54.47168	-165.45114	87.7	14.8	30		9	28.0
PS200302	914	02/12/03	54.47256	-165.46860	106.9	14.9	30		14	45.9
PS200302	915	02/12/03	54.47358	-165.48800	102.4	15.1	30		13	37.5
PS200302	916	02/12/03	54.47466	-165.50368	94.3	15.2	30		22	61.4
PS200302	917	02/12/03	54.47544	-165.51992	95.8	15.4	30		12	27.3
PS200302	918	02/12/03	54.47701	-165.53825	110.6	15.5	30		11	38.6
PS200302	919	02/12/03	54.34042	-165.68205	120.3	15.6	20		17	41.5
PS200302	920	02/12/03	54.34082	-165.69887	89.6	15.7	20		9	26.6
PS200302	921	02/12/03	54.34098	-165.71581	80.4	15.8	20		29	99.1
PS200302	922	02/12/03	54.34100	-165.73309	99.8	15.9	20		16	45.8
PS200302	923	02/12/03	54.34110	-165.74990	97.4	16.1	20		17	71.4
PS200302	924	02/12/03	54.34166	-165.76773	97.4	16.2	20		33	109.1
PS200302	925	02/12/03	54.33153	-165.80124	99.6	16.5	20		15	38.9
PS200302	926	02/12/03	54.33113	-165.78423	96.9	16.6	20		34	109.4
PS200302	927	02/12/03	54.33122	-165.76720	95.6	16.8	20		27	65.3
PS200302	928	02/12/03	54.33106	-165.74999	92.7	17.0	20		29	91.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	929	02/12/03	54.33089	-165.73293	89.4	17.1	20		27	68.5
PS200302	930	02/12/03	54.33071	-165.71529	90.3	17.2	20		31	78.9
PS200302	931	02/12/03	54.32051	-165.71392	83.9	17.3	20		25	59.7
PS200302	932	02/12/03	54.32074	-165.73093	86.3	17.4	20		42	102.4
PS200302	933	02/12/03	54.32092	-165.74803	97.8	17.6	20		34	93.7
PS200302	934	02/12/03	54.32105	-165.76513	86.5	17.7	20		27	85.4
PS200302	935	02/12/03	54.32121	-165.78228	95.0	17.8	20		37	99.2
PS200302	936	02/12/03	54.32118	-165.79924	132.2	17.9	20		28	96.9
PS200302	937	02/13/03	54.49152	-165.44327		21.3	30		18	49.5
PS200302	938	02/13/03	54.49211	-165.45935		21.8	30		19	73.9
PS200302	939	02/13/03	54.49360	-165.47615	87.5	22.3	30		14	46.7
PS200302	940	02/13/03	54.49498	-165.49265	92.1	22.7	30		28	89.7
PS200302	941	02/13/03	54.49636	-165.51059	98.5	23.2	30		17	56.7
PS200302	942	02/13/03	54.49720	-165.52765	99.6	23.6	30		34	123.5
PS200302	943	02/13/03	54.48665	-165.53359	100.4	21.6	30		15	55.6
PS200302	944	02/13/03	54.48559	-165.51669	94.7	21.9	30		4	4.6
PS200302	945	02/13/03	54.48478	-165.49980	92.7	22.3	30		16	35.7
PS200302	946	02/13/03	54.48354	-165.48299	89.2	22.6	30		9	18.5
PS200302	947	02/13/03	54.48264	-165.46569		23.0	30		10	29.3
PS200302	948	02/13/03	54.48126	-165.44833		23.4	30		15	53.3
PS200302	949	02/13/03	54.47133	-165.45084	88.3	21.9	30		21	59.4
PS200302	950	02/13/03	54.47240	-165.46716	87.5	21.9	30		18	64.7
PS200302	951	02/13/03	54.47354	-165.48469	89.6	21.9	30		21	71.4
PS200302	952	02/13/03	54.47463	-165.50276		22.2	30		32	122.8
PS200302	953	02/13/03	54.47533	-165.51940		22.1	30		7	32.4
PS200302	954	02/13/03	54.47654	-165.53623	98.0	22.1	30		8	42.8
PS200302	955	02/13/03	54.34063	-165.68126	87.2	24.4	20		19	36.8
PS200302	956	02/13/03	54.34056	-165.69835	88.3	24.0	20		20	53.9
PS200302	957	02/13/03	54.34060	-165.71567	88.8	23.6	20		21	75.4
PS200302	958	02/13/03	54.34090	-165.73342	92.3	23.1	20		12	32.9
PS200302	959	02/13/03	54.34129	-165.75004		22.7	20		28	92.4
PS200302	960	02/13/03	54.34167	-165.76758		22.3	20		27	77.4
PS200302	961	02/13/03	54.33123	-165.80142	97.8	24.5	20		28	82.7
PS200302	962	02/13/03	54.33119	-165.78452	95.4	23.9	20		40	95.2
PS200302	963	02/13/03	54.33118	-165.76712	92.1	23.5	20		21	52.1
PS200302	964	02/13/03	54.33103	-165.75033	91.0	23.1	20		25	84.8
PS200302	965	02/13/03	54.33081	-165.73327	89.0	22.6	20		21	66.2
PS200302	966	02/13/03	54.33078	-165.71568	86.8	22.2	20		19	53.7
PS200302	967	02/13/03	54.32067	-165.71342		24.5	20		36	103.0
PS200302	968	02/13/03	54.32089	-165.73063	84.8	24.1	20		31	91.3
PS200302	969	02/13/03	54.32072	-165.74810	88.8	23.6	20		24	87.0
PS200302	970	02/13/03	54.32118	-165.76549	90.5	23.2	20		37	104.1
PS200302	971	02/13/03	54.32133	-165.78166	92.7	22.8	20		19	71.8
PS200302	972	02/13/03	54.32101	-165.79906	95.2	22.2	20		28	83.6
PS200302	973	02/13/03	54.46752	-165.55587	103.3	23.9	30		8	36.7
PS200302	974	02/13/03	54.46689	-165.53876	99.1	24.0	30		19	77.4
PS200302	975	02/13/03	54.46704	-165.52138	94.7	24.1	30		25	91.0

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	976	02/13/03	54.46724	-165.50412	90.5	24.3	30		16	53.6
PS200302	977	02/14/03	54.49128	-165.44226		30.6	30		32	123.0
PS200302	978	02/14/03	54.49222	-165.45947	87.0	30.4	30		23	58.9
PS200302	979	02/14/03	54.49346	-165.47588	87.5	30.0	30		25	68.7
PS200302	980	02/14/03	54.49463	-165.49336	92.5	29.6	30		21	84.0
PS200302	981	02/14/03	54.49595	-165.51028	97.8	29.2	30		15	48.4
PS200302	982	02/14/03	54.49730	-165.52744	100.4	28.9	30		22	84.7
PS200302	983	02/14/03	54.48673	-165.53428	101.1	28.5	30		6	26.7
PS200302	984	02/14/03	54.48544	-165.51671	95.2	28.1	30		16	52.8
PS200302	985	02/14/03	54.48452	-165.49957	91.8	27.6	30		16	51.5
PS200302	986	02/14/03	54.48335	-165.48257	89.4	27.1	30		24	85.8
PS200302	987	02/14/03	54.48259	-165.46571	87.2	26.7	30		11	38.6
PS200302	988	02/14/03	54.48134	-165.44855	87.0	26.3	30		14	45.3
PS200302	989	02/14/03	54.47162	-165.45090	88.5	25.9	30		23	88.6
PS200302	990	02/14/03	54.47253	-165.46818	87.9	25.5	30		26	85.7
PS200302	991	02/14/03	54.47361	-165.48548	89.9	24.8	30		14	47.9
PS200302	992	02/14/03	54.47472	-165.50281	94.1	24.4	30		8	16.4
PS200302	993	02/14/03	54.47567	-165.52074	95.8	24.1	30		9	29.6
PS200302	994	02/14/03	54.47652	-165.53672	98.5	23.8	30		12	52.5
PS200302	995	02/14/03	54.34026	-165.68106	86.8	17.2	20		10	18.8
PS200302	996	02/14/03	54.34069	-165.69807	89.0	17.6	20		22	48.7
PS200302	997	02/14/03	54.34086	-165.71551	88.8	18.0	20		25	46.9
PS200302	998	02/14/03	54.34098	-165.73281	92.5	18.4	20		26	67.4
PS200302	999	02/14/03	54.34113	-165.74955	94.0	18.8	20		23	88.2
PS200302	1000	02/14/03	54.34152	-165.76697	97.6	19.2	20		28	79.5
PS200302	1001	02/14/03	54.33140	-165.80150	98.5	14.8	20		22	46.5
PS200302	1002	02/14/03	54.33139	-165.78461		14.9	20		20	57.2
PS200302	1003	02/14/03	54.33124	-165.76740	93.8	14.9	20		14	28.9
PS200302	1004	02/14/03	54.33124	-165.75031	91.8	15.0	20		20	53.6
PS200302	1005	02/14/03	54.33075	-165.73293		15.1	20		28	79.9
PS200302	1006	02/14/03	54.33068	-165.71579		15.3	20		27	71.1
PS200302	1007	02/14/03	54.32052	-165.71379	81.7	11.5	20		11	34.9
PS200302	1008	02/14/03	54.32066	-165.73086	84.6	11.9	20		16	31.8
PS200302	1009	02/14/03	54.32078	-165.74790	88.8	12.2	20		19	50.2
PS200302	1010	02/14/03	54.32103	-165.76495		12.6	20		27	66.1
PS200302	1011	02/14/03	54.32126	-165.78207	92.1	13.0	20		12	30.4
PS200302	1012	02/14/03	54.32125	-165.79928	95.8	13.4	20		21	47.2
PS200302	1013	02/14/03	54.46776	-165.55429	102.7	22.8	30		27	99.7
PS200302	1014	02/14/03	54.46577	-165.53770	99.1	22.8	30		13	52.8
PS200302	1015	02/14/03	54.46708	-165.52155		22.6	30		15	54.4
PS200302	1016	02/14/03	54.46722	-165.50432		22.7	30		33	114.7
PS200302	1017	02/15/03	54.53029	-165.03374	76.0	11.3	70		8	19.3
PS200302	1018	02/15/03	54.52503	-165.03026	79.9	11.3	70		6	36.4
PS200302	1019	02/15/03	54.52175	-165.02793	81.0	11.4	70		11	40.1
PS200302	1020	02/15/03	54.51742	-165.02480	85.2	11.5	70		10	39.3
PS200302	1021	02/15/03	54.51407	-165.02223	88.1	11.6	70		6	14.1
PS200302	1022	02/15/03	54.51077	-165.01998	88.8	11.9	70		7	36.5

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200302	1023	02/15/03	54.50706	-165.01780	88.5	12.0	70		9	28.5
PS200302	1024	02/15/03	54.50307	-165.01559	87.7	12.3	70		5	18.1
PS200302	1025	02/15/03	54.49912	-165.01335	86.3	12.6	70		5	21.9
PS200302	1026	02/15/03	54.49469	-165.01080	81.3	12.7	70		7	26.6
PS200302	1027	02/15/03	54.49107	-165.00902	76.9	12.9	70		6	17.4
PS200302	1028	02/15/03	54.48720	-165.00737	69.8	13.0	70		8	39.1
PS200302	1029	02/15/03	54.48355	-165.00583	62.1	13.1	70		18	95.7
PS200302	1030	02/15/03	54.47535	-165.00280	63.8	13.1	70		12	58.4
PS200302	1031	02/15/03	54.47134	-165.00165	61.2	13.2	70		8	43.0
PS200302	1032	02/15/03	54.46621	-164.99989	68.9	13.3	70		5	31.9
PS200302	1033	02/15/03	54.46244	-164.99842	74.9	13.6	70		7	40.5
PS200302	1034	02/15/03	54.45869	-164.99709	49.3	13.7	70		14	60.8
PS200302	1035	02/15/03	54.45467	-164.99575	44.8	13.9	70		9	53.0
PS200302	1036	02/15/03	54.45125	-164.99472	42.4	14.0	70		7	37.1
PS200303	1	03/18/03	54.63538	-165.27510	89.6	5.2	2	4.1	8	35.8
PS200303	2	03/18/03	54.62893	-165.26183	86.5	5.3	2	4.2	7	15.3
PS200303	3	03/18/03	54.62241	-165.24856	85.2	5.4	2	4.3	14	49.4
PS200303	4	03/18/03	54.61601	-165.23535	84.8	5.4	2	4.4	11	31.7
PS200303	5	03/18/03	54.60510	-165.21319	82.2	5.5	1	4.5	12	37.7
PS200303	6	03/18/03	54.59873	-165.20008	80.8	5.5	1	4.6	14	49.5
PS200303	7	03/18/03	54.59237	-165.18698	80.2	5.6	1	4.7	17	55.3
PS200303	8	03/18/03	54.58597	-165.17385	79.1	5.6	1	4.8	9	35.1
PS200303	9	03/18/03	54.62545	-165.14731	81.5	5.5	1	7.8	3	8.4
PS200303	10	03/18/03	54.63181	-165.16058	81.9	5.6	1	7.7	8	21.2
PS200303	11	03/18/03	54.63827	-165.17398	82.8	5.6	1	7.6	7	32.0
PS200303	12	03/18/03	54.64467	-165.18711	83.9	5.6	1	7.5	4	14.2
PS200303	13	03/18/03	54.65561	-165.20915	87.9	5.6	2	7.4	9	27.1
PS200303	14	03/18/03	54.66199	-165.22235	89.6	5.7	2	7.3	1	4.5
PS200303	15	03/18/03	54.66838	-165.23567	91.2	5.7	2	7.2	8	32.2
PS200303	16	03/18/03	54.67478	-165.24885	95.0	5.7	2	7.1	1	3.6
PS200303	17	03/19/03	54.66772	-165.09155	77.9	5.3	1	11.8	6	25.6
PS200303	18	03/19/03	54.67419	-165.10443	80.4	5.4	1	11.7	15	49.1
PS200303	19	03/19/03	54.68049	-165.11777	79.7	5.5	1	11.6	15	48.3
PS200303	20	03/19/03	54.68698	-165.13087	81.0	5.5	1	11.5	16	58.4
PS200303	21	03/19/03	54.69775	-165.15298	84.3	5.6	2	11.4	11	37.4
PS200303	22	03/19/03	54.70428	-165.16622	88.5	5.6	2	11.3	11	36.4
PS200303	23	03/19/03	54.71070	-165.17950	94.0	5.7	2	11.2	13	44.9
PS200303	24	03/19/03	54.71730	-165.19274	83.9	5.7	2	11.1	11	20.6
PS200303	25	03/19/03	54.72594	-165.17481	102.4	5.7	2	12.1	5	14.2
PS200303	26	03/19/03	54.71954	-165.16185	92.9	5.7	2	12.2	11	39.7
PS200303	27	03/19/03	54.71315	-165.14869	86.6	5.8	2	12.3	12	48.3
PS200303	28	03/19/03	54.70676	-165.13555	82.6	5.8	2	12.4	9	24.2
PS200303	29	03/19/03	54.69600	-165.11341	79.9	5.8	1	12.5	12	46.5
PS200303	30	03/19/03	54.68951	-165.10019	78.4	6.0	1	12.6	8	24.0
PS200303	31	03/19/03	54.68317	-165.08709	77.5	6.0	1	12.7	10	30.9
PS200303	32	03/19/03	54.67777	-165.07591	78.2	6.0	1	12.8	18	57.8
PS200303	33	03/19/03	54.68469	-165.05453	74.7	6.0	1	13.8	10	33.6

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	34	03/19/03	54.69122	-165.06795	76.4	6.0	1	13.7	14	49.2
PS200303	35	03/19/03	54.69769	-165.08113	77.3	6.0	1	13.6	12	47.6
PS200303	36	03/19/03	54.70411	-165.09433	78.0	6.1	1	13.5	12	33.6
PS200303	37	03/19/03	54.71493	-165.11671	81.1	6.1	2	13.4	24	71.2
PS200303	38	03/19/03	54.72138	-165.12974	84.4	6.2	2	13.3	18	60.7
PS200303	39	03/19/03	54.72783	-165.14301	89.4	6.2	2	13.2	11	31.2
PS200303	40	03/19/03	54.73442	-165.15654	100.0	6.3	2	13.1	11	34.3
PS200303	41	03/19/03	54.74171	-165.13563	92.7	6.3	2	14.1	4	6.6
PS200303	42	03/19/03	54.73516	-165.12228	85.5	6.4	2	14.2	10	25.3
PS200303	43	03/19/03	54.72850	-165.10858	81.3	6.4	2	14.3	10	32.1
PS200303	44	03/19/03	54.72215	-165.09550	79.0	6.5	2	14.4	6	11.9
PS200303	45	03/19/03	54.71146	-165.07380	76.0	6.4	1	14.5	11	33.4
PS200303	46	03/19/03	54.70511	-165.06050	74.7	6.4	1	14.6	10	29.6
PS200303	47	03/19/03	54.69868	-165.04725	72.9	6.4	1	14.7	4	10.7
PS200303	48	03/19/03	54.69229	-165.03406	71.6	5.7	1	14.8	0	0.0
PS200303	49	03/19/03	54.69857	-165.01123	71.1	7.3	1	15.8	15	46.4
PS200303	50	03/19/03	54.70500	-165.02440	71.8	7.0	1	15.7	16	52.4
PS200303	51	03/19/03	54.71140	-165.03784	72.7	6.8	1	15.6	18	47.0
PS200303	52	03/19/03	54.71780	-165.05080	74.7	6.6	1	15.5	6	14.9
PS200303	53	03/19/03	54.72856	-165.07299	77.3	6.3	2	15.4	16	56.4
PS200303	54	03/19/03	54.73508	-165.08620	79.3	6.1	2	15.3	13	45.8
PS200303	55	03/19/03	54.74150	-165.09938	82.1	5.9	2	15.2	13	42.1
PS200303	56	03/19/03	54.74801	-165.11259	86.1	5.7	2	15.1	9	37.5
PS200303	57	03/20/03	54.70751	-165.20874	105.8	4.7	2	10.1	9	35.7
PS200303	58	03/20/03	54.70098	-165.19550	94.5	4.7	2	10.2	10	48.4
PS200303	59	03/20/03	54.69468	-165.18238	90.5	4.7	2	10.3	27	96.1
PS200303	60	03/20/03	54.68821	-165.16919	86.6	4.8	2	10.4	12	35.8
PS200303	61	03/20/03	54.67749	-165.14722	82.1	4.8	1	10.5	4	25.5
PS200303	62	03/20/03	54.67106	-165.13404	81.0	4.9	1	10.6	10	41.1
PS200303	63	03/20/03	54.66466	-165.12076	80.4	4.9	1	10.7	12	43.8
PS200303	64	03/20/03	54.65813	-165.10769	79.5	5.0	1	10.8	8	22.6
PS200303	65	03/20/03	54.64821	-165.12284	82.6	5.0	1	9.8	5	17.9
PS200303	66	03/20/03	54.65460	-165.13581	81.1	5.0	1	9.7	7	18.2
PS200303	67	03/20/03	54.66097	-165.14901	81.1	5.1	1	9.6	9	33.8
PS200303	68	03/20/03	54.66744	-165.16225	82.2	5.1	1	9.5	8	30.0
PS200303	69	03/20/03	54.67812	-165.18416	109.9	5.1	2	9.4	9	28.3
PS200303	70	03/20/03	54.68448	-165.19749	91.8	5.2	2	9.3	16	63.4
PS200303	71	03/20/03	54.69105	-165.21069	94.5	5.2	2	9.2	15	46.2
PS200303	72	03/20/03	54.69758	-165.22416	103.3	5.3	2	9.1	11	37.9
PS200303	73	03/20/03	54.68672	-165.23744	98.7	5.2	2	8.1	7	19.7
PS200303	74	03/20/03	54.68023	-165.22428	93.4	5.3	2	8.2	2	8.4
PS200303	75	03/20/03	54.67370	-165.21100	89.9	5.4	2	8.3	0	0.0
PS200303	76	03/20/03	54.66710	-165.19756	88.3	5.4	2	8.4	6	18.4
PS200303	77	03/20/03	54.65647	-165.17574	83.5	5.5	1	8.5	6	32.0
PS200303	78	03/20/03	54.65003	-165.16252	82.2	5.5	1	8.6	9	24.9
PS200303	79	03/20/03	54.64353	-165.14932	82.2	5.6	1	8.7	7	16.7
PS200303	80	03/20/03	54.63704	-165.13610	82.8	5.6	1	8.8	8	31.8

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	81	03/20/03	54.62546	-165.14736	73.1	7.1	1	7.8	4	17.5
PS200303	82	03/20/03	54.63180	-165.16049	80.6	6.9	1	7.7	15	61.2
PS200303	83	03/20/03	54.63835	-165.17406	82.1	6.7	1	7.6	6	16.6
PS200303	84	03/20/03	54.64477	-165.18700	84.4	6.6	1	7.5	9	40.0
PS200303	85	03/20/03	54.65544	-165.20906	87.4	6.3	2	7.4	10	36.8
PS200303	86	03/20/03	54.66187	-165.22220	89.7	6.0	2	7.3	7	30.6
PS200303	87	03/20/03	54.66844	-165.23552	90.8	5.8	2	7.2	11	35.7
PS200303	88	03/20/03	54.67480	-165.24878	94.1	5.6	2	7.1	11	33.9
PS200303	89	03/20/03	54.66248	-165.25886	92.9	7.3	2	6.1	7	36.1
PS200303	90	03/20/03	54.65602	-165.24588	90.1	7.2	2	6.2	6	16.6
PS200303	91	03/20/03	54.64951	-165.23271	88.8	7.0	2	6.3	8	22.5
PS200303	92	03/20/03	54.64300	-165.21929	85.7	6.8	2	6.4	6	21.5
PS200303	93	03/20/03	54.63237	-165.19728	81.3	6.5	1	6.5	8	23.5
PS200303	94	03/20/03	54.62597	-165.18426	81.3	6.3	1	6.6	2	5.1
PS200303	95	03/20/03	54.61943	-165.17082	81.3	6.1	1	6.7	3	8.3
PS200303	96	03/20/03	54.61313	-165.15798	78.8	5.9	1	6.8	6	24.3
PS200303	97	03/20/03	54.68758	-165.14936	83.3	24.0	2		4	11.87
PS200303	98	03/21/03	54.74780	-165.11254	86.8	4.8	2	15.1	8	28.8
PS200303	99	03/21/03	54.74134	-165.09931	82.2	4.9	2	15.2	9	29.1
PS200303	100	03/21/03	54.73495	-165.08609	79.9	5.0	2	15.3	12	35.3
PS200303	101	03/21/03	54.72854	-165.07275	77.3	5.0	2	15.4	11	30.8
PS200303	102	03/21/03	54.71777	-165.05069	74.9	5.0	1	15.5	11	34.5
PS200303	103	03/21/03	54.71139	-165.03740	73.8	5.0	1	15.6	10	39.5
PS200303	104	03/21/03	54.70492	-165.02445	72.2	5.1	1	15.7	7	33.7
PS200303	105	03/21/03	54.69841	-165.01110	71.6	5.1	1	15.8	11	40.6
PS200303	106	03/21/03	54.69238	-165.03430	71.9	5.1	1	14.8	8	27.6
PS200303	107	03/21/03	54.69881	-165.04760	73.3	5.1	1	14.7	0	0.0
PS200303	108	03/21/03	54.70517	-165.06078	75.8	5.2	1	14.6	9	27.0
PS200303	109	03/21/03	54.71181	-165.07440	76.4	5.2	1	14.5	7	24.4
PS200303	110	03/21/03	54.72229	-165.09594	79.3	5.3	2	14.4	4	16.5
PS200303	111	03/21/03	54.72879	-165.10918	82.2	5.3	2	14.3	3	15.6
PS200303	112	03/21/03	54.73530	-165.12248	86.3	5.4	2	14.2	0	0.0
PS200303	113	03/21/03	54.74176	-165.13575	92.5	5.4	2	14.1	11	39.5
PS200303	114	03/21/03	54.73430	-165.15628	98.2	5.4	2	13.1	12	33.8
PS200303	115	03/21/03	54.72780	-165.14295	89.9	5.5	2	13.2	4	14.8
PS200303	116	03/21/03	54.72131	-165.12975	84.8	5.5	2	13.3	14	41.4
PS200303	117	03/21/03	54.71484	-165.11635	81.1	5.6	2	13.4	3	11.9
PS200303	118	03/21/03	54.70365	-165.09363	78.2	5.6	1	13.5	6	21.1
PS200303	119	03/21/03	54.69763	-165.08090	77.3	5.7	1	13.6	8	30.5
PS200303	120	03/21/03	54.69115	-165.06776	76.8	5.7	1	13.7	5	17.0
PS200303	121	03/21/03	54.68474	-165.05441	74.7	5.8	1	13.8	4	8.6
PS200303	122	03/21/03	54.67785	-165.07601	78.0	6.3	1	12.8	7	26.4
PS200303	123	03/21/03	54.68324	-165.08704	77.3	6.4	1	12.7	6	22.9
PS200303	124	03/21/03	54.68978	-165.10050	78.2	6.5	1	12.6	6	14.5
PS200303	125	03/21/03	54.69605	-165.11351	79.7	6.5	1	12.5	0	0.0
PS200303	126	03/21/03	54.70684	-165.13560	84.3		2	12.4		
PS200303	127	03/21/03	54.71328	-165.14878	86.8	6.6	2	12.3	13	37.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	128	03/21/03	54.71971	-165.16201	92.1	6.6	2	12.2	12	36.5
PS200303	129	03/21/03	54.72601	-165.17505	101.8	6.7	2	12.1	12	33.7
PS200303	130	03/21/03	54.71726	-165.19283	104.9	6.7	2	11.1	8	16.6
PS200303	131	03/21/03	54.71073	-165.17921	93.4	6.7	2	11.2	12	49.8
PS200303	132	03/21/03	54.70416	-165.16616	83.2	6.8	2	11.3	4	12.4
PS200303	133	03/21/03	54.69777	-165.15302	83.9	6.9	2	11.4	4	16.9
PS200303	134	03/21/03	54.68693	-165.13087	80.2	6.9	1	11.5	4	15.1
PS200303	135	03/21/03	54.68064	-165.11774	79.3	7.0	1	11.6	9	23.6
PS200303	136	03/21/03	54.67409	-165.10439	77.7	7.1	1	11.7	4	16.8
PS200303	137	03/21/03	54.66767	-165.09121	77.3	7.1	1	11.8	9	36.7
PS200303	138	03/21/03	54.68838	-165.15079	83.7	23.9	2		5	13.1
PS200303	139	03/22/03	54.66237	-165.25912	94.3	4.8	2	6.1	1	2.1
PS200303	140	03/22/03	54.65585	-165.24578	91.4	4.6	2	6.2	5	17.9
PS200303	141	03/22/03	54.64937	-165.23242	90.5	4.6	2	6.3	10	31.2
PS200303	142	03/22/03	54.64303	-165.21930	87.2	4.7	2	6.4	6	21.5
PS200303	143	03/22/03	54.63233	-165.19734	82.1	4.8	1	6.5	6	17.0
PS200303	144	03/22/03	54.62595	-165.18429		4.5	1	6.6	6	19.6
PS200303	145	03/22/03	54.61946	-165.17091	82.6	4.5	1	6.7	9	30.2
PS200303	146	03/22/03	54.61296	-165.15755	79.7	4.6	1	6.8	4	16.5
PS200303	147	03/22/03	54.62547	-165.14752	81.7	4.6	1	7.8	10	30.1
PS200303	148	03/22/03	54.63187	-165.16058	82.1	4.6	1	7.7	8	31.3
PS200303	149	03/22/03	54.63834	-165.17387	82.6	4.7	1	7.6	13	40.6
PS200303	150	03/22/03	54.64478	-165.18723	85.2	4.7	1	7.5	16	53.1
PS200303	151	03/22/03	54.65555	-165.20909	87.9	4.7	2	7.4	13	49.7
PS200303	152	03/22/03	54.66208	-165.22261	90.3	4.8	2	7.3	6	26.5
PS200303	153	03/22/03	54.66847	-165.23557	91.8	4.8	2	7.2	4	18.1
PS200303	154	03/22/03	54.67489	-165.24878	95.0	4.9	2	7.1	11	37.8
PS200303	155	03/22/03	54.68669	-165.23746	99.1	5.0	2	8.1	8	27.0
PS200303	156	03/22/03	54.68014	-165.22426	94.0	5.0	2	8.2	6	16.9
PS200303	157	03/22/03	54.67365	-165.21095	90.5	5.0	2	8.3	3	12.7
PS200303	158	03/22/03	54.66717	-165.19764	88.6	5.1	2	8.4	12	38.6
PS200303	159	03/22/03	54.65634	-165.17549	84.4	5.1	1	8.5	12	41.3
PS200303	160	03/22/03	54.64997	-165.16253	82.8	5.2	1	8.6	7	30.1
PS200303	161	03/22/03	54.64342	-165.14897	82.2	5.2	1	8.7	12	38.7
PS200303	162	03/22/03	54.63717	-165.13616	83.3	5.2	1	8.8	10	40.5
PS200303	163	03/22/03	54.64824	-165.12275	81.3	5.9	1	9.8	3	7.1
PS200303	164	03/22/03	54.65465	-165.13602	81.3	5.9	1	9.7	10	37.3
PS200303	165	03/22/03	54.66133	-165.14981	81.3	6.0	1	9.6	9	26.5
PS200303	166	03/22/03	54.66753	-165.16235	83.0	6.0	1	9.5	10	45.0
PS200303	167	03/22/03	54.67823	-165.18438	87.4	6.1	2	9.4	8	21.7
PS200303	168	03/22/03	54.68469	-165.19771	91.8	6.1	2	9.3	12	41.1
PS200303	169	03/22/03	54.69110	-165.21101	94.7	6.2	2	9.2	14	51.9
PS200303	170	03/22/03	54.69759	-165.22430	104.6	6.2	2	9.1	11	41.4
PS200303	171	03/22/03	54.70753	-165.20856	105.3	6.3	2	10.1	1	4.4
PS200303	172	03/22/03	54.70107	-165.19560	94.3	6.4	2	10.2	1	2.8
PS200303	173	03/22/03	54.69461	-165.18204	90.1	6.4	2	10.3	4	18.6
PS200303	174	03/22/03	54.68811	-165.16892	86.3	6.5	2	10.4	6	17.3

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	175	03/22/03	54.67745	-165.14690	81.5	6.5	1	10.5	14	37.2
PS200303	176	03/22/03	54.67102	-165.13392	80.4	6.6	1	10.6	7	18.5
PS200303	177	03/22/03	54.66455	-165.12051	80.2	6.6	1	10.7	7	27.0
PS200303	178	03/22/03	54.65811	-165.10755	79.1	6.6	1	10.8	8	27.9
PS200303	179	03/22/03	54.69604	-165.16609	87.2	64.0	2		10	0.0
PS200303	180	03/23/03	54.67796	-165.07562	79.5	76.8	1	12.8	8	37.8
PS200303	181	03/23/03	54.68505	-165.05434	74.6	76.6	1	13.8	13	36.4
PS200303	182	03/23/03	54.73484	-165.08652		47.5	2	15.3	30	
PS200303	183	03/23/03	54.72865	-165.10945	82.8	47.9	2	14.3	25	
PS200303	184	03/23/03	54.72121	-165.13033	85.9	48.2	2	13.3	19	
PS200303	185	03/23/03	54.71318	-165.14872	87.4	48.6	2	12.3	10	
PS200303	186	03/23/03	54.36152	-164.59780	64.5	4.1	75		6	
PS200303	187	03/23/03	54.36244	-164.59101	68.7	4.2	75		17	
PS200303	188	03/23/03	54.36428	-164.58227	79.5	4.3	75		12	
PS200303	189	03/23/03	54.36492	-164.57889	78.8	4.3	75		9	
PS200303	190	03/23/03	54.36588	-164.57327	78.2	4.5	75		15	
PS200303	191	03/23/03	54.36712	-164.56649	78.2	4.5	75		10	
PS200303	192	03/23/03	54.36813	-164.56097	78.2	4.6	75		14	
PS200303	193	03/23/03	54.36908	-164.55537	77.9	4.6	75		7	
PS200303	194	03/23/03	54.37011	-164.54971	77.1	4.6	75		11	
PS200303	195	03/23/03	54.37119	-164.54408	76.6	4.7	75		6	
PS200303	196	03/23/03	54.37211	-164.53858	76.2	4.9	75		11	
PS200303	197	03/23/03	54.37304	-164.53310	76.0	5.0	75		16	
PS200303	198	03/23/03	54.37411	-164.52746	75.8	5.1	75		18	
PS200303	199	03/23/03	54.37508	-164.52194	75.8	5.1	75		13	
PS200303	200	03/23/03	54.37619	-164.51604	77.1	5.2	75		17	
PS200303	201	03/23/03	54.37707	-164.50967	76.9	5.1	75		11	
PS200303	202	03/23/03	54.37796	-164.50420	78.2	5.2	75		12	
PS200303	203	03/23/03	54.37894	-164.49888	78.0	5.2	75		12	
PS200303	204	03/23/03	54.37994	-164.49370	79.1	5.3	75		18	
PS200303	205	03/23/03	54.38093	-164.48800	79.9	5.3	75		22	
PS200303	206	03/24/03	54.37040	-164.72053	55.0	6.7	75		4	17.9
PS200303	207	03/24/03	54.37037	-164.71620	58.5	6.7	75		13	52.0
PS200303	208	03/24/03	54.37051	-164.71189	60.5	6.8	75		7	26.2
PS200303	209	03/24/03	54.37045	-164.70762	60.7	6.9	75		4	7.7
PS200303	210	03/24/03	54.37049	-164.70321	60.1	7.1	75		3	11.0
PS200303	211	03/24/03	54.37043	-164.69899	59.8	7.2	75		12	43.7
PS200303	212	03/24/03	54.37036	-164.69476	60.1	7.2	75		9	33.8
PS200303	213	03/24/03	54.37025	-164.69053	59.0	7.4	75		5	15.9
PS200303	214	03/24/03	54.37017	-164.68571	59.4	7.5	75		10	35.2
PS200303	215	03/24/03	54.37006	-164.68199	59.4	7.6	75		7	22.4
PS200303	216	03/24/03	54.36999	-164.67774	58.5	7.7	75		15	54.1
PS200303	217	03/24/03	54.36982	-164.67142	58.1	7.9	75		10	45.4
PS200303	218	03/24/03	54.36961	-164.66721	58.3	5.8	75		9	33.9
PS200303	219	03/24/03	54.36959	-164.66306	57.4	5.6	75		4	8.0
PS200303	220	03/24/03	54.36948	-164.65822	57.6	5.4	75		9	44.3
PS200303	221	03/24/03	54.36936	-164.65338	57.7	5.3	75		5	24.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	222	03/24/03	54.36924	-164.64912	58.8	5.1	75		1	1.1
PS200303	223	03/24/03	54.36895	-164.64467	59.2	5.0	75		4	13.2
PS200303	224	03/24/03	54.36863	-164.64056	60.3	4.9	75		2	6.7
PS200303	225	03/24/03	54.36840	-164.63625	62.3	4.8	75		3	13.6
PS200303	226	03/24/03	54.36810	-164.63198	64.5	4.6	75		4	18.1
PS200303	227	03/24/03	54.36757	-164.62662	65.1	4.5	75		0	0.0
PS200303	228	03/24/03	54.36702	-164.62217	64.5	4.4	75		0	0.0
PS200303	229	03/25/03	54.18140	-165.67239	78.8	14.4	29		3	3.3
PS200303	230	03/25/03	54.18450	-165.67410	77.9	14.5	29		2	2.6
PS200303	231	03/25/03	54.18769	-165.67629	74.4	14.6	29		10	21.1
PS200303	232	03/25/03	54.19075	-165.67839	74.4	14.6	29		1	0.7
PS200303	233	03/25/03	54.19497	-165.68098	74.7	14.6	29		1	2.8
PS200303	234	03/25/03	54.19727	-165.68271	75.8	14.7	29		2	3.0
PS200303	235	03/25/03	54.20019	-165.68475	76.9	14.7	29		1	1.4
PS200303	236	03/25/03	54.20301	-165.68714	76.2	14.8	29		1	2.3
PS200303	237	03/25/03	54.20588	-165.68970	77.7	14.8	29		2	3.2
PS200303	238	03/25/03	54.20908	-165.69255	75.7	14.8	29		3	4.9
PS200303	239	03/26/03	54.66229	-165.25905		4.5	2	6.1	7	13.4
PS200303	240	03/26/03	54.65605	-165.24582	91.8	4.6	2	6.2	2	5.4
PS200303	241	03/26/03	54.64955	-165.23259	90.1	4.6	2	6.3	1	2.8
PS200303	242	03/26/03	54.64306	-165.21938	87.5	4.7	2	6.4	4	20.5
PS200303	243	03/26/03	54.63187	-165.19619	84.8	4.7	1	6.5	2	7.5
PS200303	244	03/26/03	54.62597	-165.18430	82.6	4.8	1	6.6	13	50.3
PS200303	245	03/26/03	54.61955	-165.17107	83.5	4.8	1	6.7	8	24.7
PS200303	246	03/26/03	54.61308	-165.15787	80.1	4.9	1	6.8	7	33.3
PS200303	247	03/26/03	54.62547	-165.14758	83.5	4.9	1	7.8	15	58.3
PS200303	248	03/26/03	54.63184	-165.16064	81.7	5.0	1	7.7	7	22.2
PS200303	249	03/26/03	54.63837	-165.17405	84.3	5.0	1	7.6	14	45.5
PS200303	250	03/26/03	54.64480	-165.18704	85.0	5.1	1	7.5	18	74.2
PS200303	251	03/26/03	54.65548	-165.20935	89.6	5.2	2	7.4	13	44.2
PS200303	252	03/26/03	54.66196	-165.22244		5.2	2	7.3	11	29.1
PS200303	253	03/26/03	54.66840	-165.23560	92.3	5.3	2	7.2	12	43.2
PS200303	254	03/26/03	54.67501	-165.24894	96.3	5.3	2	7.1	6	13.7
PS200303	255	03/26/03	54.68662	-165.23706	99.4	5.4	2	8.1	5	9.4
PS200303	256	03/26/03	54.68012	-165.22427	94.1	5.4	2	8.2	6	16.8
PS200303	257	03/26/03	54.67368	-165.21098	90.3	5.4	2	8.3	3	11.3
PS200303	258	03/26/03	54.66719	-165.19767	89.7	5.5	2	8.4	9	37.0
PS200303	259	03/26/03	54.65645	-165.17570		5.6	1	8.5	6	23.5
PS200303	260	03/26/03	54.64999	-165.16265	83.7	5.6	1	8.6	5	18.1
PS200303	261	03/26/03	54.64355	-165.14912	91.9	5.6	1	8.7	1	0.8
PS200303	262	03/26/03	54.63654	-165.13471	83.9	5.7	1	8.8	12	44.5
PS200303	263	03/26/03	54.69615	-165.16672	87.4	29.5	2		15	46.2
PS200303	264	03/27/03	54.74779	-165.11247	86.1	5.5	2	15.1	12	26.8
PS200303	265	03/27/03	54.74147	-165.09940	82.6	5.5	2	15.2	3	6.4
PS200303	266	03/27/03	54.73501	-165.08610	79.7	5.5	2	15.3	5	7.1
PS200303	267	03/27/03	54.72858	-165.07288	77.5	5.6	2	15.4	5	15.6
PS200303	268	03/27/03	54.71786	-165.05087	74.6	5.6	1	15.5	4	4.0

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	269	03/27/03	54.71147	-165.03772	73.8	5.8	1	15.6	2	5.6
PS200303	270	03/27/03	54.70486	-165.02424	72.2	5.8	1	15.7	4	13.1
PS200303	271	03/27/03	54.69860	-165.01133	71.5	5.9	1	15.8	7	18.7
PS200303	272	03/27/03	54.69225	-165.03414	72.0	5.9	1	14.8	4	10.8
PS200303	273	03/27/03	54.69876	-165.04732	73.5	6.0	1	14.7	6	15.7
PS200303	274	03/27/03	54.70512	-165.06051	75.5	6.0	1	14.6	4	9.3
PS200303	275	03/27/03	54.71159	-165.07369	76.9	6.0	1	14.5	2	2.1
PS200303	276	03/27/03	54.72227	-165.09589	79.7	6.1	2	14.4	4	11.7
PS200303	277	03/27/03	54.72874	-165.10921	82.6	6.1	2	14.3	6	14.2
PS200303	278	03/27/03	54.73528	-165.12232	86.1	6.2	2	14.2	0	0.0
PS200303	279	03/27/03	54.74161	-165.13577	93.2	6.2	2	14.1	9	20.2
PS200303	280	03/27/03	54.73435	-165.15649	98.7	6.3	2	13.1	2	3.5
PS200303	281	03/27/03	54.72789	-165.14307	90.1	6.4	2	13.2	7	25.6
PS200303	282	03/27/03	54.72140	-165.12979	85.2	6.4	2	13.3	3	12.9
PS200303	283	03/27/03	54.71497	-165.11657	81.5	6.5	2	13.4	9	17.5
PS200303	284	03/27/03	54.70396	-165.09388	78.6	6.6	1	13.5	11	36.3
PS200303	285	03/27/03	54.69772	-165.08128	77.7	6.7	1	13.6	7	26.4
PS200303	286	03/27/03	54.69132	-165.06790	76.9	6.7	1	13.7	10	30.4
PS200303	287	03/27/03	54.68484	-165.05463	75.7	6.8	1	13.8	4	8.2
PS200303	288	03/27/03	54.67773	-165.07585	78.2	7.4	1	12.8	8	37.8
PS200303	289	03/27/03	54.68309	-165.08715	78.0	7.4	1	12.7	13	30.4
PS200303	290	03/27/03	54.68961	-165.10014	79.1	7.5	1	12.6	6	16.3
PS200303	291	03/27/03	54.69619	-165.11379	80.4	7.6	1	12.5	6	18.4
PS200303	292	03/27/03	54.70677	-165.13549	83.5	7.7	2	12.4	3	8.6
PS200303	293	03/27/03	54.71324	-165.14869	87.2	7.8	2	12.3	12	26.2
PS200303	294	03/27/03	54.71964	-165.16180	93.4	8.0	2	12.2	4	10.8
PS200303	295	03/27/03	54.72604	-165.17512	101.4	8.1	2	12.1	3	3.4
PS200303	296	03/27/03	54.71726	-165.19270	105.8	8.2	2	11.1	14	31.3
PS200303	297	03/27/03	54.71074	-165.17968	95.4	8.3	2	11.2	13	30.7
PS200303	298	03/27/03	54.70434	-165.16628	89.6	8.4	2	11.3	3	4.6
PS200303	299	03/27/03	54.69780	-165.15288	84.4	8.6	2	11.4	8	21.6
PS200303	300	03/27/03	54.68705	-165.13092	81.7		1	11.5		
PS200303	301	03/27/03	54.68064	-165.11776	80.8	8.7	1	11.6	14	59.6
PS200303	302	03/27/03	54.67423	-165.10462	79.7	8.8	1	11.7	14	41.1
PS200303	303	03/27/03	54.66770	-165.09131	78.6	8.8	1	11.8	14	51.3
PS200303	304	03/27/03	54.69587	-165.16644	86.5	23.4	2		11	34.5
PS200303	305	03/28/03	54.61308	-165.15771	80.2	4.8	1	6.8	7	18.3
PS200303	306	03/28/03	54.61947	-165.17120	80.4	4.9	1	6.7	6	24.1
PS200303	307	03/28/03	54.62590	-165.18405	82.8	4.9	1	6.6	3	4.1
PS200303	308	03/28/03	54.63236	-165.19743	81.5	4.9	1	6.5	3	5.6
PS200303	309	03/28/03	54.64305	-165.21930	86.3	5.0	2	6.4	2	5.5
PS200303	310	03/28/03	54.64956	-165.23274	89.9	5.0	2	6.3	12	33.6
PS200303	311	03/28/03	54.65602	-165.24591	90.8	5.1	2	6.2	0	0.0
PS200303	312	03/28/03	54.66249	-165.25907	92.9	5.1	2	6.1	5	15.3
PS200303	313	03/28/03	54.67488	-165.24885	94.5	5.2	2	7.1	0	0.0
PS200303	314	03/28/03	54.66835	-165.23549	90.3	5.2	2	7.2	7	18.7
PS200303	315	03/28/03	54.66196	-165.22246	89.7	5.3	2	7.3	6	21.3

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	316	03/28/03	54.65549	-165.20913	87.2	5.3	2	7.4	9	26.0
PS200303	317	03/28/03	54.64476	-165.18707	85.2	5.4	1	7.5	6	15.9
PS200303	318	03/28/03	54.63824	-165.17381	83.9	5.6	1	7.6	5	15.8
PS200303	319	03/28/03	54.63188	-165.16068	82.2	5.6	1	7.7	5	13.9
PS200303	320	03/28/03	54.62549	-165.14755	81.7	5.7	1	7.8	4	10.2
PS200303	321	03/28/03	54.63726	-165.13614	82.6	5.7	1	8.8	9	35.7
PS200303	322	03/28/03	54.64364	-165.14927	81.5	5.8	1	8.7	7	25.9
PS200303	323	03/28/03	54.65005	-165.16264	82.8	5.7	1	8.6	3	6.1
PS200303	324	03/28/03	54.65652	-165.17576	84.8	5.8	1	8.5	7	19.7
PS200303	325	03/28/03	54.66722	-165.19763	89.9	5.9	2	8.4	4	9.6
PS200303	326	03/28/03	54.67372	-165.21103	90.3	5.9	2	8.3	3	10.2
PS200303	327	03/28/03	54.68021	-165.22430	92.7	6.0	2	8.2	9	26.8
PS200303	328	03/28/03	54.68671	-165.23759	98.3	6.0	2	8.1	0	0.0
PS200303	329	03/28/03	54.69777	-165.22369	100.9	6.6	2	9.1	3	5.2
PS200303	330	03/28/03	54.69105	-165.21068	94.5	6.6	2	9.2	3	10.5
PS200303	331	03/28/03	54.68455	-165.19739	92.5	6.7	2	9.3	3	9.5
PS200303	332	03/28/03	54.67820	-165.18439	87.5	6.7	2	9.4	8	27.7
PS200303	333	03/28/03	54.66740	-165.16223	82.8	6.8	1	9.5	7	18.0
PS200303	334	03/28/03	54.66106	-165.14918	82.6	6.8	1	9.6	5	11.4
PS200303	335	03/28/03	54.65453	-165.13581	81.5	6.9	1	9.7	9	26.5
PS200303	336	03/28/03	54.64704	-165.12021	81.9	7.0	1	9.8	11	41.8
PS200303	337	03/28/03	54.65820	-165.10760	79.9	7.0	1	10.8	7	23.4
PS200303	338	03/28/03	54.66468	-165.12057	81.3	7.1	1	10.7	10	31.2
PS200303	339	03/28/03	54.67111	-165.13393	81.0	7.1	1	10.6	4	11.9
PS200303	340	03/28/03	54.67746	-165.14703	81.9	7.2	1	10.5	7	19.7
PS200303	341	03/28/03	54.68824	-165.16904	87.7	7.2	2	10.4	2	7.0
PS200303	342	03/28/03	54.69465	-165.18223	90.8	7.3	2	10.3	2	7.3
PS200303	343	03/28/03	54.70116	-165.19558	94.9	7.3	2	10.2	2	5.7
PS200303	344	03/28/03	54.70764	-165.20885	105.7	7.4	2	10.1	6	23.7
PS200303	345	03/28/03	54.68321	-165.16003	82.8	23.3	2		9	
PS200303	346	03/28/03	54.67936	-165.16549	83.7	23.3	2		16	
PS200303	347	03/28/03	54.67607	-165.16990	84.4	23.4	2		28	
PS200303	348	03/28/03	54.67304	-165.17414	85.9	23.4	2		12	
PS200303	349	03/28/03	54.66998	-165.17876	85.2	23.5	2		21	
PS200303	350	03/29/03	54.69863	-165.01129	71.1	4.7	1	15.8	10	34.7
PS200303	351	03/29/03	54.70501	-165.02449	72.0	4.8	1	15.7	7	29.5
PS200303	352	03/29/03	54.71139	-165.03776	73.1	4.7	1	15.6	11	27.9
PS200303	353	03/29/03	54.71786	-165.05087	74.6	4.7	1	15.5	3	7.5
PS200303	354	03/29/03	54.72855	-165.07291	77.5	4.8	2	15.4	10	40.3
PS200303	355	03/29/03	54.73507	-165.08613	79.3	4.8	2	15.3	5	15.2
PS200303	356	03/29/03	54.74149	-165.09941	81.7	4.8	2	15.2	5	15.1
PS200303	357	03/29/03	54.74795	-165.11251	86.5	4.9	2	15.1	4	9.6
PS200303	358	03/29/03	54.74149	-165.13579	93.0	4.9	2	14.1	5	10.9
PS200303	359	03/29/03	54.73516	-165.12250	86.5	4.9	2	14.2	4	7.4
PS200303	360	03/29/03	54.72873	-165.10905	81.3	5.0	2	14.3	8	24.0
PS200303	361	03/29/03	54.72227	-165.09579	79.0	5.0	2	14.4	4	11.3
PS200303	362	03/29/03	54.71153	-165.07371	76.4	5.0	1	14.5	5	15.0

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	363	03/29/03	54.70502	-165.06022	75.1	5.1	1	14.6	2	4.4
PS200303	364	03/29/03	54.69869	-165.04747	73.1	5.1	1	14.7	5	22.1
PS200303	365	03/29/03	54.69205	-165.03357	71.6	5.2	1	14.8	5	13.1
PS200303	366	03/29/03	54.68478	-165.05480	75.5	5.2	1	13.8	8	19.4
PS200303	367	03/29/03	54.69128	-165.06797	76.8	5.2	1	13.7	2	10.2
PS200303	368	03/29/03	54.69774	-165.08106	78.2	5.2	1	13.6	6	35.6
PS200303	369	03/29/03	54.70414	-165.09440	79.1	5.3	1	13.5	4	14.8
PS200303	370	03/29/03	54.71495	-165.11660	81.7	5.3	2	13.4	4	7.6
PS200303	371	03/29/03	54.72139	-165.12990	85.0	5.4	2	13.3	3	6.3
PS200303	372	03/29/03	54.72791	-165.14309	89.0	5.4	2	13.2	6	20.6
PS200303	373	03/29/03	54.73448	-165.15678	98.3	5.5	2	13.1	4	10.8
PS200303	374	03/29/03	54.72599	-165.17515	96.3	6.1	2	12.1	9	23.1
PS200303	375	03/29/03	54.71961	-165.16179	93.4	6.2	2	12.2	8	23.8
PS200303	376	03/29/03	54.71313	-165.14855	86.5	6.2	2	12.3	6	13.8
PS200303	377	03/29/03	54.70672	-165.13535	83.7	6.2	2	12.4	6	8.4
PS200303	378	03/29/03	54.69601	-165.11340	80.1	6.3	1	12.5	3	8.6
PS200303	379	03/29/03	54.68917	-165.09957	78.4	6.3	1	12.6	4	8.5
PS200303	380	03/29/03	54.68313	-165.08689	77.7	6.4	1	12.7	4	11.6
PS200303	381	03/29/03	54.67766	-165.07582	78.6	6.4	1	12.8	5	13.5
PS200303	382	03/29/03	54.66760	-165.09138	77.5	6.5	1	11.8	5	15.1
PS200303	383	03/29/03	54.67431	-165.10493	79.1	6.5	1	11.7	7	19.0
PS200303	384	03/29/03	54.68062	-165.11769	80.1	6.5	1	11.6	4	5.2
PS200303	385	03/29/03	54.68703	-165.13098	82.1	6.5	1	11.5	3	3.9
PS200303	386	03/29/03	54.69785	-165.15299	84.6	6.6	2	11.4	3	6.5
PS200303	387	03/29/03	54.70439	-165.16651	89.6	6.6	2	11.3	2	6.7
PS200303	388	03/29/03	54.71082	-165.17960	95.4	6.6	2	11.2	14	33.3
PS200303	389	03/29/03	54.71725	-165.19292	105.3	6.7	2	11.1	9	24.1
PS200303	390	03/29/03	54.67003	-165.17862	85.0	24.5	2		12	
PS200303	391	03/29/03	54.67321	-165.17403	84.3	24.5	2		13	
PS200303	392	03/29/03	54.67622	-165.16981	85.0	24.5	2		12	
PS200303	393	03/29/03	54.67962	-165.16548	84.3	24.6	2		11	
PS200303	394	03/29/03	54.68340	-165.15989	83.7	24.7	2		13	
PS200303	395	03/30/03	54.61310	-165.15781	79.7	5.0	1	6.8	5	12.2
PS200303	396	03/30/03	54.61956	-165.17107	82.8	5.1	1	6.7	2	3.5
PS200303	397	03/30/03	54.62599	-165.18438	81.9	5.1	1	6.6	21	102.3
PS200303	398	03/30/03	54.63234	-165.19739	81.9	5.2	1	6.5	16	52.6
PS200303	399	03/30/03	54.64307	-165.21921	86.5	5.2	2	6.4	11	35.3
PS200303	400	03/30/03	54.64956	-165.23263	89.4	5.3	2	6.3	7	19.2
PS200303	401	03/30/03	54.65599	-165.24576	90.3	6.2	2	6.2	13	32.6
PS200303	402	03/30/03	54.66248	-165.25918	93.8	5.4	2	6.1	6	17.9
PS200303	403	03/30/03	54.67493	-165.24883	94.9	5.6	2	7.1	6	18.5
PS200303	404	03/30/03	54.66837	-165.23550	91.0	5.6	2	7.2	13	30.5
PS200303	405	03/30/03	54.66195	-165.22244	89.7	5.7	2	7.3	15	40.7
PS200303	406	03/30/03	54.65547	-165.20896	87.4	5.8	2	7.4	22	78.4
PS200303	407	03/30/03	54.64476	-165.18711	84.6	5.9	1	7.5	12	29.7
PS200303	408	03/30/03	54.63828	-165.17386	82.8	5.9	1	7.6	13	41.7
PS200303	409	03/30/03	54.63160	-165.16006	80.8	6.0	1	7.7	8	37.7

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	410	03/30/03	54.62541	-165.14743	81.3	6.0	1	7.8	5	26.5
PS200303	411	03/30/03	54.63716	-165.13615	83.3	6.1	1	8.8	14	55.1
PS200303	412	03/30/03	54.64372	-165.14965	83.2	6.1	1	8.7	3	7.5
PS200303	413	03/30/03	54.65006	-165.16248	83.2	6.2	1	8.6	20	74.3
PS200303	414	03/30/03	54.65652	-165.17571	84.3	6.2	1	8.5	12	30.9
PS200303	415	03/30/03	54.66723	-165.19767	88.3	6.3	2	8.4	13	40.8
PS200303	416	03/30/03	54.67367	-165.21108	90.5	6.3	2	8.3	7	12.8
PS200303	417	03/30/03	54.68023	-165.22425	93.6	6.3	2	8.2	14	32.5
PS200303	418	03/30/03	54.68668	-165.23770	99.1	6.4	2	8.1	17	59.8
PS200303	419	03/30/03	54.69763	-165.22417	103.6	7.1	2	9.1	1	1.2
PS200303	420	03/30/03	54.69107	-165.21080	95.6	7.2	2	9.2	15	41.0
PS200303	421	03/30/03	54.68455	-165.19755	91.8	7.3	2	9.3	18	46.7
PS200303	422	03/30/03	54.67809	-165.18410	80.8	7.3	2	9.4	18	46.8
PS200303	423	03/30/03	54.66752	-165.16240	86.8	7.4	1	9.5	7	35.1
PS200303	424	03/30/03	54.66114	-165.14919	81.5	7.5	1	9.6	8	35.1
PS200303	425	03/30/03	54.65464	-165.13599	81.0	7.5	1	9.7	12	48.1
PS200303	426	03/30/03	54.64823	-165.12263	81.3	7.6	1	9.8	11	25.0
PS200303	427	03/30/03	54.65820	-165.10750	79.9	7.6	1	10.8	9	35.0
PS200303	428	03/30/03	54.66463	-165.12070	80.2	7.7	1	10.7	17	54.5
PS200303	429	03/30/03	54.67109	-165.13393	80.2	7.7	1	10.6	6	22.6
PS200303	430	03/30/03	54.67769	-165.14749	81.5	7.7	1	10.5	5	20.2
PS200303	431	03/30/03	54.68828	-165.16907	86.1	7.8	2	10.4	13	43.7
PS200303	432	03/30/03	54.69457	-165.18214	90.7	7.8	2	10.3	5	17.9
PS200303	433	03/30/03	54.70105	-165.19550	94.3	7.8	2	10.2	5	15.4
PS200303	434	03/30/03	54.70763	-165.20882	105.1	7.9	2	10.1	19	57.9
PS200303	435	03/31/03	54.69862	-165.01116	71.6	4.7	1	15.8	3	11.9
PS200303	436	03/31/03	54.70504	-165.02456	72.9	4.8	1	15.7	14	53.4
PS200303	437	03/31/03	54.71145	-165.03755	72.9	4.9	1	15.6	30	108.1
PS200303	438	03/31/03	54.71788	-165.05085	75.3	4.9	1	15.5	16	56.2
PS200303	439	03/31/03	54.72860	-165.07298	77.5	4.9	2	15.4	21	83.9
PS200303	440	03/31/03	54.73503	-165.08627	78.0	5.0	2	15.3	17	74.9
PS200303	441	03/31/03	54.74150	-165.09950	81.5	5.0	2	15.2	16	60.9
PS200303	442	03/31/03	54.74794	-165.11264	85.7	5.1	2	15.1	17	55.8
PS200303	443	03/31/03	54.74160	-165.13562	94.0	5.0	2	14.1	13	33.2
PS200303	444	03/31/03	54.73512	-165.12232	83.0	5.1	2	14.2	16	43.4
PS200303	445	03/31/03	54.72870	-165.10897	82.1	5.1	2	14.3	26	69.1
PS200303	446	03/31/03	54.72216	-165.09574	77.1	5.2	2	14.4	8	31.6
PS200303	447	03/31/03	54.71153	-165.07373	76.8	5.3	1	14.5	21	85.9
PS200303	448	03/31/03	54.70503	-165.06042	74.7	5.3	1	14.6	20	80.5
PS200303	449	03/31/03	54.69870	-165.04730	74.0	5.4	1	14.7	14	45.1
PS200303	450	03/31/03	54.69219	-165.03388	71.6	5.5	1	14.8	15	62.5
PS200303	451	03/31/03	54.68489	-165.05477	74.7	5.6	1	13.8	20	83.5
PS200303	452	03/31/03	54.69126	-165.06794	77.5	5.7	1	13.7	23	78.5
PS200303	453	03/31/03	54.69771	-165.08123	77.7	5.9	1	13.6	15	82.8
PS200303	454	03/31/03	54.70417	-165.09429	74.4	6.0	1	13.5	17	60.3
PS200303	455	03/31/03	54.71494	-165.11650	81.3	6.0	2	13.4	11	36.4
PS200303	456	03/31/03	54.72157	-165.12994	84.1	6.1	2	13.3	15	42.6

Table A.1. Date, position, and catch of all pots fished on 2002 and 2003 AFSC cod pot cruises. Includes pots fished for tagging and gear trials.

Cruise	Launch Code	Date	Latitude (degrees)	Longitude (degrees)	Depth (m)	Soak	Stratum Code	Station	Cod (No.)	Cod (Kg)
PS200303	457	03/31/03	54.72788	-165.14308	89.7	6.7	2	13.2	12	41.9
PS200303	458	03/31/03	54.73440	-165.15649	98.7	6.8	2	13.1	17	48.3
PS200303	459	03/31/03	54.72580	-165.17522	101.4	6.8	2	12.1	14	38.7
PS200303	460	03/31/03	54.71953	-165.16165	92.5	6.8	2	12.2	6	23.6
PS200303	461	03/31/03	54.71316	-165.14845	86.8	6.9	2	12.3	9	28.1
PS200303	462	03/31/03	54.70672	-165.13538	83.3	7.0	2	12.4	10	40.1
PS200303	463	03/31/03	54.69598	-165.11347	79.5	7.0	1	12.5	9	31.6
PS200303	464	03/31/03	54.68957	-165.10013	78.6	7.1	1	12.6	7	19.7
PS200303	465	03/31/03	54.68309	-165.08680	78.6	7.1	1	12.7	7	19.0
PS200303	466	03/31/03	54.67769	-165.07571	79.5	7.1	1	12.8	18	70.1
PS200303	467	03/31/03	54.66767	-165.09155	78.0	7.1	1	11.8	22	72.7
PS200303	468	03/31/03	54.67419	-165.10460	78.8	7.1	1	11.7	10	44.3
PS200303	469	03/31/03	54.68065	-165.11774	79.1	7.1	1	11.6	14	45.4
PS200303	470	03/31/03	54.68699	-165.13082	80.8	7.2	1	11.5	15	62.4
PS200303	471	03/31/03	54.69780	-165.15302	84.3	7.2	2	11.4	24	73.5
PS200303	472	03/31/03	54.70431	-165.16631	88.3	7.3	2	11.3	14	47.8
PS200303	473	03/31/03	54.71072	-165.17952	94.3	7.3	2	11.2	16	39.8
PS200303	474	03/31/03	54.71735	-165.19290	105.2	7.3	2	11.1	9	24.0
PS200303	475	03/31/03	54.71046	-165.20551	108.8	7.3	2		3	10.3

Table A.2. Biological Specimen Collection from all AFSC 2003 Cruises.

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200301	505	1	69	4.60	1	3		0.780	3.64	0.780	0.160	0.000	21.4%
200301	508	2	85	8.10	2	2	9	0.510	6.90	0.230	0.490	0.000	7.4%
200301	508		59		2	1							
200301	510	3	57	2.23	1	2	5	0.280	1.84		0.068	0.000	15.2%
200301	513	4	47	1.02	2	1	4	TS	0.97	TS	0.016	0.010	
200301	513	5	44	0.92	2	1	3	TS	0.83	TS	0.012	0.038	
200301	514	7	79	6.46	2	2	7	0.470	5.64	0.230	0.340	0.000	8.3%
200301	516	6	84	8.32	2	2	9	0.410	7.08	0.220	0.630	0.000	5.8%
200301	518	8	75	6.76	2	2	7	0.496	4.80	0.236	0.488	0.910	10.3%
200301	518	9	104	17.80	1	3	10	4.320	12.7		0.530	0.140	34.0%
200301	518	10	70	4.48	1	3	6	0.980	3.30		0.174	0.001	29.7%
200301	518	11	59	2.57	1	3	4	0.400	2.09			0.060	19.1%
200301	524	12	70	4.32	2	2	6	0.038	3.90	0.022	0.256	0.028	1.0%
200301	526	13	74	5.44	1	2	7	0.930	4.16		0.154	0.156	22.4%
200301	526	14	67	3.01	2	1	6	0.020	2.80	0.010	0.064	0.084	0.7%
200301	532	15	60	2.98	1	2	5	0.620	2.27		0.056	0.000	27.3%
200301	532		48	1.11	2	1							
200301	532		71	5.51	1	3							
200301	532	16	54	1.81	2	1	4	0.010	1.71	TS	0.046	0.030	0.6%
200301	532	17	81	7.52	1	3	10	2.070	5.28		0.150	0.000	39.2%
200301	532		78	6.08	2	2							
200301	532		69	4.73	1	3							
200301	532		79	6.50	2	2							
200301	532	18	61	2.55	2	1	5	0.015	2.41	TS	0.100	0.000	0.6%
200301	540		60	2.51	1	2							
200301	540	19	77	5.30	2	2	7	0.196	4.68	0.100	0.278	0.042	4.2%
200301	540	20	50	1.30	1	1	4	TS	1.18	TS	0.034	0.054	
200301	541	21	100	15.94	2	2	8	1.110	12.40	0.580		0.900	9.0%
200301	540	22	52	1.53	1	1	4	TS	1.44	TS	0.032	0.030	
200301	557	23	74	4.57	2	2		0.228	3.97	0.116	0.294	0.074	5.7%
200301	557	24	74	5.59	2	2	7	0.346	4.79	0.172	0.408	0.010	7.2%
200301	557	25	66	3.86	1	2	7	0.650	3.04	TS	0.146	0.032	21.4%
200301	557	26	55	1.89	1	2	4	0.292	1.61	TS	0.030	BLOW N	18.1%
200301	557		46	1.03	1	1							
200301	557	27	45	0.97	2	1	4	0.010	0.92	TS	0.014	0.030	1.1%
200301	568	28	72	5.57	2	2	7	0.600	4.40	0.300	0.440	0.080	13.6%
200301	568		74	5.54	1	2							
200301	568		66	3.68	1	2							
200301	568		81	8.10	1	2							
200301	568	29	62	2.83	1	2	7	0.470	2.26	TS	0.042	0.064	20.8%
200301	564		76	5.66	2	2							
200301	578	30	59	2.18	2	2	5	0.088	1.97	TS	0.060	0.040	4.5%
200301	578	31	69	4.25	1	2		1.010	3.10	TS	0.080	0.040	32.6%
200301	578		46	1.19	1	1							
200301	578		60	2.34	1	2							

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200301	574		51	1.46	1	1							
200301	574		70	3.70	2								
200301	574	32	60	2.80	1	2	5	0.440	2.26				19.5%
200301	574	33	88	9.44	2	2	8	0.656	7.89	0.350	0.738	0.000	8.3%
200301	574	34	49	1.22	2	1	4	0.010	1.17	TS	0.020	0.030	0.9%
200301	574	35	59	2.43	1	1	5	0.010	2.27	TS	0.062	0.066	0.4%
200301	585	36	64	2.91	2	2	6	0.080	2.68	0.040	0.068	0.030	3.0%
200301	585	37	60	2.35	2	2	5	0.076	2.08	0.038	0.088	0.052	3.7%
200301	585		69	4.14	1	2							
200301	585	38	48	1.24	1	1	3	0.010	1.20	TS	0.024	0.048	0.8%
200301	585		71	4.79	2	2							
200301	585	39	81	7.65	2	2	8	0.600	6.34	0.296	0.642	0.000	9.5%
200301	587	40	37	0.53	2	1	3	0.010	0.51	TS	0.010	0.010	2.0%
200301	587	41	43	0.81	1	1	4	0.010	0.77	TS	0.016	0.032	1.3%
200301	594		74	5.01	2	2							
200301	594		68	4.06	1	2							
200301	594	42	74	4.92	1	2	6	0.910			0.960	BLOW N	
200301	612	43	85	8.53	1	2	8	1.830	FOR GOT	NA	0.440	BLOW N	
200301	612	44	96	12.60	2	2	9	1.020	10.15	0.520	0.890	0.230	10.0%
200301	612		79	6.42	2	2							
200301	612	45	72	4.62	1	2		0.820	3.70	NA	0.130	0.000	22.2%
200301	612	46	73	4.77	2	2	8	0.430	3.90	0.220	0.300	0.144	11.0%
200301	612		65	3.26	1	2							
200301	612		69	4.91	1	2							
200301	612	47	58	2.51	1	2	5	0.510	1.94	NA	0.060	0.030	26.3%
200301	612	48	53	1.70	1	2	5	0.240	1.41	NA	0.020	0.010	17.0%
200301	623		67	3.42	1	2							
200301	623	49	53	1.57	2	1	5	0.020	1.51	0.010	0.030	0.020	1.3%
200301	629		68	4.15	3								
200301	629	50	69	4.70	2	2	6	0.226	3.98	0.114	0.326	0.140	5.7%
200301	629	51	68	3.42	1	1	5	0.010	3.19	0.110	0.170	0.000	0.3%
200301	629		75	5.10	2	2							
200301	629		58	2.43	1	2							
200301	629		71	5.30	1	2							
200301	629	52	51	1.72	1	2	4	0.282	1.40	NA	0.038	0.040	20.1%
200301	629	53	67	3.57	2	2	7	0.254	3.16	0.124	0.196	0.000	8.0%
200301	643		62	2.91	1	2							
200301	643	54	62	2.87	2	2	6	0.146	2.49	0.080	0.106	0.060	5.9%
200301	643		62	3.22	1	2							
200301	643		62	2.26	1	2							
200301	643	55	57	2.21	2	1	5	0.240	2.00	0.100	0.050	0.186	12.0%
200301	643	56	66	3.77	1	2	6	0.722	2.90	NA	0.130	0.030	24.9%
200301	643		62	2.94	1	2							
200301	644	57	65	3.72	1	2	6	0.620	2.90	NA	0.124	0.034	21.4%
200301	644	58	64	2.95	1	1		0.010	2.68	NA	0.108	0.082	0.4%
200301	645	59	54	1.87	1	1	4	0.010	1.77	NA	0.074	0.060	0.6%
200301	645		60	2.69	1	2							

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200301	648		50	1.41	1	1							
200301	648		52	1.48	1	1							
200301	648		56	1.92	1	2							
200301	650		62	3.07	1	2							
200301	650		52	1.40	1	1							
200302	706	60	67	4.08	1	3	7	0.798	oops	N/A	0.200	0.480	
200302	706	61	75	6.00	2	1	7	0.012	5.40	0.060	0.390	0.038	0.2%
200302	706	62	60	2.59	1	1	5	0.010	2.30	N/A	0.064	0.134	0.4%
200302	711		71	4.57	1	3							
200302	711	63	61	2.94	1	3	5	0.530	2.25	N/A	0.108	0.036	23.6%
200302	711		66	3.56	1	3							
200302	711		65	4.06	1	3							
200302	711	64	84	8.60	2	3	8	1.070	6.91	0.510	0.522	0.010	15.5%
200302	711		63	3.39	1	2							
200302	709	65	64	2.99	2	2	6	0.406	2.39	0.192	0.146	0.010	17.0%
200302	709		58	2.45	1	2							
200302	719	66	58	2.76	1	4	5	0.440	2.22	N/A	0.090	0.000	19.8%
200302	719		64	3.92	1	2							
200302	719		64	3.10	1	4							
200302	727	67	54	1.87	1	3	5	0.308	1.51	N/A	0.034	0.010	20.4%
200302	727	68	56	2.40	1	4	5	0.392	1.93	N/A	0.084	0.000	20.3%
200302	727		65	3.66	1	3							
200302	727	70	61	3.20	2	2	5	0.238	2.72	0.120	0.212	0.000	8.8%
200302	727	71	63	2.79	2	2	6	0.188	2.37	0.098	0.180	0.044	7.9%
200302	727		56	1.54	1	1							
200302	727		42	0.92	1	1							
200302	732		55	1.96	1	4							
200302	732		65	4.13	1	3							
200302	732		56	1.94	1	4							
200302	732		49	1.33	1	3							
200302	732		58	2.42	1	3							
200302	732		63	3.69	1	3							
200302	732		74	5.97	1	3							
200302	732	72	72	4.79	2	3	6	0.610	3.88	0.296	0.252	0.012	15.7%
200302	734		63	3.03	1	2							
200302	734	73	69	3.91	1	1	6	0.010	3.44	N/A	0.216	0.142	0.3%
200302	734		67	4.08	1	4							
200302	734		69	4.25	1	3							
200302	734	74	70	4.87	1	1	7	0.018	4.40	N/A	0.278	0.108	0.4%
200302	738		58	2.09	1	1							
200302	738	76	66	3.37	2	3	6	0.286	2.91	0.152	0.182	0.000	9.8%
200302	746		62	3.09	1	3							
200302	746		63	2.58	1	4							
200302	746		56	2.16	1	1							
200302	746		65	3.74	1	3							
200302	746		56	1.73	1	1							
200302	746		67	4.10	1	2							
200302	746		53	1.82	1	4							

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200302	746	77	51	1.39	2	1	4	0.010	1.31	N/A	0.034	0.018	0.8%
200302	748		69	4.90	1	3							
200302	748		68	4.28	1	4							
200302	748	78	56	2.20	2	3		0.236	1.80	0.102	0.148	0.000	13.1%
200302	748		53	1.91	1	3							
200302	748		52	1.49	1	1							
200302	748		55	1.78	1	1							
200302	748	79	69	3.78	2	3	6	0.376	3.14	0.190	0.218	0.000	12.0%
200302	748		78	6.09	1	3							
200302	752		65	3.52	1	4							
200302	752		72	4.68	1	3							
200302	752		61	3.22	1	3							
200302	752		64	3.15	1	3							
200302	752	80	73	5.09	2	3	7	0.470	oops	N/A	0.378	0.000	
200302	752	81	71	4.66	2	3	6	0.524	3.80	0.260	0.228	0.072	13.8%
200302	756	82	71	4.97	2	3	6	0.422	4.12	0.021	0.356	0.026	10.2%
200302	756	83	56	1.94	2	1	5	0.012	1.86	N/A	0.040	0.000	0.6%
200302	756	84	60	2.44	2	1	5	0.015	2.26	N/A	0.078	0.058	0.7%
200302	756		75	4.73	1	3							
200302	756	85	69	4.50	2	3	6	0.374	3.74	0.190	0.310	0.060	10.0%
200302	756		53	1.68	1	1							
200302	756		73	5.19	2	3							
200302	756	86	63	3.33	2	3	6	0.402	2.64	0.196	0.200	0.062	15.2%
200302	794	87	75	6.22	2	3	7	0.692	5.05	0.356	0.456	0.000	13.7%
200302	794	88	82	8.33	2	3	7	1.084	6.11	0.506	0.590	0.490	17.7%
200302	794	89	76	5.33	2	3	7	0.568	4.42	0.252	0.304	0.000	12.9%
200302	794	90	51	1.31	2	1	4	0.008	1.26		0.044	0.002	0.6%
200302	794	91	78	4.95	2	2		0.326	4.43	0.174	0.168	0.000	7.4%
200302	794	92	71	3.70	2	1	7	0.010	3.49	0.006	0.158	0.000	0.3%
200302	794	93	60	2.31	2	2	6	0.090	2.09	0.044	0.050	0.060	4.3%
200302	794	94	74	5.33	2	3	6	0.564	4.39	0.264	0.304	0.030	12.8%
200302	794	95	80	6.72	2	3	7	0.982	5.25	0.478	0.426	0.000	18.7%
200302	794	96	57	2.05	2	1	5	0.012	1.92	0.007	0.022	0.038	0.6%
200302	794	97	71	5.03	2	3	7	0.638	3.96	0.324	0.296	0.114	16.1%
200302	794	98	46	0.98	2	1	3	0.006	0.94	N/A	0.020	0.000	0.6%
200302	794	99	57	2.05	2	1	5	0.010	1.95	N/A	0.076	0.004	0.5%
200302	794	100	66	2.84	2	2	6	0.106	2.66	0.046	0.052	0.014	4.0%
200302	802	101	78	6.40	2	3	7	0.838	5.09	0.384	0.312	0.108	16.5%
200302	802	102	65	3.30	2	3	6	0.404	2.76	0.198	0.124	0.000	14.6%
200302	802	103	64	3.35	2	2.5	6	0.268	2.85		0.214	0.000	9.4%
200302	802	104	89	12.02	2	3	8	1.578	8.84	0.758	0.784	0.782	17.9%
200302	802	105	80	7.18	2	3	7	0.788			0.586	0.054	
200302	802	106	63	3.28	2	3	6	0.406	2.57	0.178	0.214	0.084	15.8%
200302	802	107	64	3.62	2	2.5	6	0.524	2.72	0.262	0.360	0.008	19.3%
200302	802	108	67	3.81	2	2.5	5	0.308	3.26	0.162	0.222	0.000	9.4%
200302	802	109	70	3.95	2	3	6	0.496	3.19	0.242	0.234	0.000	15.5%
200302	802	110	69	3.95	2	2.5	6	0.288	3.39	0.142	0.194	0.058	8.5%
200302	802	111	80	7.34	2	3	7	1.000	5.89	0.524	0.310	0.108	17.0%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	Weights (Kg) body				
200302	802	112	83	8.77	2	3	8	0.868	7.22	0.418	0.624	0.010	12.0%
200302	802	113	62	3.04	2	2	4	0.214	2.62	0.120	0.194	0.000	8.2%
200302	802	114	71	4.97	2	3	7	0.556	4.11	0.292	0.238	0.034	13.5%
200302	802	115	74	5.01	2	3	7	0.584	4.17	0.270	0.236	0.008	14.0%
200302	802	116	55	1.85	2	1	4	0.010	1.76		0.066	0.000	0.6%
200302	802	117	61	2.63	2	2	5	0.226	2.19	0.112	0.138	0.072	10.3%
200302	820	118	75	6.02	2	3	7	0.892	4.48	0.452	0.422	0.208	19.9%
200302	820	119	70	3.98	2	3	7	0.510	3.27	0.265	0.168	0.008	15.6%
200302	820	120	74	5.93	2	3	7	0.842	4.40	0.448	0.334	0.262	19.1%
200302	820	121	77	6.04	2	3	8	0.632	5.04	0.320	0.306	0.046	12.5%
200302	820	122	79	6.55	2	3	8	1.116	5.12	0.536	0.280	0.000	21.8%
200302	820	123	60	2.76	2	2.5	5	0.284	2.20	0.144	0.156	0.098	12.9%
200302	820	124	68	3.95	2	3	8	0.632	3.08	0.322	0.212	0.000	20.5%
200302	820	125	68	4.32	2	2.5	6	0.340	3.41	0.182	0.244	0.276	10.0%
200302	820	126	75	6.09	2	3	7	0.724	4.83	0.386	0.444	0.044	15.0%
200302	820	128	57	2.21	2	1	5	0.013	2.02	N/A	0.068	0.090	0.6%
200302	820	127	66	3.80	2	2.5	6	0.336	3.10	0.160	0.320	0.032	10.8%
200302	820	129	59	2.66	2	2.5	5	0.340	2.19	0.178	0.128	0.000	15.5%
200302	828	130	52	1.57	2	2	5	0.164	1.35	0.074	0.058	0.000	12.1%
200302	828	131	58	2.17	2	1	5	0.010	2.03	N/A	0.108	0.020	0.5%
200302	828	132	73	5.37	2	3	7	0.698	4.24	0.318	0.386	0.004	16.5%
200302	828	133	68	4.06	2	3	6	0.544	3.26	0.258	0.238	0.000	16.7%
200302	828	134	46	1.12	2	1	6	0.010	1.06	N/A	0.028	0.000	0.9%
200302	828	135	61	2.80	2	3	5	0.374	2.26	0.190	0.170	0.000	16.5%
200302	828	136	60	3.00	2	2	5	0.312	2.49	0.164	0.164	0.000	12.5%
200302	828		52	1.45	2	1		0.010	1.36		0.070	0.000	0.7%
200302	828		61	2.07	2	1		0.016	1.97		0.066	0.026	0.8%
200302	828		60	2.70	2	3		0.342	2.18		0.146	0.020	15.7%
200302	828	137	66	3.39	2	2.5	6	0.440	2.76	0.220	0.188	0.000	15.9%
200302	828	138	54	1.99	2	2	4	0.316	1.54	0.154	0.106	0.000	20.5%
200302	828		67	3.73	2	3		0.512	3.02		0.200	0.000	17.0%
200302	828		53	1.79	2	2		0.134	1.56		0.080	0.004	8.6%
200302	878	139	79	6.98	2	3	9	0.872	5.60	0.464	0.384	0.048	15.6%
200302	878	140	56	2.19	2	2.5	5	0.290	1.77	0.152	0.090	0.000	16.4%
200302	878	141	59	2.71	2	2.5	4	0.314	2.20	0.146	0.190	0.000	14.3%
200302	878	142	65	3.89	2	3		0.706	2.93	0.354	0.224	0.000	24.1%
200302	878	143	53	1.68	2	1	4	0.010	1.62	0.050	0.050	0.000	0.6%
200302	878	144	75	5.68	2	3	7	0.468	4.72	0.258	0.414	0.060	9.9%
200302	878	145	47	1.20	2	1	4	0.002	1.11	N/A	0.058	0.022	0.2%
200302	878	146	63	3.56	2	3	5	0.546	2.79	0.280	0.208	0.000	19.6%
200302	878	147	50	1.44	2	1	4	0.006	1.37	N/A	0.060	0.000	0.4%
200302	878	148	55	2.30	2	2.5	5	0.228	1.94	0.110	0.118	0.000	11.8%
200302	878	149	50	1.35	2	2	4	0.090	1.21	0.050	0.050	0.000	7.4%
200302	878	150	49	1.34	2	1	4	0.008	1.28	N/A	0.046	0.000	0.6%
200302	878	151	60	2.49	2	1	5	0.014	2.31	oops	0.116	0.014	0.6%
200302	878	152	58	2.35	2	2	5	0.250	1.98	0.122	0.094	0.000	12.6%
200302	871	153	71	4.75	2	3	7	0.716	3.66	0.364	0.170	0.162	19.6%
200302	871	154	50	1.43	2	1	4	0.008	1.27	0.004		0.094	0.6%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200302	871	155	76	5.99	2	3	7	0.666	4.81	0.356	0.350	0.140	13.8%
200302	871	156	54	1.82	2	1	4	0.010	1.72	N/A	0.082	0.002	0.6%
200302	871		60	2.82	2	1		0.014	2.52		0.120	0.150	0.6%
200302	871		54	1.85	2	1		0.010	1.71		0.086	0.040	0.6%
200302	871		78	6.10	2	3		0.934	4.65		0.264	0.188	20.1%
200302	871	157	67	3.47	2	2.5	6	0.296	2.79	0.148	0.162	0.202	10.6%
200302	871	158	58	2.05	2	1	4	0.012	1.89	N/A	0.108	0.030	0.6%
200302	898	159	72	4.65	2	2.5	6	0.482	3.89		0.236	0.038	12.4%
200302	898	160	51	1.52	2	2	4	0.114	1.27	0.050	0.078	0.006	9.0%
200302	898	161	66	3.64	2	3	6	0.352	3.03	0.172	0.234	0.012	11.6%
200302	898	162	50	1.24	2	1	4	0.010	1.18		0.040	0.000	0.8%
200302	898		67	4.01	2	3		0.398	3.38		0.210	0.000	11.8%
200302	898		69	4.92	2	3		0.660	3.88		0.220	0.140	17.0%
200302	898	163	64	3.55	2	3	7	0.488	2.86	0.244	0.190	0.000	17.1%
200302	898	164	42	0.91	2	1	4	0.004	0.87	N/A	0.024	0.000	0.5%
200302	898	165	DID NOT DO- LOST SPECIMEN CONTAINERS										
200302	898	166	71	3.98	2	2	7	0.094	3.45	0.040	0.154	0.228	2.7%
200302	898		68	3.77	2	3		0.470	3.09	?	0.186	0.006	15.2%
200302	898	167	59	2.59	2	2.5		0.330	2.11		0.145	0.010	15.6%
200302	898		68	3.82	2	3		0.480	3.13	0.162	0.176		15.3%
200302	898		59	2.41	2	2.5		0.176	1.99		0.142	0.094	8.8%
200302	898	168	54	1.90	2	2	5	0.134	1.66		0.090	0.020	8.1%
200302	898	169	68	2.89	2	1	7	0.004	2.75	0.072	0.068	0.036	0.1%
200302	898	170	55	1.60	2	1	5	0.012	1.52	N/A	0.040	0.006	0.8%
200302	898	171	64	2.96	2	2.5	5	0.272	2.50	0.006	0.170	0.006	10.9%
200302	889		60	2.83	2	3		0.470	2.22	0.154	0.134	0.000	21.2%
200302	889		71	4.71	2	2.5		0.336	3.94		0.280	0.134	8.5%
200302	889		67	3.48	2	3		0.418	2.81		0.228	0.000	14.9%
200302	889	172	98	14.36	2	3	10	2.060	11.11		0.786	0.402	18.5%
200302	889	173	81	5.76	2	1	8	0.012	4.94	1.080	0.306	0.468	0.2%
200302	889		58	2.06	2	1		0.012	1.96	oops	0.054	0.032	0.6%
200302	889		47	1.05	2	1		0.008	1.02		0.024	0.000	0.8%
200302	889		72	4.72	2	3		0.600	3.89		0.210	0.016	15.4%
200302	889	174	64	2.63	2	1	5	0.010	2.55	N/A	0.064	0.002	0.4%
200302	889	175	DID NOT DO- LOST SPECIMEN CONTAINERS										
200302	905		68	4.53	2	2.5		0.452	3.69		0.314	0.072	12.2%
200302	905	176	71	3.65	2	1	6	0.020	3.41	0.010	0.156	0.038	0.6%
200302	905	177	57	2.15	2	2.5		0.206	1.82	0.100	0.112	0.000	11.3%
200302	905	178	46	1.10	2	1	4	0.006	1.02	N/A	0.026	0.008	0.6%
200302	909		69	3.79	2	3		0.272	2.99		0.178	0.010	9.1%
200302	909	179	91	9.66	2	3	8	1.453	7.19	0.772	0.882	0.018	20.2%
200302	909	180	95	11.48	2	3	8	1.240	8.75	0.660	0.998	0.438	14.2%
200302	909	181	55	1.77	2	1	5	0.012	1.69	N/A	0.036	0.022	0.7%
200302	920	182	96	11.93	2	3	9	1.034	9.67	0.610	0.898	0.000	10.7%
200302	920		67	3.71	2	3		0.496	2.96		0.194	0.048	16.8%
200302	920		51	1.28	2	1		0.006	1.24		0.026	0.018	0.5%
200302	920		50	1.31	2	1		0.007	1.20		0.032	0.026	0.6%
200302	931		66	3.19	2	2		0.230	2.80		0.140	0.016	8.2%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200302	931		46	1.07	2	1		0.006	1.02		0.032	0.000	0.6%
200302	931	183	52	1.36	2	1	5	0.010	1.32	N/A	0.026	0.002	0.8%
200302	931		51	1.36	2	1		0.008	1.31		0.028	0.002	0.6%
200302	931		64	3.12	2	2.5		0.146	2.73		0.140	0.030	5.3%
200302	931		60	2.21	2	1		0.014	2.16		0.036	0.004	0.6%
200302	931		70	3.85	2	3		0.254	3.31		0.282	0.000	7.7%
200302	931	184	41	0.74	2	1	3	0.006	0.71		0.020	0.000	0.8%
200302	931		60	2.75	2	2.5		0.240	2.35		0.150	0.000	10.2%
200302	931		69	3.86	2	3		0.480	3.19		0.136	0.000	15.0%
200302	931	185	62	2.44	2	1	6	0.014	2.33	0.007	0.068	0.020	0.6%
200302	931	186	66	2.93	2	1	5	0.016	2.72	0.006	0.112	0.064	0.6%
200302	931	187	42	0.67	2	1	3	0.006	0.63	N/A	0.018	0.000	1.0%
200302	931		45	0.80	2	1		0.006	0.78		0.010	0.000	0.8%
200302	940	188	64	2.54	2	1	6	0.012	2.43	0.006	0.082	0.008	0.5%
200302	940		76	5.17	2	3		0.464	4.24		0.402	0.036	10.9%
200302	940	189	59	2.07	2	2	5	0.126	1.82	0.064	0.082	0.012	6.9%
200302	940		76	5.93	2	3		0.883	4.550		0.432	0.034	19.4%
200302	940		57	2.02	2	1		0.012	1.920		0.070	0.000	0.6%
200302	940		50	1.32	2	1		0.008	1.240		0.036	0.026	0.6%
200302	940		48	1.05	2	1		0.008	1.000		0.024	0.002	0.8%
200302	940	190	69	3.30	2	1	6	0.020	3.100	0.012	0.172	0.000	0.6%
200302	940		81	7.00	2	3		0.954	5.450		0.386	0.168	17.5%
200302	940	191	68	3.14	2	1	6	0.020	2.970	0.014	0.122	0.000	0.7%
200302	940		82	7.93	2	3		1.148	6.190		0.567	0.007	18.5%
200302	940		69	4.33	2	2.5		0.494	3.540		0.282	0.000	14.0%
200302	940	192	62	2.49	2	1	5	0.015	2.410	N/A	0.052	0.000	0.6%
200302	953		60	2.28	2	1		0.010	2.170		0.070	0.010	0.5%
200302	953		72	4.83	2	3		0.628	3.930		0.226	0.022	16.0%
200302	953		84	7.45	2	3		0.824	6.160		0.496	0.008	13.4%
200302	953		70	4.79	2	2.5		0.468	3.770			0.104	12.4%
200302	953		70	4.44	2	3		0.680	3.510		0.216	0.022	19.4%
200302	957		45	0.95	2	1		0.006	0.92		0.030	0.006	0.7%
200302	957	193	89	11.73	2	3	7	1.960	8.80	0.970	0.870	0.000	22.3%
200302	957	194	82	7.25	2	3	7	0.816	5.84	0.394	0.552	0.000	14.0%
200302	957		62	2.24	2	1		0.014	2.15		0.048	0.012	0.7%
200302	957		71	5.80	2	3		0.788	4.47		0.514	0.016	17.6%
200302	957		49	1.31	2	1		0.006	1.25		0.034	0.004	0.5%
200302	957		67	3.10	2	2		0.196	2.76		0.130	0.000	7.1%
200302	957		44	0.93	2	1		0.004	0.89		0.014	0.000	0.4%
200302	957		45	0.97	2	1		0.004	0.91		0.020	0.012	0.4%
200302	957	195	59	1.91	2	1	5	0.008	1.86	N/A	0.054	0.012	0.4%
200302	957		59	2.12	2	1		0.012	2.05		0.062	0.000	0.6%
200302	972		55	1.65	2	1		0.010	1.58		0.056	0.000	0.6%
200302	972		73	5.23	2	3		0.560	4.22		0.310	0.095	13.3%
200302	972	196	106	17.25	2	3	10	1.858	13.93	0.940	1.350	0.018	13.3%
200302	972	197	62	2.67	2	2	5	0.180	2.37	0.094	0.112	0.004	7.6%
200302	972	198	65	2.91	2	2	7	0.333	2.43	0.152	0.124	0.000	13.7%
200302	972		61	2.47	2	1							

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200302	972		65	3.00	2	2							
200302	972		72	5.33	2	2.5							
200302	972		63	3.04	2	2.5							
200302	972		47	0.95	2	1							
200302	972		51	1.43	2	1							
200302	972		61	2.07	2	1							
200302	972		51	1.37	2	1							
200302	972		61	2.43	2	1							
200302	972		51	1.36	2	1							
200302	1012		72	4.06	2	2.5		0.338	3.47		0.232	0.020	9.7%
200302	1012		48	1.21	2	1		0.006	1.13		0.024	0.024	0.5%
200302	1012		68	3.83	2	2		0.252	3.14		0.086	0.314	8.0%
200302	1012		70	4.39	2	3		0.476	3.57		0.296	0.014	13.3%
200302	1012	199	63	3.43	2	1	5	0.020	2.91	0.010	0.102	0.358	0.7%
200302	1012		58	2.18	2	1		0.012	2.10		0.056	0.002	0.6%
200302	1012		56	1.82	2	1		0.014	1.74		0.046	0.012	0.8%
200302	1012		44	0.76	2	1		0.006	0.73		0.018	0.004	0.8%
200302	1012		61	1.83	2	1		0.012	1.76		0.044	0.012	0.7%
200302	1012		58	1.88	2	1		0.012	1.80		0.044	0.022	0.7%
200302	1012		48	1.23	2	1		0.006	1.15		0.028	0.034	0.5%
200302	1005	200	88	7.72	2	3	8	0.690	6.39	0.342	0.568	0.000	10.8%
200302	996	201	87	7.64	2	3	7	1.530	5.87	N/A	0.222	0.000	26.1%
200302	999	202	85	8.87	2	3	8	0.972	7.20	0.462	0.476	0.130	13.5%
200302	999	203	90	10.30	2	3	7	1.020	7.98	0.452	1.120	oops	12.8%
200302	1014	204	94	11.41	2	3	8	2.262	8.38	1.138	0.700	0.000	27.0%
200302	999		72	4.84	2	3		0.640	3.78		0.374	0.030	16.9%
200302	999		75	5.53	2	3		0.590	4.47		0.422	0.024	13.2%
200302	999		60	2.83	2	2		0.150	2.35		0.130	0.172	6.4%
200302	999		79	7.34	2	3		1.298	5.60		0.404	0.000	23.2%
200302	999		73	4.66	2	3		1.032	3.43		0.176	0.005	30.1%
200302	999		64	3.28	2	3		0.368	2.70		0.194	0.012	13.6%
200302	999		77	5.25	2	3		0.658	4.25		0.282	0.016	15.5%
200302	999		69	4.30	2	3		0.630	3.31		0.306	0.048	19.0%
200302	999	205	68	3.86	1	3	8	0.594	3.16	N/A	0.098	0.012	18.8%
200302	999	206	61	2.80	1	4	4	0.494	2.20	N/A	0.076	0.012	22.5%
200302	999	207	88	10.15	2	3	8	1.088	7.92	OOPS	1.064	0.008	13.7%
200302	986		52	1.47	2	1		0.008	1.43		0.032	0.000	0.6%
200302	986		70	5.23	2	2		0.350	4.03		0.350	0.474	8.7%
200302	986		55	1.75	2	1		0.014	1.63		0.078	0.000	0.9%
200302	986		74	5.01	2	3		0.544	4.13		0.314	0.008	13.2%
200302	986	208	87	9.31	2	3	9	1.160	7.46	0.666	0.644	0.000	15.5%
200302	986		73	3.82	2	1		0.022	3.68		0.068	0.024	0.6%
200302	986		61	2.42	2	1		0.014	2.29		0.100	0.006	0.6%
200302	986		46	1.03	2	1		0.006	1.00		0.020	0.002	0.6%
200302	986		71	4.94	2	3		0.604	3.99		0.276	0.068	15.1%
200302	986		86	9.24	2	3		1.460	7.21		0.508		20.2%
200302	986		61	2.34	2	1		0.020	2.26		0.032	0.016	0.9%
200302	986		59	2.30	2	1		0.012	2.20		0.092	0.000	0.5%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	Weights (Kg) body				
200302	980		93	9.28	1	3		1.516	7.35		0.346	0.000	20.6%
200302	978	209	92	11.87	2	3	8	1.476	8.44	oops	1.028	0.806	17.5%
200302	986		49	1.07	1	1		0.002	1.05		0.024	0.005	0.2%
200302	986		69	4.21	1	4		0.944	3.18		0.094	0.000	29.7%
200302	986		68	4.33	1	3		0.898	3.24		0.202	0.000	27.7%
200302	986		68	3.20	1	1		0.010	3.13		0.058	0.000	0.3%
200302	986		71	4.40	1	3		0.794	3.47		0.138	0.010	22.9%
200302	986		56	1.71	1	1		0.003	1.65		0.044	0.000	0.2%
200302	986		72	4.55	1	3		0.772	3.64		0.146	0.000	21.2%
200302	986		62	2.45	1	1		0.002	2.38		0.062	0.000	0.1%
200302	986		48	1.19	1	1		0.001	1.14		0.034	0.012	0.1%
200302	986		52	1.50	1	1		0.002	1.47		0.036	0.000	0.1%
200302	986		67	3.77	1	3		0.506	3.16		0.064	0.010	16.0%
200302	986		64	3.08	1	3		0.482	2.52		0.078	0.000	19.1%
200302	1023	210	63	3.02	1	4	6	0.468	2.45	N/A	0.106	0.008	19.1%
200302	1023		70	4.31	1	3		0.830	3.31		0.110	0.076	25.1%
200302	1023		65	3.75	1	3		0.810	2.79		0.098	0.012	29.0%
200302	1023		74	5.39	1	3		1.210	3.84		0.312	0.004	31.5%
200302	1023		49	1.16	1	1		0.004	1.12		0.022	0.000	0.4%
200302	1023		78	6.53	1	4		1.330	4.84		0.342	0.016	27.5%
200302	1033	211	103	16.57	2	3	9	2.120	12.87	0.980	1.100	0.140	16.5%
200303	10	250	36	0.47	2	1	3	0.001	0.414		0.008	0.001	0.2%
200303	19	251	55	1.728	1	3	5	0.25	1.346		0.2	0.001	18.6%
200303	19	252	75	3.42	2	5	8	0.08	3.386	0.036	0.13	0.001	2.4%
200303	19	253	70	3.56	1	5	6	0.044	3.126		0.116	0	1.4%
200303	19	254	73	4.4	1	5	7	0.066	3.434		0.148	0	1.9%
200303	19	255	57	2.276	1	3	4	0.338	1.74		0.078	0.002	19.4%
200303	19	256	69	4.64	2	3	7	0.832	3.264	0.42	0.186	0.004	25.5%
200303	19	257	68	3.772	2	3		0.466	2.844	0.212	0.152	0.034	16.4%
200303	19	258	50	1.274	1	5	4	0.008	1.198	0.008	0.05	0.006	0.7%
200303	19	259	53	1.722	1	1	6	0.004	1.414		0.044	0.016	0.3%
200303	19	260	68	4.306	2	3	7	0.708	3.136	0.336	0.218	0.001	22.6%
200303	19	261	66	3.33	1	5	5	0.062	2.906	0.062	0.1	0.001	2.1%
200303	19	262	57	2.272	1	5	7	0.028	1.822	0.028	0.06	0.108	1.5%
200303	19	263	72	4.612	1	3	7	0.66	3.588		0.12	0.006	18.4%
200303	19	264	66	3.854	1	4	6	0.544	2.642		0.144	0.3	20.6%
200303	19	265	62	2.51	2	1	6	0.016	2.112	0.008	0.044	0.012	0.8%
200303	57	267	68	3.486	1	5	7	0.066	2.936		0.194	0	2.2%
200303	57	268	80	6.59	2	3	7	1.078	4.574	0.54	0.37	0.052	23.6%
200303	57	269	64	3.09	1	3	6	0.402	2.35		0.118	0.012	17.1%
200303	57	270	80	8.025	2	4	7	2.784	4.46	1.658	0.34	0	62.4%
200303	57	271	63	2.896	1	4	6	0.402	2.24		0.088	0	17.9%
200303	57	272	69	3.406	1	5	7	0.046	3.054		0.098	0	1.5%
200303	57	273	64	3.624	2	3	5	0.472	2.314	0.238	0.15	0.458	20.4%
200303	57	274	53	1.724	1	4	6	0.296	1.294		0.044	0.001	22.9%
200303	57	275	60	2.508	2	1	6	0.018	2.104	0.014	0.136	0.001	0.9%
200303	88	276	75	5.756	2	3	9	1.076	3.986	0.502	0.18	0.032	27.0%
200303	88	277	61	2.362	1	5	5	0.032	2.088		0.078	0.001	1.5%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200303	88	278	67	3.216	2	1	7	0.094	2.638	0.046	0.142	0	3.6%
200303	88	279	50	1.306	1	1		0.008	1.188		0.046	0.006	0.7%
200303	88	280	63	3.256	1	1		0.012	2.544		0.128	0.29	0.5%
200303	88	281	66	3.864	2	3	5	0.768	2.728	0.374	0.158	INV	28.2%
200303	88		64		1	3							
200303	88	282	64	3.112	2	3	6	0.416	2.274	0.198	0.184	0.02	18.3%
200303	88		71		1	5							
200303	88		54		2	1							
200303	88		59		1	5							
200303	99	282	76	5.444	1	4	7	0.988	3.846		0.306	0	25.7%
200303	99		60		1	5							
200303	99		59		1	5							
200303	99	283	74	4.36	2	5	7	0.126	3.578		0.254	0.001	3.5%
200303	99	284	69	3.252	2	5	6	0.03	2.834	0.014	0.07	0.43	1.1%
200303	99	285	69	4.16	2	3		0.616	2.96	0.28	0.276	0.001	20.8%
200303	99	286	72	3.752	1	5	8	0.042	3.284	0.042	0.06	0.042	1.3%
200303	99	287	53	1.59	2	1	4	0.012	1.344	0.006	0.058	0.014	0.9%
200303	99	288	59	2.116	2	1	5	0.012	1.93	0.008	0.032	0.004	0.6%
200303	119	289	64	2.872	2	5	7	0.12	2.368	0.054	0.104	0.001	5.1%
200303	119	290	71	4.854	1	5	7	0.052	3.044		0.188	0.252	1.7%
200303	119	291	62	2.314	1	5	6	0.034	2.028		0.102	0.004	1.7%
200303	119	292	79	5.46	2	5	7	1.86	4.558	0.096	0.148	0	40.8%
200303	119	293	82	6.465	2	5	7	0.33	5.284	0.156	0.242	0.012	6.2%
200303	119	294	76	5.402	2	4	7	1.114	3.778	0.592	0.202	0.038	29.5%
200303	119	295	56	1.888	1	3	6	0.284	1.442		0.05	0.002	19.7%
200303	119	296	52	1.534	2	1	4	0.008	1.328	0.01	0.062	0.008	0.6%
200303	141	297	78	5.362	1	5	9	0.104	4.316		0.222	0.082	2.4%
200303	141	298	70	5.544	2	3	6	0.726	3.736	0.586	0.476	0.122	19.4%
200303	141	299	55	1.962	2	1	5	0.014	1.632	0.006	0.056	0.06	0.9%
200303	141	300	74	3.65	1	5	6	0.088	3.156		0.094	0.008	2.8%
200303	141	301	45	0.862	2	1	4	0.002	0.744	0.001	0.018	0.008	0.3%
200303	141	302	57	2.216	2	3	5	0.366	1.616	0.174	0.094	0.004	22.6%
200303	141	303	56	2.268	1	1	5	0.012	1.934		0.142	0.012	0.6%
200303	141		71		1	5							
200303	141	304	66	2.852	1	5	7	0.036	2.508		0.102	0.01	1.4%
200303	141	305	57	1.922	1	5	5	0.016	1.684		0.048	0.03	1.0%
200303	160	306	83	7.19	2	5	9	0.258	6.17	0.122	0.256	0.03	4.2%
200303	160	307	65	3.636	2	5	7	0.102	3.002	0.46	0.26	0.001	3.4%
200303	160		66	2.846	1	5							
200303	160	308	76	5.59	1	4	7	1.138	3.938		0.146	0.001	28.9%
200303	160	309	74	5.012	2	5	9	0.146	4.306	0.07	0.186	0.016	3.4%
200303	160	310	63	2.756	1	5	6	0.034	2.314		0.132	0.026	1.5%
200303	160	311	68	3.856	2	5	6	0.166	3.168	0.086	0.134	0.032	5.2%
200303	170	312	88	7.1	2	4	9	0.198	5.822	0.96	0.338	0	3.4%
200303	171	313	69	4.246	1	3	6	0.7	3.054		0.112	0.172	22.9%
200303	172	314	61	2.592	2	3	5	0.238	2.054	0.116	0.122	0.006	11.6%
200303	174	315	76	5.528	2	5	7	0.104	4.356	0.052	0.21	0.196	2.4%
200303	174	316	76	7.84	2	3	7	1.174	4.528	0.55	0.302	0.006	25.9%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200303	174		55		2	1							
200303	174		54		1	1							
200303	174		52		1	5							
200303	241	317	61	2.87	2	3	6	0.322	2.248	0.176	0.114	0	14.3%
200303	242		66		1	5							
200303	242	318	97	10.97	2	5	9	0.38	9.965	0.198	0.348	0	3.8%
200303	242		76		1	5							
200303	242		56		1	1							
200303	248		78		1	5							
200303	248	319	53	1.498	2	1	4	0.01	1.334	0.014	0.034	0.003	0.7%
200303	248	320	60	2.814	1	4		0.412	2.186		0.078	0	18.8%
200303	248		75		1	5							
200303	248		66		1	5							
200303	248	321	65	3.284	1	5	7	0.058	2.838		0.18	0.008	2.0%
200303	248		70		1	5							
200303	252	322	64	2.556	1	5	5	0.026	2.274		0.05	0	1.1%
200303	252	323	52	1.608	2	1	4	0.014		0.006	0.036	0.034	
200303	252	324	49	1.142	1	5	4	0.014	1.006		0.02	0.01	1.4%
200303	252	325	60	2.146	1	5	5	0.024	1.852		0.062	0.068	1.3%
200303	252	326	58	2.114	1	5		0.028	1.834		0.038	0.006	1.5%
200303	261	327	45	0.956	1	1	4	0.004	0.832		0.018	0.012	0.5%
200303	265	328	41	0.658	1	1	3	0.002	0.58		0.016	inv	0.3%
200303	266	329	43	0.798	1	1	3	0.001	0.71		0.016	0.002	0.1%
200303	268		46		2	1							
200303	268	330	42	0.684	2	1	3	0.004	0.604	0.002	0.014	0.006	0.7%
200303	268	331	35	0.472	1	1	2	0.001	0.384		0.01	0.01	0.3%
200303	271	332	86	7.405	2	1	7	0.276	6.105	0.126	0.282	0.042	4.5%
200303	276	333	44	1.014	2	1	4	0.008	0.892	0.004	0.036	0.002	0.9%
200303	276	334	60	2.244	2	5	6	0.05	2.012	0.026	0.064	0.004	2.5%
200303	280	335	46	1.068	1	1	4	0.008	0.928	0.002	0.038	0.001	0.9%
200303	280	336	60	2.516	2	1	6	0.02	2.114	0.006	0.06	0.068	0.9%
200303	284	337	69	3.408	1	5	7	0.05			0.127	0.004	
200303	286	338	67	3.136	2	5	7	0.162		0.082	0.086	0.002	
200303	286	339	60	2.33	2	1	6	0.014	2	0.006	0.038	0.012	0.7%
200303	286	340	50	1.28	1	4	5	0.208	0.984		0.014	0	21.1%
200303	286	341	58	1.842	2	5	5	0.064	1.63	0.03	0.048	0	3.9%
200303	306	342	83	7.3	2	3	8	1.086	5.39	5.34	0.382	0	20.1%
200303	307		69		2	3							
200303	307	343	43	0.874	2	1	4	0.004	0.76	0.002	0.036	0.002	0.5%
200303	312		64		1	5							
200303	312	344	65	3.506	2	3	5	0.414	2.642	0.198	0.198	0.004	15.7%
200303	312	345	50	1.404	2	1	4	0.008	1.198	0.004	0.052	0.002	0.7%
200303	314	346	66	3.704	2	3	6	0.532	2.668	0.264	0.156	0.068	19.9%
200303	314	347	66	2.756	1	5	6	0.034	2.412		0.1	0.006	1.4%
200303	314	348	45	0.972	2	1	4	0.008	0.558	0.004	0.028	0.004	1.4%
200303	315	349	86	8.05	2	5	8	0.41	6.53	0.23	0.424	0	6.3%
200303	321	350	84	7.025	2	5	6	0.28	5.646	0.118	0.414	0	5.0%
200303	332	351	71	3.932	2	5	7	0.05	3.416	0.024	0.124	0	1.5%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200303	332	352	74	4.156	2	5	7	0.136	3.364	0.062	0.08	0.078	4.0%
200303	332		62		1	1							
200303	332	353	74	5.286	2	3		0.654	3.715	0.318	0.184	0.358	17.6%
200303	317	354	50	1.34	2	1			1.212		0.025	0.012	0.0%
200303	317		62		1	3							
200303	317		72		1	5							
200303	342		77		1	5							
200303	342	355	58	2.228	2	1	6	0.012	1.81	0.008	0.094	0.06	0.7%
200303	344	356	71	4.412	2	5	7	0.202	3.648	0.106	0.228	0.006	5.5%
200303	344	357	81	6.31	1	4	8	0.884	4.87		0.212	0.002	18.2%
200303	304	358	49	1.226	1	1	4	0.006	1.098	0.004	0.03	0.002	0.5%
200303	350	359	88	7.815	2	5	8	0.188	7.275	0.108	0.218	0.07	2.6%
200303	350	360	44	0.93	2	1	4	0.006	0.772	0.004	0.023	0.008	0.8%
200303	350		87		2	5							
200303	352	361	43	0.81	1	1	3	0.001	0.7		0.03	0.006	0.1%
200303	355	362	48	0.964	2	1	3	0.008	0.856	0.006	0.02	0.006	0.9%
200303	360	363	46	1.034	2	1	4	0.01	0.896	0.004	0.026	0.01	1.1%
200303	367	364	72	4.502	2	3	7	0.672	3.132	0.328	0.214	0.156	21.5%
200303	367		75		1	5							
200303	362	365	81	5.138	1	5	9	0.096	4.458		0.16	0.034	2.2%
200303	362		73		1	5							
200303	362	366	52	1.334	1	5	4	0.016	1.202		0.024	0.004	1.3%
200303	363	367	45	0.936	2	1	4	0.006	0.82	0.002	0.034	0.004	0.7%
200303	364	368	84	7.585	2	3	7	1.06	5.686	0.518	0.36	0.001	18.6%
200303	368	369	106	18.09	2	5	13	1.366	14.44	0.65	0.478	0.176	9.5%
200303	366	370	46	0.876	2	5	4	0.02	0.768	0.012	0.018	0.001	2.6%
200303	385	371	37	0.524	2	1	3	0.006	0.458	0.002	0.02	0.004	1.3%
200303	377		56		1	1							
200303	377	372	60	2.14	2	1	6	0.012	1.926	0.006	0.042	0.002	0.6%
200303	377		45		2	1							
200303	377		47		1	1							
200303	377		50		1	1							
200303	377	373	43	0.76	2	1	3	0.006	0.662	0.002	0.014	0.004	0.9%
200303	398	374	59	2.088	2	3	5	0.104	1.756		0.066	0.004	5.9%
200303	401	375	54	1.924	1	3	5	0.296	1.492		0.046	0.002	19.8%
200303	401	376	58	2.262	2	1	7	0.018	1.922	0.01	0.096	0.022	0.9%
200303	397		65		2	3							
200303	397	377	91	9.45	2	5	9	0.184	7.395	0.092	0.502	0.328	2.5%
200303	406	378	81	5.03	1	5	8		4.432	0.076	0.18		0.0%
200303	406	379	56	1.87	2	1	5	0.02	1.686	0.014	0.048	0.01	1.2%
200303	406	380	66	2.694	2	5	5	0.066	2.38	0.036	0.07	INV	2.8%
200303	406		71		1	5							
200303	406	381	58	2.252	2	1	4	0.01	1.946	0.006	0.078	0.002	0.5%
200303	406	382	87	6.89	1	5	9	0.142	5.726		0.512	0.001	2.5%
200303	406	383	52	1.44	2	1	5	0.014	1.234	0.008	0.032	0.032	1.1%
200303	408	384	58	1.82	2	1	5	0.014	1.61	0.006	0.034	0.002	0.9%
200303	408	385	55	1.628	1	1	6	0.001	1.458		0.026	0.018	0.1%
200303	410	386	81	7.28	1	5	8	0.082	5.208		0.306	1.022	1.6%

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200303	417		79		1	5							
200303	417	387	53	1.72	2	1	5		1.474		0.056	0.026	0.0%
200303	417	388	50	1.37	2	1	4	0.008	1.194	0.004	0.048		0.7%
200303	411	389	63	2.7	2	3	6	0.356	3.008	0.184	0.114	0.042	11.8%
200303	411	390	90	9.015	2	5	7	0.384	7.47	0.18	0.29	INV	5.1%
200303	411	391	54	1.976	1	4	4	0.316	1.422		0.082	0.01	22.2%
200303	414	392	64	3.112	2	3	6	0.476	2.242	0.234	0.088	0.066	21.2%
200303	414	393	58	2.158	2	1	5	0.018	1.734	0.012	0.078	0.052	1.0%
200303	414	394	58	1.944	1	1	5		1.744	0.001	0.046	0.018	0.0%
200303	414	395	67	2.958	2	5	7	0.072	2.29	0.032	0.074	0.292	3.1%
200303	409	396	82	6.055	1	5	7	0.078	4.72		0.248	0.42	1.7%
200303	409		80		1	5							
200303	409		52		2	1							
200303	407		52		2	1							
200303	407		51	1.326	2	1							
200303	407	397	62	2.91	2	3	6	0.426	2.101	0.218	0.17	N/A	20.3%
200303	404		54		1	1							
200303	404		52		2	1							
200303	403		63		2	5							
200303	403		63		2	1							
200303	402		61		2	5							
200303	400		63		2	3							
200303	400		53		2	1							
200303	400		56		2	5							
200303	415		65		2	1							
200303	415		44		2	1							
200303	415		66		2	3							
200303	415		51		2	1							
200303	413		67		2	5							
200303	413		81		1	5							
200303	405		55		1	4							
200303	405		54		1	4							
200303	405		62		2	4							
200303	405		52		2	1							
200303	405		62		2	5							
200303	405		55		2	1							
200303	421		55		1	1							
200303	421		58		2	1							
200303	421		51		2	3							
200303	421		54		1	1							
200303	420		55		2	1							
200303	416		58		2	1							
200303	416		50		2	1							
200303	416		51		2	1							
200303	423	398	87	8.49	1	5	8	0.078	6.92		0.496	N/A	1.1%
200303	428		59		1	4							
200303	428		39		1	1							
200303	428		58		1	3							

Cruise	Launch ID	Specimen Number	Total	Total	Sex	Matur	Age (yrs)	GSIIndex		Gonad formalin wt (kg)	Liver weight (kg)	Stomach Contents wt (kg)	GSI
			Length (cm)	Weight (kg)				Weights (Kg) gonad	body				
200303	426	399	55	1.884	2	4	5	0.4		0.316	0.042	N/A	
200303	426		56		2	1							
200303	426		52		2	5							
200303	422		57		2	1							
200303	443	400	51	1.348	2	1	5	0.012	1.2	0.006	0.042	0.002	1.0%
200303	439		55		1	4							
200303	439		78		2	4							
200303	437	401	58	2.112	1	5	5	0.026	1.916		0.052	0.001	1.4%
200303	437	402	38	0.524	1	1	3	0.001	0.464		0.014	0.006	0.2%
200303	436		54		1	1							
200303	436	403	90	8.68	2	5	9	0.46	7.095	0.234	0.224	0.038	6.5%
200303	445	404	55	1.966	2	1	5	0.014	1.73	0.006	0.074	0.001	0.8%
200303	448	405	93	7.635	2	5	9	0.346	6.165	0.182	0.206	0.01	5.6%
200303	461	406	46	1.82	2	1	4	0.014	1.584	0.008	0.1	0.004	0.9%
200303	444	407	62	2.466	2	1	7	0.02	2.194	0.1	0.08	0.004	0.9%
200303	470	408	95	11.51	2	5	8	0.452	8.65	0.19	0.768	0.318	5.2%
200303	465	409	57	2.236	2	3	5	0.446	1.568	0.216	0.092	0	28.4%
200303	463	410	91	8.205	2	5		0.374	6.225	0.206	0.264	0.472	6.0%
200303	466	411	100	9.875	2	5	13	0.43	8.125	0.208	0.186	0	5.3%
200303	453		103		2	5							
200303	453		92		2	5							
200303	453		64		2	5							