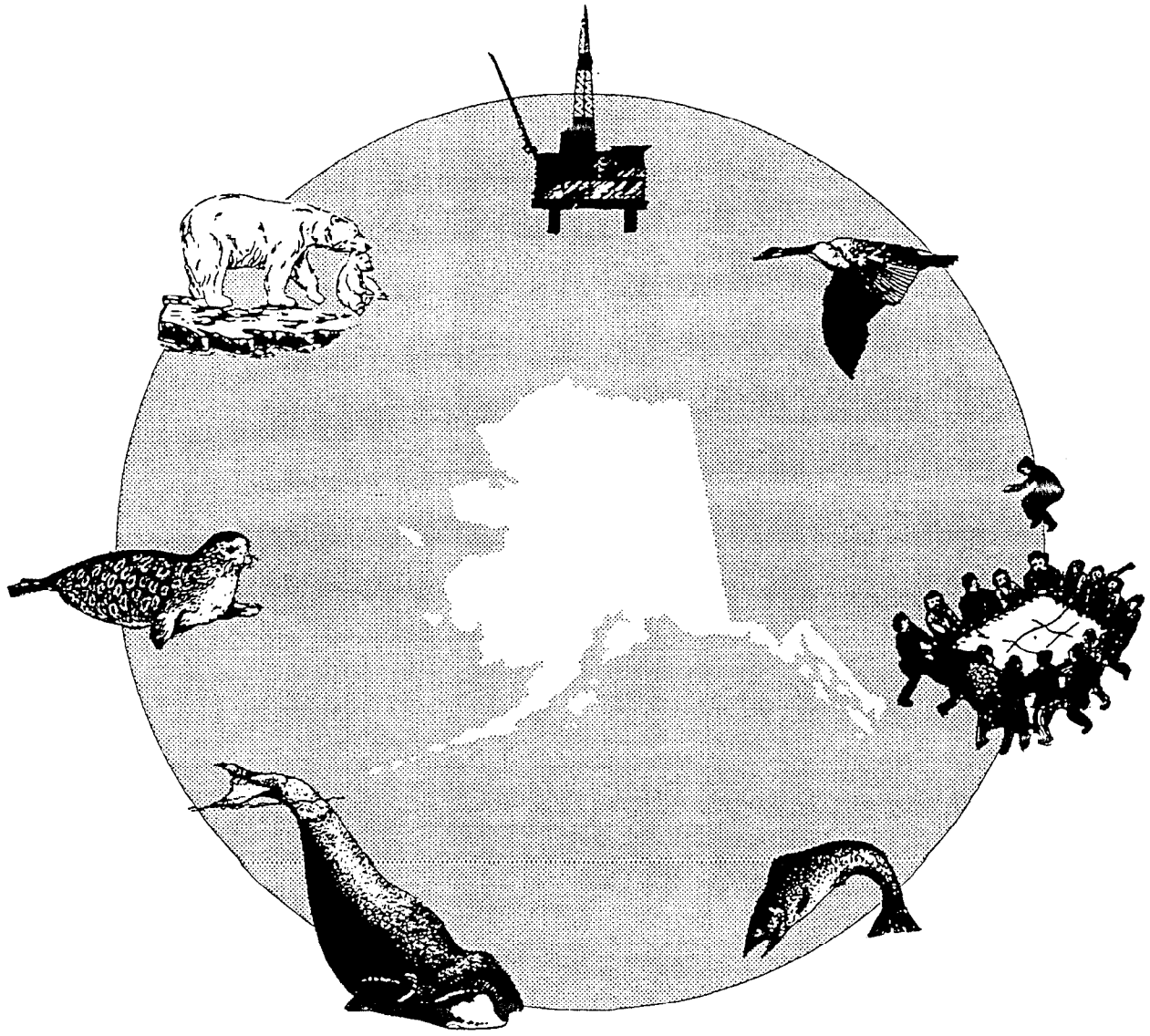
OCS Study
MMS 95-015

An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska

VI. Summary and Conclusions



MMS U.S. Department of the Interior
Minerals Management Service
Alaska Outer Continental Shelf Region

OCS Study
MMS 95-015

Technical Report No. 160

Cooperative Agreement No. 14-35-0001-30622

An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska

VI. Discussion and Conclusions

James A. Fall and Charles J. Utermohle, editors

Contributors:

Jeffrey Barnhart, Louis Brown, Jimmie Evak, James A. Fall, Susan Georgette, Lisa Hutchinson-Scarbrough, Gretchen Jennings, James Magdanz, Rachel Mason, Rita Miraglia, Craig Mishler, Sverre Pedersen, Jody Seitz, Sandra Skaggs, Ronald T. Stanek, Lisa Tomrdle, Charles J. Utermohle, and Vicki Vanek

Submitted to:

United States Department of the Interior
Minerals Management Service
Alaska OCS Region
Social and Economic Studies Unit
949 E. 36th Ave.
Anchorage, Alaska 99508-4302

Submitted by:

Division of Subsistence
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518

March 1995

NOTICE

This report has been reviewed by the Minerals Management Service and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Service, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Alaska OCS Environmental Studies Program

An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska

VI. Discussion and Conclusions

Division of Subsistence
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518

March 1995

EXECUTIVE SUMMARY

This report provides selected findings from a three-year study entitled "An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska." The findings are primarily organized by study community, and the report consists of 24 chapters in six volumes. The project was conducted by the Division of Subsistence of the Alaska Department of Fish and Game (the division) under a cooperative agreement (No. 14-35-0001-30622) with the U.S. Department of the Interior, Minerals Management Service (MMS). The primary purpose of the research was to investigate the long-term social and cultural consequences of the development of the resources of Alaska's Outer Continental Shelf (OCS), especially as these affect the subsistence uses of fish and wildlife. Investigation of the consequences of the *Exxon Valdez* oil spill of March 1989 was a major focus of the research.

Most data were collected through voluntary face-to-face interviews using two instruments. The first, the "harvest survey questionnaire," modeled after the division's standard survey instrument, collected data on household demography, involvement in the cash economy, resource harvests and uses, and assessments of changes in subsistence harvest and use patterns. The second instrument, the "Social Effects Questionnaire" was based in part on questionnaires and interview protocols used in prior Social Indicators research funded by MMS. It addressed changes in social and community organization which could be affected by OCS development.

Three rounds of fieldwork took place, in 1992, 1993, and 1994. Study communities in the area affected by the *Exxon Valdez* oil spill included Chenega Bay, Cordova, Tatitlek, and Valdez in the Prince William Sound area; Kenai, Nanwalek, Port Graham, and Seldovia in the Cook Inlet area; Akhiok, Karluk, Kodiak, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions in the Kodiak Island Borough; and Chignik Bay and Chignik Lake in the Lake and Peninsula Borough (Alaska Peninsula). Additionally, the study added control or reference communities in the Arctic region which will strengthen the application of the findings to broad questions of sociocultural change which are related to development of the resources of the Outer Continental Shelf. These were Kotzebue, Kaktovik, Kivalina, and Nuiqsut.

Earlier research by the division found that the *Exxon Valdez* oil spill caused major impacts on subsistence uses and the sociocultural systems which they support. There was a definite geographic pattern to these spill effects which reflects the relative degree of oiling and the persistence of oil in the environment. Impacts were greatest on communities closest to the spill -- particularly Tatitlek and Chenega Bay -- and lessened with distance from Prince William Sound.

Over the three years of this study, further evidence of this geographic pattern developed, with communities closer to the spill in Prince William Sound and lower Cook Inlet, as well as Ouzinkie, reporting higher levels of spill impacts than more distant communities. A relatively high percentage of respondents in Chenega Bay, Nanwalek, and Tatitlek in all three study years said there was less sharing of wild foods

since the spill. Similarly, of all study communities, the largest percentages in Ouzinkie, Port Graham, Chenega Bay, Nanwalek, and Tatitlek said that the spill had a negative effect on children's participation in subsistence activities. Households in Prince William Sound communities, and especially Cordova and Chenega Bay, were most likely to say that they liked living in their community less during the study years than before the spill.

Subsistence harvest levels in all the communities of the oil spill area appear to be rebounding from the low levels of the first and second post-spill years. Pre-spill levels of harvests have been approached or matched in most affected communities, such as Nanwalek, Port Graham, Port Lions, Larsen Bay, Old Harbor, and Akhiok. However, in the severely impacted communities of Tatitlek, Chenega Bay, and Ouzinkie, harvest levels remain below pre-spill averages. In Tatitlek and Chenega Bay, harvests appear to have declined in the third year of this project from estimated levels for the first and second years. There also continues to be an important shift in the composition of subsistence harvests in Chenega Bay and Tatitlek, with much lower takes of marine mammals than before the spill and a larger portion of the harvests composed of fish.

In many study communities, a significant proportion of households reported that subsistence uses have not recovered to earlier levels. This position is expressed strongly in the Prince William Sound villages, in Nanwalek, and in Ouzinkie. In all four villages, a larger percentage of households reported lowered levels of resource harvests compared to before the spill in 1993 than did so in 1991. Thus the perception appears to be not only one of lowered subsistence uses, but that uses continue to decline.

There has been an important shift in the explanations people offer concerning why the spill's impacts reduced their resource uses. In 1989, a majority of households with spill-caused reductions in resource uses cited fear of oil contamination as the reason for the decline. By 1993, the vast majority of households who still said that the spill's effects were impacting their subsistence uses cited reduced resource populations as the cause of the decline. This viewpoint was especially strong in Prince William Sound. A large majority of respondents in Chenega Bay in all three years said that populations of deer, harbor seals, sea lions, sea ducks, and clams were down since the spill. In the second and third years an increasing majority said that salmon stocks were down as well. At Tatitlek, a majority of respondents said there were less deer, seals, sea lions, sea ducks, salmon, halibut, clams, bidarkies, and octopus.

Contamination concerns about specific resources, while substantially reduced from the levels expressed in the first few years after the spill, persist among many households, especially in Chenega Bay, Tatitlek, Port Graham, and Nanwalek. Substantial percentages of households reported that they had not received adequate information about the safety of subsistence foods. This illustrates an important finding that many households in the spill area returned to using subsistence foods despite lingering contamination fears. The economic and cultural necessities of using subsistence foods have compelled Alaska Natives of the spill area to resume subsistence harvests even at increased costs of time, money, and health concerns.

In Tatitlek and Chenega Bay, subsistence harvesters' observations of reduced wildlife populations and diseased animals (such as a viral infection in Prince William Sound herring), created substantial doubts about the overall health of the natural environment. In 1989, the spill's immediate effects caused subsistence users to distrust the safety of subsistence foods. Direct observations of dead and injured wildlife, interpreted through traditional systems of knowledge, strongly suggested to subsistence users that resources might be unsafe for humans. The spill also created conditions very unfamiliar to subsistence users which experience and training were ill-equipped to explain. Under these circumstances, many households acted with caution. By 1993, traditional knowledge about food safety and edibility continued to inform people's decisions about subsistence uses. In addition, public health advisories had been disseminated in villages through the work of the Oil Spill Health Task Force. But doubts persisted that traditional and scientific knowledge were not enough to answer questions about what the spill had done. In the view of many of the people interviewed as part of this project, and especially in Prince William Sound and among Alaska Native people, the spill had caused fundamental changes to natural resource populations and the natural environment overall that have yet to be adequately explained. This uncertainty has had profound effects on the outlook for the future that people expressed in several communities, such as Tatitlek, Chenega Bay, and Cordova. This remains an important long-term impact of the spill.

Finally, one additional social effect of the *Exxon Valdez* oil spill has been the prolonged litigation over damage claims. Rulings in federal court which ruled ineligible claims by the Alaska Native Class concerning injuries to their way of life were especially disheartening to the people whose subsistence uses had suffered following the spill. In some cases, these rulings discouraged people from participating in this research. They concluded that additional studies were pointless. The settlement with Exxon regarding the replacement value of lost subsistence harvests was viewed by subsistence users as, at best, only a partial compensation of the Native Class claims. A view persisted that the cultural importance of subsistence to the Alaska Native communities of the spill area and the injury that this culture suffered had not yet been acknowledged by the judicial process. Appeals of these rulings were in preparation as this report was being completed. This continuing litigation remains another long-term impact of the spill, and should be considered in impact assessments for future Outer Continental Shelf development.

TABLE OF CONTENTS

Volume I: Introduction

Volume II: Prince William Sound

Volume III: Lower Cook Inlet

Volume IV: Kodiak Island

Volume V: Alaska Peninsula and Arctic

Volume VI: Summary and Conclusions

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGMENTS

First and foremost, we would like to thank the hundreds of people who took the time to participate in this research project. We are also grateful to the governments of the study communities for granting us permission to conduct the interviews.

We also thank the individuals who assisted ADF&G personnel with designing the survey instruments. These included Don Callaway, Karen Gibson, Tracy Andrews, Joe Jorgensen, Steve Braund, Bill Simeone, Lisa Moorehead, and Jack Kruse. Finally, thanks to Bob Wolfe, Division of Subsistence research director, for his thoughtful review of sections of this report.

CHAPTER XXIII: COMPARATIVE SUMMARY

by

James A. Fall and Charles J. Utermohle

This chapter summarizes some broad comparisons between the study communities based upon the findings of the three years of research in three areas: demography, monetary economy, and patterns of wild resource harvest and use. Comparisons with estimates of subsistence harvest levels from previous research will also be made to illustrate trends since the *Exxon Valdez* oil spill. The next chapter provides an overview of some of the study's findings regarding the long-term effects of the oil spill on subsistence uses.

DEMOGRAPHY

As shown in Figure XXIII-1 (see also Table XXIII-1), as was the intent of the project design, the study communities formed two groups with regards to estimated population size. For the first study year, five communities were relatively large, with populations of 2,000 or more. These were Kenai (6,796), Kodiak (5,556), Valdez (4,062), Kotzebue (3,649), and Cordova (2,290). The other 11 study communities had populations under 350. The smallest were Chenega Bay (81) and Karluk (69). For the second year, there were four relatively large places: Kenai (6,642), Kodiak (4,768), Valdez (3,733), and Cordova (2,677). The other eight communities ranged in size from Seldovia (375) to Chenega Bay (90). In the third study year, the largest communities were Kenai (6,372), Kodiak City (6,058), Valdez (3,735), and Cordova (2,965). The other nine communities ranged in size from Seldovia (431) to Tatitlek (97).

As shown in Figure XXIII-2, the communities also formed two groups with regards to the percentage of the population that was Alaska Native based upon sample estimates. A majority of the population was Alaska Native in 16 communities; in only two of these 16 (Chignik Bay and Port Lions) did this percentage not exceed 75 percent of the total population. In five communities, Alaska Natives were a minority of the population. These were Seldovia, Cordova, Kodiak, Valdez, and Kenai.

MONETARY ECONOMY

In terms of mean income per capita during the first study year (1991), the 16 communities formed three groups (Fig. XXIII-3). In two communities, per capita incomes exceeded $20,000. These were Valdez ($23,375) and Cordova ($20,536). Six communities were in a mid-range for the study overall, between $10,000 and $20,000 per capita. These were Kodiak ($185170), Kenai ($15,665), Chignik Bay ($15,551), Seldovia ($14,637), Ouzinkie ($13,986), and Kotzebue ($12,686). Finally, there were eight communities with per capita incomes under $10,000. These were Port Graham ($8,758), Chignik Lake ($8,227), Chenega Bay ($8,183), Larsen Bay ($8,133), Tatitlek ($8,163), Old Harbor ($8,076), Karluk ($6,924), and

Nanwalek ($7,279). It should be noted that the six communities with the smallest percentage of Alaska Natives had the six highest per capita incomes. In only one of these six communities did Alaska Natives form the majority of the population (Chignik Bay, at 52 percent Alaska Native).

Similar patterns occurred in the second study year. Three large, non-Native communities ranked first, second, and third in per capita income. These were Kodiak ($24,288), Valdez (23,584), and Kenai ($19,542). With one exception, the Alaska Native villages had relatively low cash incomes, while Seldovia, at $13,477 per person, was again a mid-range community. Kaktovik, unlike the other small Native study communities, had a relatively high per capita income ($18,176), approaching that of the larger communities. Finally, Cordova's per capita income dropped notably in 1992, to $15,621 per person, placing it well below the other large study communities.

The findings regarding income for the third year were also consistent with those of earlier years. Incomes were highest in Valdez ($27,695), followed by Kodiak ($21,258) and Kenai ($19,642). Cordova's per capita income increased over the previous year, to $17,546, but remained well below that of 1991. Seldovia showed a notable rise in income, caused primarily by payment of Native Corporation dividends. This also had an effect on incomes in Nanwalek and Port Graham.

There was a range in length of employment among the study communities in all three study years (Fig. XXIII-4), although the communities with four of the five highest per capita incomes (Valdez, Kodiak, Cordova, and Kenai) also had the highest mean number of months employed for employed adults (individuals 16 years or older employed for one or more days in a month). These were the only study communities where the mean exceeded nine months, indicating a pattern of year-round employment in contrast with more seasonal employment in other communities. In 1992, the average number of months employed in these communities increased over 1991, and topped 10 months in all but Cordova. This pattern persisted in 1993. In four communities in 1991, the average number of months employed was less than seven months; these were Nanwalek (6.6), Chenega Bay (6.6), Old Harbor (6.5), and Karluk (5.9). Correspondingly, these communities ranked 16th, 11th, 14th, and 15th, respectively, in per capita incomes in 1991. This pattern held in 1992 and 1993 as well.

A contrast between communities with year-round employment patterns and more seasonal patterns is also evident in Figure XXIII-5, which reports the percentage of employed adults who were employed year-round. In only four communities were half or more of the adults employed for 12 months during any study year. In 1991, these were Valdez (60 percent), Kenai (60 percent), and Kodiak (50 percent)., and Cordova (52 percent). These were the communities with the highest per capita incomes and the highest mean number of months employed in 1991. A second group of six communities had about 30 to 50 percent of their adult work force employed year-round in 1991. These were Cordova (45 percent), the regional center of Kotzebue (46 percent), Ouzinkie (39 percent), Port Graham (39 percent), Seldovia (40 percent), and Larsen Bay (30 percent). In a third group of seven communities, less than 25 percent of the employed adults worked year-round. These included Tatitlek (16 percent), Chenega Bay (24 percent),

Chignik Bay (19 percent), Chignik Lake (8 percent), Old Harbor (11 percent), Karluk (14 percent), and Nanwalek (13 percent). With the exception of Chignik Bay, this latter group included most of the communities with the lowest per capita incomes. A similar pattern persisted into 1992. While the percentage of employed adults working year-round went up in Kenai, Kodiak, and Valdez, it remained low in the smaller communities and in several cases, such as Ouzinkie and Port Graham, declined. Kaktovik, a small community with a relatively high per capita cash income in 1992, had 44 percent of its employed adults working year-round, notably higher than the other Native villages (the next highest in 1992 was Port Graham at 33 percent). Again, 1993 was similar. The four communities with the highest incomes -- Valdez, Kenai, Kodiak, and Cordova -- were the only communities with more than 50 percent of employed adults working year-round. With the exception of Seldovia (45 percent working year-round) and Nuiqsut (42 percent), in all the other study communities less than 40 percent of employed adults worked 12 months in the 1993 study year.

WILD RESOURCE HARVEST AND USE

Participation in Harvest and Use Activities

As shown in Figure XXIII-6, virtually every household in all 21 study communities used at least one kind of wild resource during the three study years. Also, the vast majority of households in each community had at least one member who hunted, fished, or gathered wild resources in 1991, 1992, and 1993 (Fig. XXIII-7). This ranged from every household attempting to harvest resources in six communities in 1991 (Chignik Lake, Karluk, Nanwalek, Old Harbor, Ouzinkie, and Tatitlek), three communities in 1992 (Nanwalek, Akhiok, and Port Graham), and three in 1993 (Nanwalek, Port Lions, and Tatitlek) to a low of 87 percent of the households in Kenai in 1991. Most households received at least one type of wild food from members of other households in 1991, 1992, and 1993; only in Kenai (85 percent in 1991, 78 percent in 1992, 81 percent in 1993) and Valdez (89 percent in 1991, 86 percent in 1992, 89 percent in 1993) did less than 90 percent of the households receive gifts of wild resources in all the study years, although Seldovia dropped to 86 percent in 1993 (from 95 percent receiving in the first two years) (Fig. XXIII-8). Among the communities, there was a wider range of households which gave away wild resources, although in no case was the percentage less than about two-thirds of the total number of households in the community (Fig. XXIII-9). The percentage of households which gave away wild resources was highest in 1991 at Nanwalek and Karluk (both 100 percent) and lowest at Kenai (66 percent) and Valdez (65 percent). These latter two communities also had the lowest percentage of households giving away resources in 1992 (73 percent and 68 percent, respectively), and the lowest harvest levels as measured in pounds usable weight per capita in both study years (see below). This same pattern held in 1993: the community with the lowest percentage of households giving away resources was Kenai (62 percent; the lowest of any community in any study

year) and Valdez (66 percent). Every household in Tatitlek shared wild foods with others in 1993, as did 97 percent in Nanwalek.

Another measure of community and household involvement in subsistence uses was provided by a question on the social effects survey which asked if the respondent's household had used any subsistence foods during the day before the interview. The findings for each study community for 1991 are presented in Figure I-3 (see also each community chapter). The percentage of households that used subsistence foods on the day before the interview broadly matched the rankings of the communities in terms of subsistence harvest levels (see below). In 1991, for example, communities with high levels of harvest, such as Chignik Lake, Kotzebue, Tatitlek, Chenega Bay, and Old Harbor, had a large percentage of respondents answer "yes" to this question, while the two communities with the lowest per capita harvests, Kenai and Valdez, had the lowest number of positive responses to this question. Several apparent inconsistencies occurred, however, such as the relatively low percentage of households at Chignik Bay and Karluk in 1991 that had used subsistence foods in the day before the interview despite relatively high harvest levels, and the relatively high ranking of Cordova on this question in all three years given its moderate harvest level. It should be noted that the time of year this question is administered affects overall responses. For example, Tatitlek in 1991 was particularly high in that the interviews occurred in April when harvests of herring spawn on kelp were occurring. In 1993, a very poor herring return occurred, and the percentage of Tatitlek households that had used wild resources the day before being interviewed dropped by more than half compared to 1991. Chignik Bay and Karluk might have been unusually low in 1991 because at the time of year that interviews occurred (late March/early April), few subsistence resources were available and supplies from the previous year had run low.

Figure XXIII-10 illustrates the percentage of the total population in each study community which engaged in any harvesting activity in the study years (see also Table XXIII-2). A majority of the population of all the communities either hunted, fished, or gathered wild resources. In 1991, this ranged from a high of 90 percent of the total population of Nanwalek to a low of 69 percent in Larsen Bay. In 1992, 93 percent of Port Graham's population engaged in subsistence activities; the lowest percentage was recorded at Kenai (72 percent). In 1993, the range was 95.9 percent in Port Graham to 66.4 percent in Valdez. There were no discernible differences between the larger, predominantly non-Native communities and the Alaska Native villages in terms of this measure of involvement in harvesting activities. Nor was there any discernible difference at the community level between the percentage of the population engaged in harvest activities and per capita harvest levels; the community with the highest per capita harvest in 1991, Kotzebue, had virtually the same percentage of its population engaged in harvest activities (74 percent) as did Kenai (73 percent), the community with the lowest per capita harvest. In 1993, the community with the highest per capita harvest, Nuiqsut, had the second-lowest percentage of its population hunting, fishing, or gathering.

At least half or more of the population of each community fished during the study years (Fig. XXIII-11). The highest percentage in 1991 was at Nanwalek (89 percent) and the lowest at Kotzebue (52

percent). In 1992, the highest percentage was at Port Graham (83 percent of the population fished) and the lowest was at Kivalina (53 percent). For 1993, Port Graham again had the highest percentage of its population fishing (85 percent), and the lowest was Ouzinkie Bay (58 percent). There appeared to be no relationship at the community level between the size of the harvest of fish per capita and the percentage of the population which went fishing. For example, the communities with the lowest per capita harvests of fish, Valdez and Kenai, had moderately high levels of participation in fishing (72 percent and 66 percent in 1991, respectively), which were higher than a number of smaller communities with some of the highest fish harvests, such as Chignik Lake (56 percent), Kotzebue (52 percent), and Old Harbor (59 percent). The community with the highest per capita harvest of fish other than salmon in 1992, Kivalina, had the smallest percentage of population which fished. Wide participation in rod and reel fishing in the larger communities probably accounts for this apparent contradiction.

There was a wide range of participation in hunting among the communities in both years, ranging in 1991 from 41 percent of the population in Tatitlek to 20 percent in Kenai; in 1992 from 46 percent in Kaktovik to 17 percent in Kenai; and in 1993 from 60 percent in Nuiqsut to 18 percent in Seldovia (Fig. XXIII-12). Communities with relatively large harvests of land mammals, marine mammals, and/or birds, such as Kaktovik (766 pounds per person in 1992), Kivalina (594 pounds per person in 1992), Nuiqsut (490 pounds per capita in 1993), Kotzebue (339 pounds per capita in 1991), Chignik Lake (170 pounds per capita in 1991), Tatitlek (94 pounds per capita in 1991), Larsen Bay (81 pounds per capita), and Old Harbor (64 pounds per capita in 1991) tended to have high participation in hunting, while communities with relatively low harvests of these resources had a relatively smaller percentage of hunters in their population. Examples include Nanwalek, Karluk, Kenai, Port Graham, Seldovia, and Valdez.

Figure XXIII-13 reports the percentage of each study community's population that processed wild resources during the study year. In all cases in both years, 61 percent or more of the people processed wild foods, ranging from a high of 96 percent in Port Graham in 1993 to a low of 61 percent in Larsen Bay in 1992. There was no discernible relationship between this measure of participation and the size or ethnic composition of the communities, or with harvest quantities.

Harvest Quantities

There was a wide range of community harvest quantities as measured in pounds usable weight per capita (Fig. XXIII-14; Table XXIII-4). In 1991, the highest harvest by far was Kotzebue with a harvest of 592.8 pounds per capita. Chignik Lake was second with 442.4 pounds per capita. Four communities had per capita harvests in the 300 - 400 pound range. These were Old Harbor (391.0 pounds), Chignik Bay (357.5 pounds), Tatitlek (346.0 pounds), and Chenega Bay (345.3 pounds). There were six communities in the 200 - 300 pound range, including Larsen Bay (294.6), Port Graham (280.9), Karluk (268.7), Nanwalek (258.8), Ouzinkie (209.5), and Seldovia (205.5). Two communities harvested between 100 and 200 pounds

per capita. These were Cordova (189.2) and Kodiak (140.1). The two lowest harvest levels in pounds usable weight per capita were recorded for Valdez (88.1) and Kenai (74.5). Overall, the five communities with a predominantly non-Alaska Native population had the lowest per capita harvests of wild foods, although Seldovia's harvest was not substantially different from that of Ouzinkie at about 210 pounds per capita, and Kodiak and Cordova were notably higher than either Valdez or Kenai.

For 1992, the Arctic communities in the sample, which take substantial quantities of marine mammals, had the highest per capita harvests. These were Kaktovik (886 pounds per person) and Kivalina (762 pounds per person). Kenai, at 74 pounds per person, and Valdez, at 103.4 pounds, were again the lowest. In the mid-range again, although dropping from the previous year, were Cordova (164 pounds per person) and Seldovia (146 pounds), along with Kodiak, which rose to a per capita harvest of 159.5 pounds. Of particular note were the substantial increases in harvest levels at Chenega Bay (414.4 pounds per person) and Ouzinkie (347 pounds per person), both of which continued a trend in increasing levels of harvests since the *Exxon Valdez* oil spill of 1989.

In 1993, an Arctic community, Nuiqsut, again had the largest per capita harvest of wild foods, at 742 pounds per person. Valdez, at 80 pounds per person, and Kenai, at 84 pounds per person, were again the lowest. The per capita harvest in Cordova continued a downward trend, to 128 pounds per person. Other notable drops occurred Chenega Bay, Port Graham, Tatitlek (from 1991), and Ouzinkie. In each community, this reversed a pattern of rebounding levels of harvest since the oil spill. On the other hand, Larsen Bay continued its trend of increasing harvest levels since the spill, as did Nanwalek and Port Lions. Subsistence harvest levels appeared fairly stable in Seldovia and Kodiak City.

Another measure of community and household levels of subsistence harvest and use is respondents' estimates of the portion of their households' meat, fish, and poultry consumption that derived from wild resources. This estimate is only available for 1991 (Table I-104) and 1993 (Table I-105). It should be noted that this is not directly comparable to household or community estimates of subsistence harvests in pounds usable weight, in that a household's assessment of its level of consumption will include resources that it received from others. Nevertheless, one would expect some correspondence between per capita harvest levels for a community and the percentage of households in that community that estimated that a large portion of their meat, fish, and poultry consumption derived from wild foods. Generally, this appears to be the case. For example, communities such as Chignik Lake, Kotzebue, Tatitlek, Chenega Bay, and Old Harbor, with relatively high levels of subsistence harvests in 1991 (about 350 pounds per person or more), had large percentages of households which estimated that better than 50 percent of their meat supply was from wild foods (Table I-104). Correspondingly, the two communities with the lowest per capita harvest levels in 1991, Kenai and Valdez, also had the highest percentage of households estimate that 25 percent or less of their meat supply derived from wild foods. There were several apparent anomalies, however. Chignik Bay, with a relatively large harvest of 353.4 pounds per person, had a relatively large percentage of its households estimate that 25 percent or less of their meat

supply was from wild fish and game (about 65 percent). On the other hand, while Cordova's per capita harvest levels were moderate at 189.3 pounds per person, about half the households estimated that more than 50 percent of their meat supply was from harvests of wild foods. Indeed, a larger percentage of Cordova's households estimated that better than 75 percent of their meat supply was from wild foods than any other study community. One potential explanation for this apparent discrepancy is that a large portion of the diet in predominately Alaska Native communities is composed of meat, fish, and poultry, with relatively lower levels of consumption of dairy products and vegetable sources of protein than might be found in a community such as Cordova. Therefore, similar percentages in different communities correspond to widely different quantities of wild foods consumed.

There were wide differences between communities in terms of harvests of particular resource categories. Harvests of salmon in 1991 were highest at Old Harbor (206.9 pounds per capita), Chignik Lake (203.7 pounds per capita), Karluk (192.2 pounds per capita), Chignik Bay (171.1 pounds per person), Tatitlek (148.0 pounds per capita), and Chenega Bay (136.8 pounds per capita). The lowest harvests of salmon per capita were recorded for Valdez (35.1 pounds) and Kenai (28.4 pounds). In 1992, Ouzinkie had the highest per capita harvest of salmon at 213.4 pounds, up substantially from the year before. Second was Akhiok at 199.5 pounds per person, and Chenega Bay at 184.8 pounds per person was third, also a notable increase, as was the take of 182.1 pounds of salmon per person at Larsen Bay. In the southern Alaska area, salmon harvests were again lowest at Kenai (35.2 pounds per person) and Valdez (44.5 pounds per person). Lowest of all were salmon harvests by the two Arctic communities of Kivalina (14.8 pounds per person) and Kaktovik (0.5 pounds per person), where these fish are relatively scarce. In 1993, salmon harvests were largest at Larsen Bay (202.7 pounds per person), continuing an upward trend, followed by Port Lions at 157.7 pounds per person and Nanwalek at 149.4 pounds per person. In several communities, salmon harvests dropped off notably, such as Chenega Bay, Port Graham, and Ouzinkie (Fig. XXIII-15).

For fish other than salmon in 1991, Kotzebue (162.6 pounds per capita) ranked first, followed by Chenega Bay (1179 pounds), Chignik Bay (109.9), Port Graham (99.7), and Tatitlek (89.0 pounds). Again, the lowest harvests of other fish were found at Kenai (24.9 pounds) and Valdez (21.9 pounds). In 1992, an Arctic community, Kivalina, again ranked first in other fish harvests at 238.5 pounds per person, with Kaktovik second (118.4 pounds per person). Among the southern Alaska communities, Port Graham (108.6 pounds per person), Chenega Bay (108.5), and Nanwalek (88.4 pounds per person) were highest. In 1993, the Arctic community of Nuiqsut ranked first in harvests of fish other than salmon, at 247.8 pounds per person, the highest of any community in any study year. Communities with relatively large harvests of nonsalmon fish in the southern area included Nanwalek, Chenega Bay (although the harvest was down from the previous two years), Larsen Bay, and Port Graham (Fig. XXIII-16).

In 1991, two communities with access to caribou reported substantially higher harvests of land mammals than the other study communities (Fig. XXIII-17). These were Kotzebue (177.5 pounds per

capita) and Chignik Lake (152.6 pounds). Port Graham (3.3 pounds) and Nanwalek (3.1 pounds) had the lowest per capita harvests of land mammals, reflecting the low availability of this resource category in the general vicinity of these two villages. Two caribou-hunting villages, Kivalina (165.3 pounds per person) and Kaktovik (149.6 pounds per person) again ranked first in land mammal harvests in 1992. In 1993, Nuiqsut, which also has good access to caribou, ranked first in land mammal harvests (242 pounds per person). With the exception of Larsen Bay (76.6 pounds per person, primarily deer but several moose taken off Kodiak Island), land mammal harvests in the study communities in 1993 were about 50 pounds per person or less. As in previous years, land mammal harvests at Nanwalek and Port Graham were particularly low, with no deer or caribou available locally and very few moose or goats.

For marine mammal harvests, the Arctic communities were in a class by themselves in all there study years. Kotzebue, with a harvest of 157.7 pounds per capita, was highest in 1991. In 1992, Kaktovik, with a harvest of three bowhead whales, was first, with a take of 599.1 pounds per person, followed by Kivalina with 318.0 pounds per person. In 1993, Nuiqsut, also with bowhead harvests, ranked first by far, with 236.0 pounds per person. Four other communities averaged marine mammal harvests over 10 pounds per capita in 1991. These were Tatitlek (47.7 pounds), Old Harbor (27.7 pounds), Chenega Bay (20.8 pounds), and Port Graham (14.7 pounds). No marine mammal harvests were reported by sampled households in Kenai or Seldovia in 1991, and harvests were under one pound per capita in Cordova, Karluk, Kodiak, and Valdez. In 1992, a modest increase in marine mammal harvests was reported by Chenega Bay, Nanwalek, Ouzinkie, and Port Graham; at Akhiok, marine mammal harvests averaged 19.4 pounds per person in 1992. Marine mammal harvests remained very low elsewhere in the second study year. In 1993, the largest marine mammal harvest by a non-Arctic community was at Tatitlek (49.2 pounds per person) and Chenega Bay (34.9 pounds per person), but these remained well below pre-spill averages for these two villages (Fig. XXIII-18)

Harvests of birds and eggs, as measured in edible pounds, were generally much lower than harvests of fish and mammals. The highest per capita harvests of birds and eggs in 1991 occurred at Chignik Lake (13.2 pounds), followed by Old Harbor (7.6 pounds) and Tatitlek (7.2 pounds). Harvests were lowest at Chenega Bay (0.8 pounds), Kenai (0.7 pounds), and Kodiak (0.5 pounds). In 1992, the highest harvests of birds were at Kaktovik (16.8 pounds per person) and Kivalina (10.8 pounds). In 1993, the largest harvest of birds was again in the Arctic, with Nuiqsut at 12.0 pounds per person, followed by the Kodiak Island Borough community of Ouzinkie (6.6 pounds per person) (Fig. XXIII-19).

There was a very wide range of subsistence harvests of marine invertebrates among the study communities as measured in edible pounds (Fig. XXIII-20). Particularly large harvests were recorded for Larsen Bay (52.2 pounds per capita in 1991, 56.8 pounds per person in 1992, and 62.3 pounds per person in 1993) (much of this harvest is shared with Karluk), Akhiok (42.1 pounds in 1992), Chignik Bay (38.9 pounds in 1991), Old Harbor (36.4 pounds in 1991), Seldovia (30.4 pounds in 1991, 17.8 pounds in 1992, 34.0 pounds in 1993), Port Lions (30.2 pounds in 1993) Ouzinkie (27.6 pounds in 1992, up from 12.3

pounds in 1991; 21.9 pounds in 1993), Nanwalek (24.4 pounds in 1991, 24.8 pounds in 1992, and 23.3 pounds in 1993), Port Graham (21.6 pounds in 1991, 23.9 pounds in 1992, 16.0 pounds in 1993), and Chignik Lake (20.8 pounds in 1991). Not surprisingly, the lowest harvests of marine invertebrates were at Kotzebue (0.2 pound per capita), Kivalina (0.1 pound per person), Nuiqsut (no harvest), and Kaktovik (no harvest), reflecting the general scarcity of these resources in the Arctic region.

Finally, while all communities had access to wild plants, there was a notable range of reported harvests in pounds per capita (Fig. XXIII-21). In 1991, the highest harvests were at Kotzebue (16.2 pounds per capita), Nanwalek (12.9 pounds), Seldovia (11.6 pounds), Karluk (10.3 pounds), and Chenega Bay (10.2 pounds). Harvests of wild plants were lowest in the two communities with the lowest harvest levels overall, Valdez (2.8 pounds) and Kenai (1.5 pounds per capita). In 1992, Kivalina ranked first with a harvest of 14.0 pounds per person of wild plants, followed by Chenega Bay (11.5 pounds per person), Nanwalek (11.3 pounds per person) and Port Graham (10.7 pounds per person). In 1993, plant harvests were highest at Seldovia (15.6 pounds per person), Port Lions (15.4 pounds per person), Tatitlek (12.8 pounds per person), and Port Graham (12.7 pounds per person). Plant harvests were lowest in the Arctic community of Nuiqsut (1.1 pounds per person) and in Valdez (3.4 pounds per person).

Breadth of Resource Use

As with harvest quantities, there were wide differences between communities in terms of the range of wild resources used for subsistence purposes (Fig. XXIII-25; see also Table XXIII-3). In 1991, the average number of resources used per household was highest at Chignik Lake at 24.0 kinds, followed by Port Graham (22.0), Nanwalek (21.2) and Old Harbor (20.1). The narrowest range was found at Valdez (7.9 kinds per household) and Kenai (6.2 kinds), the two communities with the lowest harvest levels overall. In 1992, the widest average range of resources used was at Nanwalek (22.9 kinds), followed by Port Graham (22.1 kinds), Kivalina (20.7 kinds), and Chenega Bay (19.3 kinds, a notable increase from 14.6 in 1991). Again, Kenai (6.8 kinds used on average) and Valdez (8.5 kinds) ranked lowest. In 1993, Nanwalek again ranked highest (an average of 22.7 kinds of resources used per person), as did Nuiqsut (20.3 kinds), Port Graham (19.4 kinds), and Tatitlek (19.0 kinds). At Chenega Bay and Ouzinkie, drops in the range of resources used occurred compared to 1992, although these ranges were well above those estimated for the year immediately following the oil spill. In the two previous study years, in 1993 the range of resources used was lowest in Valdez (6.5 kinds) and Kenai (7.1 kinds).

These contrasts between predominately Alaska Native villages with wide ranges of resource uses and large, non-native places with relatively narrow ranges, occurred in the other measures of diversity of resource uses as well, including mean number of resources attempted to harvest (Fig. XXIII-23), mean number harvested (Fig. XXIII-24), mean number received (Fig. XXIII-25), and mean number given away (Fig. XXIII-26).

In all regions, communities with a predominantly Alaska Native population used a much wider range of wild resources than those communities where most of the population was non-Native (Fig. XXIII-22). For example, in the Prince William Sound area, Tatitlek and Chenega Bay contrast with Cordova and Valdez. In the Cook Inlet region, Port Graham and Nanwalek contrasted with Seldovia and, especially, Kenai. The four Kodiak Native communities all had higher averages than the Kodiak City area. Finally, the range of resources used at Chignik Bay in 1991, where just over half the population was Alaska Native, while relatively high at 16.4, was substantially lower than that of the nearby, predominantly Alaska Native village of Chignik Lake (24.0 kinds).

Commercial Fisheries as a Source of Resources for Home Use

In all three study years, removal of fish from commercial catches was a significant source of wild resources for home use in several of the study communities (Fig. XXIII-27). In 1991, commercial removal provided a third (33 percent) of the total subsistence harvest as measured in pounds in Cordova, and 32 percent in Chignik Bay. In 1991, more than 10 percent of the community's total subsistence harvest came from commercial removal in Seldovia (19 percent), Old Harbor (17 percent), Chignik Lake (17 percent), Chenega Bay (15 percent), Kodiak (15 percent), and Valdez (11 percent). In contrast, no wild resources were removed from commercial catches for home use in Nanwalek and Karluk, and just 2 percent of the total home use harvest in Kenai and just 3 percent in Tatitlek came from commercial catches. In 1992, commercial removal was again particularly important in Cordova (28 percent of all resources), Seldovia (26 percent), Ouzinkie (22 percent), Kodiak (19 percent), Larsen Bay (18 percent), and Chenega Bay (15 percent). In 1993, commercial removal accounted for substantial portions of the total harvest for home use in Cordova (23 percent), Chenega Bay (23 percent, a notable increase from the previous two years), Seldovia (17 percent), Ouzinkie (15 percent), Kodiak (10 percent), and Larsen Bay (9 percent).

COMPARISONS WITH PREVIOUS SUBSISTENCE HARVESTS

Figures within each community chapter illustrate all available estimates of subsistence harvests in pounds usable weight per person for each study community. Estimates for at least one study year prior to this project are available for every community except Valdez. Subsistence harvests have been estimated for one study year prior to this study for Kenai, Seldovia, Kodiak City, Kotzebue, and Nuiqsut, and two for Kenai, Seldovia, Kaktovik, Cordova, Chignik Bay, Chignik Lake, and Kodiak. The estimate for Kodiak for 1991 (140.1 pounds per person) was virtually identical to that for 1982, 147.2 pounds per person, while that for 1992, 159.5 pounds per person and for 1993, 151.1 pounds per person, were slightly higher. For Kenai, Kotzebue, and Seldovia, the 1991 estimate was notably higher than the single previous estimate. In 1992 and 1993, the estimates for Kenai stayed about the same as the year before, while Seldovia's dropped for

1992, then increased again 1993. The 1992 estimate for Kaktovik (885.6 pounds per person) is more than double that of either previous study year, primarily because of the harvest of three bowhead whales. So too for Nuiqsut, where whale harvests in 1993 accounted for more than a doubling of the only previous harvest estimate. The 1991 estimate for Cordova of 189.2 pounds per person was about midway between the estimates for 1985 and 1988, while that for 1992 was much like that of 1985. The 1993 harvest estimate for Cordova is the lowest of the five study years. Chignik Bay, like Kenai, Seldovia, and Kotzebue, reported a substantially higher harvest in 1991 than previous estimates. In contrast, the 1991 estimate for Chignik Lake of 442.4 pounds per person virtually matched that of 1989 (447.6 pounds), the most recent previous estimate, but was higher than that for 1984 (279.0 pounds). The harvest estimate for Kivalina of 761.5 pounds per person for 1992 was similar to that of 1982/83 (778.1 pounds per person), but lower than that of 1983/84 (940.2 pounds per person) and the two estimates for the 1960s.

Four or more estimates of subsistence harvests are available for the other ten study communities, including at least two estimates for years following the *Exxon Valdez* oil spill. Nanwalek and Port Graham show a pattern of post-spill rebounding of subsistence harvest levels. Although Nanwalek's estimate of 258.8 pounds per person for 1991 was still below the single pre-spill estimate of 288.8 pounds pertaining to 1987, the 1992 estimate of 281.2 pounds came close to that of 1987 and the estimate of 304.9 pounds for 1993 slightly exceeded it. The 1992 harvest estimate for Akhiok was higher than that estimated for 1989, the year of the oil spill and very much higher than an estimate for 1986. This suggests that subsistence uses in this village have rebounded. the same can be said for Port Lions, where the 1993 harvest estimate doubled that of the spill year, and virtually matched two pre-spill estimates. In contrast, estimates for Karluk and Larsen Bay declined in 1991 compared to the second post-spill year, although they remained above those of 1989, the first year after the spill. Only Larsen Bay was surveyed again for 1992/93, and this community reported an increase to 353.3 pounds per person, the highest estimate since 1982/83,a and again increased to the highest harvest estimate on record, 451.0 pounds per person in 1993. Harvest estimates for Ouzinkie for 1991 at 209.5 pounds per person were virtually identical to those of 1990. This level of harvest was substantially higher than the first spill year, but remained well below pre-spill levels. In 1992, Ouzinkie's estimated subsistence harvest increased substantially, to 347.2 pounds per person, but dropped again to 218.2 pounds per person in 1993. Like Nanwalek and Port Graham, Old Harbor evidenced a rebounding of subsistence harvests from a post-spill low of 271.7 pounds in 1989 to 391.0 pounds in 1991; the latter was below pre-spill levels, however. This community was not restudied for 1992/93 or 1993/94.

Perhaps most interesting of the study findings was the doubling of subsistence harvests at Chenega Bay and Tatitlek in 1991 compared to the previous year, and the subsequent increase again in 1992 in Chenega Bay. These changes also provide some evidence of recovery after the first two post-spill years, during which subsistence harvests were well below previously recorded levels in both villages. Nevertheless, subsistence harvests in 1991 in both communities remained lower than before the spill. This

is clear from pre-spill estimates for Tatitlek. At Chenega Bay, the 1991 estimate is about the same as pre-spill averages and that for 1992 exceed pre-spill estimates, but, as noted in Chapter IV, it is likely that these early estimates, which pertain to the first two years following the resettlement of Chenega Bay, underestimate harvest levels immediately preceding the spill. As also discussed in Chapter IV, subsistence harvest patterns in Chenega Bay show other differences from those documented before the spill. These include a significant change in the composition of subsistence harvests, with increased salmon and non-salmon fish takes and much reduced marine mammal harvests, and subsistence efforts taking place outside the village's traditional harvest areas, such as the Kenai Peninsula and Copper River Basin. In 1993, harvests fell in both Chenega Bay (compared to both 1991 and 1992) and Tatitlek (compared to 1991; no data collected in 1992). This adds further evidence that recovery from the effects of the spill in these two villages remains incomplete. This topic will be addressed in more detail in the next section.

In summary, the research found that use of wild resources in the 21 study communities was virtually universal. Large percentages of the population of each community engaged in the harvesting and processing of wild foods. In terms of the percentage of households using wild foods and attempting to harvest resources, and the percentage of the population which hunted, fished, or gathered wild plants, no striking differences were found between communities based on size, location, economy, or ethnic composition.

On the other hand, substantial differences were found between communities in terms of harvest levels in pounds usable weight per capita and in the range of resources used for subsistence purposes. Generally, communities whose population was predominantly Alaska Native harvested more resources per capita and had a wider range of kinds of resources used than non-Alaska Native communities. An exception may be Seldovia, which, while only 24 percent Alaska Native in 1991, harvested resources at a level and range that approached some of the Native communities. Among the other four non-Native places, Cordova and Kodiak had notably higher harvests and ranges of resources used than either Valdez or Kenai.

Table XXIII-1. Various Demographic and Economic Characteristics of the Study Communities, 1991, 1992, and 1993 Study Years

	Estimated Population			Percentage of Population Alaska Native			Per Capita Income			Average Number of Months Employed			Percentage of Adults Employed Year Round		
	1992	1993	1994	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Kaktovik		193			92			$18,176			8			44	
Kivalina		344			95			$6,900			6			20	
Kotzebue	3,649			84			$12,686			9			46		
Nuiqsut			361			89			$14,301			9			42
Chignik Bay	128			52			$15,551			8			19		
Chignik Lake	131			92			$8,227			7			8		
Akhiok		80			89			$6,476			8			15	
Karluk	69			95			$6,924			6			14		
Kodiak	5,556	4,768	6,058	13	11	9	$18,517	$24,288	$21,258	10	10	10	50	56	51
Larsen Bay	156	136	130	83	83	84	$8,133	$9,081	$12,579	8	9	8	30	27	21
Old Harbor	217			84			$8,076			6			11		
Ouzinkie	196	186	234	79	80	85	$13,986	$11,883	$12,100	8	8	8	39	30	26
Port Lions			236			66			$15,627			7			30
Kenai	6,796	6,642	6,372	6	9	4	$15,665	$19,542	$19,642	10	10	10	60	64	66
Nanwalek	161	170	141	90	89	89	$7,279	$5,404	$7,787	7	6	7	13	19	27
Port Graham	161	167	175	84	93	90	$8,758	$8,798	$9,810	8	8	8	39	33	37
Seldovia	340	375	431	24	34	33	$14,637	$13,477	$17,502	9	9	9	40	39	45
Chenega Bay	81	90	101	82	81	73	$8,183	$8,621	$11,514	7	7	7	24	21	22
Cordova	2,290	2,677	2,965	18	14	12	$20,536	$15,621	$17,546	9	10	10	45	48	50
Tatitlek	108		97	93		93	$8,163		$10,306	8		7	16		33
Valdez	4,062	3,733	3,735	9	6	8	$23,375	$23,584	$27,695	10	10	11	60	67	75

Table XXIII-2. Percentage of Population Engaging in Subsistence Activities, Study Communities, 1991, 1992, and 1993

	Percentage of Population														
	Fishing			Hunting			Gathering			Any Harvest Activity			Any Processing Activity		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Kaktovik		68.06			45.83			46.53			75.69			75.69	
Kivalina		53.38			34.46			54.05			69.93			67.23	
Kotzebue	52.33			37.92			61.20			74.28			69.84		
Nuiqsut			61.38			59.76			50.81			72.76			69.51
Chignik Bay	64.37			25.29			71.26			82.76			78.16		
Chignik Lake	55.79			34.74			58.95			78.95			65.26		
Akhiok		61.25			35.00			65.00			87.50			71.25	
Karluk	68.33			31.67			70.00			83.33			65.00		
Kodiak	66.05	68.38	63.01	25.64	25.00	22.57	63.15	62.50	65.52	81.34	82.35	78.06	75.00	74.26	69.91
Larsen Bay	53.62	55.83	60.38	26.81	27.50	32.08	60.14	59.17	65.09	68.84	75.00	76.42	65.22	60.83	66.04
Old Harbor	59.42			28.26			71.74			79.71			72.46		
Ouzinkie	55.26	63.41	57.71	31.58	37.20	33.33	78.07	82.32	79.10	83.33	87.20	81.59	77.19	83.54	76.62
Port Lions			81.20			45.11			90.23			92.48			90.98
Kenai	65.72	66.09	67.49	20.13	16.52	21.91	39.31	34.78	40.64	73.27	72.17	77.03	63.84	66.09	73.85
Nanwalek	88.60	69.17	74.60	20.18	21.05	28.57	85.09	85.71	84.92	90.35	90.23	91.27	91.23	80.45	89.68
Port Graham	72.79	82.61	84.93	26.47	21.74	22.60	77.21	88.41	92.47	87.50	93.48	95.89	87.50	92.03	95.89
Seldovia	77.84	77.53	78.14	21.65	26.40	18.03	74.74	80.34	84.15	89.18	90.45	93.44	88.66	85.96	89.07
Chenega Bay	57.58	63.75	61.45	34.85	35.00	36.14	72.73	75.00	81.93	81.82	86.25	84.34	80.30	81.25	80.72
Cordova	71.19	74.29	70.55	34.58	29.29	30.98	77.63	71.43	80.37	87.80	86.43	90.18	82.71	86.43	87.12
Tatitlek	52.63		57.97	40.79		33.33	81.58		86.96	84.21		91.30	81.58		85.51
Valdez	72.12	63.97	51.92	21.21	25.25	25.96	54.24	50.84	41.35	81.52	75.42	66.35	76.97	71.72	61.54

TABLE XXIII-3. AVERAGE NUMBER OF RESOURCES USED, ATTEMPTED TO HARVEST, HARVESTED, RECEIVED, AND GIVEN AWAY PER HOUSEHOLD, STUDY COMMUNITIES, 1991, 1992, AND 1993

	Average Number of Resources Per Household														
	Used			Attempted			Harvested			Received			Gave Away		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Kaktovik		16.0			12.0			8.6			10.5			7.7	
Kivalina		20.7			17.2			14.1			11.0			10.1	
Kotzebue	15.0			9.5			9.0			8.6			6.2		
Nuiqsut			20.3			14.2			11.1			12.2			10.6
Chignik Bay	16.4			10.7			9.7			9.0			6.5		
Chignik Lake	24.0			14.6			14.4			15.2			13.3		
Akhiok		18.7			13.3			12.7			9.3			7.4	
Karluk	15.5			12.3			11.5			9.8			10.2		
Kodiak	12.0	11.5	11.8	8.3	7.5	7.4	7.6	6.6	6.7	6.1	6.8	7.1	3.9	4.5	4.5
Larsen Bay	17.5	16.2	16.8	11.4	11.8	10.9	11.1	11.5	10.6	9.7	7.5	9.5	7.6	7.3	8.1
Old Harbor	20.1			13.0			12.8			12.1			10.4		
Ouzinkie	18.8	20.3	16.2	14.0	14.2	11.2	13.3	13.7	11.0	8.3	9.4	8.1	5.9	8.8	8.0
Port Lions			15.6			11.8			11.5			7.0			6.0
Kenai	6.2	6.8	7.1	5.2	5.7	5.4	4.2	4.7	4.5	2.7	2.7	3.2	1.8	2.5	2.3
Nanwalek	21.2	22.9	22.7	14.9	16.7	16.8	14.0	16.1	15.6	12.8	14.1	13.5	9.9	12.3	12.9
Port Graham	22.0	22.1	19.4	14.7	14.8	11.6	13.6	13.6	10.9	13.4	14.0	13.0	10.2	11.1	9.9
Seldovia	13.5	12.3	12.9	9.3	8.9	9.3	9.0	8.4	8.9	6.4	6.2	6.4	4.8	4.3	5.0
Chenega Bay	14.6	19.3	16.4	10.3	11.7	11.5	9.7	11.6	10.5	8.8	13.9	11.0	6.9	9.4	9.7
Cordova	12.5	13.8	14.4	9.4	9.7	9.2	8.5	8.8	7.7	5.5	7.3	8.9	4.1	5.3	4.9
Tatitlek	19.3		19.0	13.0		12.0	12.4		11.1	12.7		13.0	11.2		9.9
Valdez	7.9	8.5	6.5	6.2	6.6	5.8	5.1	5.4	4.5	3.8	4.0	2.7	2.3	2.6	2.2

Table XXIII-4. Subsistence Harvests, Pounds Usable Weight per Person, Study Communities, by Resource Category, 1991, 1992, and 1993

	Salmon			Other Fish			Marine Invertebrates			Land Mammals			Marine Mammals			Birds & Eggs			Wild Plants			Total		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Kaktovik		0.5			118.4			0.0			149.6			599.1			16.8			1.2			885.6	
Kivalina		14.8			238.5			0.1			165.3			318.0			10.8			14.0			761.5	
Kotzebue	75.2			162.6			0.2			177.5			157.7			3.5		16.2			592.8		
Nuiqsut			2.8			247.8			0.0			242.0			236.0			12.0			1.1			741.8
Chignik Bay	171.1			109.9			38.9			24.4			2.6			4.4			6.3			357.5		
Chignik Lake	203.7			41.6			20.8			152.6			4.1			13.2			6.5			442.4		
Akhiok		199.5			24.4			42.1			28.1			19.4			3.5			4.7			321.7	
Karluk	192.2			30.0			4.3			29.8			0.9			1.1			10.3			268.7		
Kodiak	50.6	73.2	47.7	46.0	50.2	60.0	12.0	14.3	9.5	25.7	15.2	23.2	0.2	0.2	0.0	0.5	0.8	0.7	5.2	5.6	10.0	140.1	159.5	151.1
Larsen Bay	108.8	182.1	202.7	44.2	67.2	87.6	52.2	56.8	62.3	66.8	33.0	76.6	9.4	4.5	9.6	4.8	3.5	1.7	8.4	6.3	10.6	294.6	353.3	451.0
Old Harbor	206.9			73.4			36.4			29.0			27.7			7.6			9.9			391.0		
Ouzinkie	88.5	213.4	102.4	54.5	58.4	36.5	12.3	27.6	21.9	32.4	19.4	24.2	6.9	12.1	15.0	5.7	7.5	6.6	9.3	8.9	11.6	209.5	347.2	218.2
Port Lions			157.7			63.7			30.2			56.2			4.5			3.9			15.4			331.5
Kenai	28.4	35.2	38.7	24.9	20.5	16.3	5.6	7.9	5.1	13.4	7.9	16.9	0.0	0.0	0.6	0.7	1.0	0.9	1.5	1.3	5.2	74.5	73.9	83.8
Nanwalek	125.6	121.6	149.4	82.7	88.4	90.1	24.4	24.8	23.3	3.1	14.5	8.9	6.4	16.8	18.6	3.8	1.7	2.3	12.9	11.3	12.2	258.8	279.0	304.9
Port Graham	132.6	106.8	97.4	99.7	108.6	72.7	21.6	23.9	16.0	3.3	4.1	4.1	14.7	16.9	8.7	1.8	1.7	0.7	7.3	10.7	12.7	280.9	272.7	212.1
Seldovia	64.6	58.5	64.3	68.2	41.1	43.6	30.4	17.8	34.0	29.6	15.2	23.6	0.0	1.3	1.2	1.2	1.3	1.3	11.6	9.9	15.6	205.5	145.1	183.5
Chenega Bay	136.8	184.8	108.7	117.9	108.5	88.5	16.1	13.8	14.9	42.7	69.1	18.3	20.8	25.0	34.9	0.8	1.8	1.5	10.2	11.5	8.0	345.3	414.4	274.8
Cordova	86.2	71.3	58.3	40.2	40.8	29.9	5.5	4.6	5.4	50.0	42.4	24.9	0.4	0.0	0.8	1.8	1.3	1.1	5.2	3.1	7.5	189.2	163.5	127.8
Tatitlek	148.0		105.9	89.5		37.6	6.6		9.6	40.4		51.8	47.7		49.2	7.2		3.2	6.7		12.8	346.0		270.1
Valdez	35.1	44.5	22.6	21.9	32.3	24.5	5.4	3.2	4.9	20.9	19.1	20.7	0.6	0.0	2.2	1.2	1.4	1.1	2.8	3.0	3.4	87.9	103.4	79.5

Figure XXIII-1. Estimated Population of Study Communities, 1992, 1993, and 1994

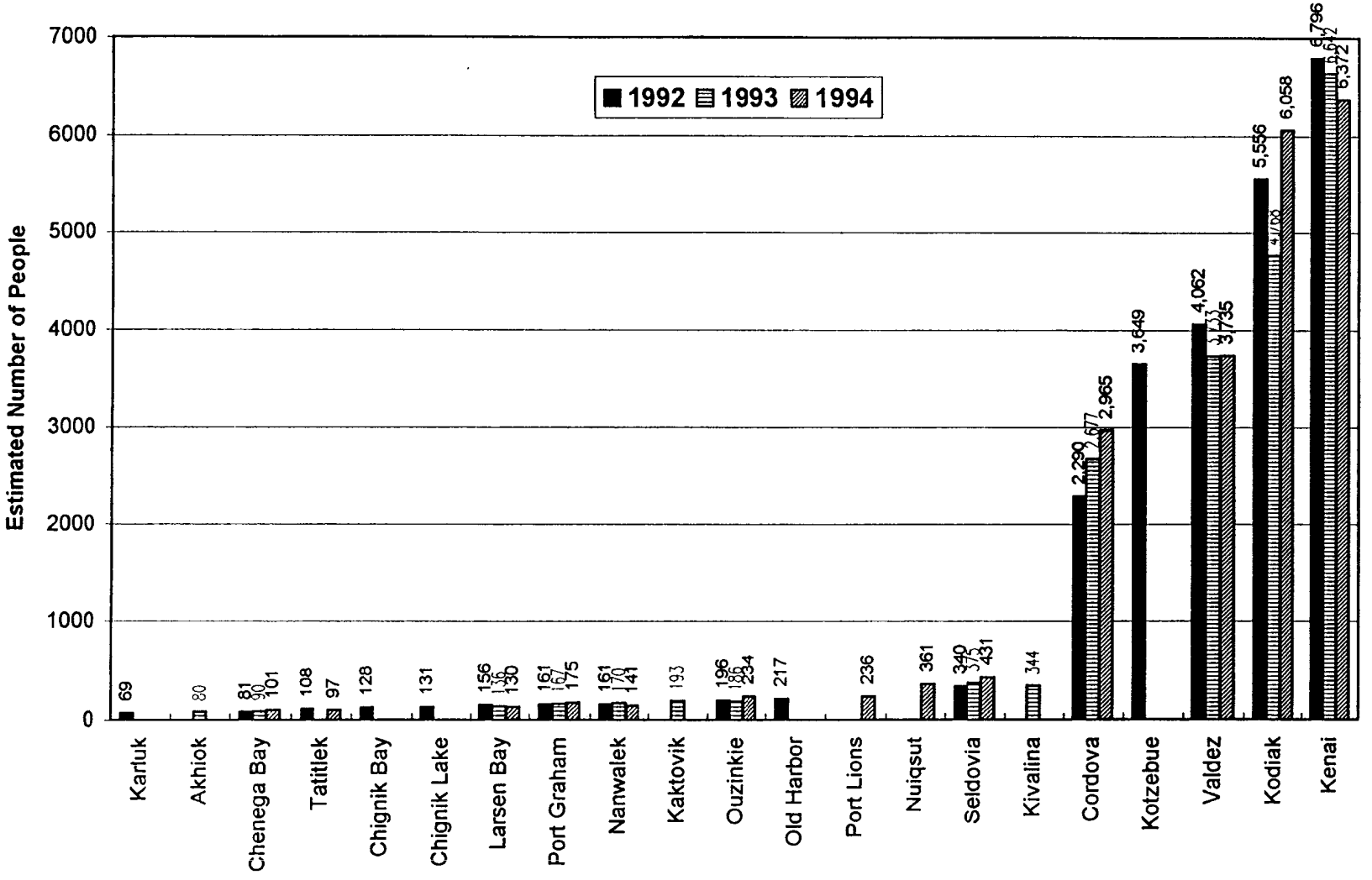


Figure XXIII-2. Percentage of Population that is Alaska Native, Study Communities, 1992, 1993, and 1994

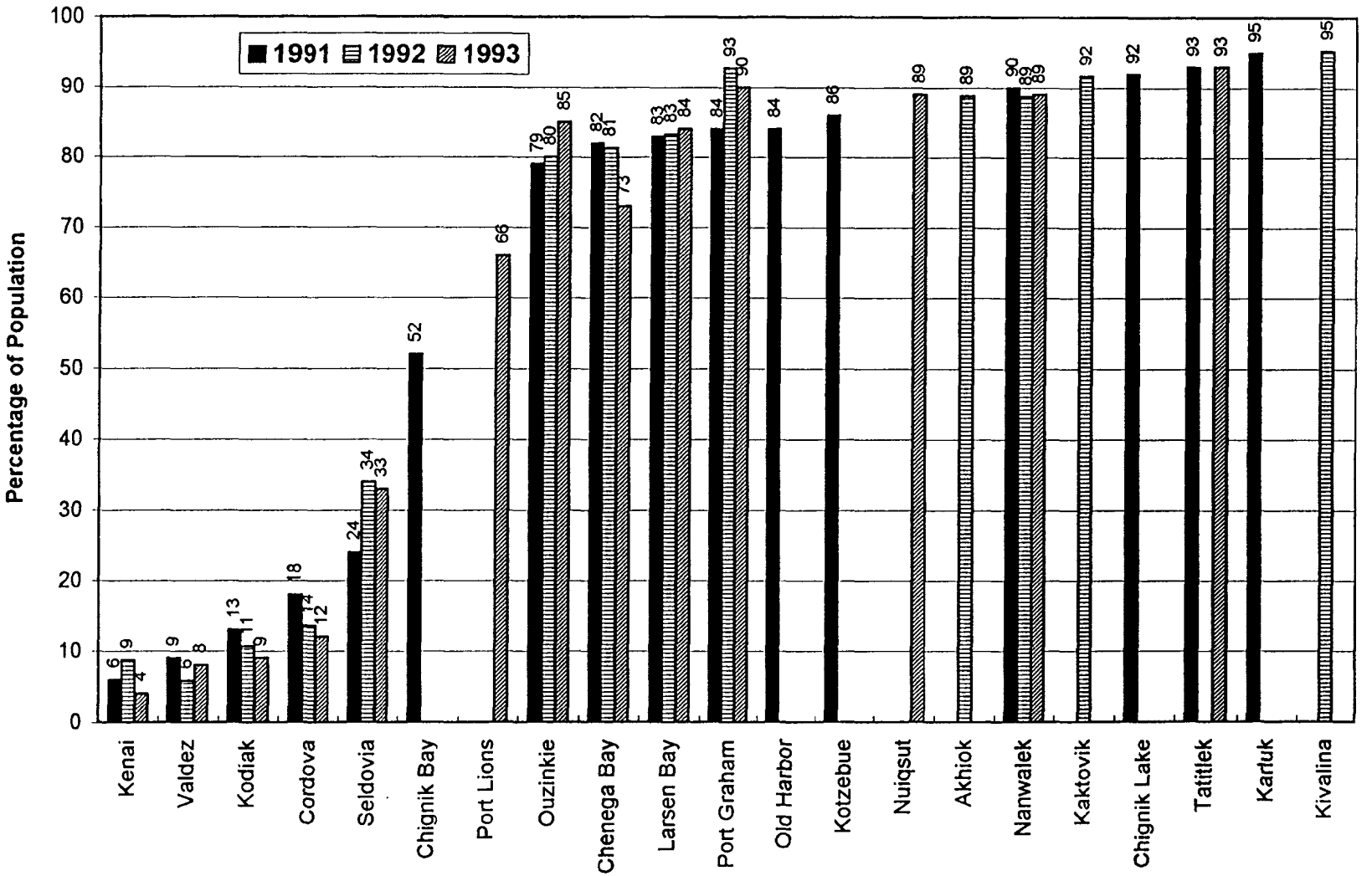


Figure XXIII-3. Per Capita Incomes, All Sources, Study Communities, 1991, 1992, and 1993

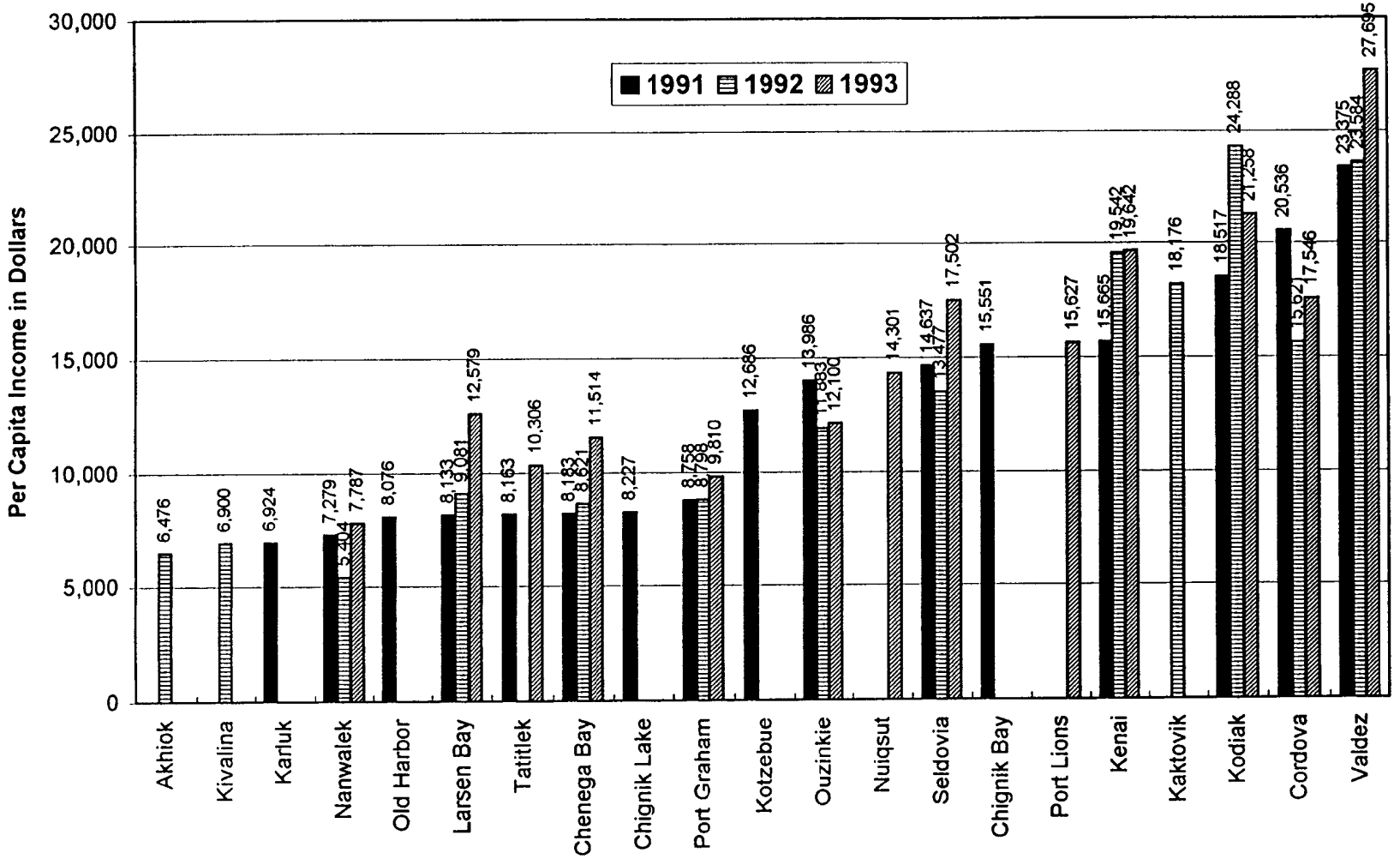


Figure XXIII-4. Average Number of Months Employed, Employed Adults, Study Communities, 1991, 1992, and 1993

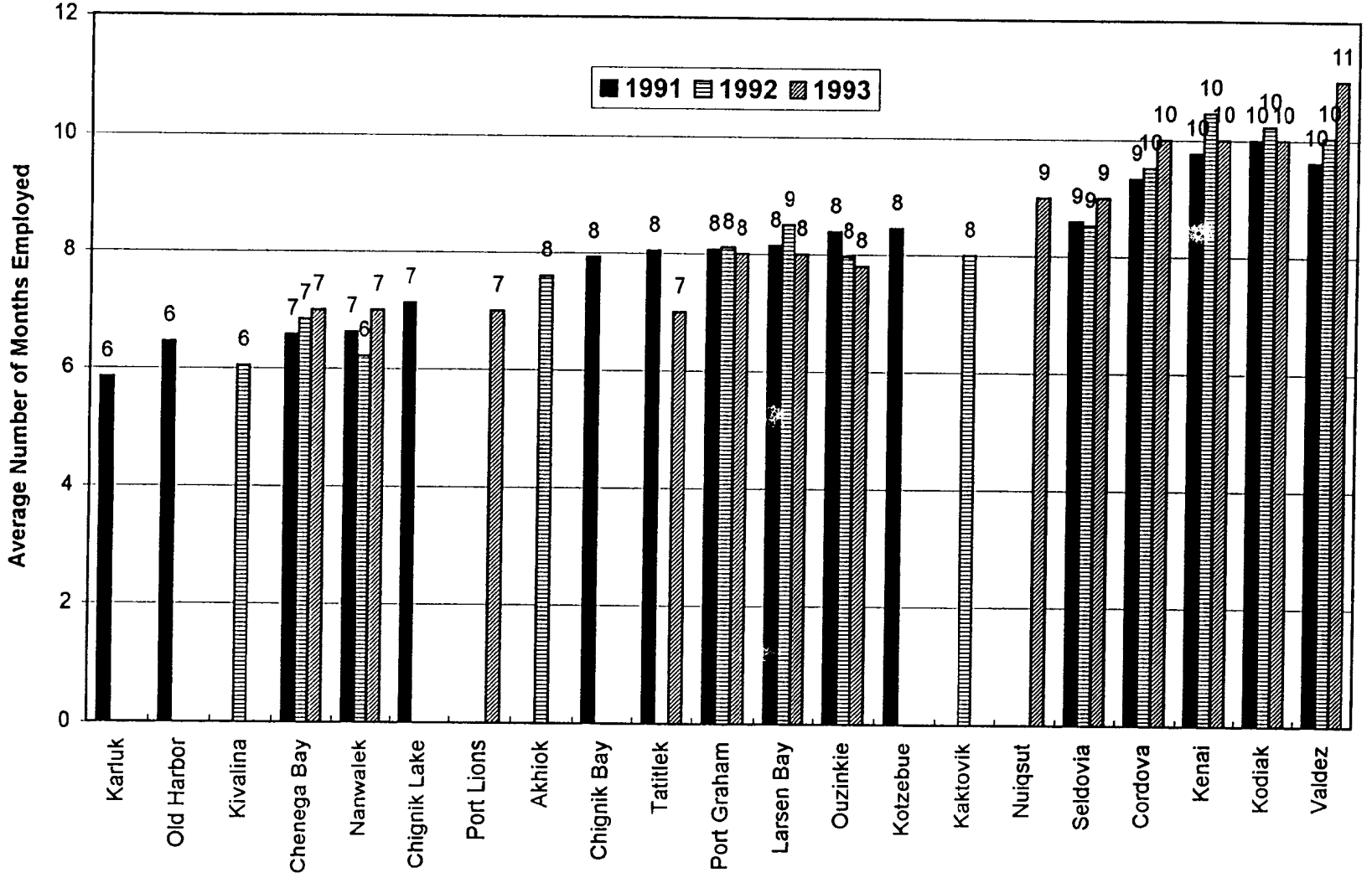


Figure XXIII-5. Percentage of Employed Adults Employed Year-Round, Study Communities, 1991, 1992, and 1993

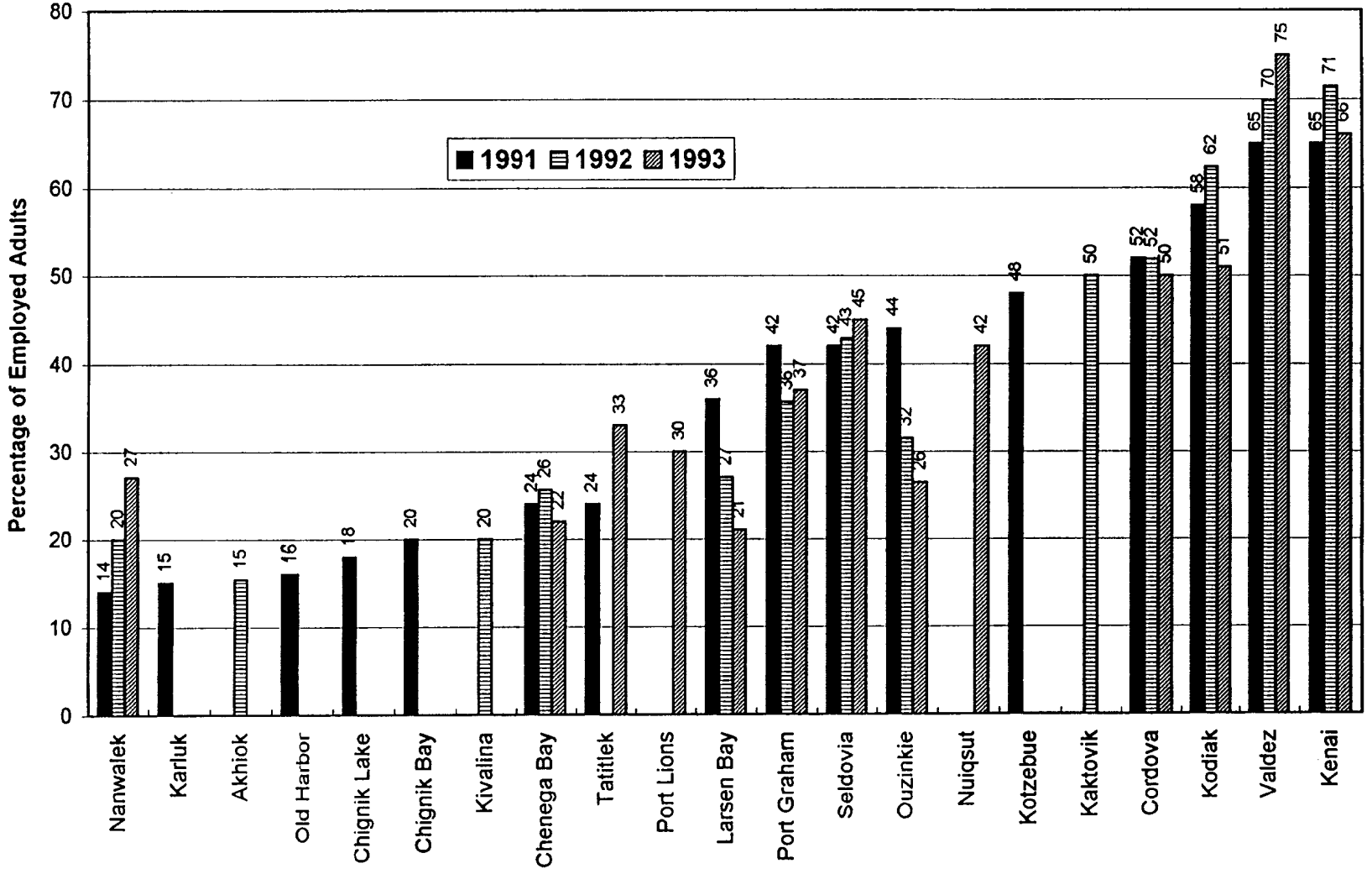


Figure XXIII-6. Percentage of Households Using Wild Resources, Study Communities, 1991, 1992, and 1993

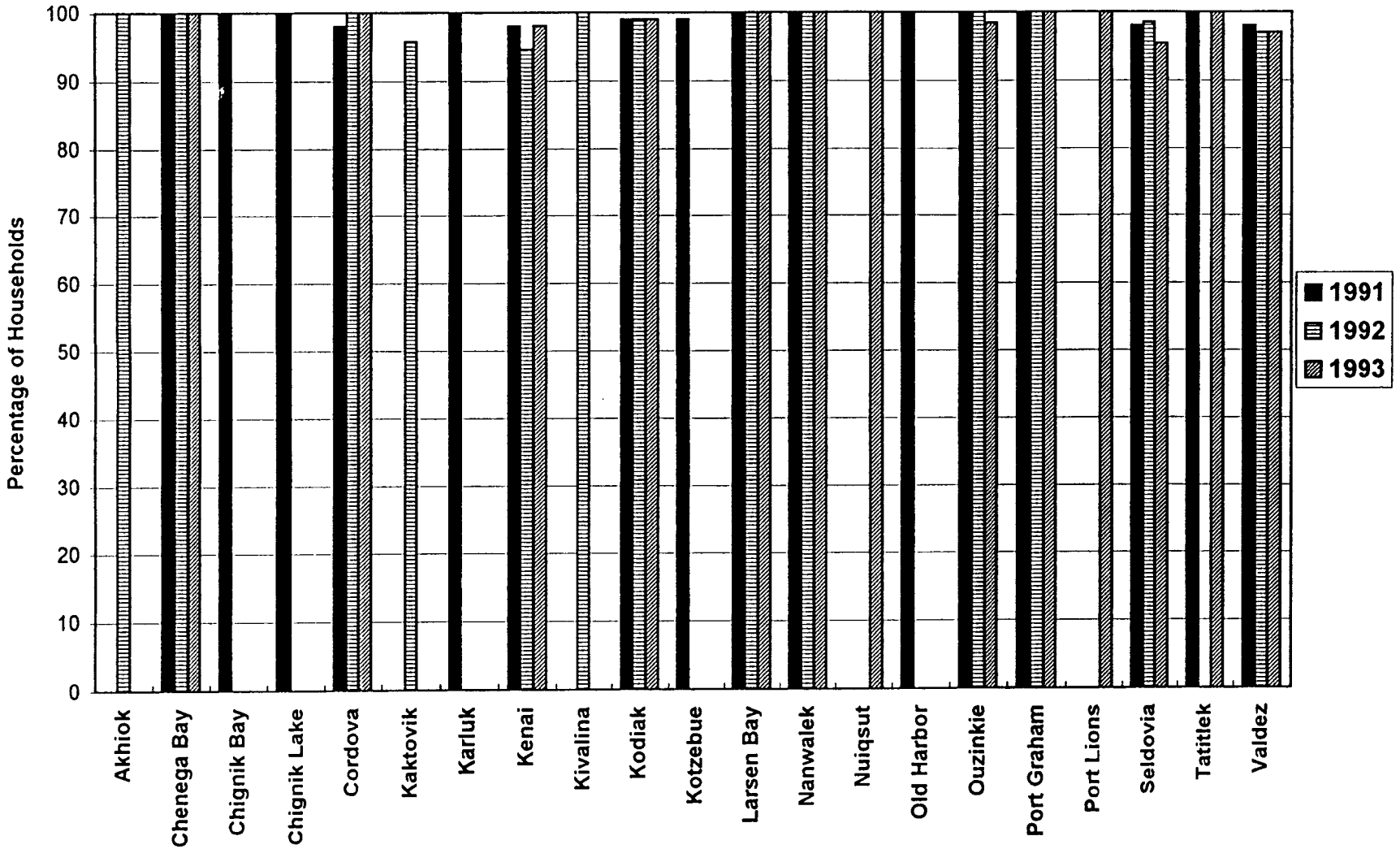


Figure XXIII-7. Percentage of Households Attempting to Harvest Wild Resources, Study Communities, 1991, 1992, and 1993

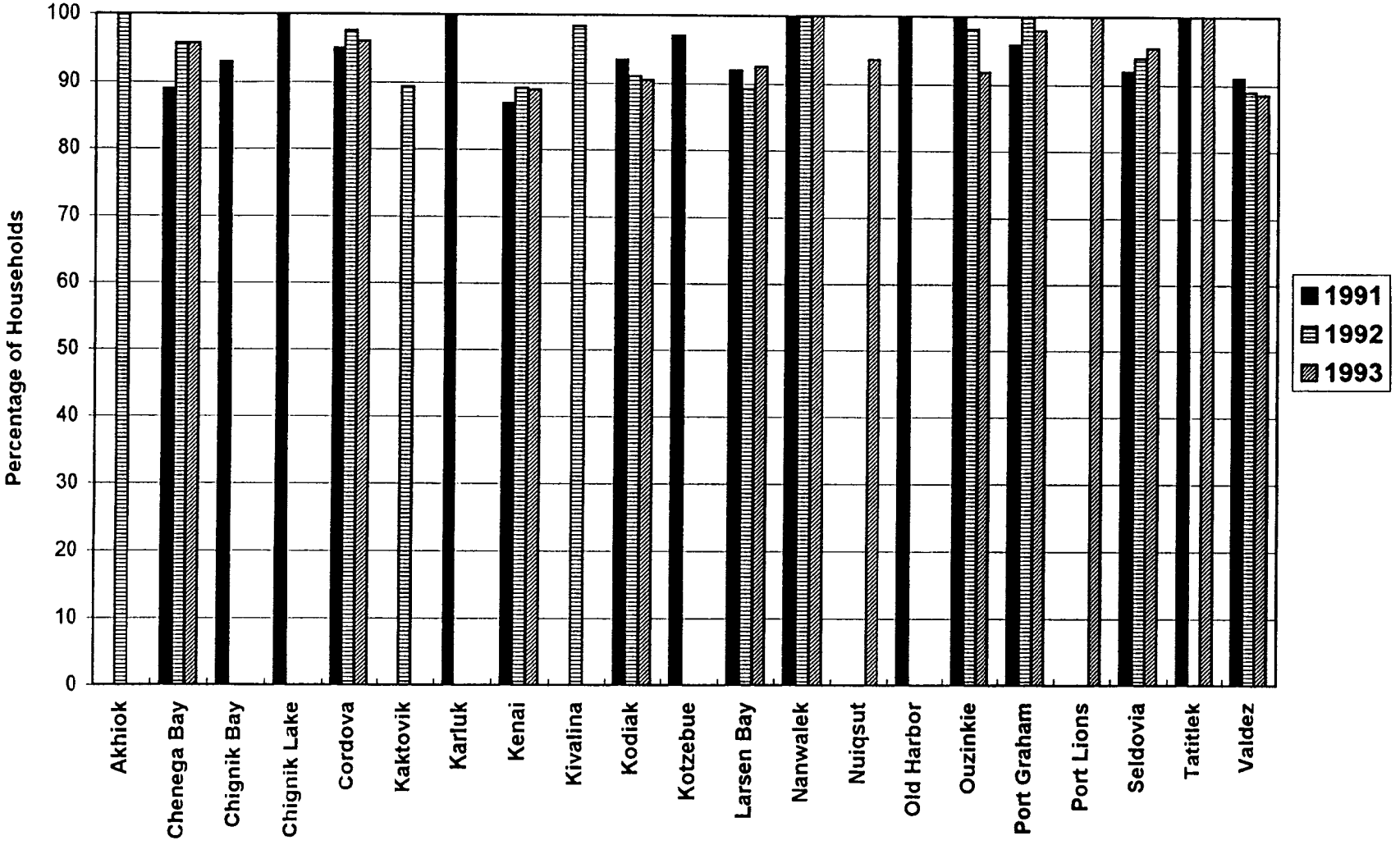


Figure XXIII-8. Percentage of Households Receiving Wild Resources, Study Communities, 1991, 1992, and 1993

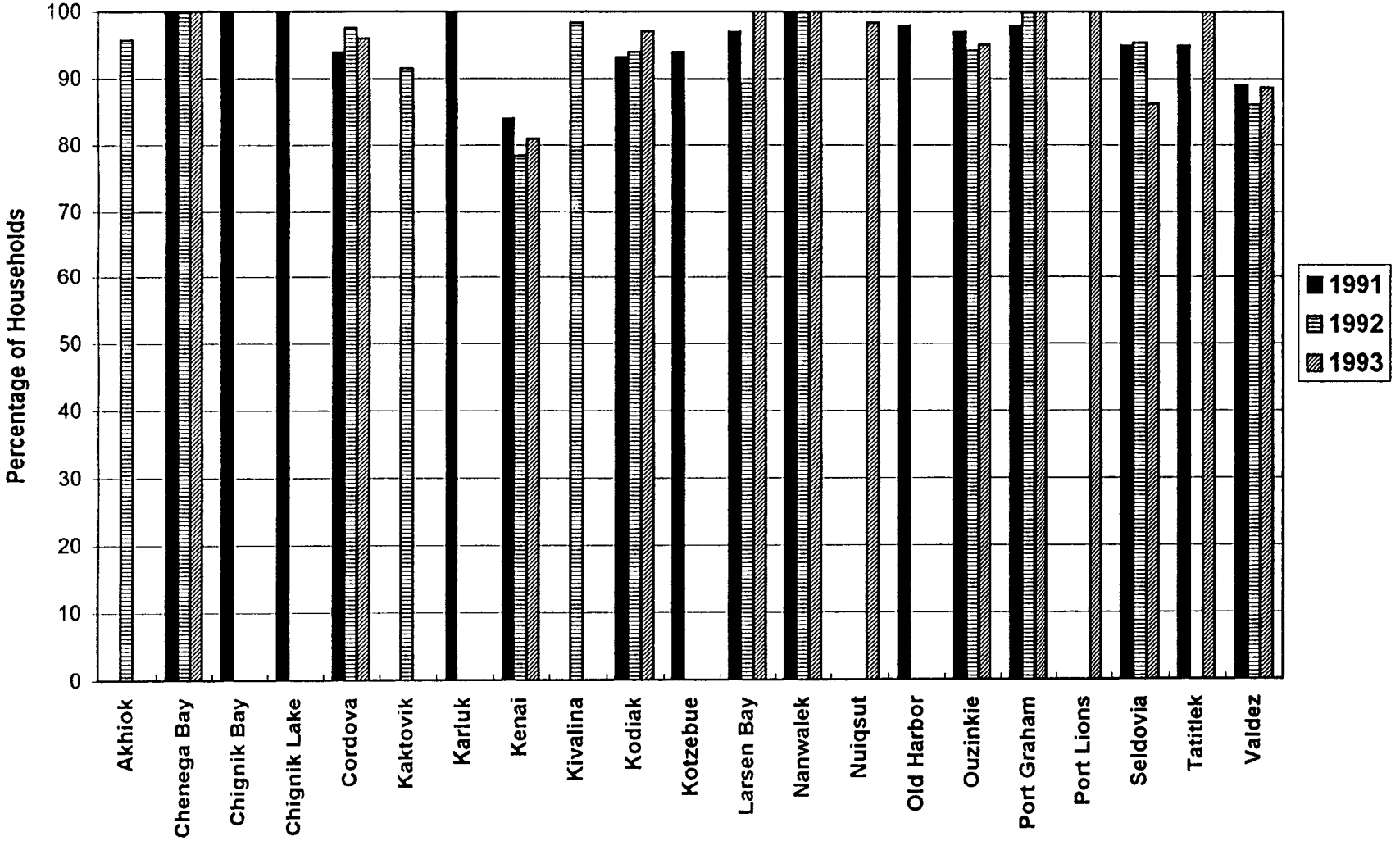


Figure XXIII-9. Percentage of Households Giving Away Wild Resources, Study Communities, 1991, 1992, and 1993

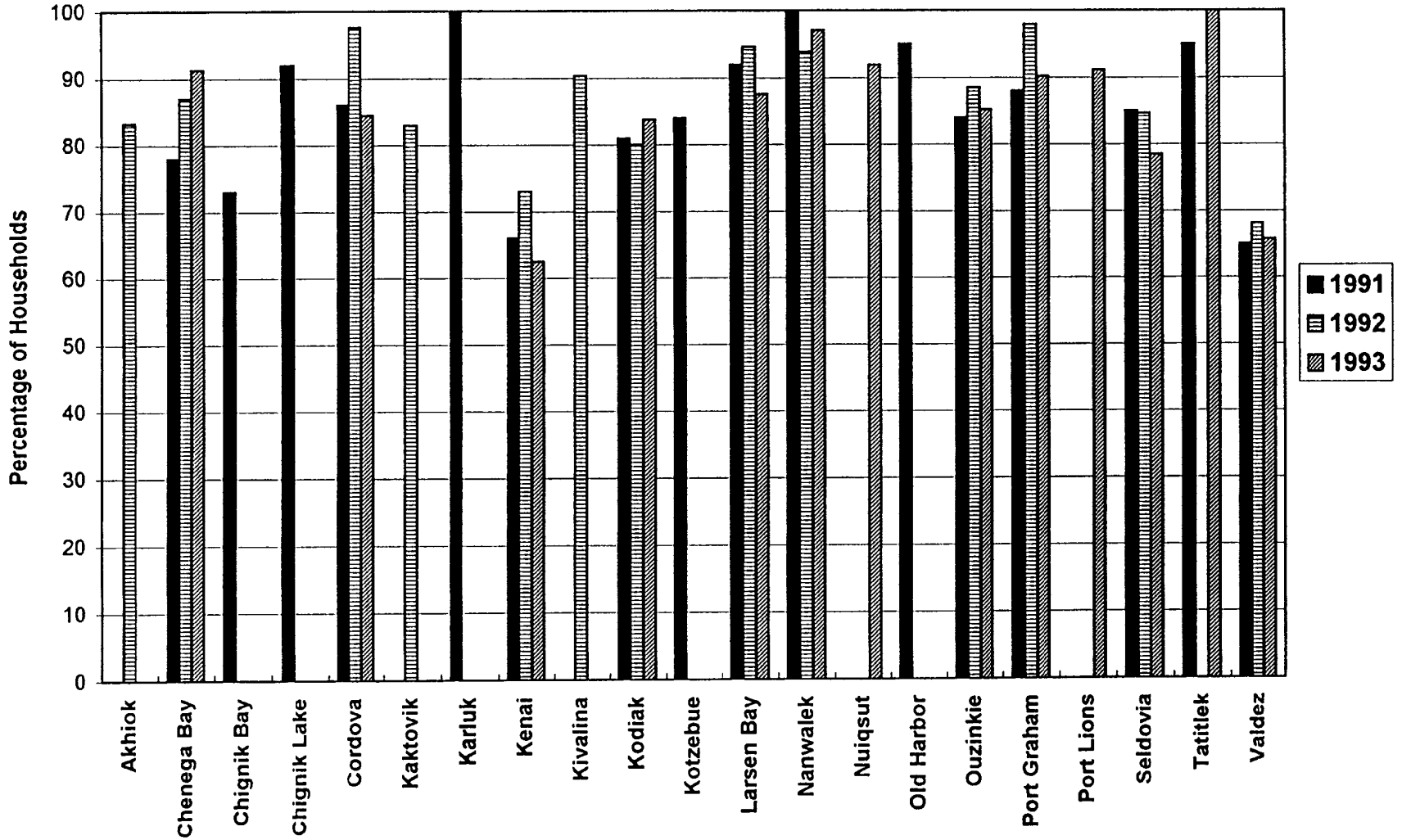


Figure XXIII-10. Percentage of Population Hunting, Fishing, or Gathering Wild Resources, Study Communities, 1991, 1992, and 1993

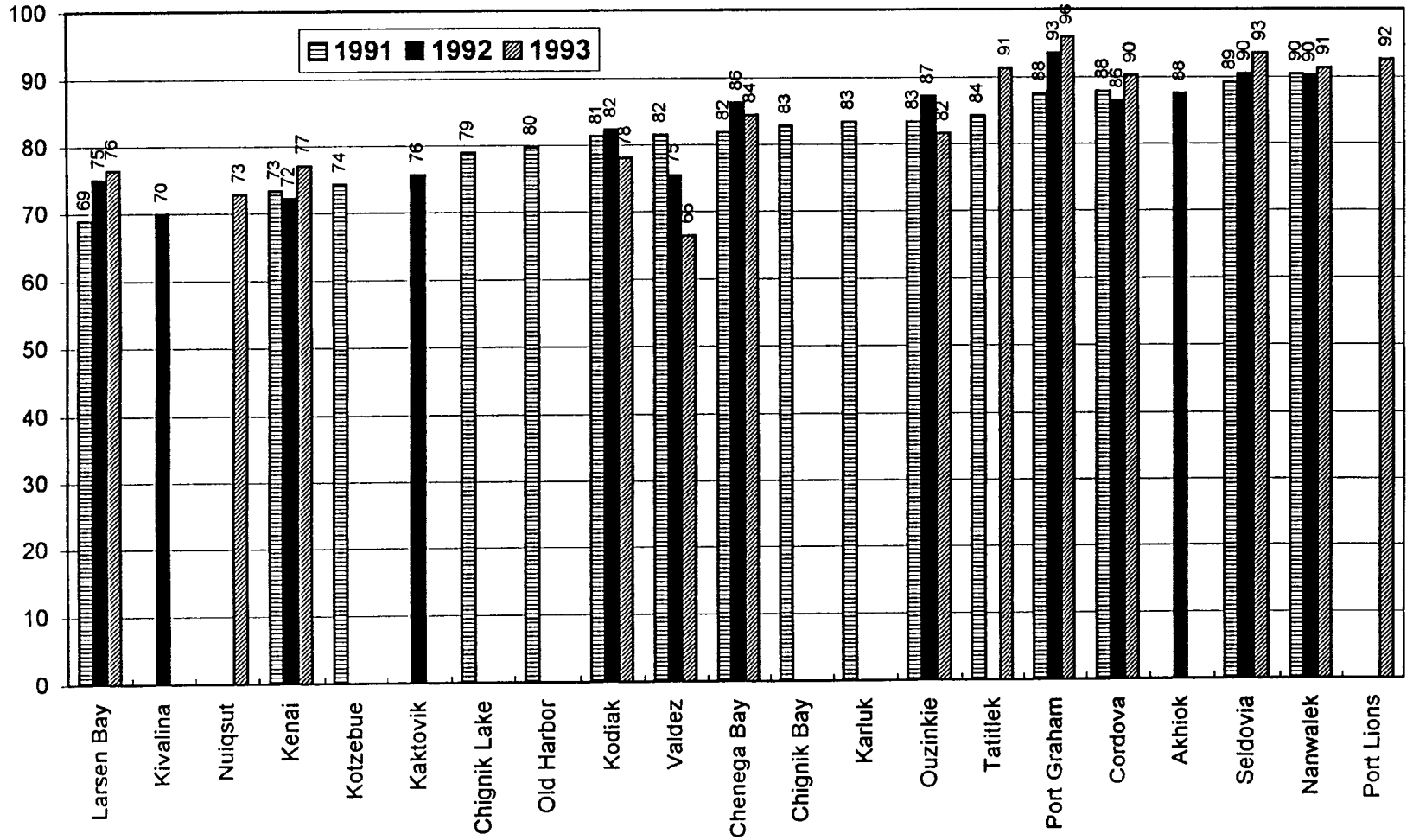


Figure XXIII-11. Percentage of Population Fishing, Study Communities, 1991, 1992, and 1993

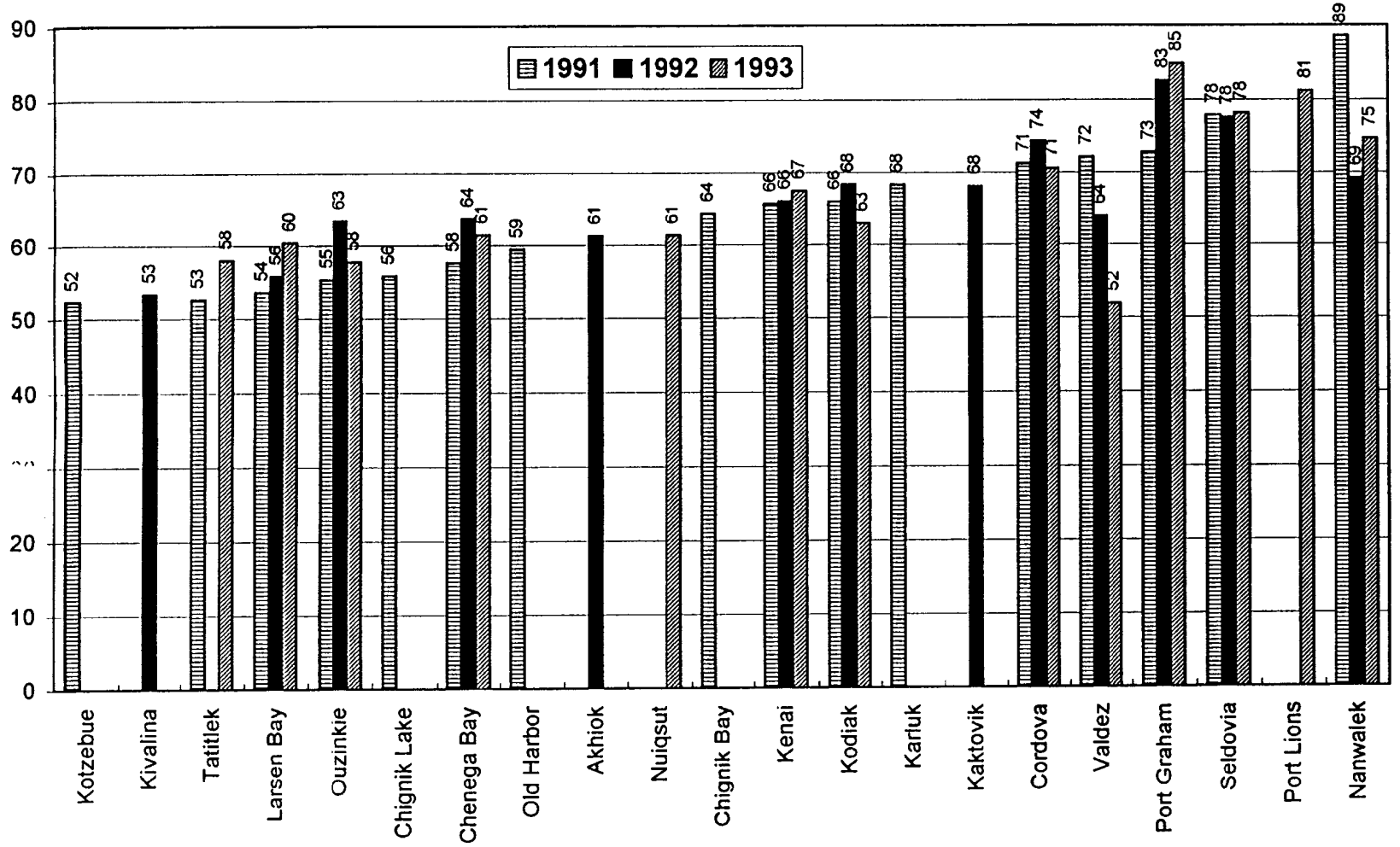


Figure XXIII-12. Percentage of Population Hunting, Study Communities, 1991, 1992, and 1993

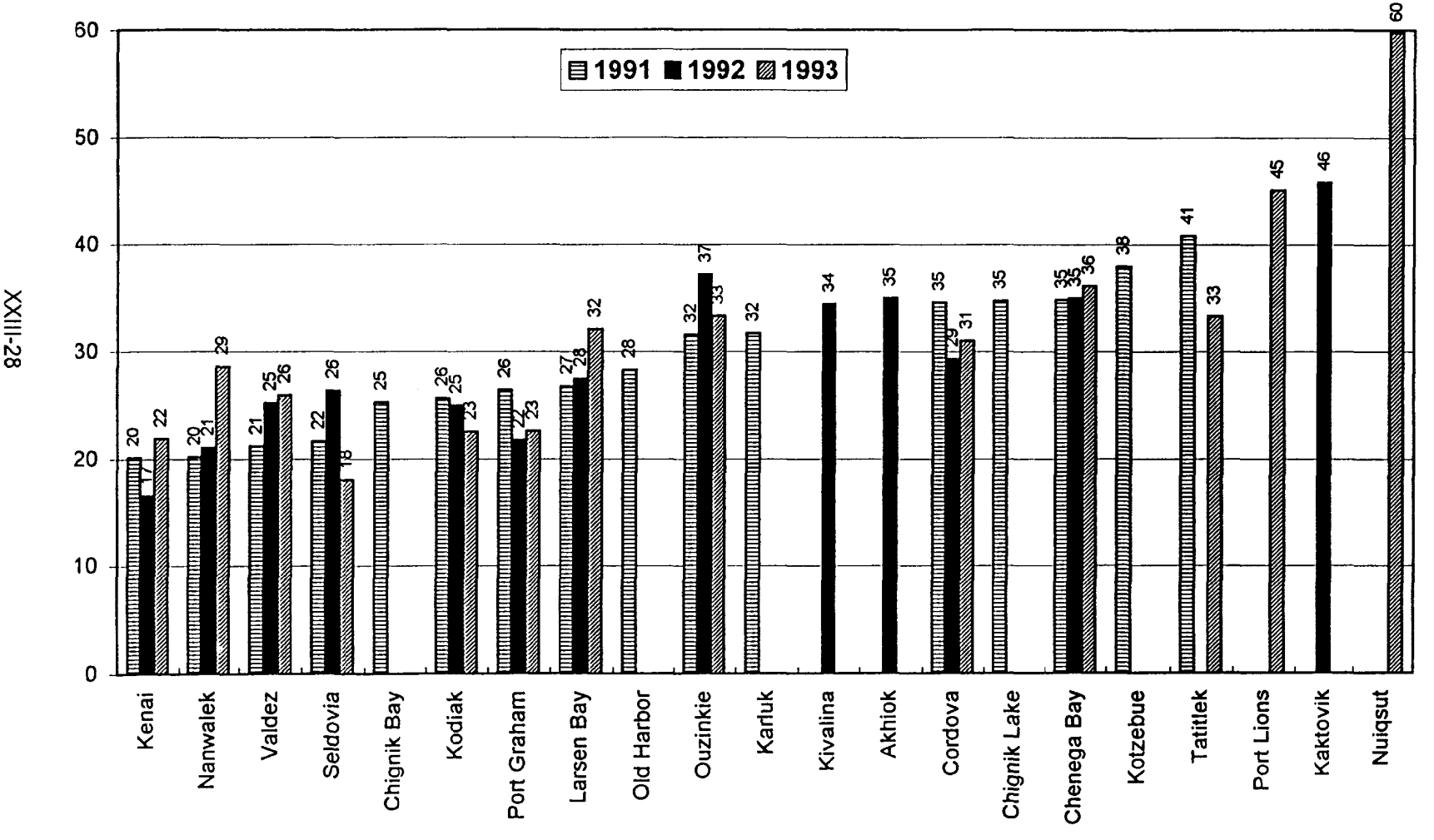


Figure XXIII-13. Percentage of Population Processing Wild Resources, Study Communities, 1991, 1992, and 1993

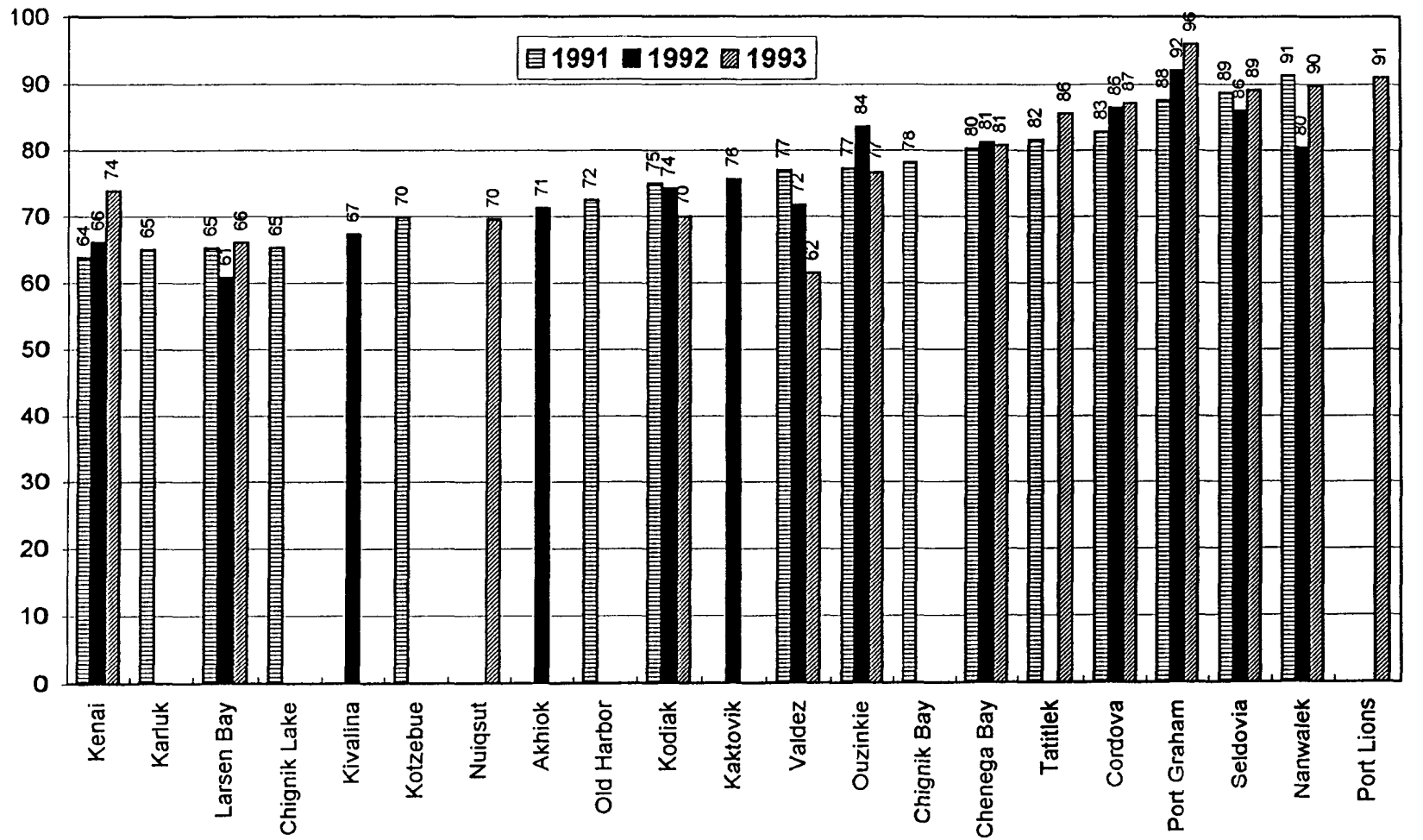


Figure XXIII-14. Total Subsistence Harvests, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

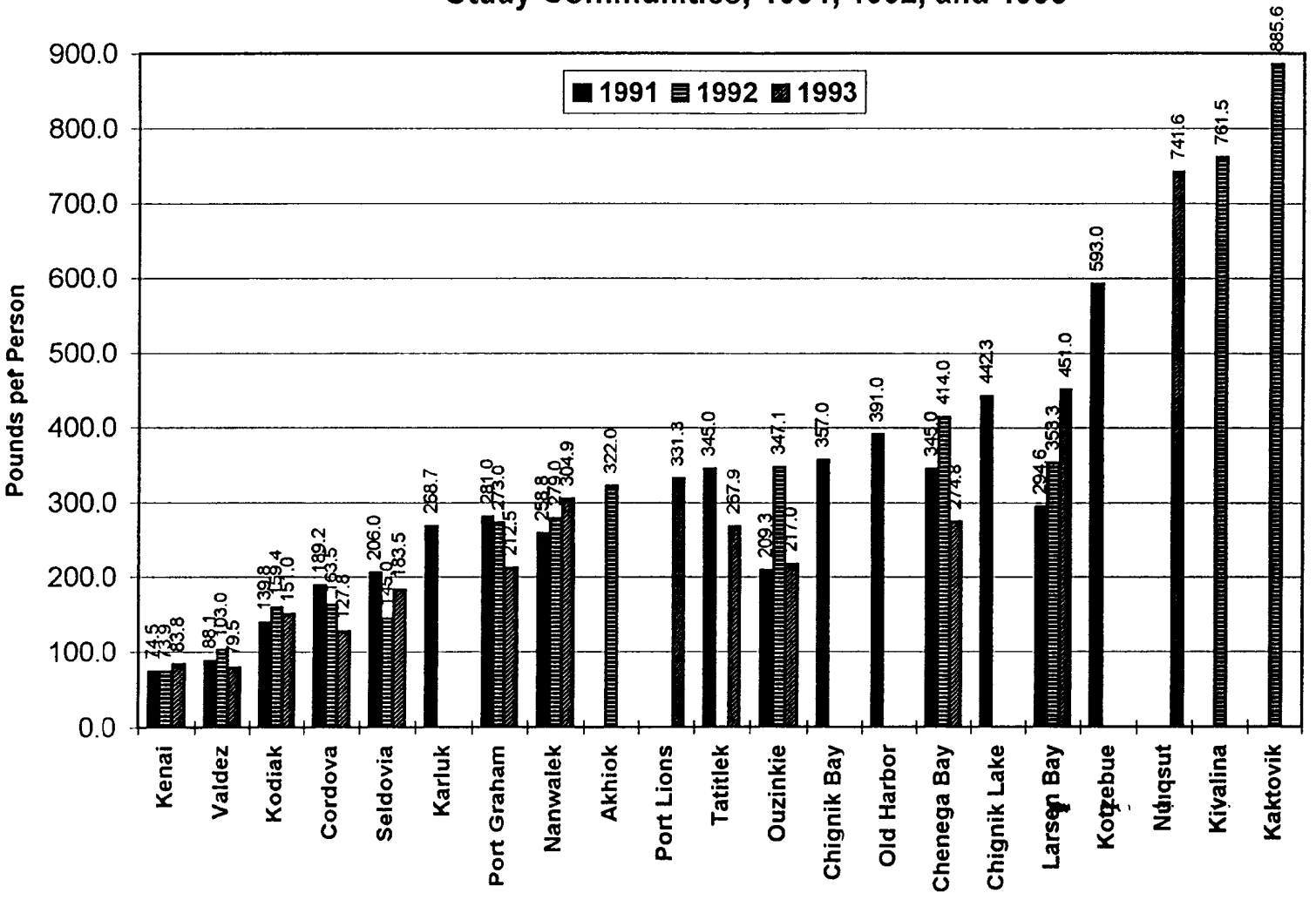


Figure XXIII-15. Subsistence Harvests of Salmon, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

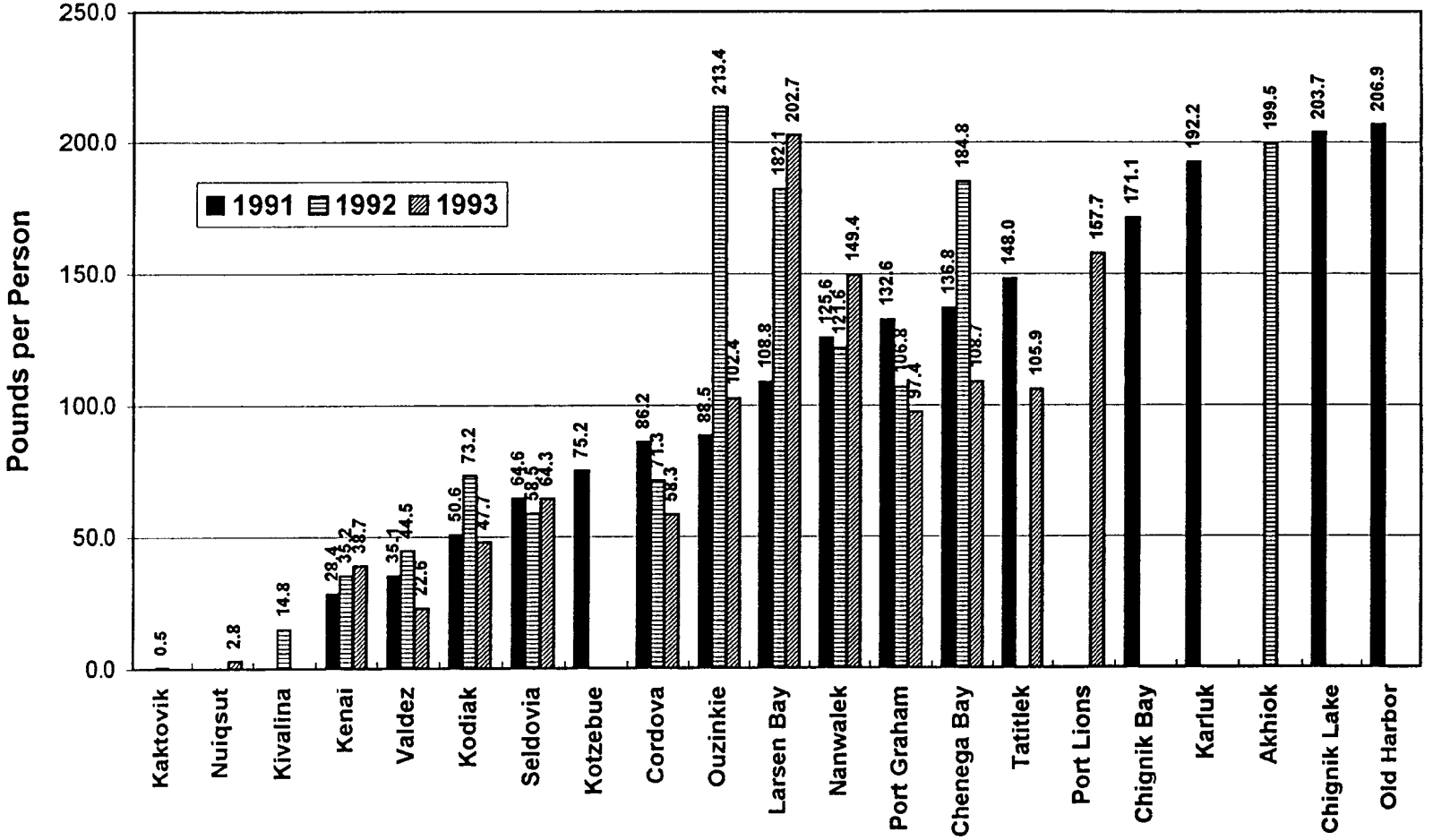


Figure XXIII-16. Subsistence Harvests of Fish Other than Salmon, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

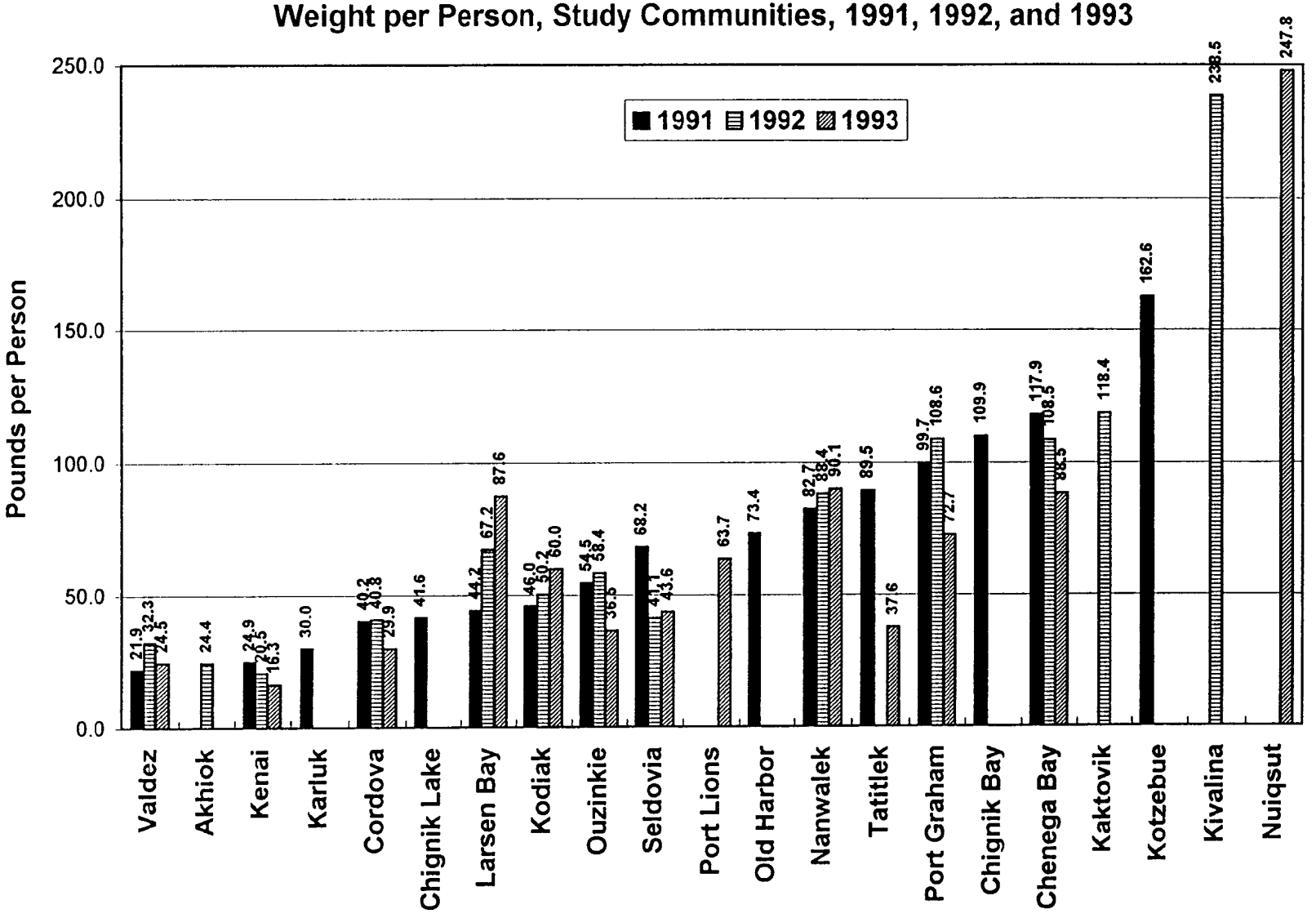


Figure XXIII-17. Subsistence Harvests of Land Mammals, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

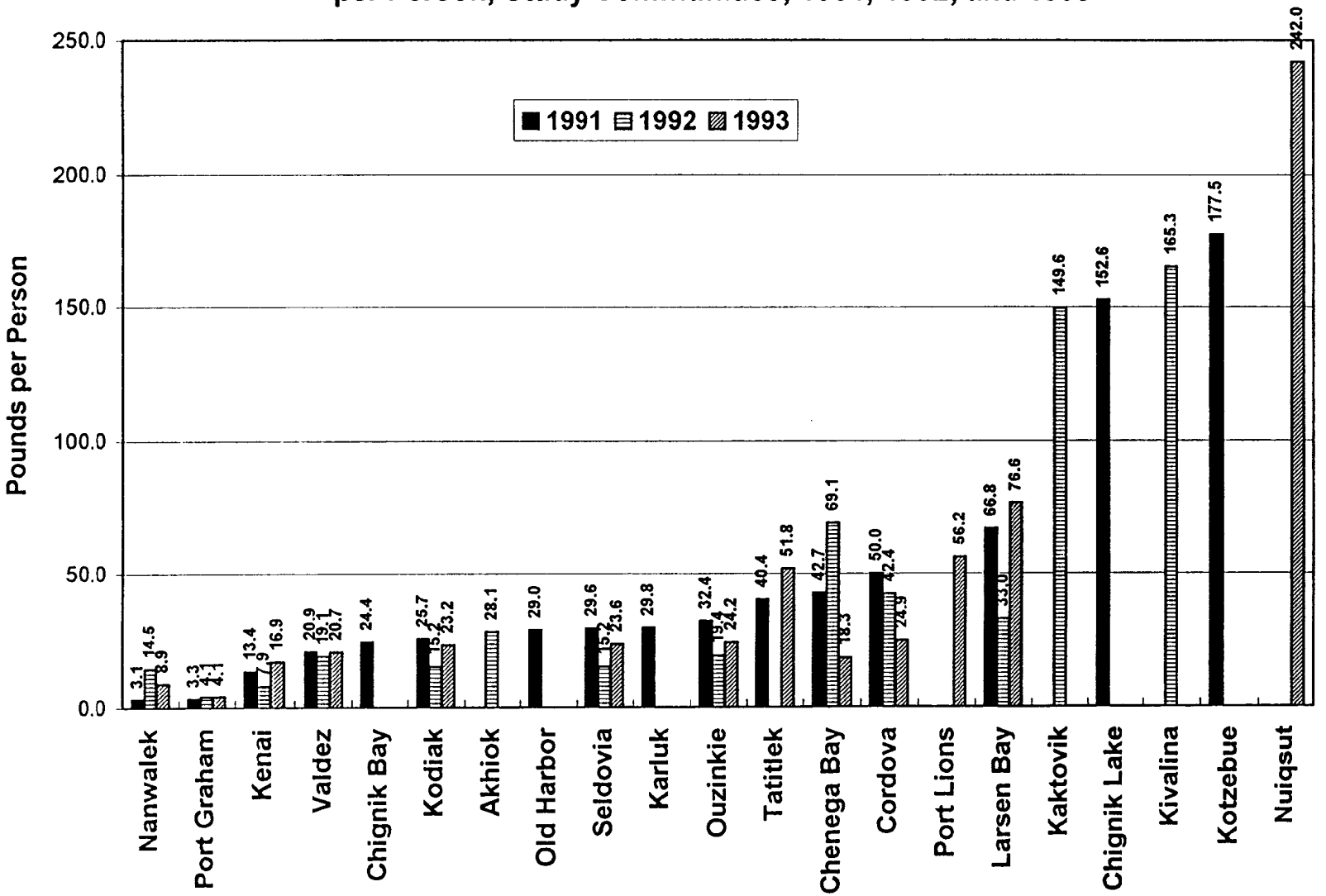


Figure XXIII-18. Subsistence Harvests of Marine Mammals, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

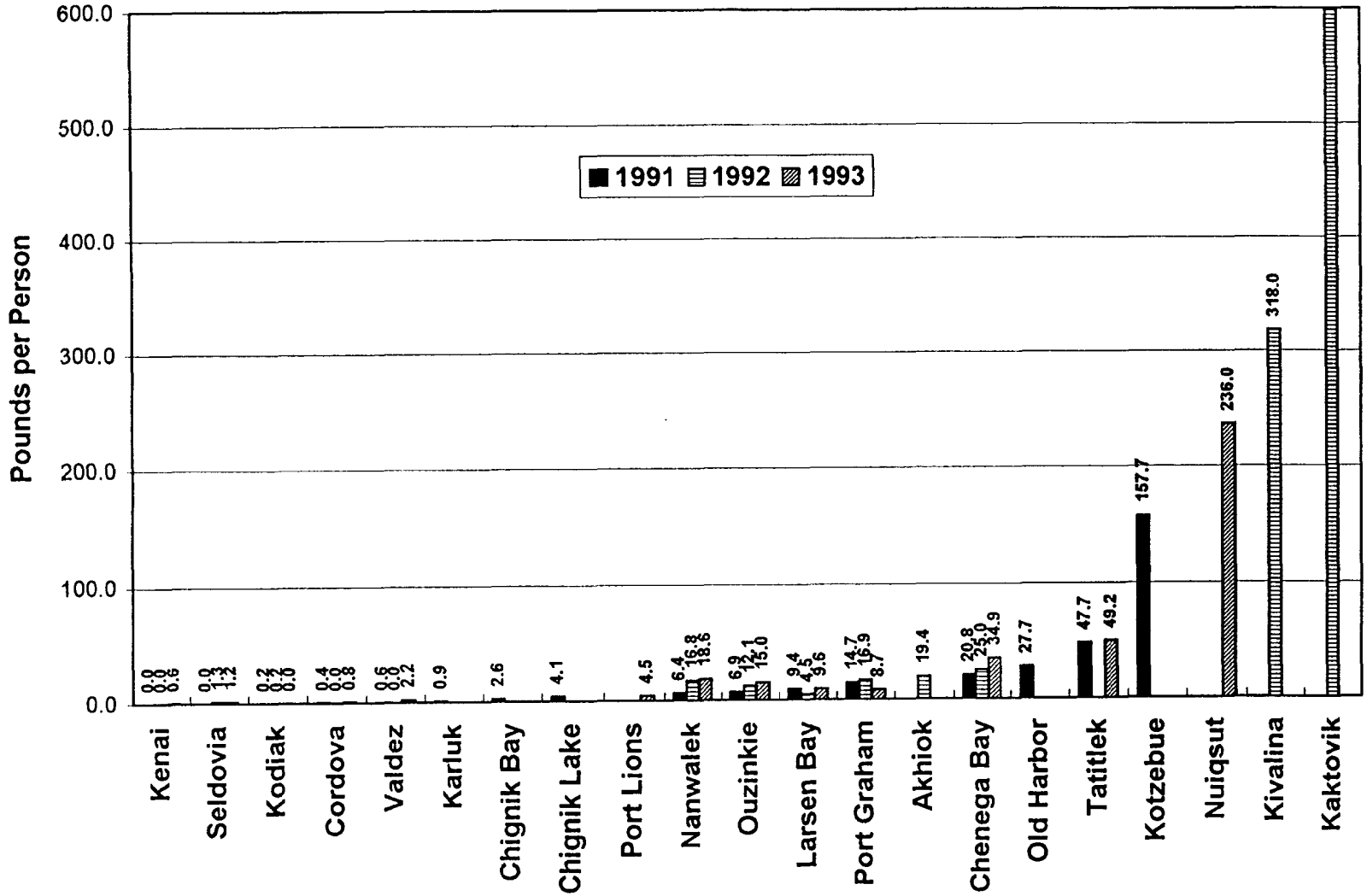


Figure XXIII-19. Subsistence Harvests of Birds and Eggs, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

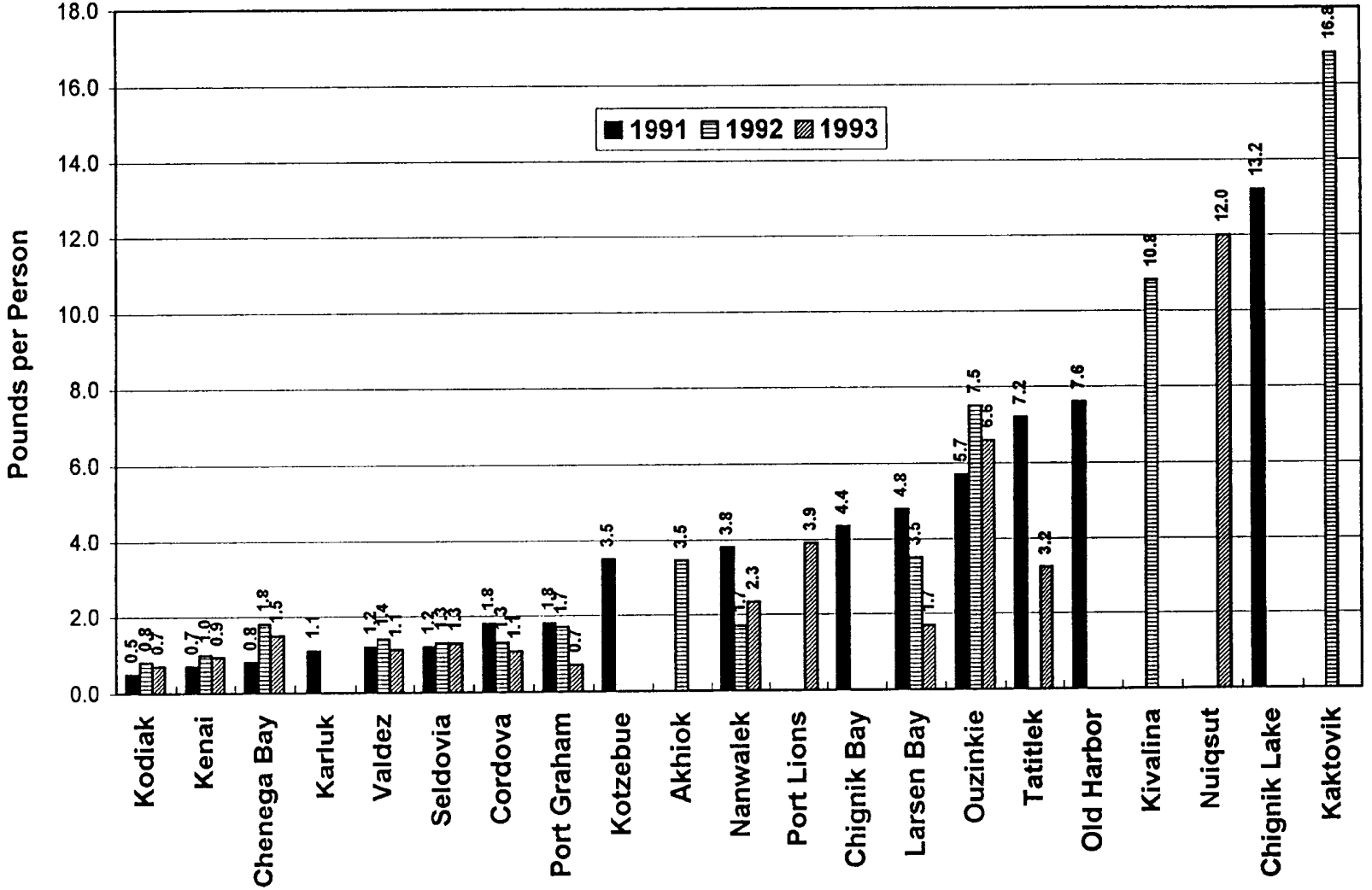


Figure XXIII-20. Subsistence Harvests of Marine Invertebrates, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

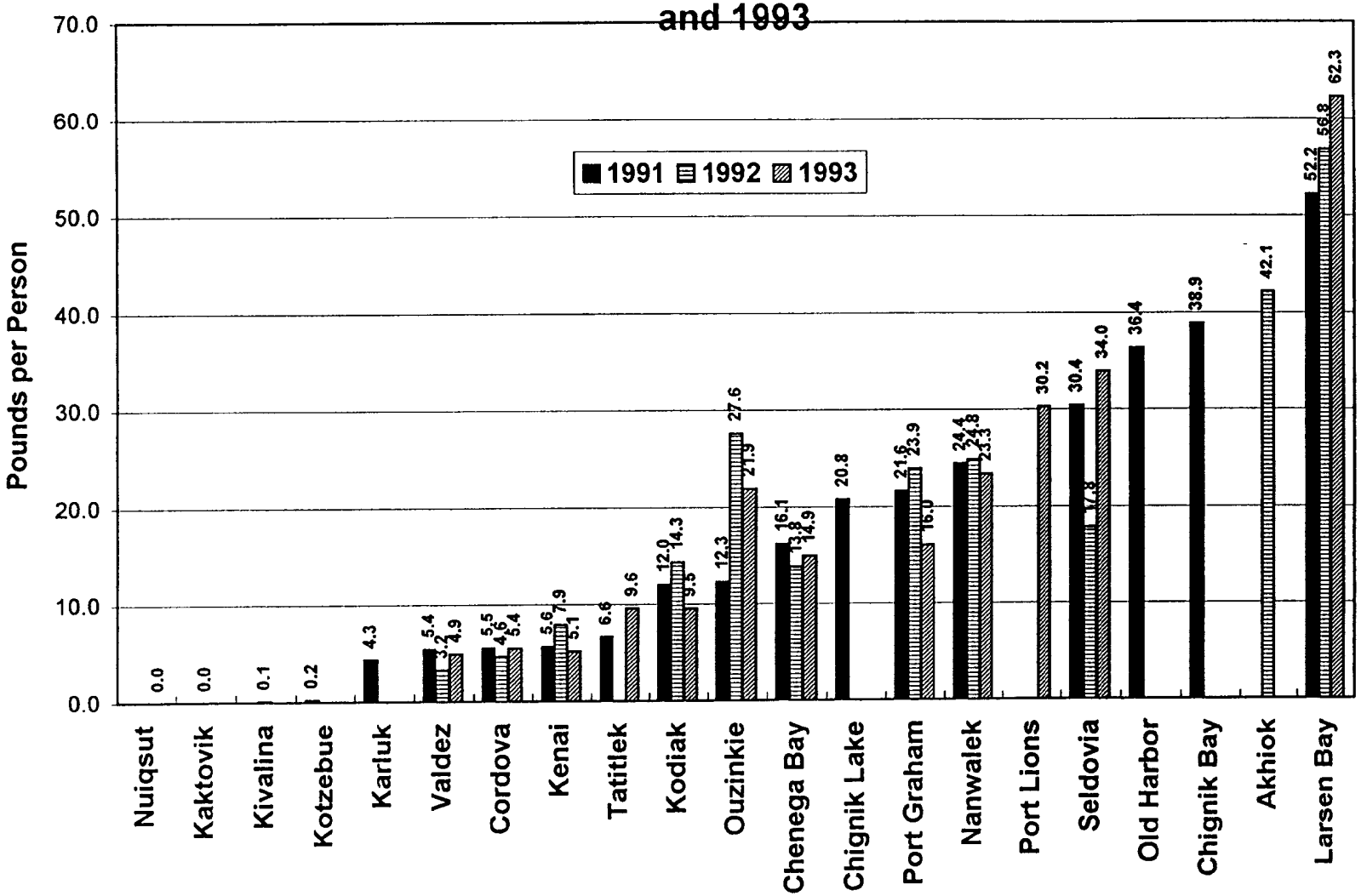


Figure XXIII-21. Subsistence Harvests of Wild Plants, Pounds Usable Weight per Person, Study Communities, 1991, 1992, and 1993

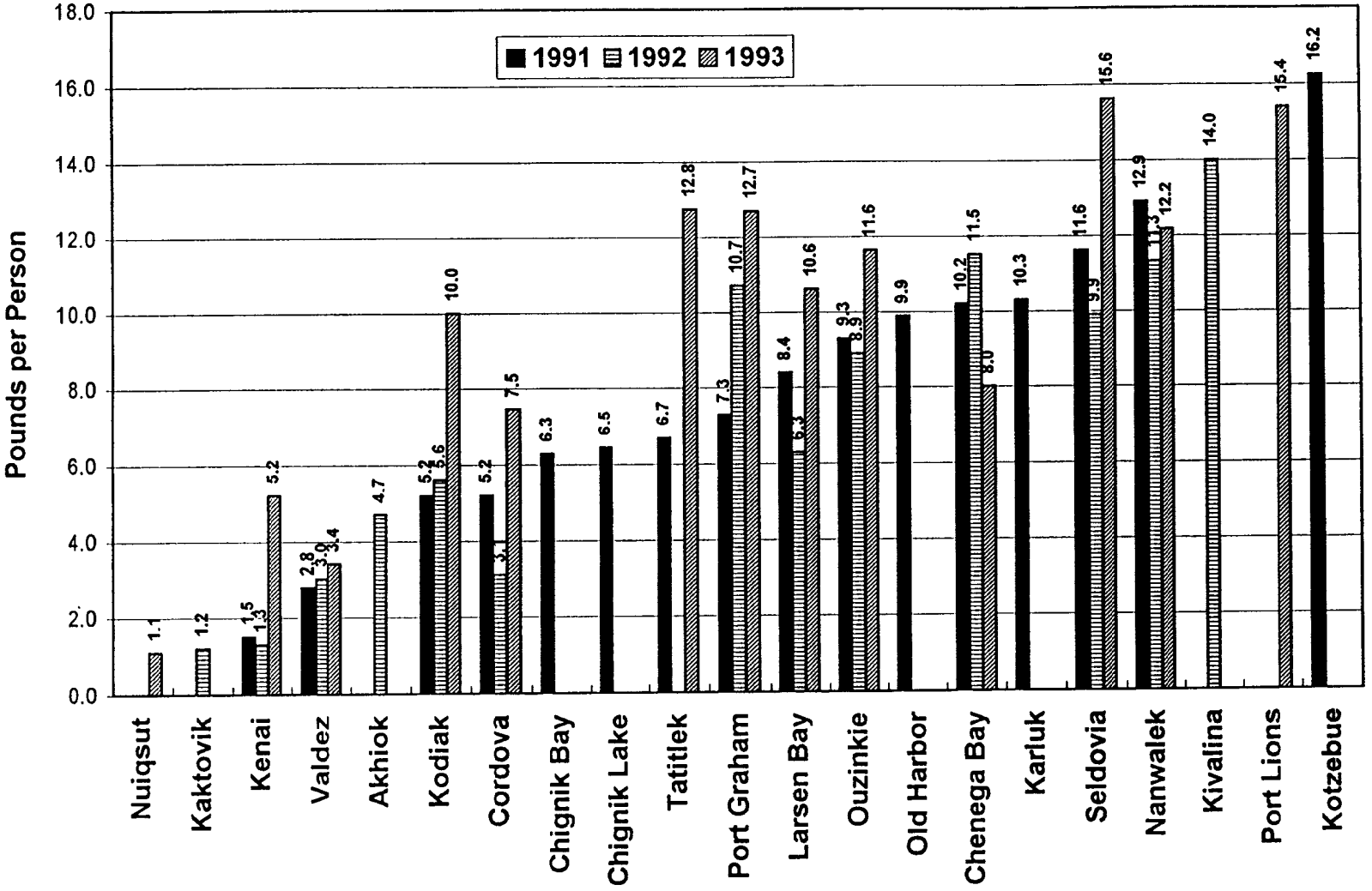


Figure XXIII-22. Average Number of Resources Used per Household, Study Communities, 1991, 1992, and 1993

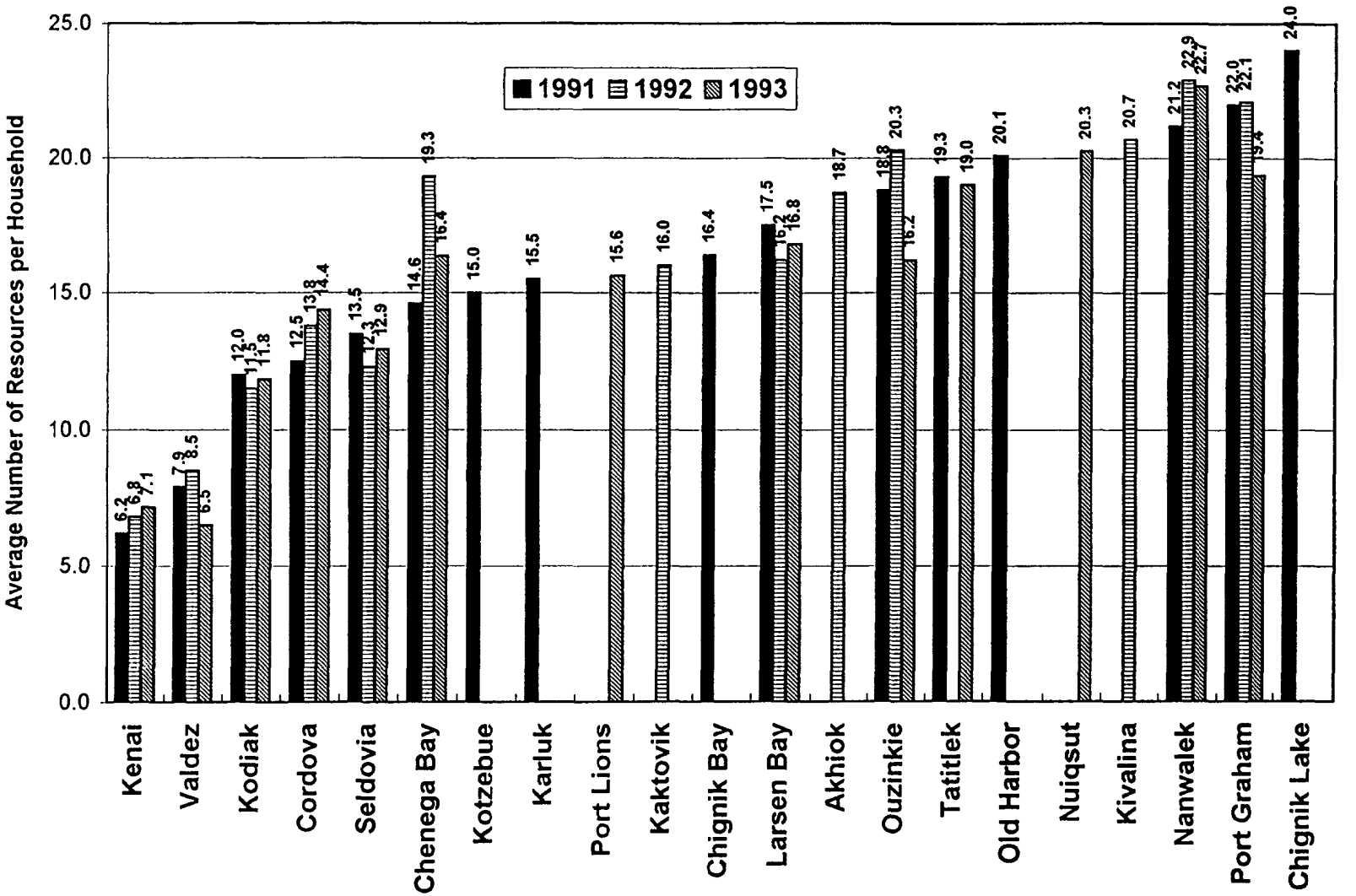


Figure XXIII-23. Average Number of Resources Attempted to Harvest per Household, Study Communities, 1991, 1992, and 1993

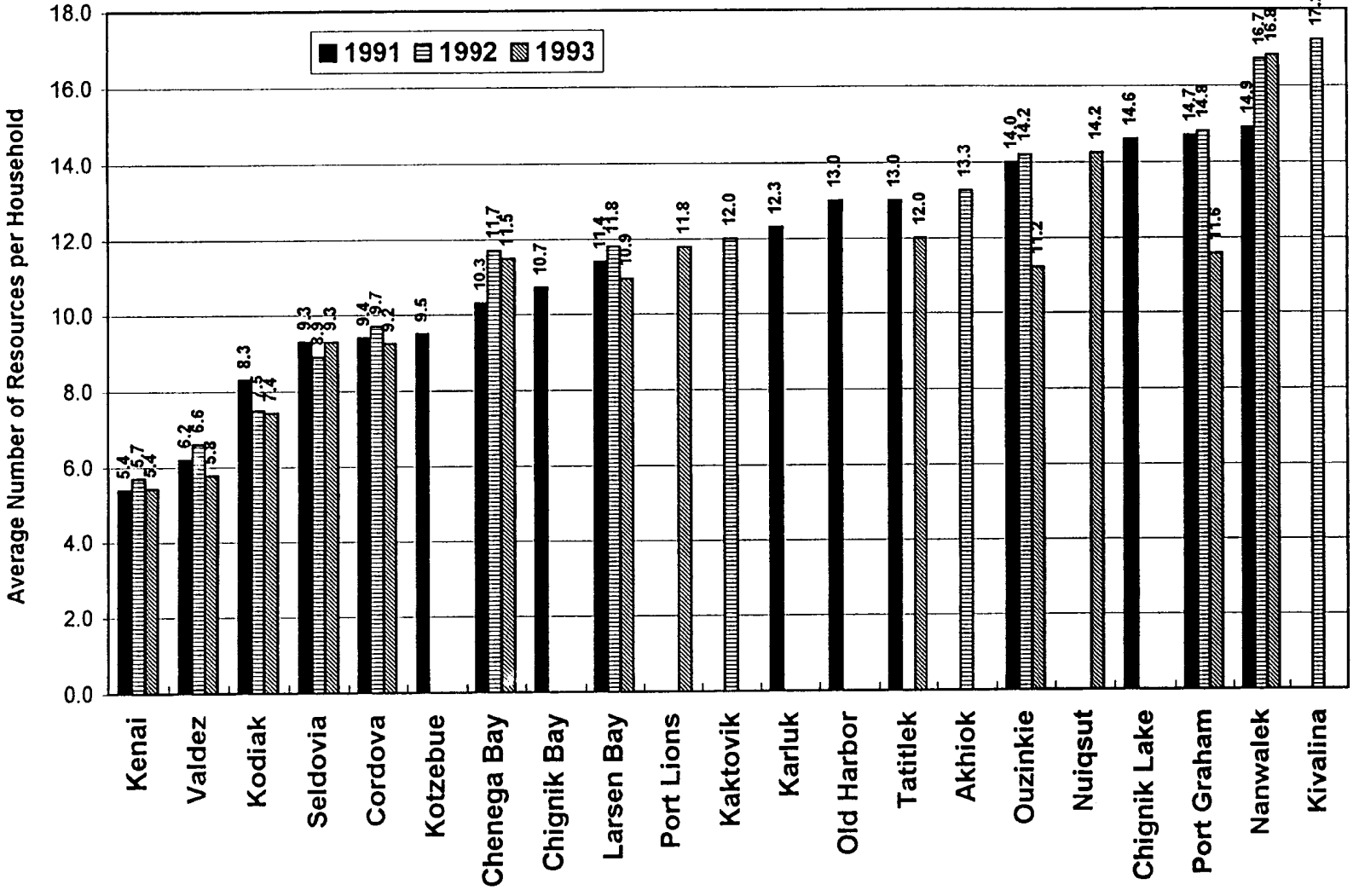


Figure XXIII-24. Average Number of Resources Harvested per Household, Study Communities, 1991, 1992, and 1993

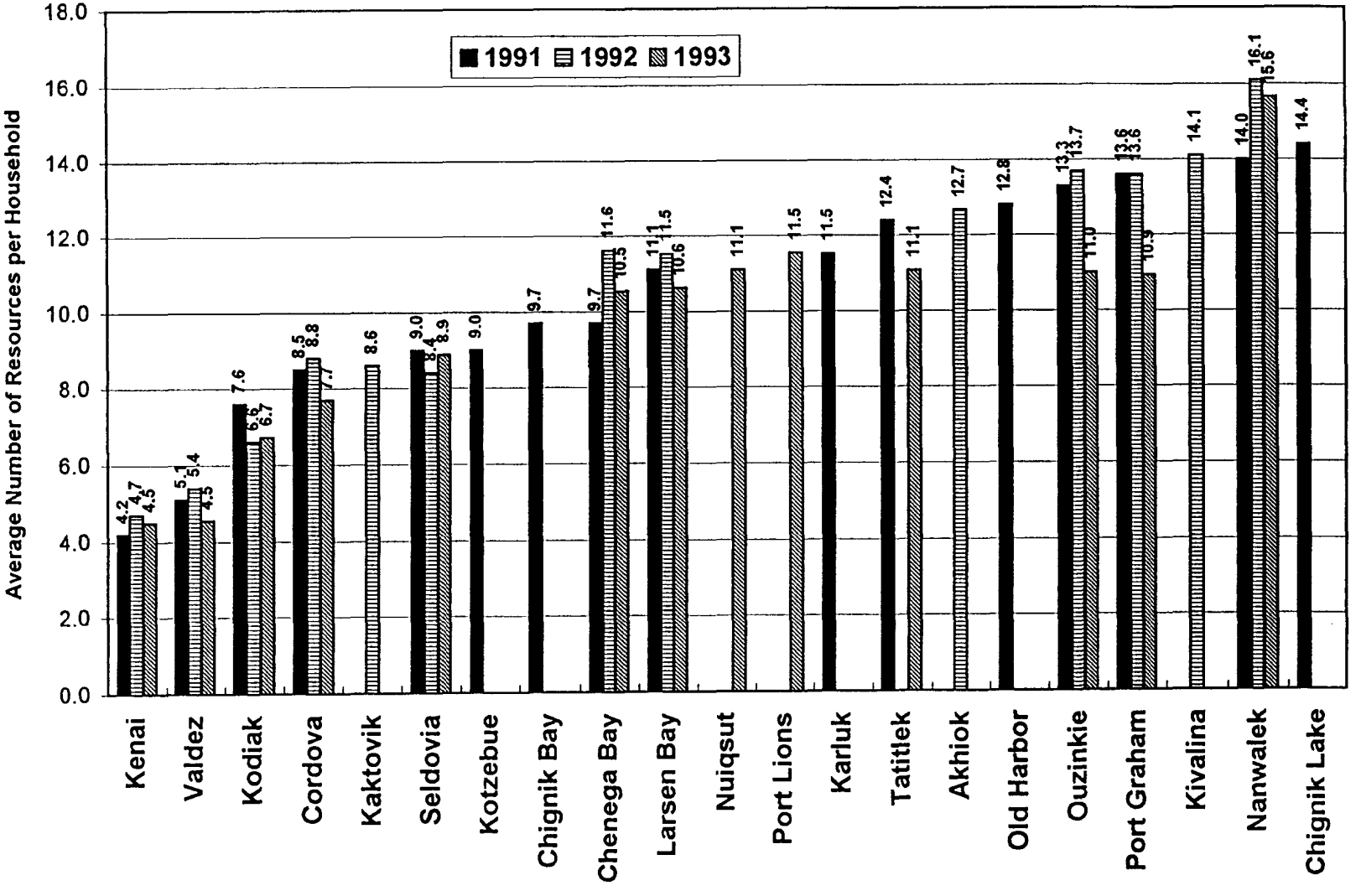


Figure XXIII-25. Average Number of Resources Received per Household, Study Communities, 1991, 1992, and 1993

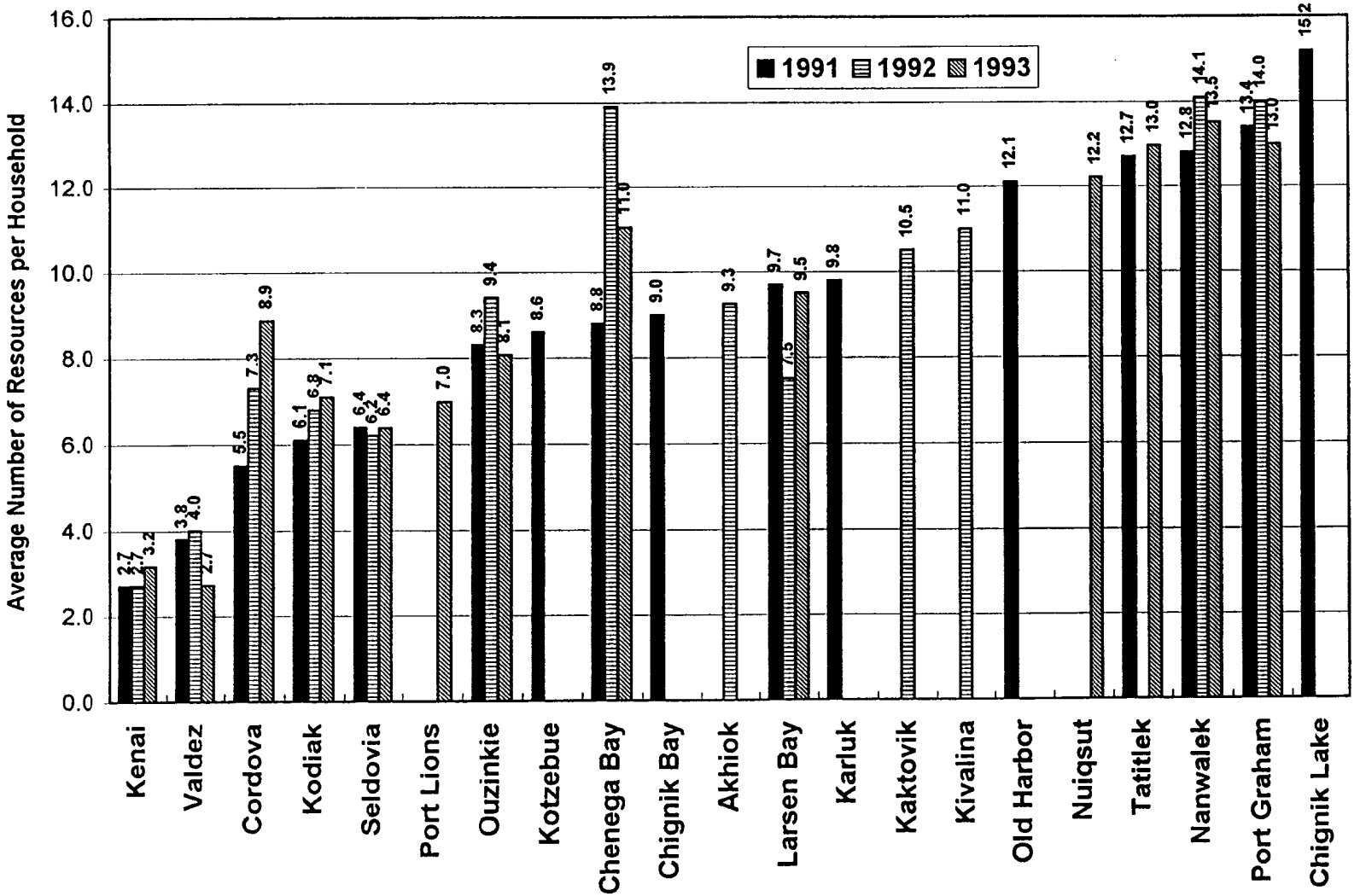
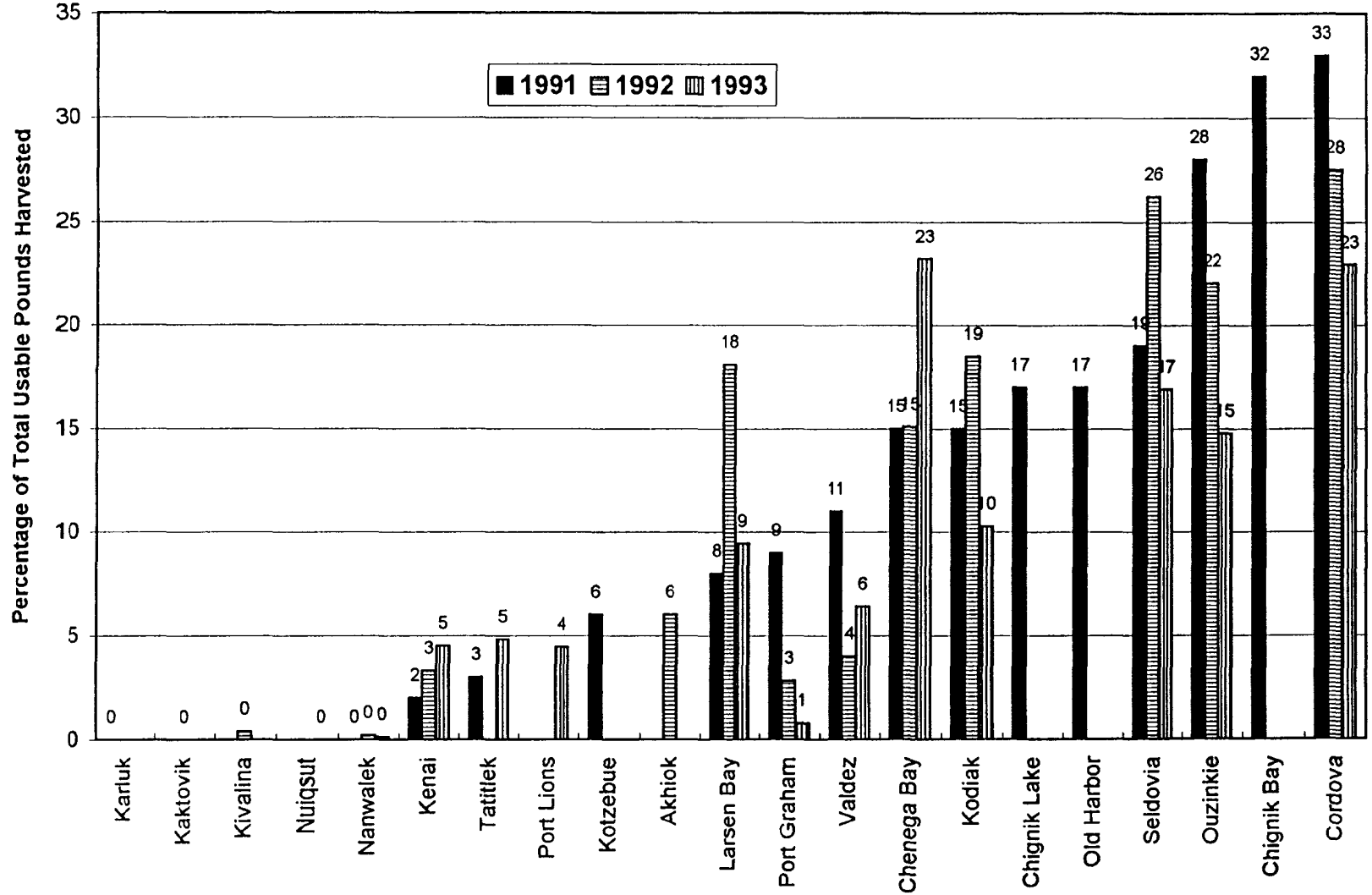


Figure XXIII-26. Average Number of Resources Gave Away per Household, Study Communities, 1991, 1992, and 1993
Average Number of Resources per Household
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
1991
1992
1993
Kenai
Valdez
Kodiak
Cordova
Seldovia
Ouzinkie
Port Lions
Kotzebue
Chignik Bay
Chenega Bay
Akhiok
Larsen Bay
Kaktovik
Nanwalek
Kivalina
Karluk
Port Graham
Old Harbor
Nuiqsut
Tatitlek
Chignik Lake
1.8
2.3
2.5
2.3
2.3
2.6
2.2
3.9
4.5
4.5
4.1
5.3
4.9
4.8
4.3
5.0
5.9
8.8
8.0
6.0
6.2
6.5
6.9
9.4
9.7
7.4
7.6
7.2
8.1
7.7
9.9
12.3
12.9
10.1
10.2
10.2
9.9
11.1
10.4
10.6
11.2
9.9
13.3

Figure XXIII-27. Percentage of Total Harvest for Home Use Removed from Commercial catches, Study Communities, 1991, 1992, and 1993



CHAPTER XXIV: DISCUSSION OF *EXXON VALDEZ* OIL SPILL EFFECTS

by

James A. Fall

This final chapter presents some of the study's findings regarding the short- and long-term effects of the *Exxon Valdez* oil spill on the subsistence uses of the communities in the spill impact area. The chapter shows that impacts were substantial on communities closest to the spill -- particularly Tatitlek and Chenega Bay -- and lessened with distance from Prince William Sound. Recovery of subsistence uses also was slowest in the most heavily impacted villages.

The *Exxon Valdez* oil spill caused major impacts on subsistence use patterns. In the year following the spill, subsistence harvests declined from about 9 to 77 percent in the communities of Prince William Sound, lower Cook Inlet, and the Kodiak Island Borough. The range of resources used for subsistence dropped by half and levels of participation in resource activities decreased notably in heavily impacted communities like Tatitlek (see Chapter V) and Chenega Bay (Chapter IV).

There was a definite geographic pattern of spill effects on subsistence uses and the sociocultural systems they support. The geographic pattern reflects the relative degree of oiling and the persistence of oil in the environment.[1] After the spill, major reductions in subsistence harvests and uses for a year or more occurred in Prince William Sound, lower Cook Inlet, and Kodiak Island Borough communities, while disruptions in subsistence patterns were less severe in the Alaska Peninsula communities. By the end of the second post-spill year (1990), there was evidence of recovery of subsistence harvests in lower Cook Inlet and Kodiak Island, but not in the Prince William Sound villages. Among the former, recovery especially lagged behind at Nanwalek and Ouzinkie.

Over the three years of this study, further evidence of this geographic pattern developed, with communities closer to the spill in Prince William Sound and lower Cook Inlet (and in Ouzinkie), reporting higher levels of spill impacts than more distant communities. A relatively high percentage of respondents in Chenega Bay (from 43.8 percent to 57.1 percent), Nanwalek (40.7 percent to 67.9 percent), and Tatitlek (43.8 percent to 72.7 percent) in all three study years said there was less sharing of wild foods since the spill (Fig. I-7). Similarly, of all study communities, the largest percentages in Ouzinkie, Port Graham, Chenega Bay, Nanwalek, and Tatitlek said that the spill had a negative effect on children's participation in subsistence activities (Fig. I-6). Households in Prince William Sound communities, and especially Cordova and Chenega Bay, were most likely to say that they liked living in their community less during the study year than before the spill (Fig. I-8).

---

[1] This geographic pattern was also detected by the "Oiled Mayors Study." For 1989, the percentage of interviewed households which reported oil spill effects on subsistence was highest Prince William Sound Native villages (84.0 percent at Chenega Bay and Tatitlek combined) and lower Cook Inlet (100 percent at Nanwalek); lower but substantial on Kodiak Island (65.9 percent in Akhiok, Karluk, and Larsen Bay combined), and still lower at Chignik Bay (35.5 percent). Non-Native communities generally had lower percentages of households reporting effects on subsistence uses than Native villages (e.g., Kodiak, 43.7 percent; Cordova, 40.8 percent; Seward, 30.0 percent; and Valdez, 27.7 percent) (IAI 1990d:50-60).

A majority of households in nine communities said the decline in subsistence uses in the first year was due to the oil spill (Fig. XXIV-1). This was the overwhelming response (about 80 percent or more of the households) in Chenega Bay, Nanwalek, Port Graham, and Tatitlek, as well as more than 60 percent of the households in Ouzinkie. These were the communities with the largest declines in subsistence uses in 1989 compared to pre-spill averages (Fig. I-17). In all but two communities in 1989 (Old Harbor and Perryville), a vast majority of the households that said their wild resource uses had declined pointed to the spill as the cause.

Subsistence harvest levels in all the communities of the oil spill area appear to be rebounding from their low levels in the first and, in Chenega Bay, Tatitlek, and Nanwalek, second year after the spill. Pre-spill norms have been approached or matched in most affected communities, such as Nanwalek, Port Graham, Port Lions, Larsen Bay, Old Harbor, and Akhiok. However, in the severely impacted communities of Tatitlek, Chenega Bay, and Ouzinkie, harvest levels remain below pre-spill averages. In these three communities, harvests appear to have declined in the third year of this project (1993) from estimated levels for the first (1991) and second years (1992).

In many study communities, a significant proportion of households reported that subsistence uses have not recovered to earlier levels (Fig. I-16). This position is expressed strongly in the Prince William Sound communities, in Nanwalek, and in Ouzinkie. In all four villages, a larger percentage of households reported lowered levels of resource harvests compared to before the spill in 1993 than did so in 1991. Thus the perception appears to be not only one of lowered subsistence uses, but that uses continue to decline.

In 1989, most households pointed to the spill as the cause of lower than normal harvests and uses (Fig. XXIV-1). The effect of the spill had moderated by 1993 (Fig. XXIV-2). In 1993 in only two communities, Tatitlek and Chenega Bay, did a majority of households point to the spill as the continuing cause of their reduced subsistence uses. The majority of respondents not living in these two villages gave non-spill related explanations. In Nanwalek, Port Graham, and Ouzinkie, communities which in a number of social effects questions also noted continued spill impacts, as well as Cordova, a community with a badly depressed commercial fishery, 20 to 40 percent blamed the spill. But even in these three villages, far fewer households pointed to the spill in 1993 than did in 1989 (e.g., over 90 percent in Nanwalek in 1989, about 40 percent in 1993; in Port Graham, about 80 percent in 1989, less than 30 percent in 1993). In no other community did more than 10 percent of the households say the spill's effects continued to depress their harvests. In several cases, the change was very marked: half the households in Larsen Bay in 1989 said their resource uses were lower because of the spill, compared to 10 percent in 1993; Port Lions dropped from over 50 percent to just five percent.

There has been an important shift in the explanations people offer concerning why the spill's impacts reduced their resource uses. In 1989, a majority of households with spill-caused reductions in resource uses in seven communities cited fear of oil contamination as the reason for the decline (Fig. XXIV-3). This includes large majorities in Tatitlek (81.3 percent of households with reduced uses because of the

spill), Port Graham (76.3 percent), Chenega Bay (75.0 percent), Nanwalek (73.3 percent), and Ouzinkie (72.2 percent). The reasons for this concern about oil contamination were reviewed in Chapter I.

By 1993, the vast majority of households who still said that the spill's effects were impacting their subsistence uses cited reduced resource populations as the cause of the decline (Fig. XXIII-30). This included 93.8 percent of the households with reduced uses in Tatitlek, 83.3 percent in Port Graham, 77.8 percent in Chenega Bay, 72.7 percent in Nanwalek, and 70.0 percent in Ouzinkie. In 1989, few households cited this reason. In contrast, there has been a strong decline in the percentage of households which cite oil contamination concerns as the cause of reduced subsistence uses, such as 36.4 percent of households with reduced uses in Nanwalek (compared to 73.3 percent in 1989), 33.3 percent in Port Graham (76.3 percent in 1989), 30.0 percent in Ouzinkie (72.2 percent in 1989), 11.1 percent in Chenega Bay (75.0 percent in 1989, and none in Tatitlek (81.3 percent in 1989).[2]

Contamination concerns about specific resources, while substantially reduced from the levels expressed in the first few years after the spill, persist among many households, especially in Chenega Bay, Tatitlek, Port Graham, and Nanwalek (Fig. I-4, Fig. I-5). Substantial percentages of households reported that they had not received adequate information about the safety of subsistence foods (Fig. I-9). This illustrates an important finding that many households in the spill area returned to using subsistence foods despite lingering contamination fears (see also Fall 1992a, Fall and Field forthcoming). The economic and cultural necessities of using subsistence foods have compelled Alaska Natives of the spill area to resume subsistence harvests even at increased costs of time, money, and health concerns. An elder from Tatitlek put it this way:

> I know it's hard for you to understand, but when we can't get [subsistence foods], it's a little like a sickness. Then you get some and eat it -- it's like medicine. You feel well again.

A large majority of respondents in Chenega Bay in all three years said that populations of deer, harbor seals, sea lions, sea ducks, and clams were down since the spill. In the second and third years an increasing majority said that salmon stocks were down as well (Table IV-45). At Tatitlek in both 1991 and 1993 (the two years of the study for this village), majorities of respondents said there were less deer, seals, sea lions, sea ducks, salmon, halibut, clams, bidarkies, and octopus (Table V-33).

In Tatitlek and Chenega Bay, subsistence harvesters' observations of reduced wildlife populations and diseased animals (such as the virus infection in Prince William Sound herring), created substantial doubts about the overall health of the natural environment. In 1989, the spills' immediate effects caused subsistence users to distrust the safety of subsistence foods. Direct observations of dead and injured wildlife, interpreted through traditional systems of knowledge, strongly suggested to subsistence users that

[2] It should be noted regarding Figure XXIII-30 that only three households in Larsen Bay and only two in Port Lions cited the spill as the cause of reduced subsistence uses in 1993. Thus the relatively large percentage of households pointing to contamination concerns in 1993 is based on this very small number of households.

resources might be unsafe for humans. The spill also created conditions very unfamiliar to subsistence users which experience and training were ill-equipped to explain. Under these circumstances, many households acted with caution (Fall 1991b). By 1993, traditional knowledge about food safety and edibility continued to inform people's decisions about subsistence uses. In addition, public health advisories had been disseminated in villages through the work of the Oil Spill Health Task Force. But doubts persisted that traditional and scientific knowledge were not enough to answer questions about what the spill had done. In the view of many of the people interviewed as part of this project, and especially in Prince William Sound and among Alaska Native people, the spill had caused fundamental changes to natural resource populations and the natural environment overall that have yet to be adequately explained. This uncertainty has had profound effects on the outlook for the future that people expressed in several communities, such as Tatitlek, Chenega Bay, and Cordova. This remains an important long-term impact of the spill.

Finally, one additional social effect of the *Exxon Valdez* oil spill has been the prolonged litigation over damage claims. Rulings in federal court which ruled ineligible claims by the Alaska Native Class concerning injuries to their way of life were especially disheartening to the people whose subsistence uses had suffered following the spill. The settlement with Exxon regarding the replacement value of lost subsistence harvests was viewed by subsistence users as, at best, only a partial compensation of the Native Class claims. A view persisted that the cultural importance of subsistence to the Alaska Native communities of the spill area and the injury that this culture suffered had not yet been acknowledged by the judicial process. Appeals of these rulings were in preparation as this report was being completed. This continuing litigation remains another long-term impact of the spill, and should be considered in impact assessments for future Outer Continental Shelf development.

Figure XXIV-1. Percentage of Households by Study Community Indicating Lower Overall Uses of Wild Resources for Oil spill and Non-oil Spill Reasons, 1989

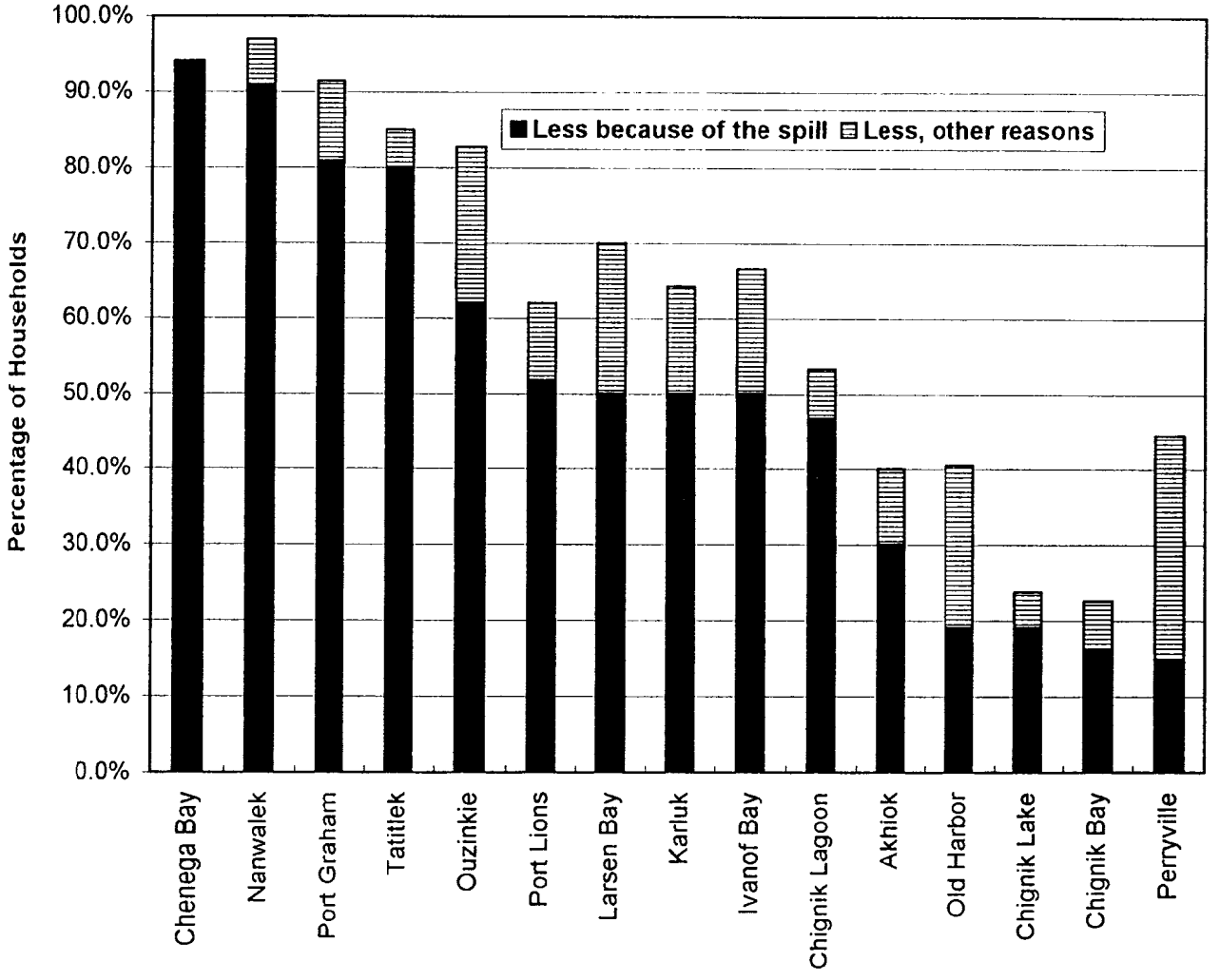


Figure XXIV-2. Percentage of Households by Study Community Indicating Lower Overall Uses of Wild Resources for Oil Spill and Non-oil Spill Reasons, 1993

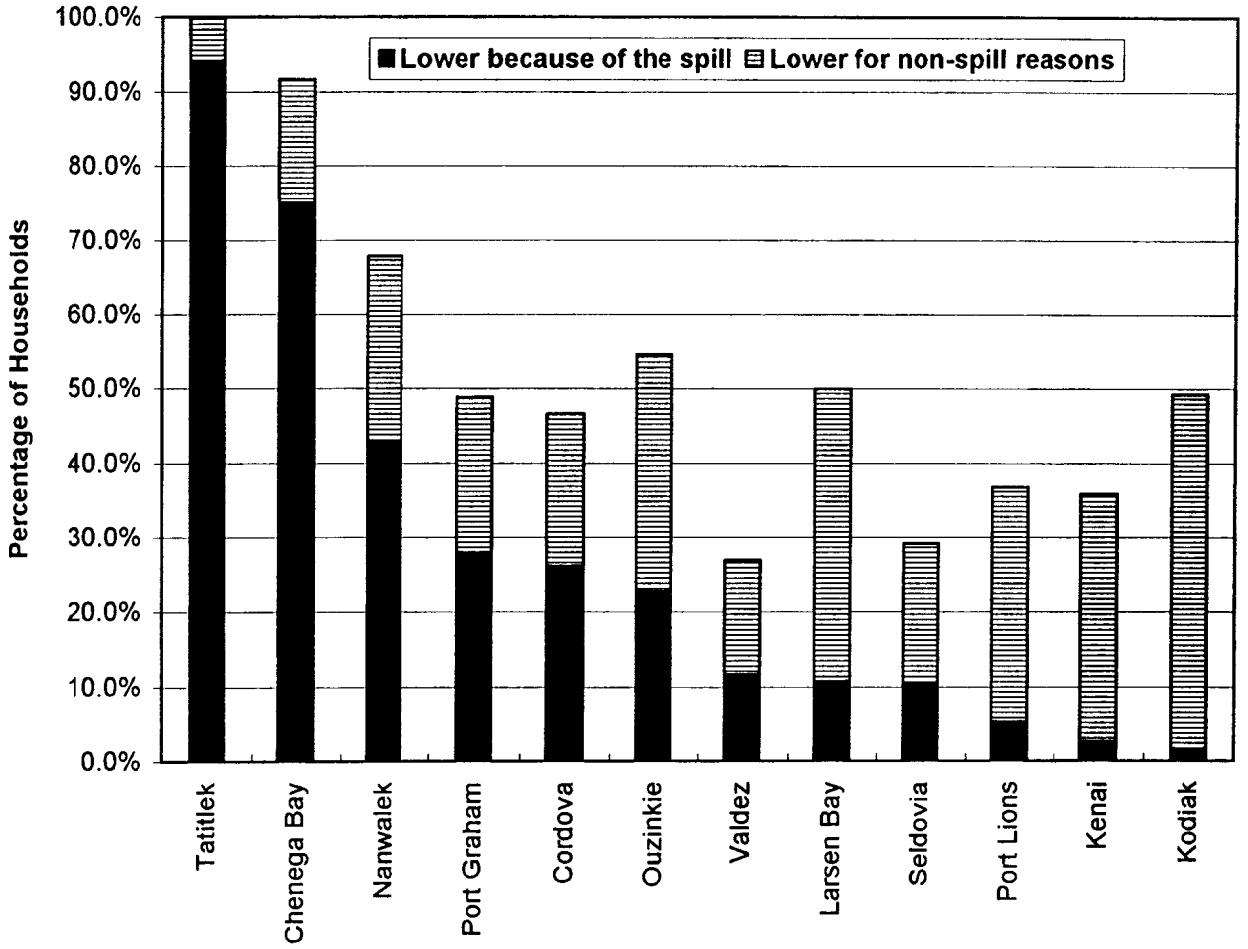
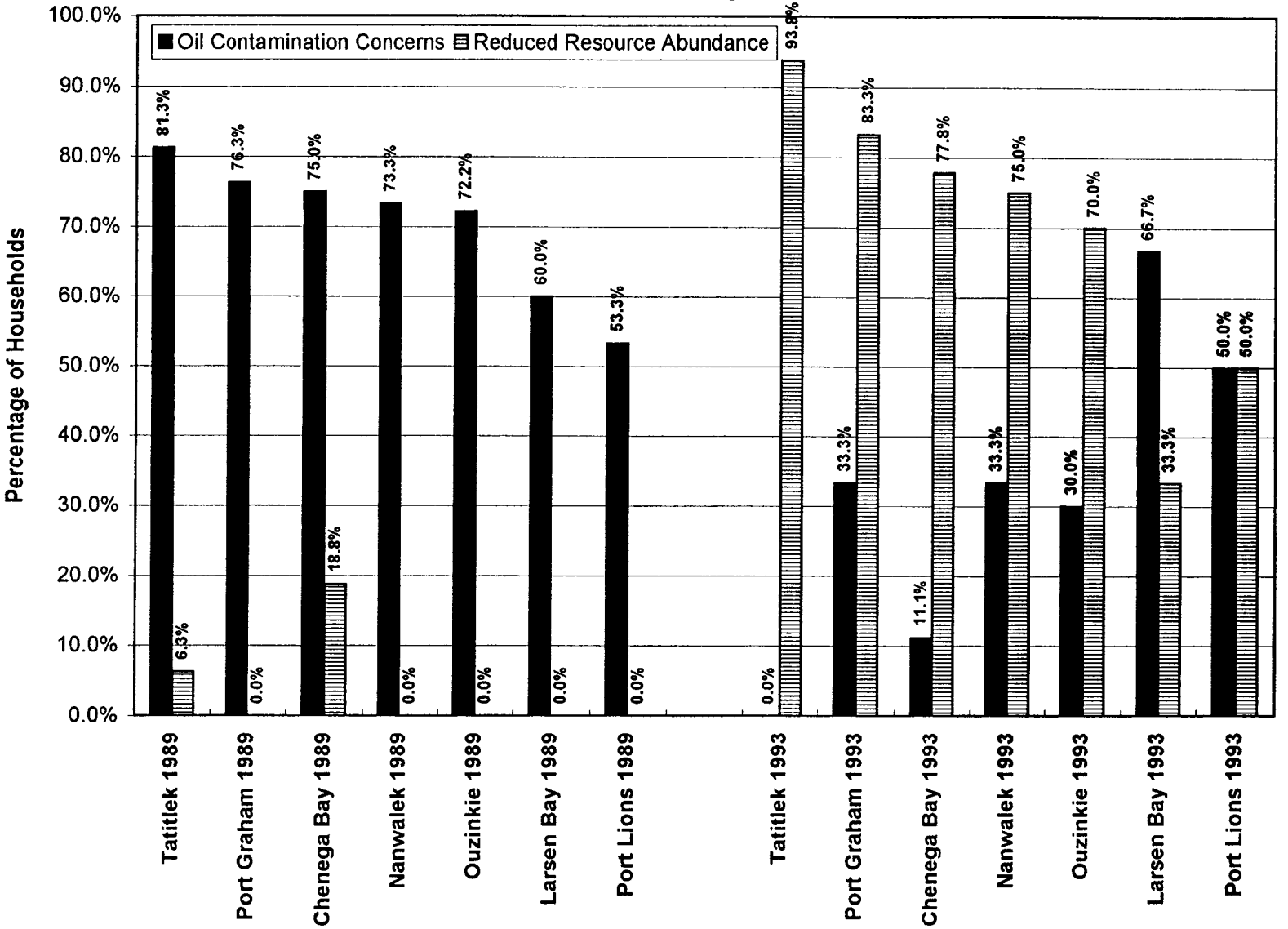


Figure XXIV-3. Percentage of Households with Oil Spill-Caused Reductions in Total Subsistence Uses which Cited Oil Contamination or Reduced Resource Abundance as the Cause, Selected Study Communities



XXV. REFERENCES CITED

Abbot, Susan, ed.

1993 Deer. Management Report of Survey-Inventory Activities, 1 July 1990 - 30 June 1992. Alaska Department of Fish and Game. Division of Wildlife Conservation. Juneau.

Alaska Department of Community and Regional Affairs (ADC&RA)

1982a Chignik Community Profile. Division of Community Planning.

1982b Chignik Lake Community Profile. Division of Community Planning.

Alaska Department of Fish and Game (ADF&G)

1981-93 State Sport Fishing Regulations. Alaska Department of Fish and Game, Division of Sport Fish. Juneau.

1986-1993 Annual Report of Survey-Inventory Activities. Division of Wildlife Conservation. Juneau.

1992a Subsistence Consistency Review Worksheets, Alaska Board of Game, November 1992. Worksheet No. 44: Deer, GMU 8.

1992b Alaska State Hunting Regulations. Effective Dates July 1, 1992-June 30, 1993.

1993a The *Exxon Valdez* Oil Spill: What Have We Learned? Alaska's Wildlife 25(1). Special Issue.

1993b Kodiak Management Area 1993/94 Commercial Salmon Fishery Information Packet, Kodiak.

1994 Subsistence Restoration Project, February 1994 Report. Division of Subsistence. Anchorage.

Alaska Department of Labor

1991 Alaska Population Overview: 1990 Census and Estimates. Administrative Services Division. Juneau.

1994 Money Is Getting A Little Tight. Alaska Economic Trends 14 (11):1-8. November.

Alaska Oil Spill Commission.

1990 Spill - The Wreck of the *Exxon Valdez*. State of Alaska.

Befu, Harumi

1970 An Ethnographic Sketch of Old Harbor, Kodiak: An Eskimo Village. Arctic Anthropology VI(2):29-42.

Bernton, Hal

1993 Cordova Blues. Anchorage Daily News, October 17, 1993, Pages C1, C6

Birket-Smith, Kaj

1953 The Chugach Eskimo. National Museum. Kopenhagen.

Birket-Smith, Kaj, and Frederica de Laguna

1938 The Eyak Indians of the Copper River Delta, Alaska. Copenhagen: Levin & Munksgaard.

Brady, James, Steve Morstad, Ellen Simpson, and Evelyn Biggs
1991 Prince William Sound Management Area 1990 Annual Finfish Management Report. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report No. 2C91-14. Anchorage.

Braund, Stephen R., and Associates
1985 A Social Indicators System for OCS Impact Monitoring. Technical Report No. 116. U.S. Department of the Interior, Minerals Management Service. Anchorage.

1992 Draft Valdez Native History and Continuity. Prepared for: Valdez Native Association. Anchorage.

Braund, Stephen R., and Associates and Institute of Social and Economic Research
1993 North Slope Subsistence Study, Barrow, 1987, 1988, and 1989. U.S. Department of the Interior, Minerals Management Service, Technical Report No. 149. OCS Study MMS 91-0086. Anchorage, Alaska.

Braund, Stephen R., and Steven R. Behnke
1980 Lower Cook Inlet Petroleum Development Scenarios Sociocultural Systems Analysis. Alaska OCS Sociocultural Studies Program, Technical Report No. 47. Bureau of Land Management, Alaska Outer Continental Shelf Office. Anchorage.

Braund, Stephen R., and D.C. Burnham
1993 Subsistence Economics and Marine Resource Use Patterns. *In* The Barrow Arch Environment and Possible Consequences of Planned Offshore Oil and Gas Development. Prepared for the Outer Continental Shelf Environmental Assessment Program, NOAA/Ocean Assessments Division.

Brown, Louis, Gretchen B. Jennings, Sandra Skaggs, Cheryl Scott, and Charles J. Utermohle
1994a An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska: Summary of File Setup of the Subsistence Dataset. Prepared for: United States Department of the Interior, Minerals Management Service. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

1994b An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska: SPSS Data Files. Technical Memorandum 5. Prepared for: United States Department of the Interior, Minerals Management Service. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

Bucher, Wes
1992 Memorandum: 1992 Season Summary, Lower Cook Inlet Salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Homer.

Bucher, Wesley A., and Lee Hammarstrom
1993 1991 Lower Cook Inlet Area Annual Finfish Management Report. Regional Information Report No. 2A93-10. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Anchorage.

1994 1993 Lower Cook Inlet Area Annual Finfish Management Report. Regional Information Report No. 2A94-11. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Anchorage.

Burch, Ernest S., Jr.
1985 Subsistence Production in Kivalina, Alaska: A Twenty-Year Perspective. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 128. Juneau.

Burns, Sue
1991 Personal communication regarding limited entry permits, July 7, 1991. Commercial Fisheries Limited Entry Commission. Juneau.

Calkins, Don
1993 Memorandum: Sea Lion Killed in Prince William Sound. Alaska Department of Fish and Game, Division of Wildlife Conservation. Anchorage.

Calkins, Donald and Goodwin, Enid
1988 Investigation of the Declining Sea Lion Population in the Gulf of Alaska. Alaska Department of Fish and Game, Anchorage.

Chaffin, Yule, Trisha Hampton Krieger, and Michael Rostad
1983 Alaska's Konyag Country. n.p.: Pratt Publishing.

Chance, N.
1990 The Inupiat and Arctic Alaska: An Ethnography of Development. Holt, Rinehart and Winston, New York.

Clark, Donald W.
1984 Prehistory of the Pacific Eskimo Region, Handbook of North American Indians, Vol. 5, Arctic, Smithsonian Institution, Washington.

Commercial Fisheries Entry Commission (CFEC)
1993a Personal communication, June 23, 1993.
1993b Personal communication, August 14, 1993.

Community Development Department
1986 Valdez Coastal Management Program. City of Valdez.

Cooperative Extension Service
1993 Cost of Food for a Week. University of Alaska Cooperative Extension Service, U.S. Department of Agriculture and SEA Grant Cooperating. Fairbanks: University of Alaska Fairbanks.

Crowell, Aron
1986 Archaeological Sites in Uyak Bay, Kodiak Island, Alaska: Preliminary Results of 1985 Survey Work. Unpublished manuscript.

Darbyshire and Associates
1991 Draft Valdez Comprehensive Plan. Prepared for: City of Valdez.

Davidson, Art
1990 In the Wake of the *Exxon Valdez*. San Francisco: Sierra Club Books.

Davis, Nancy Yaw
1970 The Role of the Russian Orthodox Church in Five Pacific Eskimo Villages as Revealed by the Earthquake. *In* The Great Alaska Earthquake of 1964. pp. 125-146. Washington, D.C.: National Academy of Sciences.

1986 A Sociocultural Description of Small Communities in the Kodiak - Shumigan Region. Minerals Management Service, Social and Economic Studies Program, Technical Report Number 121. Anchorage.

de Laguna, Frederica
1934 The Archaeology of Cook Inlet, Alaska. Reprinted with a new preface in 1975 by the Alaska Historical Society. Anchorage.

1956 Chugach Prehistory: The Araeology of Prince William Sound, Alaska. Seattle: University of Washington Press.

DeVito, Aleja
1992 Kenai Peninsula Borough Economic Development District. Personal interview.

Dewhurst, Donna A., Kent K. Hankins, and Patrick W. Opay
1990 *Exxon Valdez* Oil Spill Impact Assessment on the Pacific Coast of the Alaska Peninsula and Nearshore Islands, Cape Kubugakli to American Bay, 26 April-13 August 1990. U.S. Fish and Wildlife Service, Alaska Peninsula/Becharof National Wildlife Refuges. King Salmon, Alaska.

Donaldson, Wayne
1993a Memorandum: 1993 Prince William Sound Salmon Summary. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Cordova.

1993b Memorandum: 1993 Prince William Sound Herring. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Cordova.

1994 Memorandum: 1994 Prince William Sound Salmon Fishery. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Cordova.

Donaldson, Wayne, Steve Morstad, Ellen Simpson, and Evelyn Biggs
1992 Prince William Sound Management Area: 1991 Annual Finfish Management Report. Regional Information Report No. 2A92-09. Alaska Department of Fish and Game, Division of Commercial Fisheries. Anchorage.

Donaldson, Wayne, Steve Morstad, Dan Sharp, John Wilcock, and Sam Sharr
1993 Prince William Sound Management Area: 1992 Annual Finfish Management Report. Regional Information Report No. 2A93-12. Alaska Department of Fish and Game, Division of Commercial Fisheries. Anchorage.

1994 Prince William Sound Management Area: 1993 Annual Finfish Management Report. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development, Regional Information Report No. 2A94-XX. Anchorage.

Dudiak, Nick
1993 Alaska Department of Fish and Game. Personal Interview, June 30, 1993.

Dumond, Don E.
1987 The Eskimos and Aleuts. Revised from 1977 edition. London: Thames and Hudson Ltd.

Exxon Valdez Oil Spill Trustee Council
1992 *Exxon Valdez* Oil Spill Restoration, Volume 1: Restoration Framework. Anchorage.

1993 *Exxon Valdez* Oil Spill Symposium Abstract Book. Anchorage: The Oil Spill Public Information Center.

1994 *Exxon Valdez* Oil Spill Restoration Plan. Anchorage.

Fall, James A.

1990a The Division of Subsistence of the Alaska Department of Fish and Game: An Overview of Its Research Program and Findings: 1980 - 1990. Arctic Anthropology 27(2):68-92.

1990b Subsistence Uses of Fish and Wildlife and the *Exxon Valdez* Oil Spill. Paper presented at the 17th Annual Meeting of the Alaska Anthropological Association. Fairbanks

1991a Subsistence Uses of Fish and Wildlife in 15 Alutiiq Villages After the *Exxon Valdez* Oil Spill. Paper presented at the 18th Annual Meeting of the Alaska Anthropological Association. Anchorage.

1991b Subsistence Uses of Fish and Wildlife and the *Exxon Valdez* Oil Spill. Arctic Issues Digest, pp. 12-25. Cooperative Extension Service, University of Alaska Fairbanks.

1992a (editor) Subsistence Harvest and Uses in Seven Gulf of Alaska Communities in the Second Year Following the *Exxon Valdez* Oil Spill. Prepared for the US Department of the Interior, Fish and Wildlife Service, under cooperative agreement Number 14-16-007-91-7721. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

1992b Changes in Subsistence Uses of Fish and Wildlife Resources in 15 Alaska Native Villages following the *Exxon Valdez* Oil Spill. In Conference Proceedings, Alaska OCS Region, Fourth Information Transfer Meeting, pp. 261-270. U. S. Department of the Interior, Minerals Management Service. Anchorage.

forthcoming (Editor) Subsistence Harvest and Uses in Seven Gulf of Alaska Communities in the Second Year Following the *Exxon Valdez* Oil Spill. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 218. Juneau.

Fall, James A., and L. Jay Field

forthcoming Subsistence Uses of Fish and Wildlife and the *Exxon Valdez* Oil Spill. *In Exxon Valdez* Oil Spill Symposium Proceedings, Rice, S.D., R.B. Spies, D.A. Wolfe, and B.A. Wright, eds. American Fisheries Society Symposium Number 00.

Fall, James A., and Robert J. Walker

1993 Subsistence Harvests in Six Kodiak Island Borough Communities, 1986. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 193. Juneau.

Fall, James A., and Charles J. Utermohle (eds.)

1992 An Overview of Project Development, Field Implementation, and Sample Achievement for the First Year of Research, 1992. Manuscript. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

1993a An Overview of Project Development, Field Implementation, and Sample Achievement for the Second Year of Research, 1993. Manuscript. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

1993b An Investigation of the Sociocultural Consequences of Outer Continental Shelf Development in Alaska. Report prepared for the U.S. Department of the Interior, Minerals Management Service. Anchorage: Alaska Dept. of Fish and Game, Division of Subsistence.

1994 An Overview of Project Development, Field Implementation, and Sample Achievement for the Third Year of Research, 1994. Manuscript. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

Fried, Neal

1994 Economic Trends: Cordova - Sitka. Alaska Economic Trends 14(3). Alaska Department of Labor.

Fried, Neal, and Holly Stinson

1992 A Look at Today's Economies in Prince William Sound. Alaska Economic Trends 12(9):1-9.

Fraker, Mark

1993 In the Wake of the Spill: Injury Assessment and Restoration. Alaska's Wildlife 25(1):3, 47

Galginaitis, Michael S., Claudia Chang, Kathleen M. MacQueen, Albert A, Dekin, Jr., and David Zipkin

1984 Ethnographic Study and Monitoring Methodology of Contemporary Economic Growth, Socio-Cultural Change and Community Development in Nuiqsut Alaska (Nuiqsut Case Study). Alaska OCS Social and Economic Studies Program Technical Report No. 96. U.S. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region: Anchorage.

Georgette, Susan

1983 Kenai: Resource Uses in a Middle-Size, Industrial-Based Road-Connected Community of the Kenai Peninsula Borough *In* Resource Use and Socioeconomic Systems: Case Studies of Fishing and Hunting in Alaskan Communities. Robert J. Wolfe and Linda J. Ellanna, Compilers. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 61, Juneau.

1985 Seldovia: Summary of Research Findings, 1985. Alaska Department of Fish and Game, Division of Subsistence. Draft manuscript, on file, Division of Subsistence, Anchorage.

Georgette, Susan, and Hannah Loon

1993 Subsistence Use of Fish and Wildlife in Kotzebue, A Northwest Alaska Regional Center. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 167. Juneau.

Gertler, Paul

1992 Effects of the *Exxon Valdez* Oil Spill on Birds and Marine Mammals. Conference Proceedings, Alaska OCS Region, Fourth Information Transfer Meeting, pp. 245- 248. U.S. Department of the Interior, Minerals Management Service. Anchorage.

Gill, Duane A.

1994 Environmental Disaster and Fishery Co-Management in a Natural Resource Community: Impacts of the *Exxon Valdez* Oil Spill. In Folk Management in the World's Fisheries, Christopher L. Dyer and James R. McGoodwin, eds., pp. 207-235. Boulder: University Press of Colorado.

Harcharek, R.
in preparation 1993 North Slope Borough Census. North Slope Borough Planning Department. Barrow.

Hassen, Harold
1978 The Effect of European and American Contact on the Chugach Eskimo of Prince William Sound, Alaska, 1741-1930. Ph.D. Dissertation. University of Wisconsin. Milwaukee.

Haynes, Terry L., and Craig Mishler
1991 The Subsistence Harvest and Use of Steller Sea Lions in Alaska. Technical Paper No. 198. Juneau: Alaska Dept. of Fish and Game, Division of Subsistence.

Hill, Robin Mackey
1992 Know Alaska: Kenai Peninsula. Alaska Business Monthly 8(7):20-30.

Holland, H. Russel
1994a Order No. 190. Exxon's Motion for Summary Judgment on Native Class Claims for Non-Economic Injury. United States District Court for the District of Alaska, Case No. A89-095-CV (HRH) (The *EXXON VALDEZ*),

1994b Order No. 237: Motion in Limine to Preclude Evidence, Witnesses, and Exhibits Offered in violation of Order No. 190.

Hoover, A. Anne
1988 Steller Sea Lion, *Eumetopias jubatus*. *In* Selected Marine Mammals of Alaska: Species Accounts with Research and Management Recommendations. Jack W. Lentfer, editor, pp. 159 - 193. Washington: Marine Mammal Commission.

Hoover-Miller, A. Anne
1994 Harbor Seal (*Phoca vitulina*) Biology and Management in Alaska. Washington: Marine Mammal Commission.

Hrdlicka, Ales
1944 The Anthropology of Kodiak Island. Philadelphia: The Wister Institute of Anatomy and Biology.

Impact Assessment, Inc.
1990a Analysis of Fiscal Impacts to Local Jurisdictions. Interim Report # 1: Economic, Social, and Psychological Impact Assessment of the *Exxon Valdez* Oil Spill. Prepared for: Oiled Mayors Subcommittee, Alaska Conference of Mayors. La Jolla, California.

1990b Public and Private Sector Economic Impacts of the *Exxon Valdez* Oil Spill. Interim Report # 2: Economic, Social, and Psychological Impact Assessment of the *Exxon Valdez* Oil Spill. Prepared for: Oiled Mayors Subcommittee, Alaska Conference of Mayors. La Jolla, California.

1990c Social and Psychological Impacts of the *Exxon Valdez* Oil Spill. Interim Report # 3: Economic, Social, and Psychological Impact Assessment of the *Exxon Valdez* Oil Spill. Prepared for: Oiled Mayors Subcommittee, Alaska Conference of Mayors. La Jolla, California.

1990d Economical, Social, and Psychological Impact Assessment of the *Exxon Valdez* Oil Spill Final Report. Prepared for: Oiled Mayors Subcommittee, Alaska Conference of Mayors. La Jolla, California.

Jacobsen, Johan Adrian
1977 Alaskan Voyage 1881-1883: An Expedition to the Northwest Coast of North America. Translated by Erna Gunther from the German text of Adrian Woldt. Chicago: University of Chicago Press.

Jacobson, Michael J., and Cynthia Wentworth
1982 Kaktovik Subsistence Land Use Values Through Time in the Arctic National Wildlife Refuge Area. U.S. Fish and Wildlife Service, Northern Alaska Ecological services, Fairbanks.

Jordan, Richard H.
1986 Archaeological Investigations in Western Kodiak Island: A Progress Report. Unpublished manuscript. Kodiak Area Native Association, Kodiak.

Jorgensen, Joseph G.
1990 Final Report, Social Indicators Project, 1987-89. U.S. Department of the Interior, Minerals Management Service. Anchorage.

Keeble, John
1991 Out of the Channel: The *Exxon Valdez* Oil Spill in Prince William sound. New York: Harper Collins

Kenai Peninsula Borough Economic Development District, Inc. (EDD)
1992a Commercial Fishing: An Overview of the Kenai Peninsula. Draft Report.

1992b Oil & Gas: An Overview of the Kenai Peninsula. Draft Report.

1992c Visitor: An Overview of the Kenai Peninsula. Draft Report.

Knecht, Richard A., and Richard H. Jordan
1985 Nunakakhnak: An Historic Period Koniag Village in Karluk, Kodiak Island, Alaska. Arctic Anthropology 22(2):17-35.

Kodiak Area Native Association (KANA
1983 Kodiak Island Area Local Fish and Game Resource Guide. Prepared with the assistance of the Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

Koenings, Jeffery, Dana Schmidt, Stephen Fried, Kenneth Tarbox, and Linda Brannian.
1993 Kenai River Sockeye Salmon: The Problem with Too Many Fish. Alaska's Wildlife 25 (1):43-45.

Kodiak Daily Mirror
1994 Kodiak's Cost of Living 53 Percent Above National Average. Kodiak Daily Mirror, April 18, p. 3.

Kompkoff, Gary
1993a Letter to the Oil Spill Health Task Force, 5/4/93, from the president of the Tatitlek IRA Council

1993b Letter to the Oil Spill Health Task Force, 8/24/93, from the president of the Tatitlek IRA Council

Kruse, Jack, and Rosyland Frazier
1988 Report to the Community of Sitka, Tongass Resource Use Cooperative Survey (TRUCS). Anchorage: University of Alaska Institute of Social and Economic Research.

Langdon, Stephen J.
1986 Commercial Fishing and Subsistence Activities. *In* A Description of the Social and Economic Systems of the Kodiak - Shumagin Region. Prepared by Cultural Dynamics. Minerals Management Service, Social and Economic Studies Program, Technical Report Number 122. Anchorage.

Lewis, Jon
1993 Alaska Department of Fish and Game, Division of Wildlife Conservation. Personal communication.

Libbey, David
1981 Cultural Resource Site Identification in the Mid-Beaufort Sea Region. A Report for the North Slope Borough's Coastal Zone Management Plan. North Slope Borough: Barrow.

Libbey, David, Grant Spearman, and David Hoffman
1979 Nuiqsut Synopsis in Native Livelihood and Dependence: A Study of Land Use Values Through Time. North Slope Borough Contract Staff. Field Study 1 for the National Petroleum Reserve in Alaska Work Group 1. U.S. Department of the Interior National Petroleum Reserve in Alaska 105(C) Land Use Study: Anchorage.

Lobdell, John Edward
1980 Prehistoric Human Populations and Resource Utilization, Gulf of Alaska. Ph.D. Dissertation, University of Tennessee.

Lord, Nancy
1992 Darkened Waters: A Review of the History, Science, and Technology Associated with the *Exxon Valdez* Oil Spill and Cleanup. Homer Society of Natural History/Pratt Museum. Homer, Alaska.

Louis Berger and Associates, Inc.
1983 Social Indicators for OCS Impact Monitoring. Technical Report Number 77. Three volumes. Anchorage: Minerals Management Service.

McNabb, Steven
1993 Cook Inlet Periphery, Native Communities: Tyonek and Seldovia. In Social Indicators Study of Alaskan Coastal Villages, Volume IV: Postspill Key Informant Summaries, pp. 517 - 547. U.S. Department of the Interior, Minerals Management Service Technical Report No. 155. New Haven: Human Relations Area Files.

Meyers, Theodore
1993 Memorandum: North American Viral Hemorrhagic Septicemia Virus Isolated from Pacific Herring in Prince William Sound. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development. Juneau.

Mishler, Craig
1993 Kinship and Fishing in a Small Alaska Community. Paper presented at the Annual Meeting of the Society for Applied Anthropology. San Antonio.

Mishler, Craig, and Janet Cohen
Forthcoming Subsistence Uses in Six Kodiak Island Borough Communities in 1989, the Year of the *Exxon Valdez* Oil Spill. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 201. Juneau.

Morris, Judith M.
1987 Fish and Wildlife Uses in Six Alaska Peninsula Communities: Egegik, Chignik, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper 104. Juneau.

Nielson, Jon M.
1977 Beaufort Sea Study: Historic and Subsistence Site Inventory. North Slope Borough: Barrow.

O'Brien, Jerry
1993 Letter to the Division of Subsistence. Cordova.

O'Harra, Doug
1994 Cordova on the Brink. We Alaskans: The Anchorage Daily News Magazine 15(18):6-12).

Orth, Donald J.
1967 Dictionary of Alaska Place Names. Geological Survey Professional Paper 567. Washington: U.S. Government Printing Office.

Ott, Riki
1994 Sound Truth: Exxon's Manipulation of Science and the Significance of the *Exxon Valdez* Oil Spill. Anchorage: Greenpeace, Alaska.

Patterson, A.
1974 Subsistence Harvests in Five Native Regions. Report for the Joint Federal-State Land Use Planning Commission for Alaska. Anchorage, Alaska.

1977 Community Profiles in the Arctic Slope Region: An initial Update for the National Petroleum Reserve-Alaska Task Force. NPR-A Task Force: Anchorage.

Pedersen, Sverre
Forthcoming a Nuiqsut Land and Resource Use Baseline with Initial Emphasis on Land Use Mapping. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 170.

Forthcoming b Subsistence Resource Harvest in Kaktovik, Alaska, 1985-1987. The Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 209.

Picou, J. Steven, and Duane A. Gill
1993 Long-term Social Psychological Impacts of the *Exxon Valdez* Oil Spill. *In Exxon Valdez* Oil Spill Symposium Abstracts, pp. 223-226. *Exxon Valdez* Oil Spill Trustee Council. Anchorage.

forthcoming The *Exxon Valdez* Oil Spill and Chronic Psychological Stress. *In* Rice, S.D., R.B. Spies, D.A. Wolfe, and B.A. Wright,(eds.) *Exxon Valdez* Oil Spill Symposium Proceedings. American Fisheries Society Symposium Number 00.

Piper, Ernest
1993 The *Exxon Valdez* Oil Spill: Final Report, State of Alaska Response. Alaska Department of Environmental Conservation. Juneau.

Reed, Carolyn
1979 Community Response to the Alaska Native Claims Settlement Act: Seldovia, Alaska. Master of Arts Thesis. The University of Calgary, Department of Anthropology.

1983 Seldovia: Resource Use in a Small, Non-Road Connected Community of the Kenai Peninsula Borough *In* Resource Use and Socioeconomic Systems: Case Studies of Fishing and Hunting in Alaskan Communities. Robert J. Wolfe and Linda J. Ellanna, Compilers. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 61, Juneau.

1985 The Role of Wild Resource Use in Communities of the Central Kenai Peninsula and Kachemak Bay, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 106. Juneau.

Reynolds, Stephanie

1993 Effects of the 1989 *Exxon Valdez* Oil Spill on Cordova, Alaska. *In* Social Indicators Study of Alaskan Coastal Villages. Volume IV: Postspill Key Informant Summaries, Schedule C Communities, Part 1 (Cordova, Tatitlek, Valdez). Pp. 127-422. U.S. Minerals Management Service, OCS Study MMS 92-0052, Technical Report No. 155.

Rice, S.D., R.B. Spies, D.A. Wolfe, and B.A. Wright(eds.)

forthcoming *Exxon Valdez* Oil Spill Symposium Proceedings. American Fisheries Society Symposium Number 00.

Robbins, Ed

1993 Valdez Key Informant Summary. *In* Social Indicators Study of Alaskan Coastal Villages. Volume IV: Postspill Key Informant Summaries, Schedule C Communities, Part 1 (Cordova, Tatitlek, Valdez). Pp. 30-126. U.S. Minerals Management Service, OCS Study MMS 92-0052, Technical Report No. 155.

Robbins, Lynn A.

1993 Kenai Postspill Key Informant Summary. *In* Social Indicators Study of Alaskan Coastal Villages. Volume IV: Postspill Key Informant Summaries, Schedule C Communities, Part 2 (Kenai, Tyonek, Seldovia, Kodiak City, Karluk, Old Harbor, Chignik). Pp. 445-514. U.S. Minerals Management Service, OCS Study MMS 92-0052, Technical Report No. 155.

Rooks, Curtiss Takada

1993 Chignik. *In* Social Indicators Study of Alaskan Coastal Villages, Volume IV: Postspill Key Informant Summaries, pp. 817 - 849. U.S. Department of the Interior, Minerals Management Service Technical Report No. 155. New Haven: Human Relations Area Files.

Roppel, Patricia

1986 Salmon from Kodiak: A History of the Salmon Fishery on Kodiak Island, Alaska. Anchorage: Alaska Historical Commission.

Ruesch, Paul H. and Jeff Fox

1992 Upper Cook Inlet Commercial Fisheries Annual Management Report, 1991. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report No. 2A92-03. Anchorage.

1993 Upper Cook Inlet Commercial Fisheries Annual Management Report, 1992. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report No. 2A93-17. Anchorage.

1994 Upper Cook Inlet Commercial Fisheries Annual Management Report, 1993. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report No. 2A94-22. Anchorage.

Schroeder, Robert F., David B. Andersen, Robert Bosworth, Judith M. Morris, and John M. Wright
1987 Subsistence in Alaska: Arctic, Interior, Southcentral, Southwest, and Western Regional Summaries. Technical Paper No. 150. Juneau: Alaska Dept. of Fish and Game, Division of Subsistence.

Scott, Cheryl L., Amy W. Paige, Gretchen B. Jennings, and Louis Brown.
1993 Community Profile Database Catalog, 6 Vols. Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Seitz, Jody, Lisa Tomrdle, and James A. Fall
1992 The Use of Fish and Wildlife in the Upper Kenai Peninsula Communities of Hope, Whittier, and Cooper Landing. Manuscript. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 219. Juneau

Selkregg, Lydia (editor)
1974 Alaska Regional Profiles. Southcentral Alaska. Arctic Environmental Information and Data Center. University of Alaska, Anchorage.

1976 Alaska Regional Profiles. Southwest Alaska. Arctic Environmental Information and Data Center. University of Alaska, Anchorage.

Smith, Carol
1992 Valdez Office of Community Development. Personal Interview.

Stanek, Ronald T.
1985 Patterns of Wild Resource Use in English Bay and Port Graham, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 104. Juneau.

forthcoming a English Bay/Port Graham Harvest Update. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 176. Juneau.

forthcoming b Wild Resource Uses in English Bay and Port Graham in 1989: Subsistence in Lower Cook Inlet and the *Exxon Valdez* Oil Spill. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 200. Juneau

Stephensen, Wells M., Dean W. Cramer, and Douglas. M. Burn
1994 Review of the Marine Mammal Marking, Tagging, and Reporting Program 1988-1992. U.S. Fish and Wildlife Service, Marine Mammals Management Technical Report MMM 94-1. Anchorage.

Stevens, Wayne
1992 Cost of Living Survey: Kodiak Is Expensive Place. Kodiak Daily Mirror, July 24, p. 17.

Stratton, Lee
1989 Resource Uses in Cordova, a Coastal Community of Southcentral Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 153. Juneau.

1990 Resource Harvest and Use in Tatitlek, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 181. Juneau.

1992 Cordova: A 1988 Update on Resource Harvests and Uses. Alaska Department of Fish and Game, Division of Subsistence Technical Paper 204. Juneau.

Stratton, Lee, and Evelyn B. Chisum
1986 Resource Use Patterns in Western Prince William Sound: Chenega in the 1960s and Chenega Bay 1984-86. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 139. Juneau.

Stratton, Lee, James A. Fall, and Phillipa Coiley
Forthcoming Subsistence Harvests and Uses in Chenega Bay and Tatitlek in the Year Following the *Exxon Valdez* Oil Spill. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 199. Juneau.

Tarbox, Kenneth E.
1995 Alaska Department of Fish and Game, Division of Commercial Fisheries, Soldotna. Personal Communication.

Taylor, Kenneth I.
1966 A Demographic Study of Karluk, Kodiak Island, Alaska, 1962-64. Arctic Anthropology III (2):211-244.

Tomrdle, Lisa, and Rita A. Miraglia
1993 Use of Fish and Wildlife in Valdez, Prince William Sound, Alaska. prepared for: United States Forest Service, Chugach National Forest, Purchase Order 43-0109-2-0530. Alaska Department of Fish and Game, Division of Subsistence. Anchorage. [to appear as Division of Subsistence Technical Paper No. 229]

Trowbridge, Charlie
1992 Alaska Department of Fish and Game, Division of Commercial Fisheries. Personal Interview.

Tuten, Merry Allyn
1977 A Preliminary Study of Subsistence Activities on the Pacific Coast of the Proposed Aniakchak Caldera National Monument. Occasional Paper Number 4, Cooperative Park Studies Unit. Fairbanks: University of Alaska.

United States Bureau of the Census
1992a 1990 Census of Population and Housing: Summary Social, Economic, and Housing Characteristics, Alaska. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census.

1992b 1990 Census of Population and Housing: Summary Population and Housing Characteristics, Alaska. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census.

United States Coast Guard
1993 Federal On-Scene Coordinator's Report: *T/V Exxon Valdez* Oil Spill (Two Volumes). Washington, D.C.: U.S. Department of Transportation.

University of Alaska, Institute of Social and Economic Research
1979 Technical Report 26. Alaska OCS Socioeconomic Studies Program. Prepared for: U.S. Department of the Interior, Bureau of Land Management, Alaska OCS Office, Alaska OCS Socioeconomic Studies Program. Anchorage.

Varanasi, Usha, Donald Brown, Tom Hom, Douglas G. Burrows, Catherine A. Sloan, L. Jay Field, John E. Stein, Karen L. Tilbury, Bruce B. McCain, and Sin-Lam Chan
1993 Survey of Alaskan Subsistence Fish, Marine Mammal, and Invertebrate Samples Collected 1989-91 for Exposure to Oil Spilled from the *Exxon Valdez*. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-12.

Walker, Ann Hayward, and L. Jay Field
1991 Subsistence Fisheries and the *Exxon Valdez*: Human Health Concerns. Proceedings of the 1991 International Oil Spill Conferences. American Petroleum Institute Publication No. 4529.

Wheelwright, Jeff
1994 Degrees of Disaster. New York: Simon and Schuster.

Wilimovsky, Norman J., and John N. Wolfe, eds.
1966 *Environment of the Cape Thompson Region, Alaska*. Oak Ridge, Tennessee: United States Atomic Energy Commission.

Will, Anne M.
1981 A History of the City of Kodiak. Manuscript. Submitted to the Alaska Historical Commission. Copy on file at the Alaska Resources Library, Federal Building, Anchorage.

Wolfe, Robert J., and Craig Mishler
1993 The Subsistence Harvest of Harbor Seal and Sea Lion by Alaska Natives in 1992. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 229. Juneau.

1994 The Subsistence Harvest of Harbor Seal and Sea Lion by Alaska Natives in 1993. Technical Paper No. 233. Alaska Department of Fish and Game, Juneau.

Wolfe, Robert J. and Robert Walker
1987 Subsistence Economies in Alaska: Productivity, Geography, and Development Impacts. Arctic Anthropology 24(2):56-81.

Workman, William B.
1980 Continuity and Change in the Prehistoric Record from Southern Alaska. Senri Ethnological Studies 4(1980):49-101.

Workman, Karen W., and William B. Workman
1985 The 1,300 Years of Prehistory in Kachemak Bay: Where Later is Less. Paper presented at the 12th Annual Meeting Alaska Anthropological Association. Anchorage.

Workman, William B., John E. Lobdell, and Karen Wood Workman
1980 Recent Archaeological Work in Kachemak Bay, Gulf of Alaska. Arctic 33(3):385-399.

APPENDIX I:

EXAMPLE OF BASELINE SUBSISTENCE HARVEST SURVEY:

CHENEGA BAY 1991/92

CHENEGA BAY - RESOURCE SURVEY 1991, DIVISION OF SUBSISTENCE, ALASKA DEPARTMENT OF FISH AND GAME

HH ID: _____ START TIME: _____

COMMUNITY: CHENEGA BAY 82 STOP TIME: _____

INTERVIEWER: _____

DATE: _____

LOCATION: _____

STRATUM: _____

ID # OF PERSON RESPONDING TO SURVEY: _____

HOUSEHOLD INFORMATION. WHO WERE MEMBERS OF THIS HOUSEHOLD BETWEEN APRIL 1991 AND MARCH 1992?

											IN THE STUDY YEAR, DID YOU HUNT/PROCESS:							
					YEAR MOVED						GAME		FISH*		FURBRS		PLANTS	
ID#	M/F	RELATION TO HH HEAD	BIRTHDATE MM/DD/YY	RESIDENCE OF PARENT WHEN BORN	TO AK	TO COMM.	MOVED FROM COMM.	ETHNICITY	EDUC. LEVEL	MONTHS RESIDED IN COMMUNITY IN 1991	HUNT? Y/N	PROC? Y/N	FISH? Y/N	PROC? Y/N	TRAP? Y/N	PROC? Y/N	GATH? Y/N	PROC? Y/N
1 HEAD										A M J J A S O N D J F M								
2 HEAD										A M J J A S O N D J F M								
3										A M J J A S O N D J F M								
4										A M J J A S O N D J F M								
5										A M J J A S O N D J F M								
6										A M J J A S O N D J F M								
7										A M J J A S O N D J F M								
8										A M J J A S O N D J F M								
9										A M J J A S O N D J F M								
10										A M J J A S O N D J F M								

* Fish? - should include harvesting/attempting to harvest marine invertebrates, eg., clam digging, etc.

TEMPORARY HOUSEHOLD MEMBERS.

DID ANYONE ELSE STAY IN THIS HOUSEHOLD BETWEEN JANUARY 1991 AND DECEMBER 1991?

								IN THE STUDY YEAR, DID YOU HUNT/PROCESS:							
								GAME		FISH*		FURBR		PLANTS	
ID#	M/F	RELATION TO HH HEAD	YEARS OF AGE	PLACE OF PERMANENT RESIDENCE	MONTHS RESIDED IN COMMUNITY BETWEEN APR '91 AND MAR '92	IN HH IN 1990? Y/N	PURPOSE OF STAY	HUNT? Y/N	PROC? Y/N	FISH? Y/N	PROC? Y/N	TRAP? Y/N	PROC? Y/N	GATH? Y/N	PROC? Y/N
21					A M J J A S O N D J F M										
22					A M J J A S O N D J F M										
23					A M J J A S O N D J F M										
24					A M J J A S O N D J F M										
25					A M J J A S O N D J F M										
26					A M J J A S O N D J F M										
27					A M J J A S O N D J F M										
28					A M J J A S O N D J F M										
29					A M J J A S O N D J F M										
30					A M J J A S O N D J F M										

*** Fish? - should include harvesting/attempting to harvest marine invertebrates, eg. clam digging, etc.**

COMMERCIAL FISHING - SALMON.

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL SALMON FISHING BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

					REMOVED FOR:								
	COMMERCIAL FISHED?		AREAS		PRINCIPAL	OWN USE	GAVE AWAY		COMMUNITIES GIVEN TO:			ID #'S OF FISHERS	
SPECIES	Y/N	INCIDENTAL	1ST	2ND	GEAR TYPE	NUMBER	NUMBER	UNITS	COMM 1	COMM 2	COMM 3	PERMIT HOLDER	CREW
CHUM SALMON 110101													
COHO SALMON 110201													
CHINOOK SALMON 110301													
PINK SALMON 110401													
SOCKEYE SALMON 110501													
UNKNOWN SALMON 119901													

AREAS: AKP, BB, CHG, KOD, CI, PWS, SE, ALU, KUSK, YUK, NOR

GEAR TYPES: SET GILL, DRIFT GILL, SEINE, LONG LINE, TROLLING, POTS, TRAWLING

CHENEGA BAY - RESOURCE SURVEY 1991

COMMERCIAL FISHING - NON-SALMON FISH

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL FISHING (OTHER THAN SALMON) BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

	COMMERCIAL FISHED?		AREAS		REMOVED FOR: PRINCIPAL	OWN USE	GAVE AWAY		COMMUNITIES GIVEN TO:			ID #'S OF FISHERS	
SPECIES	Y/N	INCIDENTAL	1ST	2ND	GEAR TYPE	NUMBER	NUMBER	UNITS	COMM 1	COMM 2	COMM 3	PERMIT HOLDER	CREW
BLACK COD (SABLEFISH) 121111													
GRAY COD 121121													
UNKNOWN COD 121191													
HALIBUT 121041													
HERRING 121501													
HERRING ROE ON KELP 121701													
BLACK ROCKFISH 121911													
RED ROCKFISH 121921													
UNKNOWN ROCKFISH 121991													

AREAS: EAL(4A), WAL(4B), PRB(4C), WBS(4D), EBS (4E) AKP(3B) PWS(3A), KOD(3A), CI(3A), YAK(2C), SE(2B)

GEAR TYPES: SET GILL, DRIFT GILL, SEINE, LONG LINE, TROLLING, POTS, TRAWLING

COMMERCIAL FISHING - MARINE INVERTEBRATES

DID MEMBERS OF YOUR HOUSEHOLD PARTICIPATE IN COMMERCIAL FISHING OF MARINE INVERT. BETWEEN APR. 1991 AND MAR. 1992? YES: _____ NO: _____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

					REMOVED FOR:								
	COMMERCIAL FISHED?		AREAS		PRINCIPAL	OWN USE	GAVE AWAY		COMMUNITIES GIVEN TO:			ID #'S OF FISHERS	
SPECIES	Y/N	INCIDENTAL	1ST	2ND	GEAR TYPE	NUMBER	NUMBER	UNITS	COMM 1	COMM 2	COMM 3	PERMIT HOLDER	CREW
DUNGENESS CRAB													
500311													
KING CRAB													
500321													
TANNER CRAB													
500331													
OCTOPUS													
500901													
SHRIMP													
501201													

AREAS: EAL(O/J), WAL(R/J), PRB(Q/J), WBS(Q/J), EBS (Q/T/J) AKP(M/J) PWS(E), KOD(K/J), CI(H), YAK(D), SE(A)

GEAR TYPES: SET GILL, DRIFT GILL, SEINE, LONG LINE, TROLLING, POTS. DRAGGING, TRAWLS

NON-COMMERCIAL FISHING: SALMON.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SALMON BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY: GILLNET #	SEINE #	DIP NET #	ROD & REEL* #	OTHER #	UNITS	RECEIVED NORMAL Y/N	RECEIVED FROM CANNERY Y/N	GAVE AWAY Y/N	NOTES:
CHUM SALMON 110102												
COHO SALMON 110202												
CHINOOK SALMON 110302												
PINK SALMON 110402												
SOCKEYE SALMON 110502												
UNKNOWN SALMON 119902												

HOW WOULD YOU COMPARE YOUR 1991/92 SALMON USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____ MORE _____ LESS
WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

26	110000					
RECORD	RESOURCE	DIRECTION	SPILLREL	REAS 1	REAS 2	REAS 3

HOW DID YOU PROCESS YOUR SALMON IN 1991/92 (LIST ALL FORMS OF PRESERVATION)? [29]

(1) SALTING _____
(2) DRYING _____
(3) SMOKING _____
(4) CANNING/JARRING _____
(5) KIPPERING _____
(6) FREEZING _____
(7) PICKLING _____
(8) FERMENTING _____
(10) OTHER (specify) _____

* 'ROD & REEL' INCLUDE TROLLING IN OPEN WATER

NON-COMMERCIAL FISHING: SALMON - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
CHUM SALMON 110102										
COHO SALMON 110202										
CHINOOK SALMON 110302										
PINK SALMON 110402										
SOCKEYE SALMON 110502										
UNKNOWN SALMON 119902										

NOTES: _____

NON-COMMERCIAL FISHING: NON-SALMON FINFISH.

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY: HANDLINE #	GILLNET #	SEINE #	DIPNET #	ROD & REEL #	ICE FISHING #	SKATE #	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
BLACK COD (SABLEFISH) 121112													
GRAY COD 121122													
LINGCOD 121132													
FLOUNDER 121202													
HALIBUT 121402													
HERRING 121502													
HERRING ROE 121602													
ROE ON KELP 121702													
BLACK ROCKFISH 121912													
RED ROCKFISH 121922													
UNKNOWN ROCKFISH 121992													
GRAYLING 120402													
GREENLING 122202													
SKATES 122702													
SOLE 121302													

CHENEGA BAY - RESOURCE SURVEY 1991

NON-COMMERCIAL FISHING: NON-SALMON - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
BLACK COD (SABLEFISH) 121112										
GRAY COD 121122										
LINGCOD 121132										
FLOUNDER 121202										
HALIBUT 121402										
HERRING 121502										
HERRING ROE 121602										
ROE ON KELP 121702										
BLACK ROCKFISH 121912										
RED ROCKFISH 121922										
UNKNOWN ROCKFISH 121992										
GRAYLING 120402										
GREENLING 122202										
SKATES 122702										
SOLE 121302										

NON-COMMERCIAL FISHING: NON-SALMON FINFISH.

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED BY: HANDLINE #	GILLNET #	SEINE #	DIPNET #	ROD & REEL #	ICE FISHING #	SKATE #	OTHER #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N
STEELHEAD 124242													
STURGEON 121002													
TOMCOD 121142													
WHITEFISH 120802													
CUTTHROAT TROUT 124212													
RAINBOW TROUT 124232													
LAKE TROUT 124222													
BURBOT 120202													
SCULPIN 122002													
DOLLY VARDEN 124122													
EULACHON 122112													
UNKNOWN SMELT 122192													

HOW WOULD YOU COMPARE YOUR 1991/92 NON-SALMON FINFISH USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____ MORE _____ LESS
WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

26	120000				
REC. TYPE	RESRCE	DIRECTN	SPILLREL	REAS 1	REAS 3

NON-COMMERCIAL FISHING: NON-SALMON - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
STEELHEAD 124242										
STURGEON 121002										
TOMCOD 121142										
WHITEFISH 120802										
CUTTHROAT TROUT 124212										
RAINBOW TROUT 124232										
LAKE TROUT 124222										
BURBOT 120202										
SCULPIN 122002										
DOLLY VARDEN 124122										
EULACHON 122112										
UNKNOWN SMELT 122192										

NON-COMMERCIAL FISHING: SHELLFISH.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SHELLFISH BETWEEN APR. 1991 AND MAR. 1991? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED #	HARVESTED UNIT	RECEIVED Y/N	GAVE AWAY Y/N
BUTTER CLAMS 500212						
RAZOR CLAMS 500222						
UNKNOWN CLAMS 500292						
DUNGENESS CRAB 500312						
KING CRAB 500322						
TANNER CRAB 500332						
COCKLES 500402						
GEODUCKS 500502						
MUSSELS 500702						
SMALL BIDARKIS 500822						

NOTES:

CHENEGA BAY - RESOURCE SURVEY 1990

NON-COMMERCIAL FISHING: SHELLFISH.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SHELLFISH BETWEEN JAN. 1991 AND DEC. 1991? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED #	HARVESTED UNIT	RECEIVED Y/N	GAVE AWAY Y/N
OCTOPUS 500902						
SEA CUCUMBER 501002						
SEA URCHIN 501102						
SHRIMP 501202						
SCALLOPS 500602						
LIMPETS 501402						
WHELK 501802						

NOTES:

HOW WOULD YOU COMPARE YOUR 1991/92 SHELLFISH USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____ MORE _____ LESS

WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

26	500000					
REC. TYPE	RESRCE	DIRECTN	SPILLREL	REAS1	REAS2	REAS3

NON-COMMERCIAL FISHING: SHELLFISH - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
OCTOPUS 500902										
SEA CUCUMBER 501002										
SEA URCHIN 501102										
SHRIMP 501202										
SCALLOPS 500602										
LIMPETS 501402										
WHELK 501802										

LARGE GAME.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE LARGE GAME BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED FOR FOOD #	NUMBER HARVESTED FUR ONLY #	RECEIVED Y/N	GAVE AWAY Y/N	NOTES:
BROWN BEAR 210300							
DEER 210500							
GOAT 210700							
DALL SHEEP 211100							
MOOSE 210800							
CARIBOU 210400							
BLACK BEAR 210200							

HOW WOULD YOU COMPARE YOUR 1991/92 LARGE GAME USE AND HARVEST WITH THE PREVIOUS YEAR? _____ SAME _____ MORE _____LESS
WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

26	210000					
REC. TYPE	RESOURCE	DIRCTN	SPILLREL	REAS1	REAS2	REAS3

LARGE GAME - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
BROWN BEAR 210300										
DEER 210500										
GOAT 210700										
DALL SHEEP 211100										
MOOSE 210800										
CARIBOU 210400										
BLACK BEAR 210200										

NOTES: _____

CHENEGA BAY - RESOURCE SURVEY 1990

MARINE MAMMALS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE MARINE MAMMALS BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	SALVAGE Y/N	NUMBER HARVESTED FOR FOOD #	FOR HIDE ONLY #	MALE #	FEMALE #	UNKNOWN #	UNITS	RECEIVED Y/N	GAVE AWAY Y/N	HIDES NUMBER SOLD	HIDES AVERAGE PRICE
HARBOR SEAL 300230													
SEA LION 300600													
SEA OTTER 300700													
BELUKHA WHALE 300110													
BEARDED SEAL 300210													
PORPOISE/DOLPHIN 300500													

HOW WOULD YOU COMPARE YOUR 1991/92 MARINE MAMMAL USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____ MORE _____ LESS

WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

_____

_____

_____

26	300000					
REC. TYPE	RESRCE	DIRCTN	SPILL?	REAS 1	REAS 2	REAS 3

HAVE YOU NOTICED ANY CHANGES IN THE POPULATION OF STELLER SEA LIONS? IF YES, WHY DO YOU THINK THEY ARE CHANGING?

_____

_____

_____

31	300600					
REC. TYPE	RESRCE	DIRCTN	SPILL?	REAS 1	REAS 2	REAS 3

MARINE MAMMALS - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
HARBOR SEAL 300230										
SEA LION 300600										
SEA OTTER 300700										
BELUKHA WHALE 300110										
BEARDED SEAL 300210										
PORPOISE/DOLPHIN 300500										

NOTES: _____

CHENEGA BAY - RESOURCE SURVEY 1991

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE SMALL GAME/FURBEARERS BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	NUMBER HARVESTED FOOD #	NUMBER HARVESTED FUR ONLY #	RECEIVED Y/N	GAVE AWAY Y/N	NUMBER SOLD	AVERAGE PRICE	NOTES
MARTEN 220800									
PORCUPINE 221100									
LAND OTTER 220500									
MINK 220900									
HARE 220400									
BEAVER 220200									
COYOTE 220300									
LYNX 220600									
MUSKRAT 221000									
WEASEL 221200									
WOLVERINE 221400									
WOLF 221300									

HOW WOULD YOU COMPARE YOUR 1991/92 SMALL GAME/FURBEARER USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____MORE _____LESS

WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

REC	RESRCE	DIRECTN	SPILLREL?	REAS1	REAS2	REAS3
26	220000					

CHENEGA BAY - RESOURCE SURVEY 1991

SMALL GAME/FURBEARERS - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
MARTEN 220800										
PORCUPINE 221100										
LAND OTTER 220500										
MINK 220900										
HARE 220400										
BEAVER 220200										
COYOTE 220300										
LYNX 220600										
MUSKRAT 221000										
WEASEL 221200										
WOLVERINE 221400										
WOLF 221300										

NOTES: _____

BIRDS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE BIRDS BETWEEN APR. 1991 AND MAR. 1992? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED #	HARVESTED UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
PTARMIGAN 420200							
GROUSE (SPRUCE HEN) 420100							
OWL 410000							
SCOTER 441020							
GOLDENEYE 441040							
BUFFLEHEAD 441050							
MERGANSER 441060							
MALLARD 441080							
PINTAIL 441090							
TEAL 441110							
HARLEQUIN 441030							
EIDER 441010							
SHOVELER 441140							

BIRDS - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
PTARMIGAN 420200										
GROUSE (SPRUCE HEN) 420100										
OWL 410000										
SCOTER 441020										
GOLDENEYE 441040										
BUFFLEHEAD 441050										
MERGANSER 441060										
MALLARD 441080										
PINTAIL 441090										
TEAL 441110										
HARLEQUIN 441030										
EIDER 441010										
SHOVELER 441140										

BIRDS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE BIRDS BETWEEN JAN. 1991 AND DEC. 1991? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED #	HARVESTED UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
CANVASBACK 441150							
DUCKS, UNKNOWN 441990							
CANADA GEESE, DUSKY 442090							
GEESE, UNKNOWN 442990							
SANDHILL CRANE 444010							
CORMORANTS 443010							
DUCK EGGS 454010							
GULL EGGS 451020							

BIRDS - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
CANVASBACK 441150										
DUCKS, UNKNOWN 441990										
CANADA GEESE, DUSKY 442090										
GEESE, UNKNOWN 442990										
SANDHILL CRANE 444010										
CORMORANTS 443010										
DUCK EGGS 454010										
GULL EGGS 451020										

BIRDS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE BIRDS BETWEEN JAN. 1991 AND DEC. 1991? YES:_____ NO:_____

IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	HARVESTED #	HARVESTED UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
TERN EGGS 451050							
GEESE EGGS 454020							

HOW WOULD YOU COMPARE YOUR 1991/92 BIRD USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____MORE _____LESS

WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

26	400000					
REC. TYPE	RESRCE	DIRECTION	SPILL?	REAS 1	REAS 2	REAS 3

BIRDS - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
TERN EGGS 451050										
GEESE EGGS 454020										

WILD PLANTS.

DID MEMBERS OF YOUR HOUSEHOLD TRY TO HARVEST OR USE WILD PLANTS (INCLUDING FIREWOOD) BETWEEN APR. YES:____ NO:____
IF YES, PLEASE COMPLETE THE FOLLOWING TABLE (POUNDS SHOULD INDICATE EDIBLE WEIGHT):

SPECIES	USED? Y/N	TRIED TO HARVEST Y/N	AMOUNT HARVESTED #	UNIT	RECEIVED Y/N	GAVE AWAY Y/N	NOTES
BERRIES 610000							
MUSHROOMS 620000							
TUBERS							
FIDDLEHEAD FERNS							
TREE SAP							
FLOWERS							
OTHER GREENS (LAND)							
KELP (FOOD) 630000							
OTHER GREENS (SEA)							
WOOD 640000							

DO YOU USE WILD PLANTS FOR MEDICINE? IF SO, WHICH ONES?

32					
REC.	Y/N	SPEC 2.	USE	SPEC 3	USE

CHENEGA BAY - RESOURCE SURVEY 1991

PLANTS - RECEIVED & GAVE.

SPECIES	RECEIVED RESOURCES FROM					GAVE RESOURCES TO				
	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5	COMM. 1	COMM. 2	COMM. 3	COMM. 4	COMM. 5
BERRIES 610000										
MUSHROOMS 620000										
TUBERS										
FIDDLEHEAD FERNS										
TREE SAP										
FLOWERS										
OTHER GREENS (LAND)										
KELP (FOOD) 630000										
OTHER GREENS (SEA)										
WOOD 640000										

HOW WOULD YOU COMPARE YOUR 1991/92 PLANT USE AND HARVEST WITH THE PREVIOUS YEAR? _____SAME _____MORE _____LESS

WAS IT ABOUT THE SAME OR DIFFERENT? IF DIFFERENT, WHY?

REC.	RESOURCE	DIRECTION	SPILL?	REAS 1	REAS 2	REAS 3
26	600000					

HARVEST AREAS.

AREA: SAWMILL BAY

HAVE YOU HARVESTED RESOURCES IN THIS AREA?

PRIOR TO MARCH 1989 (PRESPILL): Y N

DURING THE SURVEY PERIOD: Y N

WHAT DO YOU USE THIS AREA FOR?

PRESPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

POSTSPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

HOW FREQUENTLY USED?

PRESPILL:

POSTSPILL:

HAS YOUR USE OF THE AREA RETURNED TO PRE-MARCH 1989 (PRESPILL) LEVELS? Y N

IF NOT, WHY?

AREA: EVANS ISLAND

HAVE YOU HARVESTED RESOURCES IN THIS AREA?

PRIOR TO MARCH 1989 (PRESPILL): Y N

DURING THE SURVEY PERIOD: Y N

WHAT DO YOU USE THIS AREA FOR?

PRESPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

POSTSPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

HOW FREQUENTLY USED?

PRESPILL:

POSTSPILL:

HAS YOUR USE OF THE AREA RETURNED TO PRE-MARCH 1989 (PRESPILL) LEVELS? Y N

IF NOT, WHY?

HARVEST AREAS.

AREA: ELRINGTON PASSAGE

HAVE YOU HARVESTED RESOURCES IN THIS AREA? PRIOR TO MARCH 1989 (PRESPILL): Y N DURING THE STUDY PERIOD: Y N

WHAT DO YOU USE THIS AREA FOR?

PRESPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

POSTSPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

HOW FREQUENTLY USED?

PRESPILL:

POSTSPILL:

HAS YOUR USE OF THE AREA RETURNED TO PRE-MARCH 1989 (PRESPILL) LEVELS? Y N

IF NOT, WHY?

IS THERE ANOTHER AREA WHICH YOU ARE CONCERNED WITH AND WOULD LIKE TO DISCUSS?

AREA:

HAVE YOU HARVESTED RESOURCES IN THIS AREA? PRIOR TO MARCH 1989 (PRESPILL): Y N DURING THE STUDY PERIOD: Y N

WHAT DO YOU USE THIS AREA FOR?

PRESPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

POSTSPILL:

SALMON OTHER FINFISH BIG GAME SMALL GAME
MARINE MAMMALS INVERTEBRATES BIRDS PLANTS
OTHER: _____

HOW FREQUENTLY USED?

PRESPILL:

POSTSPILL:

HAS YOUR USE OF THE AREA RETURNED TO PRE-MARCH 1989 (PRESPILL) LEVELS? Y N

IF NOT, WHY?

EMPLOYMENT HISTORY.

PLEASE INDICATE THE FOLLOWING INFORMATION FOR ALL JOBS HELD BY THE EMPLOYED PERMANENT HOUSEHOLD MEMBERS 16 OR OLDER LISTED IN QUESTION 1 BETWEEN APR. 1991 AND MAR. 1992.
FOR THOSE NOT EMPLOYED, PLEASE SPECIFY RETIRED, UNEMPLOYED, DISABLED, STUDENT, OR HOMEMAKER.

ID#	JOB #	JOB TITLE	SOC	EMPLOYER TYPE	SIC	TYPE*	LOCATION	WHICH MONTHS WORKED IN YEAR	HRS/DAY	DAYS/ WEEK	PERSONAL GROSS INCOME
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			
								A M J J A S O N D J F M			

*TYPE: (1) NATIVE PROFIT or (2) NATIVE NON-PROFIT; OTHERWISE LEAVE BLANK.

INCOME AND EXPENSES.

OTHER INCOME SOURCES (CHECK ALL THAT APPLY AND INDICATE ANNUAL AMOUNT).

AK PERMANENT FUND (32) $ ____
SOCIAL SECURITY (07) $ ____
SUPP. SECURITY INCOME (10) $ ____
NATIVE CORP. DIVIDEND (13) $ ____

AID TO FAMILIES WITH
DEPENDENT CHILDREN (02) $ ____
PENSION/RETIREMENT (05) $ ____
WORK COMP/INSURANCE (08) $ ____
FOOD STAMPS (11) $ ____

DIVIDENDS/INTEREST (14) $ ____
ADULT PUBLIC ASSISTANCE (03) $ ____
LONGEVITY BONUS (06) $ ____
ENERGY ASSISTANCE (09) $ ____
UNEMPLOYMENT (12) $ ____
OTHER: _____ (33) $ ____

HOW WOULD YOU COMPARE YOUR PRESENT HOUSEHOLD FINANCIAL SITUATION TO BEFORE THE OIL SPILL?

____ (1) Better than before the spill ____ (2) About the same as before the spill ____ (3) Worse than before the spill

PLEASE ESTIMATE YOUR MONTHLY EXPENSES FOR FOOD $_____ /month

WHAT PERCENTAGE OF ALL THE MEAT, FISH, AND BIRDS THAT YOU ATE IN THE LAST YEAR WAS SUBSISTENCE OR WILD RESOURCES FOOD? [33]

____ (1) NONE ____ (2) 1-25% ____ (3) 26-50% ____ (4) 51-75% ____ (5) 76-99% ____ (6) ALL

NOTES: _____

HARVEST/RESOURCE ASSESSMENT OF CHANGE.

HOW WOULD YOU COMPARE YOUR OVERALL 1991/92 USES AND HARVESTS OF WILD RESOURCES WITH THE PREVIOUS YEAR? _____SAME _____MORE _____LESS
WHAT HAVE BEEN THE CHANGES AND WHY DO YOU THINK THEY OCCURRED?

26	777777					
REC. TYPE	RESRCE	DIRECTN	SPILLREL?	REAS 1	REAS 2	REAS 3

HOW WOULD YOU COMPARE YOUR OVERALL 1991/92 USES AND HARVESTS OF WILD RESOURCES WITH THE YEAR BEFORE THE OIL SPILL (1988)? _____SAME _____MORE _____LESS
WHAT HAVE BEEN THE CHANGES AND WHY DO YOU THINK THEY OCCURRED?

34	777777					
REC. TYPE	RESRCE	DIRECTN	SPILLREL?	REAS 1	REAS 2	REAS 3

WERE THERE ANY WILD RESOURCES YOU HARVESTED OR WERE GIVEN IN 1991/92 THAT YOU THREW AWAY BECAUSE THEY DID NOT APPEAR NORMAL?
HOW WERE THEY DIFFERENT?

27							
REC. TYPE	RESRCE	Y/N	HOW? 1	HOW? 2	HOW? 3	HOW? 4	HOW? 5

DO YOU HAVE ANY IDEA WHY IT/THEY LOOKED THAT WAY?

WHY? 1	WHY? 2	WHY? 3	WHY? 4

HAVE YOU SEEN OR HEARD ABOUT SUCH THINGS BEFORE THE EXXON VALDEZ OIL SPILL? _____ YES _____ NO

SUBSISTENCE EXPENSES.

SUBSISTENCE ACTIVITES OFTEN REQUIRE EQUIPMENT WHICH MUST BE PURCHASED AND MAINTAINED.
WE WOULD LIKE TO KNOW WHAT EQUIPMENT YOU HAVE AVAILABLE TO YOU FOR SUBSISTENCE, THE COST TO REPLACE YOUR EQUIPMENT,
AND YOUR ANNUAL OPERATING AND MAINTENANCE EXPENSES. ONLY INCLUDE ITEMS USED FOR SUBSISTENCE.

	NO.	REPLACEMENT VALUE $	ANNUAL COSTS FUEL $	ANNUAL COSTS MAINTENANCE $	PERCENTAGE OF USE FOR SUBSISTENCE PURPOSES	DO YOU USE SOMEONE ELSE'S EQUIPMENT OF THIS TYPE? Y/N	DO YOU LOAN SOMEONE ELSE EQUIPMENT OF THIS TYPE? Y/N
TRANSPORTATION EQUIPMENT:							
SKIFFS (110) (<25')							
MOTORS (120)							
BOATS (130) (>25')							
ATVs (210)							
SNOWMACHINES (220)							
AIRPLANE (230)							
HIGHWAY VEHICLE (240)							
FISHING EQUIPMENT							
NETS (330) (SUBSISTENCE USE ONLY)							
TACKLE* (310)							
POTS (320)							

* 'TACKLE' INCLUDES RODS, REELS, HANDLINES, WEIGHTS, ETC.

SUBSISTENCE EXPENSES (CONTINUED).

	NO.	REPLACEMENT VALUE $	ANNUAL COSTS FUEL $	ANNUAL COSTS MAINTENANCE $	PERCENTAGE OF USE FOR SUBSISTENCE PURPOSES	DO YOU USE SOMEONE ELSE'S EQUIPMENT OF THIS TYPE? Y/N	DO YOU LOAN SOMEONE ELSE EQUIPMENT OF THIS TYPE? Y/N
HUNTING EQUIPMENT							
GUNS (410)							
AMMUNITION (430)							
TRAPS (420)							
MISC. EXPENSES							
CABINS (STATIONARY) (510)							
TENTS OR CAMPS (521)							
MISC. CAMPING EQUIP. (520)							
PRESERVATION EQUIPMENT							
FREEZER (610)							
MISC. FREEZING SUPP. (611)							
CANNER (620)							
MISC. CANNING SUPP. (621)							
VACUUM SEALER (630)							
MISC. SEALER SUPP. (631)							
SMOKEHOUSE/DRY RACK (640)							
MISC. SMOKING SUPP. (641)							

DO YOU HAVE ANY OTHER QUESTIONS, COMMENTS, OR CONCERNS?

INTERVIEW SUMMARY:

APPENDIX II:

EXAMPLE OF SOCIAL EFFECTS QUESTIONNAIRE:

GULF OF ALASKA 1991

U.S. Office of Management and Budget Approval Number 1010 - 0089. Approval for use through 4/30/1995.

SOCIAL EFFECTS: GOA 1991

U.S. Office of Management and Budget Approval Number 1010 - 0089. Approval for use through 4/30/1995.

Interviewer: _____ [_____] **Date:** _____ [__/__/__]

Time: Start _____ [__:__] **End** _____ [__:__]

Visiting

1. During the last year, how many times have you left this community and visited relatives or friends?
   Number of times_____ SE-1

2. During the last year, how many times were you visited by friends or relatives from outside this community?
   Number of times_____ SE-2

3. During the last week, on how many days did you visit friends or relatives?
   Number of days_____ SE-3

4. During the last week, on how many days did friends or relatives visit you?
   Number of days_____ SE-4

Wild Foods

5. Yesterday, how many meals and snacks did you eat with a relative who lives in another household? (Either your house or theirs)
   Number of times_____ SE-5

6. Yesterday, how many meals and snacks did you eat with a non-relative who lives in another household? (Either your house or theirs)
   Number of times_____ SE-6

7. Did you eat **any** wild foods yesterday?
   No (0) Yes (1) _____ SE-7A

   IF NO, CODE QUESTIONS 7 AND ALL OF 8 AS NO (0).
   THEN SKIP TO QUESTION 9.
   IF YES, CONTINUE TO 7B.

   Did you eat any meals yesterday in which wild foods were a **main** (large) part of the meal?
   No (0) Yes (1) _____ SE-7B

8. Who harvested **any** wild foods that you ate yesterday? Was it
   A. you? No (0) Yes (1) _____ SE-8A
   B. a relative in this same HH? No (0) Yes (1) _____ SE-8B
   C. a relative in a different HH in this community?
      No (0) Yes (1) _____ SE-8C
   D. a relative in a different community?
      No (0) Yes (1) _____ SE-8D
   E. a friend in this HH? No (0) Yes (1) _____ SE-8E

F. a friend in a different HH in this community? No (0) Yes (1) _____ SE-8F

G. a friend in a different community? No (0) Yes (1) _____ SE-8G

9. Is eating bidarkies (chitons) important to you? No (0) Yes (1) _____ SE-9A

If yes, do you think bidarkies (chitons) from your harvest areas are safe for children to eat?
Safe (1) Not safe (2) _____ SE-9B
If not safe, why? _____ SE-9C

10. Do you think clams from your harvest areas are safe for children to eat?
Safe (1) Not safe (2) _____ SE-10A
If not safe, why? _____ SE-10B

11. Is eating seal oil or seal meat important to you? No (0) Yes (1) _____ SE-11A

If yes, do you think seals from your harvest areas are safe for children to eat?
Safe (1) Not safe (2) _____ SE-11B
If not, why? _____ SE-11C

12. Think back to 1988, the year before the *Exxon Valdez* oil spill. Would you say that the amount of the following resources available to harvest in this area is less, about the same or more **now** than before the oil spill?

A.	Deer?	Less (0)	Same (1)	More (2)	_____	SE-12A
~~B.~~	~~Caribou?~~	~~Less (0)~~	~~Same (1)~~	~~More (2)~~	-8	SE-12B
C.	Bears?	Less (0)	Same (1)	More (2)	_____	SE-12C
D.	Harbor Seals?	Less (0)	Same (1)	More (2)	_____	SE-12D
~~E.~~	~~Ringed Seals?~~	~~Less (0)~~	~~Same (1)~~	~~More (2)~~	-8	SE-12E
F.	Sea Lions?	Less (0)	Same (1)	More (2)	_____	SE-12F
~~G.~~	~~Bearded Seals?~~	~~Less (0)~~	~~Same (1)~~	~~More (2)~~	-8	SE-12G
H.	Sea Ducks?	Less (0)	Same (1)	More (2)	_____	SE-12H
I.	Common Murres?	Less (0)	Same (1)	More (2)	_____	SE-12I
J.	Salmon?	Less (0)	Same (1)	More (2)	_____	SE-12J
K.	Halibut?	Less (0)	Same (1)	More (2)	_____	SE-12K
~~L.~~	~~Whitefish?~~	~~Less (0)~~	~~Same (1)~~	~~More (2)~~	-8	SE-12L
M.	Rockfish?	Less (0)	Same (1)	More (2)	_____	SE-12M
~~N.~~	~~Arctic Char?~~	~~Less (0)~~	~~Same (1)~~	~~More (2)~~	-8	SE-12N
O.	Dolly Varden?	Less (0)	Same (1)	More (2)	_____	SE-12O
P.	Clams?	Less (0)	Same (1)	More (2)	_____	SE-12P
Q.	Bidarkies?	Less (0)	Same (1)	More (2)	_____	SE-12Q
R.	Sea Urchins?	Less (0)	Same (1)	More (2)	_____	SE-12R
S.	Octopus?	Less (0)	Same (1)	More (2)	_____	SE-12S

13. Do children from other households help your household process wild resources? Processing includes butchering, cleaning, or putting up fish, game, or wild plants. No (0) Yes (1) _____ SE-13

14. Did the **Exxon Valdez** oil spill affect your participation with children in the harvesting or processing of wild foods?
No (0) Yes (1) _____ SE-14A

If so, how?
_____ _____ SE-14B

15. Do you think that young adults are learning enough hunting, fishing, and processing skills?
No (0) Yes (1) _____ SE-15

Sharing

The following questions will compare sharing this year to last year and then to before the *Exxon Valdez* oil spill (March 1989).

16. Did your household share wild resources, hunting and fishing gear, money, or labor this year?
No (0) Yes (1) _____ SE-16

IF NO, SKIP TO QUESTION 17 AND CODE REMAINDER OF 16 AS (-8).

Compared to the previous year, did your household this year share:

16A. **wild resources** less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16A

Compared to the previous year, did your household this year share:

16B. **hunting and fishing gear** less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16B

Compared to the previous year, did your household this year share:

16C. **money** less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16C

Compared to the previous year, did your household this year share:

16D. **labor** (for example, for construction, hunting/fishing/gathering pursuits, repairs to equipment and housing, and the like) less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16D

Compared to before the oil spill, did your household this year share:

16E. **wild resources** less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16E

Compared to before the oil spill, did your household this year share:

16F. **hunting and fishing gear** less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16F

Compared to before the oil spill, did your household this year share:

16G. **money** less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16G

Compared to before the oil spill, did your household this year share:

16H. **labor** (for example, for construction, hunting/fishing/gathering pursuits, repairs to equipment and housing, and the like) less often, about the same, or more often?
Less (0) Same (1) More (2) Doesn't Occur (-8) _____ SE-16H

17. How important is sharing to you?
Not important (1) Mixed (2) Important (3) _____ SE-17

18. Why do you feel that way about sharing?
_____ _____ SE-18A
_____ _____ SE-18B
_____ _____ SE-18C

19. Could you imagine not sharing wild foods with others?
No (0) Yes (1) _____ SE-19A

Which of the following do you think would happen if your household **did not share wild foods** with others?

B. Would other family members be upset?
No (0) Yes (1) _____ SE-19B

If your household did not share wild foods with others

C. Would your friends be upset?
No (0) Yes (1) _____ SE-19C

If your household did not share wild foods with others

D. Would people in your community be upset?
No (0) Yes (1) _____ SE-19D

If your household did not share wild foods with others

E. Would your household receive less?
No (0) Yes (1) _____ SE-19E

If your household did not share wild foods with others

F. Would people who depend on you not get enough wild foods?
No (0) Yes (1) _____ SE-19F

If your household did not share wild foods with others

G. Would it be against your tradition?
No (0) Yes (1) _____ SE-19G

If your household did not share wild foods with others

H. Would it bring you bad luck hunting, fishing, or gathering?
No (0) Yes (1) _____ SE-19H

If your household did not share wild foods with others

I. Would people go hungry?
No (0) Yes (1) _____ SE-19I

General Activities

20. **In the last twelve months, did you:**

A.	attend a feast or ceremony?	No (0)	Yes (1)	_____	SE-20A
B.	work on a meal for a large gathering of people, like a potluck, carnival, or feast?	No (0)	Yes (1)	_____	SE-20B
C.	engage in sewing crafts (including skins, beadwork, weaving, etc.)?	No (0)	Yes (1)	_____	SE-20C
D.	engage in carving?	No (0)	Yes (1)	_____	SE-20D
E.	go camping as part of hunting or fishing?	No (0)	Yes (1)	_____	SE-20E
F.	repair or maintain a boat?	No (0)	Yes (1)	_____	SE-20F
G.	repair a fish net, trap, or weir?	No (0)	Yes (1)	_____	SE-20G
H.	use or maintain a cache ?	No (0)	Yes (1)	_____	SE-20H
I.	repair or maintain hunting gear?	No (0)	Yes (1)	_____	SE-20I
J.	prepare a steam bath?	No (0)	Yes (1)	_____	SE-20J
K.	take steam baths with relatives or friends?	No (0)	Yes (1)	_____	SE-20K
L.	gather food from the beach?	No (0)	Yes (1)	_____	SE-20L
M.	repair or maintain a grave?	No (0)	Yes (1)	_____	SE-20M
N.	use natural medicines/healing?	No (0)	Yes (1)	_____	SE-20N
O.	tell stories?	No (0)	Yes (1)	_____	SE-20O

21. How many times did you attend church activities in the last 12 months?
Number of times_____ SE-21

22. Compared to three years ago, has there been a change in how active you are in church activities? Would you say that you are less, the same, or more active now?
Less (0) Same (1) More (2) _____ SE-22

23. Do you belong to a religious organization here in the community?
No (0) Yes (1) _____ SE-23A

If yes, what organization?
_____ SE-23B

24. Have you changed religious organizations in the last 3 years?
No (0) Yes (1) _____ SE-24

25. Do you celebrate Russian Christmas?
No (0) Yes (1) _____ SE-25

Elders

26.

A.	Over the last three years, do you think the **influence** of elders in the community has:	Decreased (1)	Stayed the Same (0) Increased (2)	_____	SE-26A
B.	Has your **visiting** with elders changed over the last three years?. Has it:	Decreased (1)	Stayed the Same (0) Increased (2)	_____	SE-26B
C.	Has your **sharing** with elders:	Decreased (1)	Stayed the Same (0) Increased (2)	_____	SE-26C
D.	Do you think the frequency of elders **telling stories** has:	Decreased (1)	Stayed the Same (0) Increased (2)	_____	SE-26D

Participation/Leadership

27. Think of the one person in this community you respect the most.
Is that person a man or a woman?
Man (1) Woman (2) _____ SE-27A

Approximately how old are they?
Years of age: _____ SE-27B

What are the qualities that you respect in that person?
_____ _____ SE-27C
_____ _____ SE-27D
_____ _____ SE-27E
_____ _____ SE-28F

28. How often did you attend public meetings prior to the *Exxon Valdez* oil spill?
Never (0) Sometimes (1) Almost Always (2) _____ SE-28

29. How often did you attend public meetings last year?
Never (0) Sometimes (1) Almost Always (2) _____ SE-29

30. Did you vote in the last city council election?
No (0) Yes (1) _____ SE-30

31. Did you vote in the last state-wide election?
No (0) Yes (1) _____ SE-31

32. Do you belong to a Native regional or village corporation?
No (0) Yes (1) _____ SE-32

IF NO, SKIP TO 37

33. What regional Native corporation do you belong to?
_____ _____ SE-33

34. Did you vote in the last regional Native Corporation election?
No (0) Yes (1) _____ SE-34

35. What Native village corporation do you belong to?
_____ _____ SE-35

36. Did you vote in the last village Native Corporation election?
No (0) Yes (1) _____ SE-36

37. What qualities do you look for in a leader?
_____ _____ SE-37A
_____ _____ SE-37B
_____ _____ SE-37C
_____ _____ SE-37D

38. Has your view of what makes a good leader changed since the *Exxon Valdez* oil spill?

No (0) Yes (1) _____ SE-38A

If so, why?

_____ _____ SE-38B
_____ _____ SE-38C
_____ _____ SE-38D

39. Is there anyone in this household that occupies an elected position in the village tribal council, city, corporation, or borough government, or natural resource advisory committee? What is the total number of elected official capacities held by members of this household?

None (0) One official capacity (1) Two or more (2) official capacities _____ SE-39

Significance of Place

40. What was the main reason that you moved here?

_____ _____ SE-40

41. There are lots of reasons why a person chooses to live in a community.

Do you live here because:

A.	This is where you're from?	No (0)	Yes (1)	_____	SE-41A
B.	You have relatives who live here?	No (0)	Yes (1)	_____	SE-41B
C.	You married a person who resided here?	No (0)	Yes (1)	_____	SE-41C
D.	Your family has always lived here?	No (0)	Yes (1)	_____	SE-41D

Do you live here because:

E.	You have friends who live here?	No (0)	Yes (1)	_____	SE-41E
F.	There are hunting and fishing opportunities here?	No (0)	Yes (1)	_____	SE-41F
G.	There are job opportunities here?	No (0)	Yes (1)	_____	SE-41G
H.	There are educational opportunities here?	No (0)	Yes (1)	_____	SE-41H

Do you live here because:

I.	The cost of living is affordable here?	No (0)	Yes (1)	_____	SE-41I
J.	Housing is available here?	No (0)	Yes (1)	_____	SE-41J
K.	There are stores here with the things you want to buy?	No (0)	Yes (1)	_____	SE-41K
L.	The medical services you need are available here?	No (0)	Yes (1)	_____	SE-41L

Do you live here because:

M. Other services (such as, police, fire, transportation, etc.) are available?
No (0) Yes (1) _____ SE-41M

N. The beauty of the area attracts you? No (0) Yes (1) _____ SE-41N

O. The community is the size that you like?
No (0) Yes (1) _____ SE-41O

P. Because there is less crime here? No (0) Yes (1) _____ SE-41P

Do you live here because:

Q. Because there is less drinking or drugs here?
No (0) Yes (1) _____ SE-41Q

R. You have the necessary personal freedoms here?
No (0) Yes (1) _____ SE-41R

S. You have access to recreational opportunities?
No (0) Yes (1) _____ SE-41S

T. Any other reasons?

_____ _____ SE-41T
_____ _____ SE-41U
_____ _____ SE-41V

42. Which one of the reasons you gave above would you consider the most important reason of why you remain here?

_____ _____ SE-42

43. Since the *Exxon Valdez* oil spill, do you like living here less, the same, or more?

Less (0) The Same (1) More (2) _____ SE-43A

If different, why?

_____ _____ SE-43B

44. If you could, would you rather live in another community?
No (0) Yes (1) _____ SE-44

45. Do you expect to be living in this region when you are old?
No (0) Yes (1) _____ SE-45

46. Did any of your grandparents live in this region?
No (0) Yes (1) _____ SE-46

47. I will read a list of kin relationships. Do you have any of these relatives living in this community:

A. A parent? No (0) Yes (1) _____ SE-47A
B. A brother or sister? No (0) Yes (1) _____ SE-47B
C. A child? No (0) Yes (1) _____ SE-47C
D. A grandchild? No (0) Yes (1) _____ SE-47D
E. A grandparent? No (0) Yes (1) _____ SE-47E
F. An aunt or uncle? No (0) Yes (1) _____ SE-47F
G. A cousin? No (0) Yes (1) _____ SE-47G
H. In-laws? No (0) Yes (1) _____ SE-47H

48. I am going to read a list of types of places within the region. Which of them are important to you?

A.	Hunting, fishing, and gathering places?	No (0)	Yes (1)	_____	SE-48A
B.	Beautiful or scenic places?	No (0)	Yes (1)	_____	SE-48B
C.	Historic places?	No (0)	Yes (1)	_____	SE-48C
D.	Places that stories are told about?	No (0)	Yes (1)	_____	SE-48D
E.	Wildlife viewing places?	No (0)	Yes (1)	_____	SE-48E
F.	Social gathering places?	No (0)	Yes (1)	_____	SE-48F
G.	Burial places?	No (0)	Yes (1)	_____	SE-48G
H.	Land that you own or have claim to?	No (0)	Yes (1)	_____	SE-48H

49. Has the importance or meaning of any of these places changed after the *Exxon Valdez* oil spill? If yes, I would like to know how.

A.	Hunting, fishing, and gathering places?	No (0)	Yes (1)	_____	SE-49A
	If yes, how? _____			_____	SE-49B
B.	Beautiful (scenic) places?	No (0)	Yes (1)	_____	SE-49C
	If yes, how? _____			_____	SE-49D
C.	Historic places?	No (0)	Yes (1)	_____	SE-49E
	If yes, how? _____			_____	SE-49F
D.	Places that stories are told about?	No (0)	Yes (1)	_____	SE-49G
	If yes, how? _____			_____	SE-49H
E.	Wildlife viewing places?	No (0)	Yes (1)	_____	SE-49I
	If yes, how? _____			_____	SE-49J
F.	Social gathering places?	No (0)	Yes (1)	_____	SE-49K
	If yes, how? _____			_____	SE-49L
G.	Burial places?	No (0)	Yes (1)	_____	SE-49M
	If yes, how? _____			_____	SE-49N
H.	Land that you own or have claim to?	No (0)	Yes (1)	_____	SE-49O
	If yes, how? _____			_____	SE-49P

50. Are you confident that you, your family, and your friends will be able to continue to use the places you now use for hunting, fishing, and gathering?

No (0) Yes (1) _____ SE-50A

If no, why?

_____ _____ SE-50B

_____ _____ SE-50C

_____ _____ SE-50D

51. Would you continue to live here if wild foods were not available in the area?

No (0) Yes (1) _____ SE-51

52. If another oil spill prevented your harvest of wild resources for **6 months**, how would this affect your household?

_____ _____ SE-52A
_____ _____ SE-52B
_____ _____ SE-52C

How would the effects be different if an oil spill prevented your harvest activities for **one year**?

_____ _____ SE-52D
_____ _____ SE-52E
_____ _____ SE-52F

How would the effects be different if an oil spill prevented your harvest activities for **three years**?

_____ _____ SE-52G
_____ _____ SE-52H
_____ _____ SE-52I

Oil Spill Employment

53. Did you work on the *Exxon Valdez* oil spill cleanup or response in:

1989?	No (0)	Yes (1)	_____	SE-53A
1990?	No (0)	Yes (1)	_____	SE-53B
1991?	No (0)	Yes (1)	_____	SE-53C

IF NO TO ALL, SKIP TO 55

54. Did you give up a job to work on the *Exxon Valdez* oil spill cleanup (or response)?

No (0) Yes (1) _____ SE-54A

IF NO, SKIP TO 55

Are you now on good terms with the employer you left to work on the oil spill?

No (0) Yes (1) _____ SE-54B

Did you look for another job when the cleanup employment ended?

No (0) Yes (1) _____ SE-54C

IF NO to 54C, SKIP TO 55

Did you have trouble getting another job when the cleanup employment ended ?

No (0) Yes (1) _____ SE-54D

55. Were you an employer in 1989, 1990, or 1991?

No (0) Yes (1) _____ SE-55A

Were you a boat captain in 1989, 1990, or 1991?

No (0) Yes (1) _____ SE-55B

IF NO TO BOTH OF THE ABOVE, SKIP TO 57

Did you have difficulty in finding training or keeping qualified employees or crewmembers during the oil spill cleanup?
No (0) Yes (1) _____ SE-55C

Are you on good terms with former employees who left your employment to work on the oil spill cleanup?
No (0) Mixed (1) Yes (2) _____ SE-55D

56. Did the oil spill and resulting cleanup activities affect your business?
No (0) Mixed (1) Yes (2) _____ SE-56A
IF MIXED OR YES, How did it affect your business?
_____ _____ SE-56B
_____ _____ SE-56C
_____ _____ SE-56D

Did the oil spill and cleanup activities adversely affect your normal relationship with any other businesses in the community?
No (0) Mixed (1) Yes (2) _____ SE-55D

57. Were you renting housing when the *Exxon Valdez* oil spill occurred?
No (0) Yes (1) _____ SE-57A

IF NO, SKIP TO 58

Was your rent increased because of the oil spill?
No (0) Yes (1) _____ SE-57B

Were you displaced from where you were living because of oil spill activity?
No (0) Yes (1) _____ SE-57C

Did the oil spill adversely affect your relationship with the landlord you had at the time of the oil spill?
No (0) Mixed (1) Yes (2) _____ SE-57D

Child Care

58. Were there children in your household in:
1989? No (0) Yes (1) _____ SE-58A
1990? No (0) Yes (1) _____ SE-58B
1991? No (0) Yes (1) _____ SE-58C

IF NO, SKIP TO 63.

59. Was there a change in how these children were taken care of because of the oil spill?
1989? No (0) Yes (1) _____ SE-59A
1990? No (0) Yes (1) _____ SE-59B
1991? No (0) Yes (1) _____ SE-59C

60. Who looked after these children during the following years?

1989:

Adult (16+) in household?
No (0) Yes (1) _____ SE-60A

Another child in household?
No (0) Yes (1) _____ SE-60B

Relative outside the household?
No (0) Yes (1) _____ SE-60C

Non-relative outside the household?
No (0) Yes (1) _____ SE-60D

Day Care?
No (0) Yes (1) _____ SE-60E

Left unsupervised?
No (0) Yes (1) _____ SE-60F

1990:

Adult (16+) in household?
No (0) Yes (1) _____ SE-60G

Another child in household?
No (0) Yes (1) _____ SE-60H

Relative outside the household?
No (0) Yes (1) _____ SE-60I

Non-relative outside the household?
No (0) Yes (1) _____ SE-60J

Day Care?
No (0) Yes (1) _____ SE-60K

Left unsupervised?
No (0) Yes (1) _____ SE-60L

1991:

Adult (16+) in household?
No (0) Yes (1) _____ SE-60M

Another child in household?
No (0) Yes (1) _____ SE-60N

Relative outside the household?
No (0) Yes (1) _____ SE-60O

Non-relative outside the household?
No (0) Yes (1) _____ SE-60P

Day Care?
No (0) Yes (1) _____ SE-60Q

Left unsupervised?
No (0) Yes (1) _____ SE-60R

61. Did your household have trouble finding good child care for any of those years?

1989 No (0) Yes (1) _____ SE-61A
1990 No (0) Yes (1) _____ SE-61B
1991 No (0) Yes (1) _____ SE-61C

62. Was there a change in the behavior of the children during the time of the oil spill?

No (0) Yes (1) _____ SE-62A

If yes, what has been the change and how do you think it is linked to the *Exxon Valdez* oil spill?

Change:_____ ____ SE-62B
Link:_____ ____ SE-62C

Services

63. Did you use the following facilities or services **during the year of the *Exxon Valdez* oil spill (1989)**? If so, please rate your satisfaction as unsatisfied, mixed, or satisfied.

Recreational Facilities:	Use?	No (0) Yes (1)			_____	SE-63A
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63B
Public Utilities:	Use?	No (0) Yes (1)			_____	SE-63C
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63D
Local Campgrounds:	Use?	No (0) Yes (1)			_____	SE-63E
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63F
Crisis Hot Line:	Use?	No (0) Yes (1)			_____	SE-63G
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63H
Health Care:	Use?	No (0) Yes (1)			_____	SE-63I
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63J
Alcohol/drug counseling:						
	Use?	No (0) Yes (1)			_____	SE-63K
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63L
Other Counseling:	Use?	No (0) Yes (1)			_____	SE-63M
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63N
Police/VPSO:	Use?	No (0) Yes (1)			_____	SE-63O
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63P
Church Facilities:	Use?	No (0) Yes (1)			_____	SE-63Q
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63R
School Facilities:	Use?	No (0) Yes (1)			_____	SE-63S
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-63T

64. Now I would like to ask you about your use of these facilities or services **during the past year**. Please rate your satisfaction of the ones you used.

Recreational Facilities:	Use?	No (0) Yes (1)			_____	SE-64A
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64B
Public Utilities:	Use?	No (0) Yes (1)			_____	SE-64C
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64D
Local	Use?	No (0) Yes (1)			_____	SE-64E

Campgrounds:	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64F
Crisis Hot Line:	Use?	No (0) Yes (1)			_____	SE-64G
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64H
Health Care:	Use?	No (0) Yes (1)			_____	SE-64I
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64J
Alcohol/drug counseling:						
	Use?	No (0) Yes (1)			_____	SE-64K
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64L
Other Counseling:	Use?	No (0) Yes (1)			_____	SE-64M
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64N
Police/VPSO:	Use?	No (0) Yes (1)			_____	SE-64O
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64P
Church Facilities:	Use?	No (0) Yes (1)			_____	SE-64Q
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64R
School Facilities:	Use?	No (0) Yes (1)			_____	SE-64S
	Rating?	Unsatisfied (0)	Mixed (1)	Satisfied (2)	_____	SE-64T

65. After the *Exxon Valdez* oil spill, many groups tried to help **deal with problems that resulted.** We'd like to know how effective you think each of the following groups was in responding to the oil spill. **Were they not effective, somewhat effective, or effective in responding?**

A.	**U.S. Coast Guard?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65A
B.	**AK Dept. of Environmental Conservation (ADEC)?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65B
C.	**Insurance companies?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65C
D.	**The local regional Native profit organizations?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65D
E.	**The local regional Native non-profit organizations?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65E
F.	**The local borough government?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65F
G.	**The local village corporations?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65G
H.	**Your city council?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65H
I.	**The local IRA (Indian Reorganization Act) Council?**				
	Not effective (0)	Somewhat (1)	Effective (2)	_____	SE-65I

J. **This community's Chamber of Commerce?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65J

K. **This community's businesses?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65K

L. **This community's commercial fishing groups?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65L

M. **Other groups of businesses which joined together to assist with the spill?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65M

N. **Schools?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65N

O. **Churches?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65O

P. **Medical professionals?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65P

Q. **Health aides?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65Q

R. **Social workers?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65R

S. **Local law enforcement?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65S

T. **State law enforcement?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65T

U. **Exxon?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65U

V. **VECO?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65V

W. **Alyeska Pipeline Service Company?**
Not effective (0) Somewhat (1) Effective (2) _____ SE-65W

X. **Was there any other group that formed because of the spill?**
_____ _____ SE-65X
How effective was it?
Not effective (0) Somewhat (1) Effective (2) _____ SE-65Y

66. Do you think that you were adequately informed about the safety of eating wild resources following the *Exxon Valdez* oil spill?

No (0) Somewhat (1) Yes (2) _____ SE-66A

If not, why?

_____ _____ SE-66B

_____ _____ SE-66C

_____ _____ SE-66D

OCS Development

67. How do you think the off-shore search and development for oil and gas in this area would affect the amount of the following resources available for harvest? **Would the resource decrease, not change, or increase?**

Fish:	Decrease (0)	No change (1)	Increase (2)	_____	SE-67A
Shellfish:	Decrease (0)	No change (1)	Increase (2)	_____	SE-67B
Marine Mammals:	Decrease (0)	No change (1)	Increase (2)	_____	SE-67C
Land Mammals:	Decrease (0)	No change (1)	Increase (2)	_____	SE-67D
Birds:	Decrease (0)	No change (1)	Increase (2)	_____	SE-67E

68. If the federal government lets oil companies search and develop for oil in your region, do you think that this will create more jobs for local people?

No (0) Yes (1) _____ SE-68

69. Do you think a small oil spill (less than 1,000 barrels) could be effectively contained and cleaned up today?

No (0) Maybe (1) Yes (2) _____ SE-69A

Do you think a large oil spill (more than 100,000 barrels) could be effectively contained and cleaned up today?

No (0) Maybe (1) Yes (2) _____ SE-69B

BE SURE TO RECORD ENDING TIME ON FIRST SHEET!

The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places;
and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.