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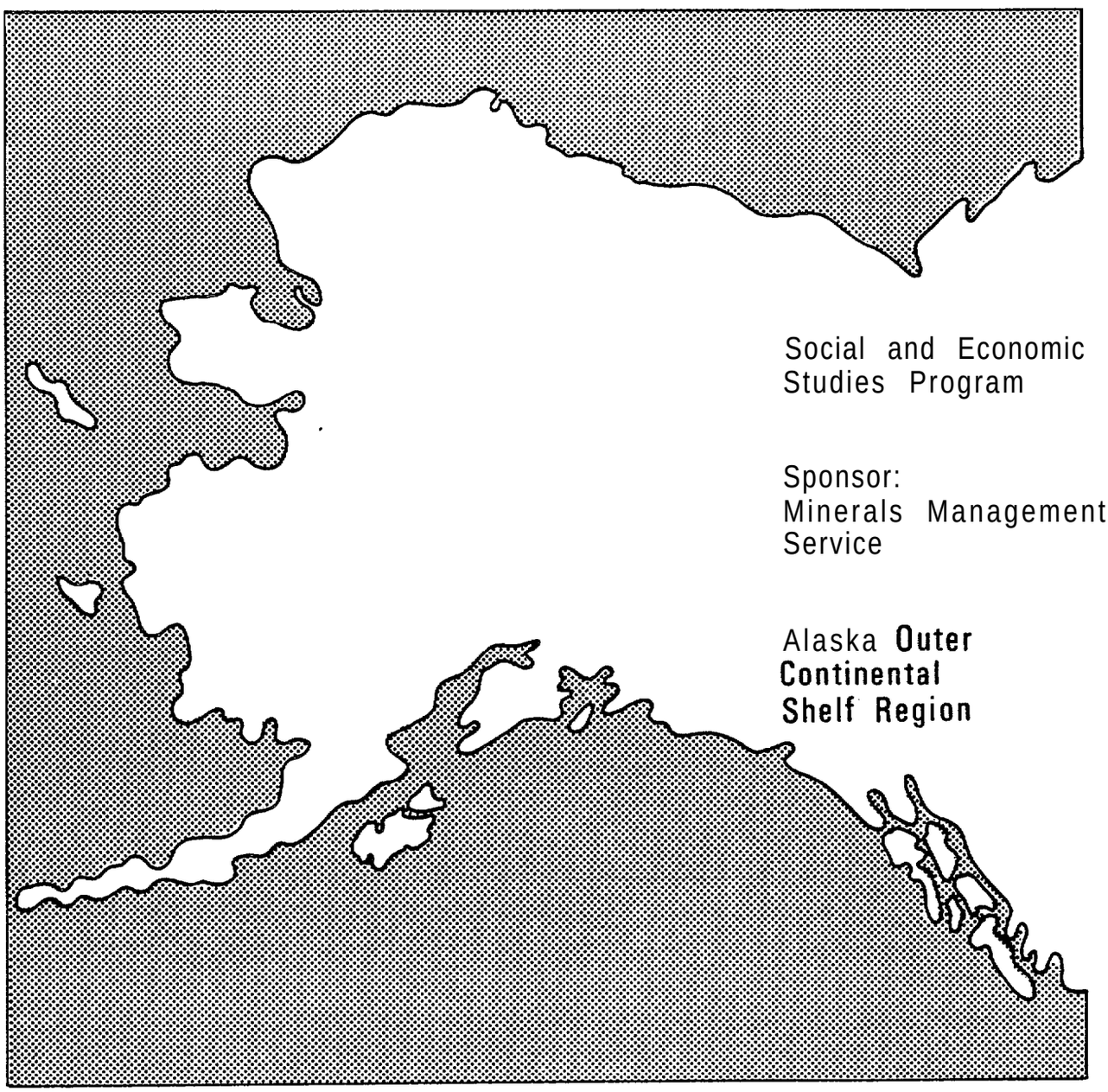

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A Social Indicators System For OCS Impact Monitoring

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A SOCIAL INDICATORS SYSTEM FOR OCS IMPACT MONITORING

Submitted to

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ABSTRACT

This report describes the design of a data collection system to monitor changes in the individual well-being of Alaska residents who may be affected by OCS development activities. The system employs a limited set of indicators to provide a comprehensive description of individual well-being over time. The indicators are derived from existing data and from formal interviews with random samples of individuals.

The justification for designing and implementing this data collection system is found in Section 256.82 of Title 30 of the Code of Federal Regulations. The system is designed to contribute to pre-lease assessments and to help fulfill the responsibilities of the Minerals Management Service to monitor the effects of development.

The first stage of the design effort consisted of a preliminary identification of social goals recognized by Alaska's rural coastal residents. These goals included universally recognized concerns such as housing, health, and income as well as regionally and culturally specific social goals. These initially identified goals were then field tested through key informant interviews and a comparison of goals with current issues. The goals were modified on the basis of field test results and used as a framework for the identification of indicators of individual well-being.

Individual social indicators of well-being were developed according to explicit rules. At least one indicator had to be included for each of the most detailed goals identified (subgoals). The meaning of each indicator had to correspond with the meaning of one, and only one, subgoal. All indicators had to directly measure individual well-being and must accurately reflect reality and actual change. Researchers sought to develop both objective and subjective indicators for each subgoal.

Existing data sources were reviewed for potential indicators. Researchers found that existing data sources are inadequate as the sole basis for a social indicators system. Therefore, indicators based on primary data were developed, repeatedly tested and modified, and incorporated into a single questionnaire.

The report describes the steps necessary to implement the Alaska OCS Social Indicators System. Data collection efforts are scheduled to coincide with the current leasing schedule. Key subpopulations are identified as the targets for primary data collection. The report concludes with a discussion of how the social indicator data can be used in pre-lease assessments and in studies of the actual effects of OCS development activities on individual well-being.

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INTRODUCTION

To what degree will development activities on Alaska's outer continental shelf affect residents of the state's coastal areas? What effects have they already experienced? Developing answers to these questions is the central purpose of the Minerals Management Service's Social and Economic Studies Program (SESP). The SESP has been in operation for 8 years, but it has lacked an ability to produce hard, basic data on the human environment. The Alaska OCS Social Indicator System described in this report will, for the first time, directly measure fundamental aspects of human well-being.

This report describes the design of a data collection system. The system is designed to collect comparable data over time. Its focus is on the condition of the human environment in Alaska's rural coastal areas. The purpose of such information is to establish a valid and reliable basis for projecting and monitoring the effects of major federal actions on the Alaska outer continental shelf. For the purposes of this report, the described data collection system is referred to as the Alaska OCS Social Indicators System, or AOSIS (pronounced aa-o-si s).

Characteristics of the Alaska OCS Social Indicators System

AOSIS shares a number of important characteristics with other social indicator systems. First, it is intended to provide a comprehensive

description of individual well-being (see Table 1). This means that, collectively, the quantitative measures identified as AOSIS indicators are intended to touch on all aspects of well-being that are important to the population being described.

TABLE 1
PRINCIPAL CHARACTERISTICS OF
THE ALASKA OCS SOCIAL INDICATORS SYSTEM

- Comprehensive, in the sense that it intends to cover all important aspects of well-being.
- Limited, in the sense that the system relies on a small set of indicators for each aspect of well-being.
- Coherent, in the sense that the organization of data makes intuitive sense.
- Directly Measures Well-Being, in the sense that a high value on an indicator clearly means a high level of well-being.
- Reports Average Levels and Distributions of Well-being.
- Includes Objective and Subjective Measures

While AOSIS is comprehensive, it is also limited in the sense that it includes only a small subset of all potential measures of well-being. There is no upper bound on the number of indicators that might be included in a social indicator system. If one were to attempt to include all possible indicators, however, the task of designing a social indicator system would be endless, the system would be exorbitantly expensive to implement, and the resulting data would be too complex to effectively contribute to the decision-making process. Only measures which met a stringent set of criteria

were selected to serve as key indicators of well-being. These criteria are discussed in Chapter 4.

Many factors contribute to our individual well-being. These factors include, among others, our health, housing, social relationships, and financial well-being. Only by examining changes in the specific attributes contributing to life quality can we hope to trace the causal connections between OCS activity and individual well-being. But presenting data on the many individual aspects of well-being can be confusing. Unless the data are presented in a form that is easy to remember, they will fail to contribute to effective decision making.

In addition to being comprehensive and limited, then, AOSIS is coherent. Indicators with similar meanings are grouped under social goal categories that clearly communicate the shared meaning of the indicators. Thus, the indicators grouped under the social subgoal, "sharing of renewable resource products" are as follows:

- Percent eating one or more meal in which a large part was subsistence food harvested by someone who lives in another household.
- Perceived satisfaction with the sharing that respondents report that they were able to do last year.

Besides being comprehensive, limited, and coherent, AOSIS is composed of direct measures of well-being. Direct measures are often referred to as "output measures." A high value for an output measure clearly indicates a high level of well-being. Perhaps the

best way to describe a direct, or output measure is to contrast it with an example of an input measure. The number of physicians available per capita is an input measure of individual physical health. If the number of physicians increases, it may mean better health care and a resultant increase in physical health. It may also mean that the physical health of a population has declined and more physicians were needed, however. An output indicator of physical health would be the number of days per year a person was not confined to bed due to some illness.

AOSIS, like most other social indicator systems, is designed to express well-being in a particular population in terms of both average levels of well-being and in terms of the distribution of well-being among individuals in the population. We are usually interested in knowing how a population as a whole is faring. We are also interested in whether there are a significant number of people with very low or high levels of well-being. By reporting both levels and distributions, we can identify changes among the population as a whole and still be sensitive to changes in the well-being of the least fortunate people.

The final characteristic of AOSIS is that it includes both objective and subjective reports of well-being. We normally think of objective data as being the more accurate of the two. Researchers have found, however, that many objective indicators do not mean what we think they mean. (This statement is not meant to imply that some

subjective measures do not suffer from the same problem.) An increase in crime rates may result from better reporting and not from actual increases in the incidence of crimes, for example.

Subjective reports of well-being tell us a great deal about what objective conditions are important to people. If objective measures of housing quality indicate low levels of well-being and perceptual measures of housing quality indicate high levels of well-being, the policymaker is apt to be less concerned about the objective housing conditions. Neither objective nor subjective indicators alone provide a complete picture of well-being. Together, they give us valuable insights on the human environment and how people see it.

The meaning" and implications of each of the characteristics discussed above will become clearer as we describe AOSIS in detail. We would now like to turn to a brief discussion of how AOSIS fits within the mandates of the Social and Economic Studies Program.

Role of AOSIS in the Social and Economic Studies Program

The justification for designing and implementing AOSIS is grounded in the National Environmental Policy Act (NEPA 1969) and the Outer Continental Shelf Lands Act Amendments of 1978 (OCS Lands Act Amendments 1978). These acts mandate that the federal government consider the effects of major federal actions on the human environment. Section 256.82 of Title 30 in the Code of Federal Regulations integrates the mandates of these acts in terms of the responsibilities of the Minerals Management *Service:*

> (a) The Director shall conduct a study of any area or region included in any lease sale in order to establish information needed for assessment and management of impact on the human, marine and coastal environments which may be affected by OCS oil and gas activities in such area or region . . . .
>
> (d) After the leasing and developing of any area or region, the Director shall conduct such studies as are deemed necessary to establish additional information and shall monitor the human, marine and coastal environments of such area or region in a manner which can be compared with the results of studies conducted prior to OCS oil and gas development. This shall be done to identify any significant changes in the quality and productivity of such environments, to establish trends in the areas studies, and to design experiments identifying the causes of such changes. Findings from such studies shall be used to recommend modifications in practices which are employed to mitigate the effects of OCS activities and to enhance the data/information base for predicting impacts which might result from a single lease sale or cumulative OCS activities.

The Code of Federal Regulations contains two additional directives relevant to this study:

> Section 251.2 (r) "Human environment" means the physical, social, and economic components, conditions, and factors which interactively determine the state, condition, and quality of living conditions, employment, and health of those affected, directly or indirectly, by activities occurring on the OCS.
>
> Section 256.82 (e) Information available or collected by the studies program shall, to the extent practicable, be provided in a form and in a timeframe that can be used in the decision-making process associated with a specific leasing action or with longer term OCS minerals management responsibilities.

The implementation of AOSIS as an ongoing data collecton system will be a major component of MMS' monitoring responsibilities. The indicators to be monitored have been designed and tested. AOSIS will provide hard data on the condition of the human environment over time.

The major focus of MMS decision-making, however, is on the projected effects of specific lease sales. To be most responsive to the needs of MMS, AOSIS should also provide data that contribute to lease-specific decisions. AOSIS has been designed to provide a comprehensive set of baseline measures to be used in the preparation of pre-lease environmental impact statements. Single applications of AOSIS in coastal areas nearby proposed lease sale areas will also provide analytical data sets" that will substantially improve the ability of analysts to project change.

The relationship between pre-lease projections and monitoring is grounded in the common need to measure human environmental conditions with sufficient precision to detect significant change. If a comparison of measurements made at two points in time could only be expressed as "more" or "less", it would be too crude to assess its significance. Similarly, if a projected measure were compared to a baseline measure and only the direction of change could be anticipated, the comparison would not contribute to decisions which must take into account the significance of change. AOSIS provides a set of baseline measures that analysts can use to

express projections in terms of degrees of change. As an ongoing monitoring system, AOSIS measures actual change, again in terms of degrees of change.

An example may help clarify what we mean. A key concern among many residents of Alaska's coastal regions is continued access to hunting and fishing areas. Lacking precise data, analysts may conclude that marine pipeline landfalls and associated onshore pipelines, and coastal supply bases may hamper access to commonly-used hunting or fishing areas. This change may, or may not, be significant. Its significance depends on the degree to which access is reduced. One of the indicators included in AOSIS is "Percent of Local Hunting and Fishing Areas Accessible to Local Residents." Knowledge of the current level of this indicator, coupled with a technical description of the possible OCS activities, can be used by analysts to project a change in the level of the indicator. Analysts and decision-makers would then be in a better position to judge whether or not the projected change is significant.

AOSIS will not provide all the information necessary to project change. It will primarily provide baseline data that can be coupled with understandings of the causes of change to yield projections of change. A single application of AOSIS prior to a proposed lease sale can contribute to our understanding of the dynamics of change, however. AOSIS consists of 144 indicators of individual well-being developed by assessing the quality and relevance of Potential

measures gleaned from previous work or originally conceived by project researchers. Individuals can be expected to vary in their current level of well-being on specific indicators. For example, individuals will vary in levels of income, extent of sharing, self-esteem, and subsistence activity. An analysis of the statistical relationships among the different indicators of well-being can suggest causal relationships. Prudent application of observed statistical relationships will improve our ability to project change. This type of analysis can be performed with data collected in a single region and in a single year.

AOSIS is not a substitute for any existing component of the SESP, but it can improve the cost effectiveness of data produced by the SESP. Some 110 SESP studies have been completed since the program's inception in 1977. These studies generally fall into six categories:

- Petroleum Technology Assessments
- Economic and Demographic Systems Analyses
- Commercial Fishing Industry Studies
- Transportation Effects Studies
- Regional Socioeconomic and Sociocultural Studies
- Sociocultural Systems Studies
- Harvest Disruption Studies

Had AOSIS been in place in 1977, there still would have been a need for each of the major types of studies listed above. Area-specific social indicators data from AOSIS, however, would have met a significant proportion of the data requirements of the Regional Socioeconomic and Sociocultural Studies component and the scope of data collection activities in these studies could have been

commensurately reduced. Most important, the unique ability of AOSIS to generate precise measures would have dramatically improved the quality of data available to baseline descriptions and the projection of effects. These advantages will now be realized with the implementation of AOSIS.

The reason why AOSIS can improve MMS' ability to detect and project significant change is that it depends heavily on the most commonly used social science data collection method, the sample survey. MMS has expressly forbidden survey research in the past. Federally sponsored surveys require a lengthy approval process through the Federal Office of Management and Budget (OMB). MMS officials feared that research products based on survey data would be unacceptably delayed. As a result, social scientists have attempted to meet all data requirements with existing data or with qualitative research techniques.

AOSIS represents a new approach to the problem of producing data in a timely manner. The survey component of AOSIS is based on a single questionnaire which can be submitted once to OMB for approval yet used repeatedly. The questionnaire has been designed to be culturally appropriate for each coastal area in northern and western Alaska. The one-time programmatic approval by OMB eliminates the timing problem posed by disjointed survey efforts. For the first time, then, it will be possible to collect basic, quantitative social and economic data that can be reliably generalized to coastal populations.

Summary of Report Organization

In the remainder of this report, we describe AOSIS and the procedures used in its development. We are indebted to the authors of Technical Report No. 77, Social Indicators for OCS Impact Monitoring (Louis Berger & Associates, 1983), for selected indicators that we have incorporated into AOSIS.* While we have found it necessary to depart from the general approach described in TR-77, we recognize the important contributions made by the authors, particularly their ethnographic regional profiles and their review of existing data sources.

The main body of our report begins in Chapter 2 with a review of concepts and past applications in the field of social indicators research. Dr. Frank Andrews, a member of our project team and an internationally recognized researcher in the field of social indicators research, prepared this chapter with the intent of bringing the experience of 15 years of international research to bear on the development of AOSIS.

Social indicator systems are usually organized around major social concerns or social goals. The explicit identification of social goals ensures that the social indicator system is comprehensive. Chapter 3 details the reasons for organizing AOSIS around social goals (actually goal families, goals, and subgoals) in each region.

*During the course of this study, the strengths and weaknesses of this research were reviewed by Dr. Frank Andrews. Copies of this review, "A Review of Technical Report No. 77: Social Indicators for OCS Impact Monitoring," are available from MMS.

The chapter also describes the methods we used to identify the goals, the goals themselves, and the methods and results of fieldwork conducted to test the validity of each goal.

Chapter 4 covers the development of AOSIS social indicators. The chapter begins with a description of the criteria used to construct indicators (i.e. quantitative measures) of each subgoal, the smallest goal unit described in Chapter 3. In the next section of Chapter 4, potential indicators based on existing data are identified and assessed. We then turn to a description of the steps taken to identify and assess potential indicators based on new data collection efforts. Chapter 4 concludes with a description of the final set of AOSIS indicators.

Our principal task in this study was to develop a workable social indicators system. We were not charged with the responsibility of actually collecting, assembling, and reporting data. Chapter 5 details the steps necessary to implement AOSIS. The first section of Chapter 5 contains the extensively tested questionnaire that will be used as the principal data collection instrument in AOSIS. Section two of Chapter 5 describes the steps necessary to implement the survey component of AOSIS. These steps include the identification of specific target populations, the generation of village-specific lists of hunting and fishing activities, the preparation of Yupik and Inupiat translations of the questionnaire,

the development of interviewer instructions, and the construction of required sample frames.

The last section of Chapter 5 describes the steps required to collect the key informant and secondary data used to construct selected AOSIS indicators. In the final chapter, Chapter 6, we describe how AOSIS data can be used to identify the effects of OCS activities and how AOSIS data can contribute to pre-lease decisions.

CHAPTER TWO
contributions OF THE wORLDWIDE SOCIAL INDICATORS MOVEMENT TO MONITORING LIFE QUALITY IN ALASKAN VILLAGES

Frank M. Andrews

Introduction

Over the past twenty years, there has been interest--and increasing sophistication --in using social indicators to monitor changes in the quality of life of the world's peoples. The interest of the Minerals Management Service in monitoring and projecting the effects of OCS activities falls squarely in the tradition of social indicators research. Lessons learned from prior work on social indicators can be useful for this purpose.

This chapter reviews past work on social indicators that promises to be useful for the present task of monitoring life quality in Alaskan villages. As such, this chapter describes the intellectual background and conceptual framework that guided the development of the present project and that is reflected throughout this report.

The next section of this chapter briefly sketches the historical development of the worldwide social indicators movement and describes its fundamental concepts. It is followed by a review of past work on identifying important components of life quality and assessing the comprehensiveness of their coverage. The chapter continues by describing how social indicators have been used to measure these life quality components. The next section of the

chapter discusses some of the research on causes and consequences -- and the meaning--of changes in well-being. The final section of the chapter presents an extensive set of references and some advice on how they can be used to pursue in greater detail many of the topics discussed in this chapter.

This chapter is not intended to be a formal academic review of the history of the social indicators movement--such treatises are available elsewhere (Glatzer, 1981; Rossi and Gilmartin, 1980)--but rather as a reasonably short, nontechnical culling of the concepts and procedures developed in the social indicators movement that are applicable to the goals and needs of measuring life quality in Alaskan villages.

The Social Indicators Movement: Historical Development and Key Concepts

Historical Development

Concerns about maintaining and enhancing the quality of life--the quality of one's own life as well as that of selected others--are surely very old. Classical scholars point to Greek interests in the nature of "happiness," and the "pursuit of happiness" is an "unalienable right" explicitly written in the United States Declaration of Independence. However, actually measuring the life quality of people in a society is a relatively recent phenomenon. The work of William Ogburn in the early 1930s on behalf of a Presidential Commission established by President Hoover to examine

social trends and sources of social stress, and work by the United Nations during the 1950s assessing the extent basic human needs were met in various societies are precursors of the modern social indicators movement.

In the United States, one of the influences on the modern social indicators movement was, surprisingly, the Space Program. NASA was interested in being able to show that investments made to send Americans to the moon had a wide range of beneficial "secondary" effects such as support for basic research and technical education, and the development of new industrial products and processes. Documenting these secondary effects required a broad range of new social measurements--social indicators.

A more important motivation for the modern social indicators movement, however, was the growing sense in the United States and elsewhere that the available statistics that had been designed (and were useful) for monitoring economic processes were insufficient for assessing broader changes in life quality. Too many "externalities" (e. g., the social and ecological value of a wilderness region) were untapped by traditional economic measures. The urban riots of the late 1960s in the United States, which took observers by surprise, was a clear indication that social monitoring systems needed expansion. In many countries, there was ready acceptance of the idea that enhancing the quality of life was an important--perhaps

the most important--social goal, and that social monitoring systems should be developed that could measure the levels of life quality experienced by specific segments of a population at specific times.

Obviously, much work was required to make progress toward this goal. A coherent conceptual framework had to be developed, ways of measuring the concepts had to be tried and evaluated, basic descriptive data had to be assembled, and some understanding of how and why the measures changed as they did over time and varied as they did between social groups had to be attempted. This was the research agenda of the social indicators movement during the 1970s, and much progress was made.

Several international organizations instituted programs focused on these topics, including the Organization for Economic Cooperation and Development (OECD); the United Nations Economic, Scientific, and Cultural Organization (UNESCO); the United Nations Research Institute for Social Development (UNRISD); and the European Economic Community (EEC). Stimulated in part by the work of these international organizations and in part by their own internal interests, many countries published volumes presenting social indicators for their own societies. (The bibliography at the end of this chapter lists national social indicator reports from 29 different countries. The most recent volume for the United States, the third in the series, was published by the U.S.

Department of Commerce in December 1980, and is titled Social Indicators III.) In addition, researchers in academic organizations in many of the more developed countries began to investigate people's own perceptions of their well-being. An international scientific journal published in the Netherlands, Social Indicators Research, was established in 1974 to report developments in the field and has published several hundred pages of high-quality research each year since then.

During the latter 1970s and into the 1980s, the research and monitoring work has continued, though at a somewhat reduced pace. The social indicators movement appears to have moved into a period of consolidation. Textbooks, literature reviews, handbooks, and bibliographies are now being published that summarize and make more easily accessible the basic and applied research results from the past 15-20 years. (Important recent contributions include Carley, 1981 ; Diener, 1984; Gilmartin et al., 1979; Land, 1983; Michalos, 1985; Rossi and Gilmartin, 1980; and Verwayen, 1984.) Also, in recent years, key methodological results have begun to be applied to assess the quality of life of specialized populations--people living in particular states, counties, or cities of the United States (e.g., Ross, Bluestone and Hines, 1979; Liu, 1973, 1975); particular demographic subgroups of the population--Blacks, Chicanos, youth, the aged (e.g., Bachman, Johnston, and O'Malley, 1985; George and Bearon, 1980; Herzog and Rodgers, 1985; Jackson, Chatters, and Neighbors, 1985; and Ortiz and Arce, 1985); and individuals with

special life circumstances--users of tranquilizers (Caplan et al., 1984), people who have undergone coronary bypass surgery for heart disease, or radiation therapy for cancer (Irwin, 1982).

In the light of the past twenty years of developments in the social indicators movement and the current trend of applying the results of that research to special population groups, the present project's undertaking to develop a system for monitoring the life quality of Alaskans living in coastal areas that might be affected by OCS development activities is a reasonable, timely, and natural extension of past work.

Key Concepts

Part of the work of the social indicators movement over the past twenty years has been to develop and refine a set of concepts that have proven useful in the work of assessing life quality. The notion of what is meant by "life quality," "well-being," and "social Indicator" as well as distinctions between "objective" versus "subjective," "global-level" versus "concern-level," "individual" versus "aggregate," and indicators of "levels" versus "distributions" are important for ongoing work.

1. Life quality and well-being. "Quality of life" is a primitive term that does not lend itself easily to precise definition. Among people active in the social indicators movement, however, there do not seem to be major disagreements about the

general intent of what is meant. One of the most careful statements about the meaning of "quality of life" is provided by Solomon et al. (1980). Summarizing several years of deliberations by international scholars at UNESCO, they write:

> 'Quality of life' is an inclusive concept which covers all aspects of living as it is experienced by individuals. It therefore covers both the material satisfaction of vital needs and aspects of life such as personal development, self realization, and a balanced eco-system.
>
> Quality of life has objective conditions and subjective components.
>
> While the quality of life is experienced by individuals, it is closely related to the quality of life of social groups, communities, and nations.
>
> Quality of life research draws part of its data from the social sciences but also uses inputs from other sciences. . . . Quality of life research tries to analyze quality of life as an integral system of interacting variables. . . Quality of life research is conscious of the plurality and relativity of value frameworks. . . . Quality of life research is, or at least should be, past, present, and future-oriented. (p. 224, 226)

While "quality of life" is, obviously, very broad in meaning, "well-being" is a somewhat narrower concept that is a component of life quality. As commonly used, well-being refers to how well-off an individual is, as evaluated by that individual and/or by another person expert in making such evaluations.

2. Social indicators. An appropriate definition for the term "social indicators" has also been widely debated over the past twenty years. The definition that the present writer prefers, which

draws key elements from many sources (reviewed in Andrews, 1973), is that a "social indicator" is one of a:

> limited yet comprehensive set of coherent and significant indicators which can be monitored over time, and which can be disaggregate to the level of the relevant social unit.
>
> The set of indicators should be "limited" so they can be understandable and not overly detailed, lengthy, or complex. The indicators should be "comprehensive" so that a substantial portion of the most salient or critical aspects of society is included. They should be "coherent" in that it would be helpful to our understanding if they hung together in some form that would eventually lead to a model or theory about how society operates. Any set of indicators would be "significant" if they fulfilled the foregoing demands, but there is a further implication that they should relate to aspects of society that interest or concern us. (Andrews and Withey, 1976, p. 4)

Social indicators are the measures of life quality (including well-being). Furthermore, in most cases they will be measures of outputs of a social system--because that is what we are ultimately concerned about--rather than inputs. For example, if one is interested in people's health, one should measure how healthy people are (the output of the health system) rather than the number of doctors or hospital beds in an area. These latter inputs to health care are (at best) only indirect measures of how healthy a population is, and can be quite misleading: An increase in doctors might indicate either improving health or worsening health--or a mixture of both.

3. Objective versus subjective (or perceptual). The social indicators movement has found it helpful to distinguish between phenomena that are objective and those that are subjective (or

perceived), and also between measures that are objective versus those that are subjective (or based on perceptions). Examples will illustrate the distinctions.

In the area of housing, an objective phenomenon would be the size of the dwelling, whereas a subjective phenomenon would be an individual's satisfaction with the dwelling. Furthermore, each of these could be measured using either objective or subjective measures. An objective measure of the objective phenomenon would be a calculation of the number of square feet of floor area; another such measure would be a count of the number of rooms. A subjective measure of dwelling size would be a rating, by the homeowner *or* someone else, as to whether the dwelling was "large," "medium," or "small." In contrast, information about whether an individual moved to another dwelling in the same neighborhood would be an objective indicator of the subjective phenomenon of housing satisfaction, and a rating of level of satisfaction by the homeowner would represent a subjective measure of the subjective phenomenon.

One of the most important findings of early social indicators research, a finding that was surprising to many observers, is that objective and subjective phenomena provide quite different information about levels of well-being. Many people had expected the two types of phenomena would closely parallel each other, but this turns out not to be true. On the contrary, the statistical overlap between the two is often rather small, and they prove not to

be redundant with one another. For example, people living in houses with substantial numbers of rooms will not generally feel their houses are large or spacious. Similarly, many people who live in only one or two rooms feel they have plenty of space. When concrete examples are presented, it is easy to imagine why variations in subjective feelings about spaciousness might not parallel actual physical space. However, it took experience with a wide range of indicators to demonstrate the truth of the general proposition that objective and subjective phenomena do not generally parallel each other. One needs information on both types of phenomena to understand well-being, and, accordingly, both should be measured in a comprehensive indicator system.

One should not confuse the phrase "subjective measure" with notions of weak or inferior measurement. While no measurement is perfect, there is much evidence that well-constructed subjective measures of life quality can show high levels of validity and reliability: They measure with considerable precision what they are intended to measure, and people can provide stable, replicable, dependable information about subjective phenomena. Nor should one assume that an "objective" measure is perfectly valid--practically none are, and examples of substantial errors in objective measures are not hard to find (e. g., it is acknowledged that published crime rates substantially underreport total crime).

An important perspective is that since life quality and well-being are ultimately subjective phenomena, it is the subjective measures that provide the most direct indicators.

4. Global-level versus concern level. Another distinction found useful by social indicators researchers is that between global phenomena and concern-level phenomena. Here "global" is used to refer to all-encompassing aspects--e.g., to "life as a whole"--whereas "concerns" refer to particular subparts of life (e.g., housing, health, job, family, etc.). From a policy-oriented perspective, the distinction is useful because a broad societal goal is to enhance overall well-being (the global concept), but to reach this goal it is necessary to focus on a set of more specific aspects of life (particular life concerns); From a research perspective, the distinction has been used for trying to understand how people come to evaluate their lives as they do and for exploring the relative importance of different life concerns to overall life quality.

In addition to this basic conceptual distinction, prior work on social indicators leads to four other observations about the global versus concern-level phenomena. These have to do with (a) the importance of having measures of both types of phenomena, (b) the potential infinite regress in levels, (c) the possibility of subdividing concerns into domains and values, and (d) conceptual and practical difficulties in developing a global indicator based on

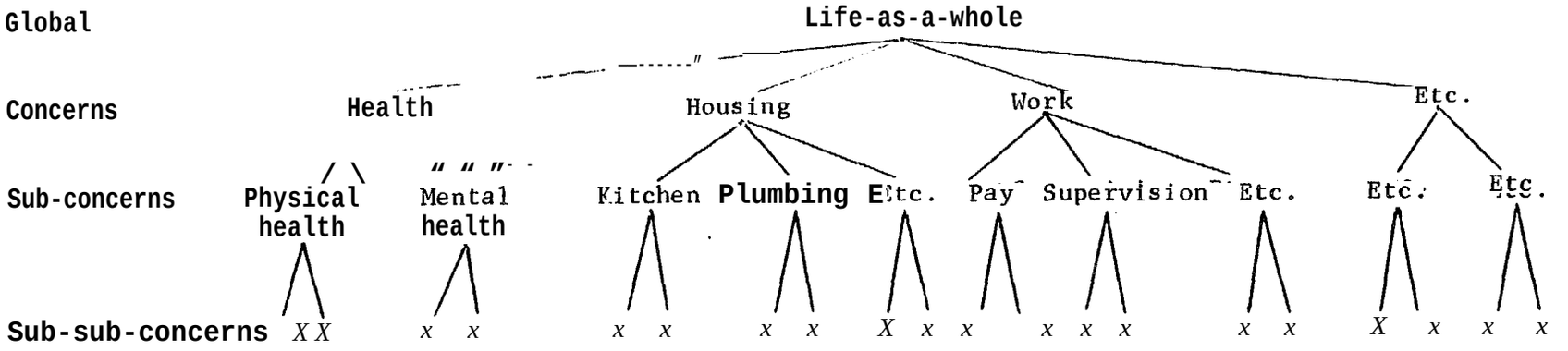
objective data. These points are discussed in the following paragraphs:

(a) Comprehensive social indicators systems have measures (i.e., "indicators") of both global and concern-level phenomena. For example, an indicator that showed how happy people were would be designated a global indicator, and an indicator measuring satisfaction with housing would be a concern-level indicator.

(b) In principle, there is an infinite regress from global to concern to subconcern to sub-subconcern, etc. (e.g., from life-as-a-whole to housing to kitchen to stove, etc.) Thus, the logic of the system is hierarchical, and at any given level one can subdivide into a set of components. In practice, however, most social indicators research has focused primarily on just the global and concern-level phenomena. (The major exception is research on quality of work life--itself a concern-level phenomenon--where considerable attention has been devoted to such subconcerns as" pay, resources, supervision, environmental conditions, and co-workers.) Figure 1 illustrates the hierarchical nature of these concepts.

(c) Researchers have found that there are two ways in which concern-level measures can be aggregated to, theoretically at least, yield a global measure of life quality. First, it is conceptually reasonable to aggregate aspects of life that have to do with physical or social settings. These aspects of life are commonly referred to as domains. Second, aspects of life that have to do with the criteria by which one evaluates life quality--e.g., health, beauty, sharing, honesty, virtue, safety--can be aggregated. These criteria are often called values. There is a complementarily between domains and values in that domains are evaluated with respect to values, and values are evaluated in the settings of the domains.

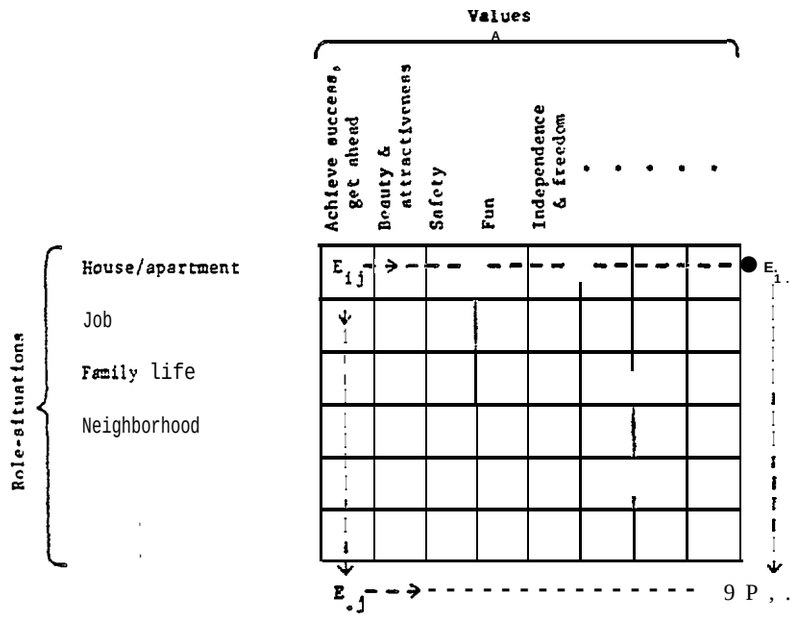
Figure 1. Hierarchical nature of life quality phenomena



The conceptual linkages between domains, values, concerns, and global assessments of well-being are shown in Figure 2, which presents an analogy to a simple statistical table. Here one sees how the evaluation of a particular domain with respect to a given value (which would be the entry in a cell of the matrix) might be combined with other entries along the row to arrive at a domain-type evaluation, or with other entries along the column to arrive at a value-type evaluation; and how either domain- or value-type evaluations (both of which assess life concerns) could be combined along their respective margins to arrive at a global evaluation (at the lower-right corner).

(d) One of the significant problems encountered by social indicators researchers has been how to conceptualize and measure objective phenomena at the global level. This is not a problem for subjective phenomena because people have little trouble assessing their life as a whole. (In fact, family and friends frequently ask for this assessment: "How are you today?" "How are things going for you?") Furthermore, with measures of subjective phenomena, it is not hard to find ways to combine concern-level indicators that will provide an excellent statistical prediction of global-level indicators. Simple additive combinations, sometimes incorporating regression weights, have worked remarkably well. (This matter is discussed later in Section 3.) However, no one has yet identified a conceptually attractive notion of well-being that is both objective and at the global-level, nor has anyone found an uncontested way to combine measures of objective concern-level phenomena to predict objective well-being at the global level. (The Physical Quality of Life Index proposed by Morris, 1979, and the index of overall quality of life in American cities and states assembled by Liu [1974, 1975] are examples of investigators' attempts to construct an objective global indicator. While both works have been widely cited, there has been significant criticism of their attempts at global measurement.)

Figure 2. Conceptual linkages between domains, values, concerns, and global assessment of well-being



E_{ij} = Affective evaluative response to particular role-situation with respect to particular value
$E_{i.}$ = General affective evaluative response to role-situation (across valued
$E_{.j}$ = General affective evaluative response to value (across role-situations)
E.. = General affective evaluative response to life-as-a-whole - i.e., perceived quality of life

Source: Andrews and Withey, 1974

5. Individual versus aggregate characteristics. Another important distinction has been between indicators that measure aspects of individuals and others that assess characteristics of groups of individuals. These aggregates come at many levels: families, households, villages, clusters of villages, census enumeration districts, education districts, regions, states, etc. Of course, one can always combine information from many individuals in a group to obtain some average value for the aggregate, and this is the basis for many social indicators. Examples include mean levels of satisfaction, infant mortality rates, literacy rates, crime rates, etc.

In addition, however, there are characteristics of collectivities themselves, some of which qualify as candidates for monitoring in a social indicators system, that are simply irrelevant at the individual level. Examples at the village level include the rate of growth or decline of a community, its resource base, and its degree of ethnic/racial homogeneity or diversity. These are characteristics of an aggregate of individuals (the village) that might well be regarded as important components of life quality, that can be reported upon by individuals, but that are not characteristics of the individuals themselves.

While the distinction between individual-level and aggregate-level indicators is recognized in the social indicators literature and there has been discussion regarding for what aggregates indicators

should be presented, relatively little has been done with regard to systematic indicator development for collectivities per se.

6. Levels versus distributions. The final distinction to be noted here is a simple one, but is nevertheless important. Most social indicators assess the level of some characteristic, e.g., the mean level of satisfaction with housing, the average number of people per room, etc. Also of interest from life quality and policy perspectives are indicators that report the degree of diversity within some aggregation of individuals with regard to the phenomenon. A village in which nearly everyone is moderately satisfied with their housing has a quality of life very different from another village where the mean level of satisfaction is the same, but where many individuals feel very pleased about their housing but many others are extremely dissatisfied.

In reporting social indicators data for aggregates of individuals, it will often be desirable to report both mean levels and also information about the distribution of the indicator scores.

Implications of Prior Conceptual Development for Monitoring Life Quality in Alaskan Villages

As noted previously, the proposal to measure life quality in Alaskan villages and monitor its changes over time fits well with the historical trends of the development and use of social indicators.

Many of the key concepts found useful for social indicators work elsewhere are readily applicable 'in the Alaskan context. Well-being is surely a topic of concern, but so also may be some other--perhaps culturally oriented--aspects of life quality. Within the set of well-being phenomena, it will be helpful to consider both global and concern-level well-being, and it will probably be appropriate to consider both domain-type and value-type life concerns. It will probably also be desirable to consider both objective and subjective phenomena. For conceptual clarity and ease of presentation, a basic hierarchical organization of the phenomena of interest should be sought.

This project, like any other empirical piece of research, should distinguish clearly between the life quality phenomena that are of interest and the social indicators that are used to measure (i.e., to indicate) those phenomena. (Section 4 discusses indicators in greater detail.)

The level to which individual data should be "aggregated up" needs careful attention; obvious candidates are: village, village cluster, and region, but there may be others as well. In addition, it will be desirable to consider the relevance of phenomena that are not characteristics of individuals themselves but of the collectivities in which individuals live. This seems particularly promising for the present project because of the focus on sharing and collective action which is an important part of Alaska Native cultures.

Finally, in reporting social indicator results, it will be helpful to recall the distinction between information on levels and information on distributions and to consider the possibility of reporting both.

Identifying Components of Life Quality

One of the major tasks-undertaken by social indicators researchers has been to identify components of life quality. By components we here refer to particular life concerns, domains, or values--health, housing, work, education, etc. The task has an obvious importance and forms the core of social indicator systems. The goal is simple to state but hard to achieve: Find a small number of key aspects of life which, taken together, account for a substantial portion of whatever is meant by the quality of life. One would like a set of concerns that are conceptually independent of one another and logically "parallel" (i.e., not hierarchically nested one within another).

Two broad approaches have been used. One is the expert/logical approach and the other is the empirical/statistical approach.

The Expert/Logical Approach for Deriving Life Concerns

The most sophisticated implementation of the expert/logical approach for deriving life concerns is probably represented by the work of the OECD. Over a period of several years during the early 1970s, the Social Indicators Development Program at OECD held a series of

international meetings designed to develop a list of social concerns that could be agreed upon by all their members (about 30 countries, mainly from the developed West, but including Brazil, Greece, Japan, Turkey, Venezuela, and Yugoslavia). The participants in these working sessions tended to be middle-level government scientists employed in statistics miniseries and census bureaus. Eventually, they reached enough consensus to publish a slim monograph cautiously titled "List of Social Concerns Common to Most OECD Countries" (OECD, 1973). Included are eight main concerns, each carefully stated in output terms and elaborated by one or more subconcerns. This list is reproduced here as Figure 3.

As noted in Section 2 of this chapter, many individual countries have issued their own social indicator reports, and of course each has faced the practical problem of how to organize such a document. These national reports also represent the results of applying an expert/logical approach to defining the components of life quality. Most countries have loosely followed the OECD list but have introduced modifications to reflect their own national sense of what was important. The list of concerns addressed by the United States' most recent social indicator report appears in Figure 4.

Figure 3. List of Concerns and Sub-Concerns Developed by OECD

A. HEALTH

A-1 The probability of a healthy life through all stages of the life cycle.

A-2 The impact of health impairments on individuals.

B. INDIVIDUAL DEVELOPMENT THROUGH LEARNING

B-1 The acquisition by children of the basic knowledge, skills and values necessary for their individual development and their successful functioning as citizens in their society.

B-2 The availability of opportunities for continuing self-development and the propensity of individuals to use them.

B-3 The maintenance and development by individuals of the knowledge, skills and flexibility required to fulfill their economic potential and to enable them to integrate themselves in the economic process if they wish to do so.

B-4 The individual's satisfaction with the process of individual development through learning, while he is in the process.

B-5 The maintenance and development of the cultural heritage relative to its positive contribution to the well-being of the members of various social groups.

C. EMPLOYMENT AND QUALITY OF WORKING LIFE

C-1 The availability of gainful employment for those who desire it.

C-2 The quality of working life.

C-3 Individual satisfaction with the experience of working life.

D. TIME AND LEISURE

D-1 The availability of effective choices for the use of time.

E. COMMAND OVER GOODS AND SERVICES

E-1 The personal command over goods and services.

E-2 The number of individuals experiencing material deprivation.

E-3 The extent of equity in the distribution of command over goods and services.

E-4 The quality, range of choice and accessibility of private and public goods and services.

E-5 The protection of individuals "and families against economic hazards.

F. PHYSICAL ENVIRONMENT'

F - Housing conditions.

F-2 Population exposure to harmful and/or unpleasant pollutants.

F-3 The benefit derived by the population from the use and management of the environment.

G. PERSONAL SAFETY AND THE ADMINISTRATION OF JUSTICE

G-1 Violence victimisation and harassment suffered by individuals.

G-2 Fairness and humanity of the administration of justice.

G-3 The extent of confidence in the administration of justice.

H. SOCIAL OPPORTUNITY AND PARTICIPATION

H-1 The degree of social inequality.

H-2 The extent of opportunity for participation in community life, institutions? and decision -making.

Figure 4. Topics covered in the United States Government publication Social Indicators III.

1. Population and the Family
2. Health and Nutrition
3. Housing and the Environment
4. Transportation
5. Public Safety
6. Education and Training
7. Work
8. Social Security and Welfare
9. Income and Productivity
10. Social Participation
11. Culture, Leisure, and Use of Time

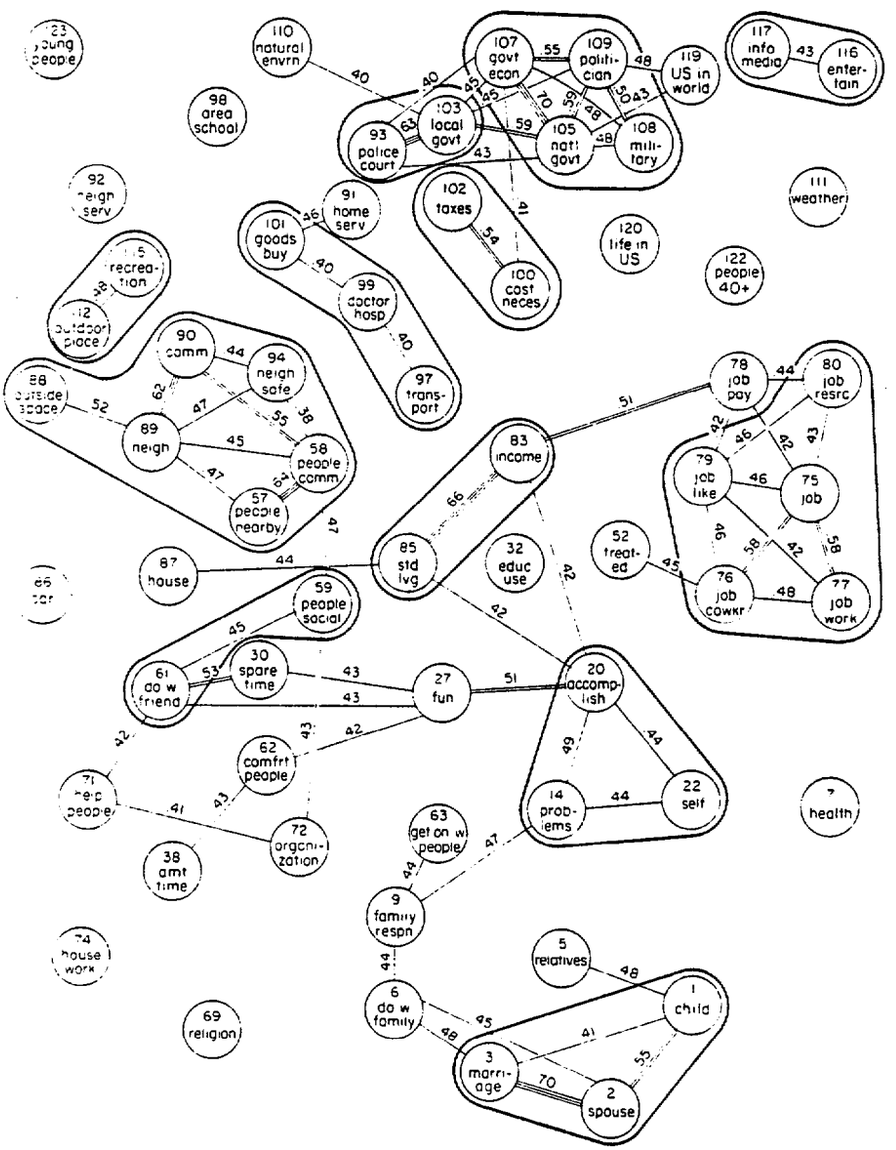
Source: U.S. Department of Commerce, 1980.

The Empirical/Statistical Approach for Deriving Life Concerns

Researchers working with subjective measures of life quality have used an empirical and statistical approach for deriving life concerns. Andrews and Withey (1976), whose work is the most extensive in this regard, began with an initial list of hundreds of possible concerns which were assembled from statements made by representative samples of individuals as to what about life concerned them, why their life was not better, why their life was as good as it was, and the like. Then, using self-evaluations from a different set of people, the statistical overlaps among questionnaire items tapping these concerns were determined, and the items were grouped into clusters. The clusters turned out to include items that addressed similar content areas which, in many cases, rather closely paralleled the concerns identified by the expert/logical approach. As a final step, the comprehensiveness of the list of life concerns was assessed by seeing how well the concerns, taken together, accounted for differences between people in their overall (global) sense of well-being. It turned out that individuals' evaluations of only a modest number of life concerns (about a dozen) could statistically explain nearly all of the variation in sense of global well-being that was not attributable to measurement imprecision.

Figures 5 and 6 illustrate the approach. Figure 5 presents a statistically derived clustering of sixty-three concern-level questionnaire items; similar clusterings of a larger number of items

Figure 5. Example of statistical clustering of questionnaire items assessing life concerns



Source: Andrews and Withey, 1976, p. 55.

Figure & Predicting global well-being by various "combinations of concern-level measures

		Predictors used				
		A 30 concerns	B 16 with high β's	C 6 with high β's	D Selected 12	E Selected 12
Percent variance explained						
In present data		55°0	54%	49%	52%	51%
Population estimate		50%0	51%	48%	5030	51%
Concern measures		MCA β	MCA β	MCA β	MCA β	MR β
C3	Efficacy index	.26	27	28	.25	.23
C6	Family" index	.19	.18	.17	.19	.22
C20	Money index	.15	.15	.20	.16	.12
27	Amount of fun	.15	.16	.21	.15	.17
87	House'apartment	.12	.12	.13	.11	.10
6	Things do with family	.11	.09	.10	.08	.05
38	Time to do things	.09	.09	"	.07	.02
123	Young people think	.09	.08	"	"	"
30	Spare-time activities	.09	.08	"	.08	.06
C30	Recreation index	.07	.06	"	"	"
C34	National govt. index	.07	.08	"	.09	.07
C28	Consumer index	.07'	.06	"	.06	.03
C32	Local govt. index	.07	.06	"	"	.
74	Housework	.07	.07	"	"	"
C36	Media index	.06	.05	"	"	"
7	Your health	.06	.06	"	.06	.07
C37	Cost index	.06	"	"	"	"
98	Schools in area	.06	"	"	"	"
92	Services in nghbrhd.	.06	"	"	"	"
5	Close adult relatives	.06	a	"	"	"
110	Natural environment	.05	"	"	"	"
62	Comfortable people	.05	"	"	"	.
C24	Neighborhood index	.04	.	"	"	"
122	People over 40 think	.04	"	"	"	"
72	Organizations belong to	.04	"	"	"	"
111	Weather	.04	"	"	"	"
C11	Friends index	.03	"	"	"	"
C23	Job index	.03	"	"	.02	.05
69	Religious faith	.03	"	"	.	"
63	Getting on with people	.01	"	"	"	"

Notes: Measure numbers refer to Exhibits 2.1 or C1.
" Predictor omitted.
MCA = Multiple Classi fication Analysis.
MR = Multiple Regression.
Data source: 1,297 respondents to May national survey.

Source: Andrews and Withey, 1976, p. 124.

can be found in Andrews and Withey (1976). In Figure 5, derived through the use of Smallest Space Analysis, questionnaire items are located close or far from each other according to the degree of statistical overlap (i.e., relationship) between each pair of items. This form of analysis can be used to test assumptions about the conceptual similarity of items. For example, the figure shows (near the bottom) that three items all having to do with one's family--evaluations of one's marriage, of one's spouse, and of one's child or children--clustered together, but they were unrelated (correlations less than .40) to most of the other items shown in the figure.

Similarly, "on the right-hand side of the figure, one can see a cluster of five items--all having to do with job conditions--that show relatively high relationships with most other members of the set but only weak relationships with most items outside the set. This second example is instructive because it also illustrates how there may be some items which link to the common concepts in two distinct clusters: Note how the job pay item links (not unreasonably) to several of the items in the job cluster and also to the item about income--which itself correlated most highly with an item that asked about standard of living. Based on the empirical relationships observed in the total sample of respondents (shown in the figure) and for various subgroups (men, women, etc., for which figures are not reproduced here) and taking into account the substantive nature of the items, a set of conceptually distinct but

f-lot necessarily statistically independent life concerns were identified.

Using the concerns identified in the clustering analyses (e.g., family index), Figure 6 shows how various combinations of concerns could account for variation in a global measure, evaluations of life-as-a-whole. In Figure 6, each column represents a different combination of life concerns. Note that the "selected 12" concerns in Column D accounted for about the same amount of variation--50 percent--as a much larger set of concerns in Column A, yet included a small but wide range of policy relevant topics.* The objectives of the form of analysis illustrated in Figure 6 are to confirm that some combination of measured concerns in fact accounts for a large proportion of variation in an overall assessment of "life quality and to identify the smallest set of concerns that can be used to explain most of the variation in overall life quality.

Column C in the figure--showing results for six concerns--indicates that a weighted additive combination of respondents' assessments of their own efficacy, their family, their financial situation, the amount of fun they were having, their housing, and their family activities was able to statistically explain 49 percent of the observed variation in their overall assessments of life-as-a-whole.

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*It is unusual for a set of survey-based measures to account for as much as 50 percent of the observed variation (technically the variance) in a dependent variable, and further analysis has shown that in this case most of the variation that is not accounted for is attributable to imprecision in the measurement. (Details appear in Andrews and Withey, 1976, Chapter 6.)

It is estimated, as also shown in Column C, that this would drop slightly--to 48 percent--on replication in another sampling from the same population. Columns A, B, and D show the explanatory power that was achieved using various larger combinations of concerns to predict feelings about life-as-a-whole and Multiple Classification Analysis (MCA) assumptions. Column E is similar to Column D, but instead of using MCA assumptions, it uses the more restrictive assumptions required for Multiple Regression. For these data, the more restrictive assumptions are not problematical, and Multiple Regression as a prediction/combination system proves to work as well as MCA.

Comparisons Between the Two Approaches for Deriving Life Concerns

The expert/logical and the empirical/statistical approaches for identifying life concern areas have provided roughly comparable lists of life quality domains. This can be seen by comparing the topics included in the preceding figures. One of the major differences, however, is that the former lists tend to omit people's concern with themselves as competent, efficacious individuals, and concerns having to do with relationships within families and between close associates--neighbors, friends, coworkers. That the expert/logical approach has tended to omit such concerns is not surprising because most of the government scientists who produced these lists believe that such matters are not proper factors for census bureaus to try to monitor. The empirical/statistical approach shows,

however, that aspects of life that are close to self, family, and home are indeed important components of life quality, and for many people, the most important components.

Applying Prior Work on Identifying Concern Areas to MonitoringLife Quality in Alaskan Villages

Given the extensive prior work on identifying life quality concern areas, it is reasonable to use the resulting lists as starting points for assembling a list of concern areas to be monitored in Alaskan villages. However, because Alaska Native culture is different from any culture previously monitored for life quality, the sets of concern areas that have worked well in other cultures will need to be checked for relevance and coverage in the Alaskan setting. Initially, this check can proceed through the expert/logical approach, given that some of the present project's staff are knowledgeable about Native Alaskan cultures, but ultimately an empirical/statistical approach should be used to assess the comprehensiveness of the coverage of life concerns and the statistical efficiency (i.e., lack of redundancy) of the set. Of course, this latter approach requires having measures of the concerns, the topic that is discussed next.

Measuring the Life Concerns

Merely to identify a relevant set of life concerns is insufficient: an operational social indicators system requires measurements of these concerns. The social indicators movement provides numerous

instructive examples of how this problem has been approached. In the broadest terms, the choice comes down to either using existing data (much of which will have been collected for other purposes, and hence represents "secondary data" from a social indicators perspective) or collecting new ("primary") data. If secondary data meet the necessary criteria for use as social indicators, they are usually used because this saves the expense of collecting new data. In practice, the selection of indicators to assess any particular concern area is usually a complex compromise through which one tries to maximize several, sometimes conflicting, criteria.

Criteria for Selecting Indicators

An ideal social indicator would meet all of the following criteria:

- have construct validity: The indicator should "be tightly linked conceptually to the concern area one is attempting to measure. Included here is the notion that the indicator reflects the concern with a high degree of precision, i.e., that measurement errors are small.

- be sensitive to relevant variations in the concern: The indicator should reflect variations (between people or other units and/or over time) in the concern that are felt to be substantially important. In many practical instances, this means that the indicator should show substantial variation (and not extreme skew) over the units that are being observed.

- be available for the particular aggregations one wishes to examine. For example, in the present project one would want information to be available for Native Alaskans, perhaps subdivided into geographic regions or clusters of villages.

- be available at the time intervals one is interested in. Aspects of life quality change at varying rates, particularly when driven by a strong external force (such as a large investment in energy resource development), and it is important to have social indicator data measured with sufficient frequency to reflect these changes.

- to be obtainable at reasonable cost. Most government-originated secondary data, if they meet other criteria, will usually involve only small costs to obtain. Obtaining primary data, however, may involve significant costs, and these costs can vary tremendously according to the design of the indicator system.

- be available over an extended period of time, into the past and into the foreseeable future. A key perspective of social indicators work is the notion of monitoring changes over time. If a particular indicator is not available (or has had its measurement procedures changed) over the time span of interest, it will be difficult or impossible to assess changes in life quality.*

*Through a procedure known as "splicing," it may be possible to assess change even when indicators or their measurement procedures change. The essence of splicing is that there be some overlap in time-when both the "old" indicator and the "new" indicator are measured simultaneously. This permits the indicator user to determine how the two indicators relate to each other and to interpret each in terms of the other. In reality, adequate splicing data are only rarely available.

Examples of Indicators Linked to Concern Areas

The social indicators movement provides some elegant examples of systems of indicators organized by area of life concern. The following pages present three contrasting examples: one from West Germany that uses secondary data to measure a set of objective phenomena; one developed internationally that uses primary data, both objective and subjective, to assess objective phenomena; and a third based on American work by the writer that uses primary subjective data to assess subjective phenomena.

1. Objective secondary data used to assess objective phenomena. Wolfgang Zapf and his colleagues developed a system of indicators for West Germany that are organized around ten areas of life concern and assembled secondary data that were available every five years over the twenty-year period of 1955-1975. Figure 7 lists the ten concern areas their system focuses upon (and shows the overall trend of the indicators in each area over the twenty-year period in West Germany), and Figure 8 presents, as an example, the full set of indicators (and their values and directions of change) for one concern area--housing. (A fuller description of their work, in the English language, appears in Zapf, 1980.)

2. Objective and subjective primary data used to assess objective phenomena. An instructive contrast to the work by Zapf and his colleagues is the survey research approach developed by OECD. They also wanted indicators of objective phenomena but felt that the

Figure 7. List of 10 life concern areas monitored 1955-1975 for West Germany by Zapf and direction of trends over the period

Goal area		Evaluation	Symbol
I.	Population	(no welfare evaluation)	
II.	Social status/mobility	stagnation	=
III.	Employment/working conditions	improvements. slumps	= / +
IV.	income/income distribution	stability, positive tendency	= / +
V.	Consumption	improvement	+
VI.	Transportation	improvements/det eriorations	=
VII,	Housing	improvements	+
VIII,	Health	improvement s/deteriorations	=
IX.	Education	improvements	+
X.	Participation	stability, positive tendency	= / +

Source: Zapf, 1980

Figure 8. List of indicators used by Zapf to monitor changes in housing in West Germany 1955-1975

Goal area/ goal dimension	Curr. SPES indicator 1976 No.		Dimension	1955	1960	1965	1976	197s	55	60	60/65	65	70	75	Indicator	Area dimension
VII. Housing																
1. Level of housing supply	129	Dwellings per household	n	0.78	0.86	0,87	0,90	0,97	+			+	+		+	+
	130	Rate of unoccupied dwellings	%			1,1	1,5					+			+	
2 Housing space	131	Rooms per person	n	0.73			1,04	1,08			+			+	+	
	132	Dwelling space per person	sq.m		19,7	21,4	25,2				+	+			+	
	133	Persons with less than 0.S rooms	%	3,7	1,6	0,8	0,6		+		+	+			+	
	134	Persons with less than 1.0 rooms	%	41,5	32.4	19,2	16.7		+		+	+			+	
	135	Persons with more than 2.0 rooms	%	1,7	2,6	8,2	10.4		+		+	+			+	
	136	Households in makeshift dwellings	%	3,7	2,7	3,3	2,9		+		—	+			+	
3. Quality of housing equipment	137	Dwellings without bathrooms	%	53	53	36	18		=		+	+			+	
	138	Dwellings with bath. WC, and centralheating	%	11	10	22	44		=		+	+				
4, Neighborhood quality	139	Persons complaining aboutnoise	%		35		43									
	140	Persons complaining about neighborhood	%			12	18									
5. Household cost	141	Housing rent m % of budget	%	8,9	9,5	9,9	13,4	12,7			—	—	+			
	142	Households with rents over 20% of budget	%	6,0	8,5	13,0	20,6				—	—				
6 Housing security	143	Households which own dwelling/house	%	29	32	31	35	34	+			+	=		+	+
7. Distribution of housing properly	144	Houseowners, self employed{ blue-collar ratio	/1		2,6	2.5	2,1	1,8			=	+	+		+	+
	145	Houseowners, blue- collar/white-collar ratio	/1		1,2	1,2	1.2	1,3							=	

Source: Zapf, 1980

available secondary data were inadequate because they were not cross-nationally comparable and could not be obtained for a wide variety of different aggregations, (e.g., subgrouping by age, sex, ethnicity, etc.). Accordingly, OECD designed a survey instrument that would obtain from individual respondents indicators relevant to each of the OECD life concern areas. By asking carefully translated questionnaire items that used international metrics, it was expected that cross-nationally comparable data could be achieved, and by obtaining data from individual respondents, information could be "aggregated up" to any of a wide range of respondent groupings. The OECD questionnaire takes about 45 minutes to administer and is too long to present here. However, as examples, Figures 9 and 10 reproduce two selected pages from the questionnaire, presenting indicators having to do with housing and health, respectively.

3. Subjective primary data used to assess subjective phenomena. The third example indicates how primary subjective data has been used to assess subjective evaluations of well-being and comes from work by the writer conducted on representative samples of American adults. A standardized format was adopted in which survey respondents were told:

> In the next section of this interview we want to find out how you feel about parts of your life, and life in this country as you see it. Please tell me the feelings you have now--taking into account what has happened in the past year and what you expect in the near future (Andrews and Withey, 1976, p. 363).

Figure 9. Examples of questionnaire items proposed by OECD for measuring objective quality of housing

SME/S1/CDEl3a/'?7.113

69

		COL/ CODE	ROUTE
		28 - 29)	
11 When did you move in here?	WRITE IN YEA (LAST TWO DIGITS		
		(30)	
12 Do you (or any member of your household) rent or own this accommodation?			
	owned outright/is buyin	1	
	rented/rent fre	2	
	(DESCRIBE) othe	3	
13 Do you have any form of central heating including electric storage heaters?			
	whole hous	1	Q15
	part central heatin	2	Q15
	non	3	Q14
		(32)	
14 Do you have any other form of heating?			
	Yes, all room	1	
	Yes, some room	2	
	non	3	
NOT TO BE ASKED IN SOME COUNTRIES - CODE 9 IF NOT APPLICABLE		(33)	
15 Is there any method of keeping the house cool in hot weather?			
	Ye	1	
	N	2	
	unnecessary/not applicab	9	
16 Do you own or have the use of		Yes / No	
	a refrigerato	1 2	(34)
	a deep freez	1 2	(35)
	a dishwashe	1 2	(36)
READ OUT EACH ITEM	washing machin	1 2	(37)
	radi	1 2	(38)
	televisio	1 2	(39)
	telephon	1 2	(40)

2m(M 115833) 7.76

Figure 10. Examples of questionnaire items proposed by OECD for measuring levels of objective health

SME/SI/CDE13a/77.113

45 Are you usually able to get in or out of bed? ASK (a - g)

IF ANY KIND OF DISABILITY ASK Q46 OTHERWISE GO TO Q49

46 When did you start not being able to (a - g) at what age?

47 Was it due to illness, injury or what? ASK FOR EACH ONE

	Yes without difficulty	Yes but with difficulty	Aided by Another person	No unable to do so	Age had diff. (code 00 for from birth)	Ill-ness	Injury	Reason unclear not known
a) Get in or out of bed	1	2	3	4		1	2	3
b) Move between rooms	1	2	3	4		1	2	3
c) Walk 400 metres (as indicated)	1	2	3	4		1	2	3
d) Walk up and down stairs	1	2	3	4		1	2	3
e) Wash yourself all over	1	2	3	4		1	2	3
f) Dress and undress	1	2	3	4		1	2	3
g) Use the lavatory (when in same room)	1	2	3	4		1	2	3
h) Cut your own food (such as meat, fruit)	1	2	-	4		1	2	3
i) When standing, bend down and pick up a shoe from the floor	1	2	-	4		1	2	3
j) Carry an object of five Kilos	1	2	-	4		1	2	3
k) Cut your own toe-nails	1	2	-	4		1	2	3
l) Could you run 100 metres (as indicated)	1	2	-	4		1	2	3

48 Are you usually confined to a bed or chair for most of the day (Only ask if disability indicated)

Yes 1
No 2

A series of questions were then presented which began "How do you feel about . , .." and which could be answered on a seven-point response scale ranging from "delighted" to "terrible." In addition, there were several off-scale categories by which a respondent could indicate that the item was inapplicable or he/she had no feelings about it. In all, over a hundred items were tested, and they are presented in Figure 11 together with an indication of. the particular survey in which they were used. In this work, the link between questionnaire items used as social indicators and the relevant area of life concern was supported by both the substantive content of the item and the empirical cluster analysis discussed previously. (Note that the item numbers in Figure 11 match the item numbers in the clustering example reproduced in Figure 5.)

The general strategy used in other major studies of subjective well-being, while in some cases using other response scales, has been highly similar to that described here. (Examples include work in the United States by Campbell et al. , 1976, 1981; in Canada by Atkinson, 1979; in Australia by Headey, 1981; and in many European countries by the European Economic Commission and described by Riffault and Rabier, 1977.)

Figure 11. Examples of questionnaire items used to obtain self-evaluations of life concerns

M . May 1972 national survey (N - 1297)
N'. November 1972 national survey Form 1 (N = 1118)
N" - November 1972 national survey Form 2 (N - 1072)
A - April 1973 national survey (N = 1450)
J - July 1973 respondents (N = 200)

How do you feel about . . .

1	Your children	M J
2	Your wife/husband	M J
3	Your marriage	M J
4	Your own family life-- your wife /husband, your marriage, your children, if any	N" J
5	Close adult relatives--I mean people like parents, in-laws, brothers and sisters	M J
6	The things you and your family do together	H N" J
7	Your own health and physical condition	M N" J
8	The extent to which your physical needs are met	AJ
9	The responsibilities You have for members of your family	M J
10	How dependable and responsible you can be	J
11	Your opportunity to change things around You that You don't like	N" J
12	Your chance of getting a good job if you went looking for one	N" J
13	The extent to which you are tough and can take it	AJ
14	The way you handle the problems that come up in your life	H J
15	The extent to which you can accept life as it comes and adapt to it	J
16	The extent to which You can adjust to changes in your life	AJ
17	The extent to which you get what you are entitled to--what is rightfully yours	J
18	The extent to which you are achieving success and getting ahead	AJ
19	The extent to which you compete and win at things	J
20	What you once accomplished in your life	MN' J
21	Yourself--what you are accomplishing and how you handle problems	N" J
22	Yourself	M AJ
23	How interesting Your day to day life is	AJ
24	The amount of beauty and attractiveness in your world	AJ
25	The chance you have to enjoy Pleasant or beautiful things	N" J
26	Your sex life	N" J
27	How much fun you are having	M N"
28	The amount of fun and enjoyment you have	AJ
29	The amount of physical work and exercise in your life	AJ
30	The way you spend your spare time, your non-working activities	M N" J
31	The amount of challenge in your life	J
32	The usefulness, for you personally, of your education	M J
33	The extent to which You are developing yourself and broadening your life	AJ
34	The variety and diversity in your life	J
35	The amount of imagination and fantasy in your life	J
36	How creative you can be	N" J
37	The extent to which you maintain links to the past and to traditions	J
38	The amount of time you have for doing the things you want to do	M N" J
39	The amount of pressure you are under	u
40	The amount of relaxation in your life	J
41	Your chances for relaxation--even for a short time	N" J
42	The sleep you get	N" J
43	The freedom you have from being bothered and annoyed	AJ
44	Your independence or freedom--the chance you have to do what You vane	AJ
45	The privacy you have--being alone when you want to be	N" J
46	The amount of friendship and love in your life	J
47	How much you are accepted and included by others	J
48	How sincere and honest you are	AJ
49	How sincere and honest other people are	A.7
50	How generous and kind you are	J
51	How generous and kind others are	J
52	The way other people treat you	M J
53	The amount of respect you get from others	AJ
54	How fairly you get treated	AJ
55	How much You are admired or respected by other people	N" J
56	The respect other people have for your rights	N" J
57	The people who live in the houses/apartments near yours	M J
58	People who live in this community	M J
59	The people you see socially	M J
60	Your friends	N" .7

61	The things you do and the times you have wi th your friends	M J
62	The chance you have to know people with whom you can really feel comfortable	M J
63	How you get on with other people	M J
64	blow much you are accepted and included by others	AJ
65	The rel ia bility of the people you depend on	N" J
66	How dependable● nd responsible people ● rouxd you● te	J
67	The extent to which your world seems consistent and understandable	J
6a	How much you are really contributing to other people's lives	AJ
69	Your religious faith	M J
70	The religious fulfillment in your life	AJ
71	Things you de to help people or groups in this community	M J
72	The organizations you belong to	M J
73	How neat, tidy, and cl ean things are around you	Al
74	Your housework--the work you need to do around your home	M N" J
7!	Your job	M N" J
7c	The people you work with.-yow ce-worker -	M J
77	The work you do on your Job-. the work it self	M J
78	The pay and fringe benefits you get, ● nd security of your job	M J
79	W.. t itis like where you mrk-.thc physical surroundings, the hours, and the amount of work you are ● s%ed to d.	M J
80	What you have available for doing your job--I mean equipment, infer'astiom, good supervision, ● ed so en	M J
81	How secure you are financially	AJ
82	How well your famil y agrees on how famil y income should be spent	N" J
83	The income you (and your famil *y)* have	M N" J
84	How comfortable and well-off you are	J
85	Your standard of living-- the things you have like housing, car, furniture, *recreation,* and the like	M N" J
86	Your car	M J
87	Your house /apartment	MN'N" J
88	The outdoor space there is for you to use outside your home	M J
89	This particular neighborhood as a place to live	M J
90	This community as a place to live	M N" J
91	The services you can get when you have to have someone come in to fix things around your home--like painting, repairs	M J
92	The services you get in this neighborhood--like garbage collection, street wlntrr.ante. fire and police protection	M J
93	The way the police● nd courts in this area● re operating	M J
94	How safe you feel in this neighborhood "	M J
95	Your safety	AS
96	How secure you are from people who might steal or destroy your property	N" J
97	The way you can get around to work, schools, shopping, ● tc.	M J
98	The schools in this area	St J
99	The doctors, clinics, ● *nd* hospitals you would use in this area	M J
100	What you have to pay for basic necessities such as food, housing, and clothing	H N" :
101	The goods ● sd ● erviees you can get when you buy in this area--things like food, appliances, clothes	K R" J
102	The taxes you pay--I mean the local, state, and national taxes all together	M J
103	The way your local government is operating .	M
104	What your local government is doing	. N" J
105	The way our national government is operating	39
106	What our national government is doing	N'N" J
107	What our government is doing about the ● conc?y--jsbs, prices, profits	M N" J
106	Our national military activities	M J
109	The way our political leaders think and act	9! N" J
110	The condition of the natural environment--the air, land, and water in this ● rea	9 s . 3
111	The weather in this part of the state	M J
112	Outdoor places you can go in your spare time	M J
113	Your closness to nature	J
114	Nearby places you can use for recreation or sports	N" J
115	The sports or recreation facilities you yourself use, or would like to se--X □ e a n things like parks, bowling alleys, beaches	M J
116	The ● ntetta:.m.z you get from TV, radic, movies, and local ● vents and places	M J
117	The information you get from newspapers, magazines, TV, and radio	M J
118	The information and entertainment you set from TV. newspapers, radic, magazines	N" J
119	How the United States stands in the eyes of the rest of the world	P S J
120	Life in the United States today	M J
121	The standa rds and values of today's society	N" J
122	The way people over 40 in this country are thinking and acting	M J
123	The way young people in this country are thinkin g and ● cting	M N" J

Applying Prior Work on Measuring Life Concerns to Monitoring the Life Quality of Alaska Coastal Residents

The criteria of indicator selection and the three major examples of sets of Indicators just reviewed have much relevance for developing a life quality indicator system for Alaska coastal residents. While some secondary data may be available at appropriate levels of aggregation, it seems likely that these data will be rather limited in the number of life concerns covered. Some primary data may well be needed, If SO, it will probably be desirable to measure objective phenomena, using objective and subjective measures as in the second example, and to measure subjective phenomena, using subjective measures as in the third example.

Of course, all of the criteria listed at the beginning of Section 4 should be considered for each proposed indicator. For each proposed indicator, one will want to check its applicability to Native Alaska culture and the adequacy of the proposed implementation of the indicator. For example, it will be important to determine, by careful field interviewing, whether a particular question wording was understood in the context the indicator designers intended. Such basic work is important for achieving construct validity.

In constructing a primary data collection instrument, it will be useful to review lists of indicators used by other investigators such as those presented here, but one will also want to consider new indicators that may have special relevance for the Native Alaska culture.

Whether the data are primary or secondary and consist of new or previously-used indicators, it will be desirable to perform statistical analyses to determine the extent indicators intended to tap the same life concern do in fact cluster together, and the extent that there may be inefficiencies in the indicator set (as indicated by more-than-optimal redundancy).

A brief discussion of scale construction methodology is appropriate here. One way to construct a "scale''--e.g., a measure of how well-off individuals are with respect to a particular life concern --is to combine several pieces of information. For example, one might average together people's answers to several questionnaire items that ask about conceptually similar matters and that prove to be statistically related. One might follow the same procedure using secondary data at, say, the village level. Under typical circumstances, the reliability and validity of a combination of related information sources will be as high or higher than the reliability and validity of any of the single sources. Achieving better measurement (higher reliability and validity) is a major reason for constructing scales. However, usually only the first few information sources produce much increase in the measurement quality of the scale: After three or four information sources have been combined, adding additional ones increase cost and complexity without much increase in measurement quality. It follows, then, that an optimal system of social indicators would include multiple indicators for important life concerns, but that more than three or

four indicators for any one concern area would represent excessive redundancy. (Further details on these matters can be found in standard textbooks on psychometric theory, e.g., Nunnally, 1978.)

Any of several multivariate analysis methods for assessing data structure might be applied for this purpose. Relevant techniques include various forms of factor analysis, various forms of cluster analysis, and various forms of nonmetric multidimensional scaling (of which Smallest Space Analysis is one example). Nonmetric multidimensional scaling is probably the technique of choice because it is free from many of the restrictive assumptions of factor analysis and because it makes fuller use of the available information about statistical overlaps than do many forms of cluster analysis.

To the extent possible, one will also want to check statistically the comprehensiveness of the set of indicators, i.e., the extent to which they can, when taken together, account for a substantial portion of the variation in global measures of well-being. As noted in Section 2, it should be possible to do this for measures of subjective phenomena, but will probably not be possible for indicators of objective phenomena (because it is unlikely that a measure of global objective well-being can be developed).

Causes and Consequences of Changes in Well-Being

The primary focus of work to date within the social indicators movement has been to conceptualize and measure current levels of well-being and to provide some historical perspective on how current levels compare with levels at earlier times. It is widely assumed that indicator systems useful for measuring current levels can be applied in the future to monitor and record changes as they occur. However, a broader perspective, implicit in the social indicators movement but on which relatively little work has yet been done, is to seek to understand the causes and the consequences of well-being. Why is it that objective conditions become better (or worse) over time, or that people come to feel better (or worse) about their lives? And what happens if conditions are better (or worse) or if people are more (or less) satisfied? Similar questions can be asked that focus not on change over time but on differences between individuals, ethnic groups, villages, etc., at one point in time.

Such questions are fundamental ones and involve both simple and complex perspectives--some of which are highly relevant for a project that seeks to monitor life quality changes among Alaska Natives.

A simple perspective with respect to causes is that economic resources can be used to "buy" well-being. It comes as no surprise that levels of well-being are often found to be low when economic resources are small. Not so obvious is the finding reported by

Gallup (1976), in a study that sampled from nearly one-third of all human beings alive in the early 1970s, that feelings of happiness were substantially and positively related to the economic wealth of one's country. (Happiness levels, however, are not influenced only by economic wealth, as a sophisticated analysis of happiness levels in European countries by Inglehart and Rabier [1985] makes clear.)

Even this simple explanation of the causes of well-being leaves much to be desired, however, when one considers the case of Alaska Natives. With increasing wealth may come important threats to maintenance of Native culture, and hence strong threats to maintenance of a desired quality of life.

Past research and conceptualization in the social indicators movement, however, has findings more complex than the simple economic one to contribute with regard to the causes of well-being. A surprising and oft-repeated finding is that within a single country, individuals who are "objectively" worse off (i.e., who have fewer material resources, worse health, less safe neighborhoods, etc.) may not feel worse off. The explanation seems to be that one must not consider only the conditions people experience (or think they experience) but also the conditions they want, or think they should experience--i.e., their aspirations. So far, only limited research has been conducted on aspirations (a brief review appears in Andrews, 1981), but Michalos (1980, 1983) is accumulating important evidence that people's sense of well-being primarily

reflects the "gap" between what they perceive their current conditions to be and what they aspire to. In essence:

(perceived well-being) = (conditions perceived) - (aspirations)

The implications of this more complex perspective on the causes of subjective well-being are substantial for all future work on life quality (including the work of the present project). In situations where actual conditions, satisfaction levels, and/or aspirations levels might change (and that certainly includes Alaskan villages), it seems important to measure at least two and preferably all three of the factors in the above equation to obtain an adequate understanding of the nature of changes that occur. Without such information, it is possible, for example, that conditions might improve but sense of well-being decline (because aspirations rose faster than improvement in conditions); or as another example, conditions might improve but sense of well-being show little change at all (because aspirations rose commensurately).

Sources of Further Information

The literature of the social indicators movement, including a wide range of studies of life quality, is not vast--the field is small and only about twenty years old--but is widely scattered. As indicated in Section 2 of this chapter, the field is presently in a consolidation phase, and several bibliographies, review articles, and textbooks have recently appeared (citations are presented in Section 2). A particularly useful assembly of bibliographic

material, classified according to type of document, was included in the most recent U.S. Government volume on social indicators. This bibliography is reproduced here as Figure 12. Following the figure are full references to material that has been cited in this chapter. Together, the material in Figure 12 and the additional references provide a broad coverage of the social indicators literature, with primary emphasis on documents in the English language and relevant to the American scene.

Figure 12. A classified bibliography to some of the social indicators literature

(Reproduced from the U.S. Government's Social Indicators III.)

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Figure 12. A classified bibliography to some of the social indicators literature (Cent'd)

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CHAPTER THREE
DEVELOPMENT OF SOCIAL GOALS

This chapter addresses the development of social goals for AOSIS. The purpose of social goals and their general qualities, the methods used to identify them, the specific social goals the study team preliminarily developed for rural Alaska, and the fieldwork conducted to test the validity of the goals are discussed. Finally, the final set of AOSIS social goals are presented.

The Purpose of Social Goals and Their General Qualities

For the purposes of this study, social goals are essentially the values that people maintain with regard to their individual lives and their community, the things they are concerned about. Their ability to achieve these goals, or live by their values; directly influences their sense of well-being. Thus, in order to measure changes in individual well-being, it is necessary to develop a list of social goals that reflect well-being for the study population.

Several defining characteristics were used during early phases of this study for developing social goals (see Table 2). As discussed in the previous chapter, well-being is comprised of both universal (e. g., good health, adequate housing, public safety, education opportunities) and regionally or culturally specific social goals (e.g., subsistence activities, extended family ties, respect for elders, and sharing in many rural Alaskan communities). One objective of the first phase of the study was to tentatively

TABLE 2
MAJOR TYPES OF SOCIAL GOALS

- Universal Goals
- Regionally or Culturally Specific Goals
- Hierarchical Organization of Goals
- Goals Stated as Desired Ends

identify the culturally specific goals for each of the five study regions, (the North Slope, the NANA Region, the Bering Straits Region, the Bristol Bay Region, and the Aleutian/ Pribilof Islands Region) and to apply the universal goals to the regions as well.

The study team then organized the social goals into a hierarchy of goal families, goals, and subgoals. This logical organization of over 40 subgoals under progressively more general goal categories makes it possible for the analyst and policymaker to retain presented information and to apply it effectively.

A final characteristic of social goals is that they are designed to state a desired end. For example, "employment" is not a properly stated goal, whereas "sufficient opportunities for employment" expresses a desired end and thus properly constitutes a social goal.

Careful and thorough development of social goals served several purposes in this social indicators system. First, the goals ensured that the system is comprehensive. Goals were identified in all potential categories of well-being. Indicators were generated from those goals. The goals served as a checklist to ensure that the indicators used in the system included all potentially important types of social, cultural, and economic impacts.

Second, the social goals provided a relevance test for indicators. During the fieldwork, researchers continually ascertained whether or not a given indicator directly measured the identified goal or subgoal and only one goal or subgoal. If an indicator measured more than one subgoal, it was altered or replaced. In this sense, subgoals served as a check on an indicator's relevance.

Third, the taxonomy of social goals provides a framework for easily communicating the information contained in a set of social indicators. For example, the results are organized in smaller components of data (e.g., by subgoal) and therefore easier to understand. Furthermore, the social goals organize the indicators in a consistent and logical manner. Finally, social goals have implications for policy formation insofar as they denote areas of importance that require attention. Hence, social goals act as an agenda for action.

Methods Used To Identify Social Goals

In developing social goals for this project, the study team first reviewed prior work in social indicators research. Major sources of prior research are discussed in Chapter 2. This step yielded several excellent lists of universal social goals (e.g., see Figure 4 in Chapter 2). Since these universal goals addressed basic needs and wants of people, regardless of cultural context, it was assumed that the goals would be valid for rural Alaskan communities as well. However, the previous studies did not offer much guidance related to defining regionally or culturally specific goals associated with coastal Alaska.

In order to tentatively identify the culturally specific social goals, the study team analyzed the major traditional and contemporary concerns, issues, and values of the five study regions. These concerns and values were identified first through secondary data sources such as regional periodicals, written statements by local groups, articles, and reports on the area. Then the study team applied its expertise in social indicators research, a considerable field knowledge of rural Alaskan social systems, and a review of regional documents to determine which issues and concerns are paramount. Document sources included:

- Coastal zone management plans (Goals and objectives).
- Regional newspapers.
- Regional corporation annual reports.
- Regional planning documents.
- Field notes and interviews in the study team files.
- Newspaper clippings in the study team files.
- Local testimony including elders conferences transcripts, the Alaska Native Review Commission testimony, coastal resource service area testimony, the Alaska Federation of Natives testimony, and OCS scoping meetings testimony.

These issues and concerns were then treated as the key culturally specific parameters of well-being for rural Alaskans and articulated as social goals.

At first, the study team assumed that the regionally specific social goals would differ from one region to another. The combination of Alaska's diverse physical environment, three distinct aboriginal cultures, and the varying duration, extent, and degree of contact these Native peoples have had with western culture has resulted in a diversity of cultures and even variation between separate sub-populations of the same culture. However, once the concerns of residents throughout the study area were compiled and analyzed, the issues that emerged possessed a greater consistency between regions than originally hypothesized.

The differences between regions were found to be more a matter of degree or variation within several broadly defined goals. For example, the continued use of the Native language may be of considerable cultural importance to residents of the NANA region while holding relatively less cultural value for residents of the Aleutians. Therefore, at the end of the pre-field identification of the goals, the study team found that when carefully stated, the goals could be applied to rural Alaska as a whole. Hence, only one set of social goals was developed for the five study areas. These goals are listed and described below.

Description of Tentatively Identified Social Goals

Based on a review of the information sources discussed in the preceding section and in Chapter 2, four goal families were identified that were thought to be both comprehensive (i.e., covering the entire range of issues, goals, and values that contribute to social health well being) and relevant to residents of rural Alaskan villages. Between two and six goals were identified in each goal family. Each goal had several subgoals, and indicators were developed from these subgoals (see Chapter 4). The four goal families included:

- Goal Family One: Continued Existence of Traditional Culture.
- Goal Family Two: Individuals and Families That Are Able to Function Well in Society.
- Goal Family Three: Command Over Goods and Services.
- Goal Family Four: Social Opportunities and Participation.

The hierarchies of goals and subgoals within each goal family are presented in Tables 3 through 6. The first goal family, "Continued Existence of Traditional Culture," was the first attempt at defining culturally specific goals. These goals were later refined as a result of fieldwork conducted in the Aleutian Islands, Bristol Bay, the Bering Straits region, the NANA region, and the North Slope (discussed in the following section). The remaining goal families sought to define the universal goals of interest to all human communities. Although the following discussion will touch on each of the goal families, the culturally specific goals were of primary interest to the study and, hence, will receive more extensive analysis.

Overview of Goal Family One

Goal Family One, "Continued Existence of Traditional Culture," was based on the study team's first-hand knowledge and experience in conducting fieldwork in over 75 rural Alaskan communities and on issues identified in numerous documents that both underscored the persistence of many traditional activities and behaviors in Native Alaskan communities and acknowledged alteration of other traditional activities as a result of rapid change over recent years. As discussed above, the study team initially attempted to identify separate goals and subgoals for each region, but it became clear that most of the goals and subgoals in this goal family were very similar in each of the regions (e.g., the continued harvest of

TABLE 3
GOALS AND SUBGOALS IN GOAL FAMILY ONE:
CONTINUED EXISTENCE OF TRADITIONAL CULTURE

Continued Harvest of Renewable Resources

Healthy Wildlife Population
Unrestricted Access to Traditional Hunting Areas
Presence of Wildlife Populations in Traditional Hunting Areas
Interest in and Use of Renewable Resources

Continued Traditional Social Relationships

Continued Traditional Cooperative Activities
Continued Sharing of Renewable Resource Products
and Harvest Equipment

Continued Extended Family Relationships
Continued Respect for Elders
Traditional Intervillage Social Relationships

Continued Cultural Supports

Continued Use of Native Language
Continued Oral History Tradition
Continued Transfer of Traditional Skills
Continued Production of Traditional Arts and Crafts

TABLE 4
GOALS AND SUBGOALS UNDER GOAL FAMILY TWO:
INDIVIDUALS AND FAMILIES ABLE TO FUNCTION WELL IN SOCIETY

Healthy Individuals

Physically Healthy Individuals
Mentally Healthy Individuals

Individuals Who Are Safe from Harm

Individuals Who Are Safe from Harm by Others
Individuals Who Are Safe from Harm by Their Own Actions

An Educated and Skilled Population

Individuals Have Received a Basic Education
Adults Have the Education and Skills Necessary to Obtain Employment

Families That Function Well in Society

Prevalence of Families as the Primary Social Unit
Healthy Social Relationships Within Families

Adequate Leisure Opportunities

Adequate Opportunities to Interact Informally with Friends and Family

Adequate Opportunities to Participate in Recreational Activities

TABLE 5
GOALS AND SUBGOALS RELATED TO GOAL FAMILY THREE:
COMMAND OVER GOODS ANO SERVICES

Sufficient Income and Equitable Income Distribution

All Households Receiving at Least Minimum Income Required to Meet Basic Needs

Most Households Experiencing Real Income Growth

Sufficient Opportunities for Employment

Sufficient Number of Local Jobs
Sufficient Opportunities for Preferred Jobs

Sufficient Housing

Affordable Housing Opportunities
Adequate Physical Living Space

Sufficient Food

Sufficient Food Available
Affordable Food

Sufficient Personal Goods And Services

Sufficient "Availability of Goods & Services
Affordable Price for Goods & Services

Satisfactory Community Environment

Satisfactory Public Services and Facilities
Satisfactory Physical Environment

TABLE 6

GOALS AND SUBGOALS FOR GOAL FAMILY FOUR:
SUFFICIENT SOCIAL OPPORTUNITIES AND PARTICIPATION

Adequate Local Control

Confidence in Institutions and Leaders
Adequate Sense of Ability to Influence Local Processes

Adequate Participation

Participation in Routine Processes of Government

renewable resources Including both commercial and subsistence harvests in traditionally productive areas, continued access to these areas, continued healthy wildlife populations, continued traditional cooperative activities, continued sharing, continued extended family relationships, continued cultural supports). Hence the study team decided to generate one list of goals and subgoals that could be applied to all five study regions.

The study team was aware that varying rates and degrees of cultural change have occurred in the five regions (e.g., the Aleutians has experienced tremendous disruptions since the Russians first arrived in the 18th century). However, the goals and subgoals identified for Goal Family One were developed to allow for regional variation in intensity, importance, and frequency. In other words, the study team thought that regional variation would emerge in the form of variance in the measurement of the goals (e.g., different regions would place varying degrees of importance on similar goals and/or subgoals).

The study regions contain rich and varied cultural traditions documented by numerous researchers. Although the traditional aspects of local culture are necessarily changing in response to modernization in the towns and villages of the regions, the ability to maintain certain aspects of the traditional lifestyle remains very important to residents of the study regions (Alaska Consultants, Inc. et al. 1984, Alaska Consultants, Inc. and Stephen R.

Braund & Associates [SRB&A] 1984, Aleutians East Coastal Resource Service Area Board [AECRSAB] 1984, Bristol Bay Coastal Resource Service Area Board [BBCRSAB] 1984, Bering Straits Coastal Resource Service Area Board [BSCRSAB] 1984, Cultural Dynamics, Inc. 1983, Ellanna 1980a and 1980b, Environmental Services Limited 1981, Jorgensen 1984, Kruse 1982, Little and Robbins 1984, Lowenstein 1981, Luton 1985, Maniilaq Association 1979-82, North Slope Borough Contract Staff 1979, Payne and Braund 1983, Petterson et al. 1984, Thomas 1982, Wolfe et al. 1984, Woodward-Clyde Consultants). Planning documents often articulate residents' aspirations with regard to traditional culture in terms similar to those used in this study's Goal Family One. For example, for every development issue considered in the Bering Straits Coastal Resource Area Management Plan (BSCRSAB 1984), the BSCRSAB stated a goal relating to that issue:

Issues	Goals
Coastal Development	To provide guidance and direction for the siting and design of industrial facilities which minimize environmental and social effects, benefit local residents, and satisfy industrial requirements; and To provide guidance and direction for coastal development which are compatible with traditional Inuit ways of life.
Timber Harvesting and Processing	To provide opportunities for harvesting and processing of timber and driftwood which are in accordance with local, state, and national interests and which are compatible with traditional Inuit ways of life.

Issues	Goals
Recreation	To provide adequate recreational opportunities for the people of the Bering Straits Region and state, national, and international visitors in a manner which is compatible with traditional Inuit ways of life.
Subsistence	To ensure access to coastal areas and use of resources for continuation of subsistence as the predominant way of life for the region's people.

Most of the goals expressed a desire that development take place in a manner ". . . compatible with traditional Inuit ways of life" (BSCRSAB 1984: 3-4, 3-5, 3-6, 3-10, 3-11).

Goal One: Continued Harvest of Renewable Resources

Continuation of resource harvests, including both subsistence activities and commercial harvests by local residents was emphasized throughout the literature as an issue of primary importance. While small commercial fisheries do occur in all study regions, the overwhelming importance of commercial fishing to both Bristol Bay and Aleutian Islands communities required inclusion of commercial harvests in the system of social goals. For example, commercial fishing provides 45 percent of the full-time jobs in the Bristol Bay region (BBCRSAB 1984) and 31 percent of local residents' personal income between 1970 and 1980 (Nebesky1984).

Hence, the first goal, "Continued Harvest of Renewable Resources," was worded to include both subsistence and commercial resource

harvest activities. This goal included measures to determine the status of key wildlife populations (including both subsistence and commercially used species), particularly in traditional hunting areas, local residents' access to these wildlife populations (both physical and regulatory access), and the interest in and use of renewable resources.

The Importance of maintaining adequate populations of fish and wildlife species and of preserving local residents' access to these species and harvest areas has been detailed throughout coastal regions of Alaska, particularly as coastal management plans have been completed. A major goal discussed in the Bristol Bay Coastal Management Program (BBCRSAB 1984) is to "maintain the natural productivity of fish and wildlife populations and habitats" because of the importance of fish resources to the regional economy and local dependence on subsistence uses of fish and game. These concerns have been echoed in coastal zone management plans in other regions of the state as well (AECRSAB 1985, North Slope Borough 1984, Derbyshire and Associates 1982, Woodward-Clyde Consultants et al. 1984, 8SCRSAB 1984).

The Bering Straits Coastal Management Plan (BSCRSAB 1984) clearly expressed the primary importance of this goal under its "Issues, Goals, and Objectives." Where possible development scenarios were considered, the plan frequently suggested that such development scenarios would be compatible only insofar as they did not disrupt

the subsistence practices of the local residents. Similarly, the MMS harvest disruption effects studies of St. Lawrence Island (Little and Robbins, 1984) and Unalakleet (Jorgensen, 1984) and the Alaska Department of Fish and Game (ADF&G) Study of Shishmaref (Thomas, 1982) focused specifically on renewable resource harvest practices, verifying that the continued harvest of renewable resources was a goal within these communities, as were the four subgoals pertaining to the harvest. The Aleutian Eagle and Aleutian Times, two regional newspapers, constantly report on the status of the area's commercial stocks of crab, salmon, and bottomfish.

General concerns with resource populations and resource harvests have become focused in different times and places depending on resource management problems and issues. Examples include: bowhead whale populations and harvest quotas in the Bering Straits, NANA, and North Slope regions; potential effects of oil exploration and development on local environments and fish and wildlife populations on the North Slope, Bering Straits region, and in Bristol Bay; environmental concerns related to the proposed Red Dog mining project near Kivalina in the NANA region; effects of helicopter traffic on waterfowl populations in Izembek Lagoon; U.S. Fish and Wildlife Service plans to eliminate wild stocks of cattle (used for subsistence purposes by area residents) from Simeonof, Chernabura, and Caton islands; declining stocks of king crab in the Aleutian Islands; as well as other issues related to renewable resource management.

Goal Two: Continued Traditional Social Relationships

The second goal in this goal family, "Continued Traditional Social Relationships," was developed to assess the relative strength of relationships within families, especially extended (i.e., non-nuclear) families, and between villages. In addition, the goal included measures of participation in cooperative (primarily resource harvest related) activities, sharing of subsistence products and harvest equipment, and respect for elders.

The importance of this goal, particularly to Native families and communities, has been documented throughout the study area by various researchers, including several studies conducted under the MMS Social and Economic Studies Program. Relevant studies include Payne and Braund (1983) and Petterson et al. (1984) related to Bristol Bay sociocultural organization; Ellanna (1980 and 1984), Jorgenson (1984), Little and Robbins (1984), and Thomas (1982) on the Bering Straits/Norton Sound area; Cultural Dynamics, Inc. (1983), Social Research Institute (1982) and Burch (1975) on the NANA region; and Alaska Consultants, Inc. (1984), Luton (1983), North Slope Borough Contract Staff (1979), Worl et al. (1981) and Louis Berger and Associates (1983), Impact Assessment, Inc. (1983a and 1983b) for the Aleutians Region.

Although most of the Bering Straits literature is subsistence oriented, Thomas (1982), Ellanna (1980), Little and Robbins (1984) and Jorgensen (1984) discussed the cooperative approach to various

harvest and processing activities, as well as sharing and distribution of the products within or between communities in the region.

Goal Three: Continued Cultural Supports

The final goal in Goal Family One was "Continued Cultural Supports." Parameters within this goal included use of Native language, continued oral history tradition, continued transfer of traditional skills, and continued production of traditional arts and crafts. According to Krause (1980), the only way Alaskan Native languages can survive as living spoken lanuages is if they are spoken and transmitted to children. This is accomplished by parents speaking that language to their children. Because Alaska Native languages are such an integral part of Alaska Native culture, the measurement of continued use of Native language is an important aspect of continued cultural supports. Similarly, oral history (North Slope Borough Commission on History and Culture 1981), arts and crafts, and the transfer of traditional skills provide key components of the maintanence of traditional culture.

Overview of Goal Family Two

Goal Family Two was designed to measure the ability of individuals and families to function effectively in society. The goals included in this goal family spanned many aspects of human well-being including health, safety from harm, education, effective functioning of families, and adequate leisure opportunities. Residents of the

study area share these goals with people around the world. That these goals are sources of current concern is evident from reading local and regional newspapers, such as the Bristol BayTimes, Nome Nugget, the Tundra Drums and other publications that address regional issues. Articles on health care, community services, and pollution are common, as are articles expressing concern over regional problems such as suicide and alcoholism.

The goal of "Healthy Individuals" included measures of both mental and physical health. The second goal ("Individuals Who Are Safe From Harm") of Goal Family Two included safety from the actions of others (such as homocide or physical abuse) as well as safety from ones' own actions (e.g. suicide, alcoholism, cigarette smoking). Under the third goal ("An Educated and Skilled Population") of this goal family, we have considered both completion of a basic education and applicability of skills and education to employment as gauges of adequate education. Subgoals included under goal four, "Families That Function Well in Society," were prevalence of families as the primary social unit and healthy relationships within families. Finally, "Adequate Leisure Opportunities", the fifth goal of Goal Family Two, included measures of opportunities for informal interaction with friends and family as well as opportunities to participate in more broadly defined recreational opportunities.

Overview of Goal Family Three

Goal Family Three dealt with the economic parameters that determine life quality on an individual or family level. Goals in this goal family included both sufficient income and sufficient employment opportunities. These parameters measured both real and perceived income growth in relation to the cost of living, income distribution, availability of public welfare and assistance, and adequacy of job offerings, especially local jobs. Goods and services available to local residents were also considered as inputs into life quality in this goal family. These measures included sufficient housing that was affordable, had satisfactory space and was physically adequate; sufficient food and personal goods that were both available and affordable; and a satisfactory community environment.

As with Goal Family Two, Goal Family Three expressed universal concerns and issues that were supported by concerns of residents in the study area. For example, the NANA Regional Strategy stressed the importance of stimulating "balanced . . . economic development to create jobs for maximum local hire" and developing "a varied economy to . . . provide a choice of lifestyle and job opportunities" in order to increase the standard of living of local residents (Maniilaq, Inc. 1982). Similarly, in the North Slope Borough, considerable sums of money have been spent in the Capital Improvements Program with the sole intent of improving services available in North Slope communities.

Overview of Goal Family Four

The final goal family, "Sufficient Social Opportunities and Participation" was intended to measure the extent to which local residents perceive themselves to have local control over political life influences and the extent to which they actively participate in the political processes that determine these influences. The goals in this goal family included adequate local control (including perceptions of ability to affect the outcome of local decisions and confidence in governing institutions and leaders) and adequate participation in routine processes of government (e.g., voting in local elections or attendance at public meetings).

Although this goal family addresses universal human concerns, it is especially relevant to rural Alaska because many villages are struggling to have more influence in political arenas and attempting to regain local control over the forces that influence their lives. Involvement in broader policy-making forums can be seen in rural residents' formation of fish and game advisory boards, formation of the Alaska Eskimo Whaling Commission, and the current claims of IRA tribal government sovereignty over lands traditionally used by Native Alaskans.

Summary of Initial Organization of Social Goals

In summary, the social indicators system was organized into four broad goal families atop a hierarchy of goals, subgoals, and, finally, indicators of social well-being. This hierarchy covered

basic human goals including both universal and culturally specific goals. The universal goal families included: individuals and families that are able to function well in society, adequate command over goods and services, and sufficient social opportunities and participation. The culturally specific goal family was defined as continued existence of traditional culture and included goals that reflected aspects of rural Alaskan culture such as continued harvest of renewable resources, continued traditional social relationships, and continued cultural supports. The following section describes the outcome of fieldtesting this hierarchy of social goals throughout five regions of coastal Alaska and the subsequent modifications to the system of social goals.

Fieldwork Methods Related to Social Goals

The fieldwork portion of this study had the following three objectives:

- To test the validity of the social goals identified in the first phase of the study.
- To assemble the information needed to make each social indicator geographically and culturally relevant (e.g., the principal hunting and fishing activities pursued in each area).
- To test the quality and relevance of each social indicator that is based on survey or key informant observations and, if possible, identify additional indicators of subgoals.

The results of the first objective are discussed in this chapter while the findings of the second and third objectives are addressed in the following chapter.

The study team tested the validity of the tentatively identified social goals (Tables 3 through 6) by matching current regional issues with these social goals. This was accomplished by identifying the major issues in each region and ensuring these issues were encompassed by the set of social goals. Because Goal Family One "Continued Existence of Traditional Culture" was developed explicitly for this project, we were particularly concerned with the necessity of this goal family. That is, if all issues in all regions could be categorized under the other three goal families, Goal Family One would be unnecessary.

During the fieldwork in each region, study team members in each region primarily relied on key Informants who reviewed the lists of goals and subgoals and offered their suggestions. These individuals included traditional council members, village and regional corporation officers and employees, non-profit corporation board members, 1 ocal Fish and Game Advisory Committee members, and employees, municipal government council members and employees, coastal resource service area board members, and other knowledgeable individuals. During these key informant interviews, the purpose of the socialindicators study was explained and the goals and subgoals were reviewed one at a time.

In addition, regional issues were reviewed through discussions with these key informants as well as a review of previously unseen secondary sources such as recent coastal zone management plans,

regional newspapers, regional corporation annual reports, testimony at public hearings, regional planning documents, lawsuits filed, and interviews with community leaders.

To insure consistency in fieldwork methods among all fieldworkers, a training session was conducted prior to initiation of the fieldwork. Fieldworkers were informed of the intended meaning of each social goal. Anticipated problems were discussed so that each fieldworker was aware of possible means to detect and solve problems they would likely encounter.

The objectives of the field phase of the project warranted a wide diversity of field sites. It was important to visit a mix of regions for two reasons. First, some of the regions are different from each other (e.g., the socioeconomic effect of regional borough governance and oil revenues is unique to the North Slope; the large geographic area and disruption history that is unique to the Aleutians, and the predominance of commercial salmon fishing in Bristol Bay).

In order to ensure field testing of diverse situations, it was necessary to visit dissimilar areas. Second, some regions are more likely than others to experience the effects of OCS development. For example, the Aleutians (because of its location in relation to major transportation networks) and the North Slope (because of its known oil potential) appear the most likely areas to be affected by

OCS development. On the other hand, the NANA, Bristol Bay, and Bering Straits regions appear less likely to be affected by OCS development. In order to have a basis of comparison between regions both affected and not affected by OCS development, it is necessary to collect data from both types of areas.

There is also diversity within various regions (e.g., regional centers such as Barrow or Kotzebue are different from smaller, more isolated villages). Hence, both regional centers and smaller communities in each region were visited. The regions and villages where fieldwork was conducted included:

- North Slope (Barrow and Point Lay)
- NANA (Kotzebue and Kivalina)
- Bering Straits (Unalakleet and Nome)
- Aleutians (Unalaska and King Cove)
- Bristol Bay (Dillingham and New Stuyahok)

The number of interviews conducted and people contacted in each region and community is presented in Table 7. One goal during the field phase was to test the survey instrument with as wide a variety of adults as possible. This ensured the final instrument was applicable to the community population as a whole. Therefore, fieldworkers made an effort to interview both men and women of all ages over 18, married and single people, and people of different economic and social status. After the fieldwork was completed the study team held a debriefing session attended by the principal

TABLE 7
NUMBER, TYPE, AND LOCATION OF FIELD INTERVIEWS

Community	Key Informant	Survey	Total Interviews	People Contacted[1]
King Cove[2]	4	5	9	7
Unalaska	7	7	14	9
Kivalina	7	8	15	11
Kotzebue	6	3	9	6
Barrow	3	8	11	11
Pt. Lay	5	3	8	6
Dillingham	9	4	13	9
New Stuyahok	6	7	13	9
Nome	8	7	15	11
Unalakleet	7	1	8	7
TOTAL	62	53	115	86
Region				
Aleutian	11	12	23	16
NANA	13	11	24	17
North Slope	8	11	19	17
Bristol Bay	15	11	26	18
Bering Straits	15	8	23	18
TOTAL	62	53	115	86

1 Some people participated in both the key informant interview and as a respondent for-the test survey.

2 Includes one interview each from Cold 8ay and St. George.

investigators and all fieldwork interviewers. The debriefing session had three purposes:

- To document the match between current regional issues and the preliminary social goals and revise the social goals where necessary;
- To produce a refined set of social indicators and a revised survey instrument.
- To document our final assessments of the quality and relevance of each social indicator based on primary data. This documentation will include suggested revisions, additions, and deletions where appropriate.

Fieldwork Results Related to Social Goals

Goal Family One: Continued Existence of Traditional Culture

As discussed above under Fieldwork Methods, one focus of the field effort was to evaluate the applicability of the preliminarily identified goals. Particular emphasis was placed on Goal Family One, "Continued Existence of Traditional Culture," because it was the least universal of all goal families and consequently required more testing to determine its intra- and interregional validity.

In most of the study regions, the culturally specific goals that were defined prior to fieldwork closely matched the social goals and relevant issues expressed by key informants in the field. For example, in the North Slope and NANA regions, continued opportunities for subsistence activities, continued importance of extended family networks and respect for elders, continued sharing of food, equipment and knowledge, and the use of Inupiaq language

were repeatedly voiced by key informants as important cultural goals. Some reasons for the close match between the preliminary cultural goals and the goals expressed by key Informants in these two regions included:

- high proportion of Natives in the population;
- shorter time of heavy participation in the cash economy (especially in comparison with other regions such as the Aleutians); and
- Active local and regional programs, such as Inupiat Ilitqusiat and Elders' Councils, that articulate cultural goals and issues. These programs have drawn attention to issues of cultural change, the importance of selected traditionalactivities such as subsistence hunting, and Inupiat adaptation to a changing socioeconomic environment.

However, testing the validity of Goal Family One in the Aleutian/ Pribilof Island and Bering Straits regions resulted in considerable re-evaluation of certain pre-field assumptions implicit in this goal family. The problems encountered in these two regions are discussed below.

The Aleutian/Pribilof Island Region

The Aleutian/Pribilofregion, and its peoples, have been under the influence of other cultures for over two centuries, a longer time than any other area of Alaska except perhaps southeast. Hence, *since* first contact with the Russians in the second half of the 18th century, the Aleuts and their culture have undergone continuous and extensive change (Lantis 1970; Laughlin 1980; and Jones 1980). This long history of outside influence has affected the concept of "traditional" in this region. For example, during the first 70 years of contact (approximately 1750 thru 1820) the Aleut population crashed precipitously. The population at time of contact is estimated at 16,000. Of this overall population, 10,000 - 11,000 were members of the eastern or Fox Island group which had been reduced to a mere 1,900 by 1790 (Laughlin 1980). Similar population declines occurred throughout the Aleutians, primarily the result of introduced diseases and warfare. Thus the continued existence of traditional Aleut culture was dependent on a very small population of Aleuts who were continually bombarded by values and ideas external to their pre-contact economic, cultural, and social systems.

The extensive and continual outside influence has resulted in a ".Native" population of mixed ancestry and cosmopolitan values to whom it is difficult to apply the word "traditional. " Additionally, since the Russian slave-barter system for harvesting sea otter and

fur seal pelts replaced the aboriginal subsistence based economy in the 18th century, the Aleuts have been involved in the commercial harvesting of renewable resources.

Once under American rule, the slave-barter system was replaced by a cash economy and the resources of commercial importance became cod and salmon. Commercial fisheries have become a prime focus in this region. This is not to say that subsistence harvest activities are not important to residents of the Aleutians region. Rather, in this region the harvest of renewable resources takes on a dual significance as local residents are concerned with both commercial and subsistence harvest success. Further change is manifested in that the religious beliefs and practices of the Aleuts were replaced by the Russian Orthodox Church, and most of the Aleut material culture was replaced by western goods, housing, and harvest technology.

This long history of outside influence and demographic change resulted in a field problem in the use of the word "traditional." Respondents in the Aleutian region were unsure of the meaning of this word in both the title of the goal family and several of the subgoals. Respondents would ask: "What is traditional, two generations, a century, two centuries or precontact?"

Although significant change has occurred and is continuing to occur in the Aleutians, the marine orientation and emphasis on the extraction of renewable resources from the marine environment remains the focus of life and is an Important component of cultural continuity in this region. Indeed, with such a small land base, traditional Aleuts were more dependent on the sea and had a higher level of marine adaptation (including open-water navigation and hunting) than any other marine-oriented culture in Alaska (Berger and Associates, Inc. 1983).

In addition to the extensive changes brought on by outside influences in the Aleutians, the insular nature of the region resulted in considerable diversity even among adjacent communities. Thus, the traditional social complexes such as community clusters linked by kinship, economic and political affinities are not as common in the Aleutian region as many other areas of Alaska. Because of this diversity and the steady and continual change that had occurred in this region, the study team observed considerable contrast between the Aleutians and the North Slope and NANA regions, for example, in terms of what, in local residents' views, constitute "traditional" culture.

Although the communities of the NANA and North Slope regions were impacted by commercial whaling in the late 19th and early 20th centuries, their contact with and participation in the wage economy has been sporadic since that time. Indeed, until the recent past,

the Natives of Northwest Alaska and the North Slope participated in the wage" economy only to the extent necessary to continue the subsistence-based economy of their ancestors. With trapping often the only source of acquiring money locally, obtaining desired cash usually necessitated leaving the community. The lack of local development of the western wage economy insulated the Eskimos of these regions from the continual influences of western culture. This insulation, while no longer a factor today, resulted in the maintenance of many ties to the aboriginal culture. Thus, while acknowledging that many aspects of their culture had changed, residents of the North Slope and NANA Region did not have the difficulty understanding the term "traditional" as it related to their own cultural heritage as did residents of Unalaska or King Cove who had been exposed to western influences to a greater degree. As will be discussed below, the difficulty with the concept "traditional" in the Aleutian Region contributed to the later decision to de-emphasize traditional culture and instead focus on cultural continuity.

The Bering Straits Region

The Bering Straits region includes the regional center Nome, the town of Unalakleet, which is growing as a sub-regional center, and 16 villages. This region is highly diverse because, as one key informant explained, it is a "swing" region, representing a transition between arctic culture to the north and Yukon-Kuskokwim culture to the south. Whereas the North Slope and NANA regions are

relatively homogeneous, the Bering Straits region contains a variety of cultural subgroups that developed in relative isolation of one another (such as the St. Lawrence, King, and Diomede islanders) and hence are highly distinct. Also, some of the villages near the boundaries of the region, such as Stebbins and St. Michaels, manifest cultural influences and ties with the neighboring region to the south, perhaps because their ecological setting is more similar to that of southern villages than to Bering Straits villages.

An example of the region's heterogeneity is the existence of three language groups withinits bounds: Central Yupik, Siberian Yupik, and Inupiaq. Additionally, the largest town, Nome, founded by non-Native gold miners at the turn 'of the centuury, has a larger percentage of white residents relative to other regional centers " such as Barrow, Kotzebue, and Dillingham. Thus , there may exist more cultural contrast between Nome and the smaller villages of the Bering Straits region than there is between Dillingham and the small villages of the Bristol Bay region, for example. As a consequence of this tremendous diversity, generalizations about the region are often inappropriate or too gross to be of value.

The study team conducted fieldwork for this region in Nome and Unalakleet. As these are the two largest communities and the two regional hubs, and given the above discussion of intraregional diversity, it is clear that the field tests from these communities cannot generalize to the entire region. However, by concentrating

the limited field time in the regional centers, we were able to contact key informants working in positions that were regional in scope, such as Kawerak (the non-profit regional native corporation), the Bering Straits Coastal Resource Service Area Board, and the Northwest Arctic Region ADF&G Subsistence Division, among others. These individuals' regional perspectives were invaluable in providing a broadly based assessment of the social goals and survey instrument.

In fact, some Bering Straits key informants' reactions to this study fundamentally challenged the validity of this approach to measuring well-being of rural Alaskans. Upon encountering this initial reaction, the subsequent field effort shifted in focus from testing the survey instrument with residents at large to discussing the basic validity and applicability of the study with key informants.

This discussion with key informants centered around the integrity of Goal Family One, "Continued Existence of Traditional Culture". The Bering Straits region was the last of the five regions visited. Little difficulty with this goa" family had been encountered in the other four regions (with the exception of the problem in the Aleutians described above, and that problem had been anticipated). However, the researchers were surprised to encounter resistance to Goal Family One in the Bering Straits after having experienced a generally favorable response to it in the other regions

Essentially, the key informants who disliked Goal Family One questioned the implicit assumption that the continued existence of traditional culture necessarily contributes to the well-being of Bering Straits residents specifically and rural Alaskans in general. These informants maintained that traditional culture does not necessarily help the modern Native cope with the changes that are an increasingly major part of their lives. Rather, it was suggested that a more appropriate goal would be effective and satisfactory blending of traditional culture with modernization, or the ability to effectively cope with the inevitable modernization process.

An outcome of this valuable debate in the Bering Straits region and the difficulty of defining "traditional" in the Aleutians region was that the study team reformulated Goal Family One from "Continued Existence of Traditional Culture" to "Cultural Continuity".

The field effort had shown that the quality contributing to well-being that we sought to monitor was not necessarily traditionality so much as continuity with the past. Change is inevitable. However, the nature of the change, specifically its pace, is the critical variable that affects well-being; change at too rapid a pace tends to be disruptive. Thus, the occurrence of change at a pace allowing continuity with ones parents' or grandparents' way of life was determined to be the appropriate focus of this goal family.

Another issue that arose from this challenge to Goal Family One was the question of whose well-being this monitoring project was considering. The assumptions implicit in the word "traditional" throughout Goal Family One, and the activities, skills, and arts considered in this goal faintly tended toward a bias of primarily measuring the well-being of Native rural Alaskans. By changing the focus from "traditional" to "cultural continuity", the survey more amply considers all residents of the study area regardless of ethnic origin.

Revised Goal Family One

At the goal level, the result of this de-emphasis on traditional culture was to remove the word "traditional" from some goals and subgoals in Goal Family One and, In some cases, to reword the goals. Goal One, "Continued Harvest of Renewable Resources," and its subgoals essentially remained unchanged. It was found to be universally appropriate in all the regions.

Summary of Fieldwork Related to Other Goals In Goal Family One

Goal Two, "Continued Traditional Social Relationships," also persisted as an appropriate goal based on field confirmation that traditional social relationships (e.g., cooperative activities, sharing, extended family relationships, respect for elders, intervillage social relationships) were highly valued. While the extent and depth of these relationships may change, their continued

existence in whatever evolving form was deemed a necessary component of well-being. The Subgoal, "Continued Traditional Cooperative Activities," was changed to "Continued Cooperative Activities" to reflect the value placed on cooperative activities, regardless of whether they occur in a traditional form or a more modern form. The remaining subgoals under "Continued Traditional Social Relationships" remained largely unchanged. The one exception was the removal of "traditional" from the subgoal which read "Traditional Intervillage Social Relationships."

Goal Three, "Continued Cultural Supports," remained intact; however. one subgoal was reworded and another was eliminated. "Continued Production of Traditional Arts and Crafts" no longer includes the word "traditional" for that wording presented two problems. First, "traditional" was confused with "Native" in this context. For example, some Aleutian villages do not have any residents who engage in Native arts and crafts, however crocheting and knitting are so prevalent among women as to be an important intergenerational unifier.

Second, Native arts and crafts may be produced for sale, for personal use, or for giving to friends and relatives. By eliminating the word "traditional, " the goal more aptly reflects the value placed on the production of arts and crafts regardless of the end use, and regardless of whether the activity is Native, traditional, or modern. In this form, the goal is virtually a

universal goal in that "art for art'ssake"is a value common to most cultures.

"Continued Transfer of Traditional Skills," was deemed inappropriate for rural Alaskan villages and eliminated for two reasons. First, villages are becoming increasingly technologically modern. Traditional technology is frequently rendered obsolete by the introduction of a more modern, more efficient product. However, to imply that the traditional technology's obsolescence necessarily impedes well-being is a fallacy. For example, rural Alaskans generally do not consider the replacement of the dogsled with the snowmachine as a negative contribution to their well-being; on the contrary, they believe the snowmachine has enhanced their well-being.

Second, increasing village involvement in the cash economy has resulted in increasing specialization of traditional skills. In years prior to cash dependence, most residents of a village possessed multiple skills such as net mending, sled building, and skin sewing. However, cash dependence has resulted in more people working wage jobs with less time to mend their nets, build their sleds, and sew skins. Consequently, the number of individuals possessing traditional skills is decreasing, and those who possess them are now considered specialists; residents contract that person to perform these skills for them. Additionally, the availability of cash also permits an individual to have the job done elsewhere. For example, in Unalakleet most people send furbearer skins to Fairbanks or Seattle to have them preserved.

Revised Goal Families Two Through Four

The changes made to the remaining three goal families and their goals and subgoals were relatively insubstantial, relating primarily to minor verbal technicalities. The only noteworthy change occurred in Goal Family Four, Goal One: "Adequate Local Control". The order in which the two subgoals under this heading appeared was switched and the word "adequate" was dropped from both subgoal headings. "Adequate Sense of Ability of Influence Political Processes" was changed to read "Sense of Local Control". Local control was found to be a very important issue to rural residents and came to the study team's attention in the Bristol Bay and Bering Straits regions especially. The change in wording of this goal was thought to more fully capture the local concerns.

Table 8 presents the final listing of AOSIS goal families, goals, and subgoals. The changes that are seen by comparing these tables to Tables 3 through 6 are, as explained above, the product of extensive field testing combined with study team members' expertise in social indicators research to measure well-being.

TABLE 8
ALASKA OCS SOCIAL GOALS

GOAL FAMILY ONE
CULTURAL CONTINUITY

GOAL ONE: CONTINUED HARVEST OF RENEWABLE RESOURCES

111 HEALTHY WILDLIFE POPULATION

112 UNRESTRICTED ACCESS TO TRAD. HUNTING & FISHING AREAS

113 PRESENCE OF WILDLIFE POP. IN TRAD'L HUNTING & FISHING AREAS

114 INTEREST IN AND USE OF RENEWABLE RESOURCES

GOAL TWO: CONTINUED TRADITIONAL SOCIAL RELATIONSHIPS

121 CONTINUED COOPERATIVE ACTIVITIES

122 CONTINUED SHARING OF RENEWABLE RESOURCE PRODUCTS & EQUIP.

123 CONTINUED EXTENDED FAMILY RELATIONSHIPS

124 CONTINUED RESPECT FOR ELDERS

125 INTERVILLAGE SOCIAL RELATIONSHIPS

GOAL THREE: CONTINUED CULTURAL SUPPORTS

131 CONTINUED USE OF NATIVE LANGUAGE

132 CONTINUED ORAL HISTORY TRADITION

133 CONTINUED PRODUCTION OF ARTS & CRAFTS

GOAL FAMILY TWO
INDIVIDUALS & FAMILIES THAT ARE ABLE TO
FUNCTION WELL IN SOCIETY

GOAL ONE: HEALTHY INDIVIDUALS

211 PHYSICALLY HEALTHY INDIVIDUALS

212 MENTALLY HEALTHY INDIVIDUALS

TABLE 8 (Cent'd)

GOAL TWO: INDIVIDUALS WHO ARE SAFE FROM HARM

221 INDIVIDUALS WHO ARE SAFE FROM HARM BY OTHERS

222 INDIVIDUALS WHO ARE SAFE FROM HARM CAUSED BY THEIR OWN ACTIONS

GOAL THREE: AN EDUCATED & SKILLED POPULATION

231 INDIVIDUALS HAVE RECEIVED A BASIC EDUCATION

232 ADULTS HAVE THE EDUCATION AND SKILLS NECESSARY TO OB.EMPL

GOAL FOUR: FAMILIES THAT FUNCTION WELL IN SOCIETY

241 PREVALENCE OF FAMILIES AS THE PRIMARY SOCIAL UNIT

242 HEALTHY SOCIAL RELATIONSHIPS WITHIN FAMILIES

GOAL FIVE: ADEQUATE LEISURE OPPORTUNITIES

251 ADEQUATE OPPORT. TO INTERACT INFORMALLY W/ FRIENDS,FAMILY

252 ADEQUATE OPPORTUNITIES TO PARTICIPATE IN RECR. ACTIVITIES

GOAL FAMILY THREE
COMMAND OVER GOODS AND SERVICES

GOAL ONE: SUFFICIENT INCOME & EQUITABLE INCOME DISTRIBUTION

311 ALL HH RECEIVING MIN. INCOME REQ. TO MEET BASIC NEEDS

312 MOST HOUSEHOLDS EXPERIENCING REAL INCOME GROWTH

GOAL TWO: SUFFICIENT OPPORTUNITIES FOR EMPLOYMENT

321 SUFFICIENT NUMBER OF LOCAL JOBS

322 SUFFICIENT OPPORTUNITIES FOR PREFERRED JOBS

TABLE 8 (Cent'd)

GOAL THREE: SUFFICIENT HOUSING

331 AFFORDABLE HOUSING OPPORTUNITIES

332 SATISFACTORY PHYSICAL LIVING SPACE

GOAL FOUR: SUFFICIENT FOOD

341 SUFFICIENT FOOD AVAILABLE

342 AFFORDABLE FOOD

GOAL FIVE: SUFFICIENT PERSONAL GOODS & SERVICES

351 SUFFICIENT AVAILABILITY OF GOODS ANO SERVICES

352 AFFORDABLE PRICE FOR GOODS AND SERVICES

GOAL SIX: SATISFACTORY COMMUNITY ENVIRONMENT

361 SATISFACTORY PUBLIC SERVICES AND FACILITIES

362 SATISFACTORY PHYSICAL ENVIRONMENT

GOAL FAMILY FOUR
SOCIAL OPPORTUNITIES AND PARTICIPATION

GOAL ONE: ADEQUATE LOCAL CONTROL

411 SENSE OF LOCAL CONTROL

412 CONFIDENCE IN INSTITUTIONS AND LEADERS

GOAL TWO: ADEQUATE PARTICIPATION

421 PARTICIPATION IN ROUTINE PROCESSES OF GOVT

CHAPTER FOUR
DEVELOPMENT OF SOCIAL INDICATORS

This chapter describes the steps taken to develop actual measures for each AOSIS subgoal. The chapter begins by describing the rules used in the development of social indicators. The second section reviews potential indicators based on existing data. The third section of the chapter describes the steps taken to derive a set of potential indicators based on primary data. The fourth section summarizes the results of our field tests of potential primary indicators. The final section presents the final set of indicators.

Rules for Developing Social Indicators

As stated in the preceding chapter, we developed a taxonomy of social goals to ensure that AOSIS is both comprehensive and coherent. The goals are intended to cover all aspects of individual well-being. They are also intended to provide an understandable framework for the presentation of data.

In this chapter, we turn from the conceptual side of AOSIS to the operational side. Social goals are concepts while social indicators are operational measures of these concepts. The rules used to develop all social indicators closely parallel the overall characteristics of AOSIS described in Chapter 1. The rules are:

(1) There must be at least one social indicator for each subgoal. However, the number of indicators included under a single subgoal should be limited to that which is necessary to reliably measure the subgoal.

(2) The meaning of each indicator should correspond to the meaning of one, and only one, subgoal.

(3) The indicator must directly measure individual well-being.

(4) The indicator must accurately reflect reality.

(5) The indicator must be sensitive to actual change.

(6) Indicators should be expressed both as averages and as distributions of well-being.

(7) Where possible, each subgoal should be described by both objective and subjective measures.

In the following paragraphs, we explain the meaning of and rationale for each of the above rules.

RULE ONE: There must be at **least** one social indicator for each subgoal. However, the number of indicators included under a single subgoal should be limited to that which is necessary to reliably measure the subgoal.

To be comprehensive, **AOSIS** not only must include subgoals for all major factors contributing to individual well-being; it must also include measures of all subgoals. At the same time, the need to limit the cost and complexity of the system mandates that the number of indicators be constrained.

The word "indicator" is chosen deliberately to communicate the fact that the measures included in **AOSIS** point to aspects of well-being, but are not exhaustive descriptions of well-being. In our

discussions with key informants, we used the analogy of the gauges in an airplane cockpit. The gauges provide the pilot with critical data on the condition of the aircraft. They do not, however, tell the pilot everything a mechanic might be able to on the ground, using special equipment. Just as it would be unwieldy to equip an aircraft with all the special equipment available to a mechanic, it would be unreasonable to include large number of indicators for each subgoal.

RULE TWO: The meaning of each indicator should correspond to the meaning of one, and only one, subgoal.

If a measure of housing quality were treated as an indicator of the subgoal, real income growth, the meaning of the indicator would clearly not match the meaning of the subgoal. Under some circumstances, a high level of housing quality might indeed reflect a high. level of real income. Suppose, however, that public housing programs produced a high level of housing quality in an impoverished region. In this case, the use of housing quality as a measure of income would lead to erroneous conclusions. At a minimum, then, the correspondence in meaning between an indicator and its subgoal should be intuitively obvious.

An indicator can also only be an effective measure of a subgoal if its meaning does not overlap with a second subgoal. It must be possible to simultaneously detect a high level of well-being on one subgoal and a low level of well-being on another subgoal. If the same indicator applies to two subgoals, such a distinction would be impossible.

RULE THREE: The indicator **must** directly measure individual well-being.

A direct measure of well-being is one which requires no interpretation to understand how it reflects well-being. If the same indicator is measured for two people, and one person is observed to have a higher value on the indicator than the other, the person observed to have the higher value must be better off, all other things being **equal.** Whether or not a person can read Newsweek or Readers Digest is a direct indicator of having received a basic education. The number of hospital beds available per capita is not **a** direct measure of physical health. An increase in the number of hospital beds may reflect a decline in health and attendant increase in demand for beds. It may change for numerous other reasons as well.

As the reading example shows, an indicator may not measure all dimensions of a subgoal. Reading ability is an important, but not the only, dimension of receiving a basic education (others include arithmetic and writing abilities). It must be clear, however, that a high value on an indicator reflects a high level of well-being. Another term for a direct measure of well-being is an output measure.

There is a high cost to limiting social indicators to output measures. Government agencies keep voluminous records on their activities, and much of the data contained in these records are not output measures of individual well-being. We can find out, for example, how many physicians, nurses, health aides, and public safety officers serve population groups throughout Alaska's coastal

regions. While such counts are often included in descriptions of the human environment, they do not clearly indicate levels of individual well-being and were excluded from AOSIS. As in the example of the number of hospital beds, an increase in the number of health professionals delivering a service may not mean that the health of individuals is improved.

RULE FOUR: The indicator must accurately reflect reality.

While this rule may seem obvious, it is commonly violated. Classic examples of indicators which often do not accurately reflect reality are crime statistics. Two regions showing substantially different crime statistics may, in fact, have similar actual crime rates, Differences in reporting can account for the apparent difference.

Even indicators which are based on direct responses by individuals can be inaccurate. It is unlikely, for example, that we would get accurate responses to the question, "Do you respect elders in your community?" Each potential social indicator must be reviewed for possible bias. In the present example, respondents are likely to feel that their answer will reflect on the interviewer's evaluation of them. As a result, they probably would give the socially acceptable response of "yes." Bias can often be minimized by asking about specific behavior in the recent past.

There are other sources of measurement error besides bias. Questions which require an individual to report his or her past activities may

fall to accurately recall what they did. Sensitive questions may cause people to lie or to say that they do not know the answer when in fact they do. Potential indicators must be evaluated from the perspective of each of these types of measurement error. Probes of responses during pretests of potential indicators is often the best way to identify recall problems and the reasons why people say they don't know enough to respond.

RULE FIVE: The indicator must be sensitive to actual change. Social indicators are useful descriptors of well-being at a single point in time (e.g., as baseline measures). However, social indicators are most useful if they are measured or projected over time. Social indicators can only be used as the basis for projecting or documenting change if observed values for the indicators vary in response to actual change. Thus, for example, if extended family relationships weaken, the indicator of extended family relationships should decline in value over time. A quality indicator will not only identify the direction of change (e.g., weakened, as opposed to strengthened family relationships), but also the extent of change. In the present example, a quality indicator of family relationships might show the following change:

ILLUSTRATION OF INDICATOR
SENSITIVITY TO CHANGE

Indicator of Extended Family Relationships	1986	1991
Percent engaging in cooperative activity with relative living in a different household:	45%	35%

Note that change in this case is expressed as a difference in the percentage of the population exhibiting a specific behavior. The example shows that it is possible to use responses to a simple yes/no question as the basis for a social indicator, providing that the responses are accurate and that there is sufficient variation in responses across individuals. Suppose, however, that 100 percent of the population indicated that they pursued cooperative activities with extended family members in 1986. We cannot be confident that an actual change in conditions between 1986 and 1991 would be reflected in the indicator. Since different people already live under varying conditions, we should observe some people who respond differently than other people, not a 100 percent response in one category. If we do not observe a variation in reponse, we should suspect that the indicator is faulty in some respect.

One way to avoid constructing indicators that are insensitive to change is to base an indicator on responses to a series of questions. In the case of extended family relationships, for example, AOSIS respondents are asked about a series of specific activities rather than asked a general question on their activities with extended family members.

Another approach is to have more than two possible responses to a question. An indicator based on a single question that simply requires a yes or no answer is much more likely to fail to detect change than a single question which provides four, five, or more

response categories. Thus, for example, respondents are asked to express their perceived satisfaction with their physical health on a five-point scale.

RULE SIX: Indicators **should be** expressed both as averages and as distributions of well-being.

An indication of an average **level** of well-being is the most efficient way of describing the well-being of a population as a whole. However, we are often as or more concerned about the well-being of those least well off. Observations of change in the average level of well-being may mask significant changes in the well-being of less fortunate people. Reports of distributions of well-being avoid this problem.

RULE **SEVEN: Where** possible, each subgoal should be described by **both** objective and subjective measures.

An objective measure is one which most people agree is a fact that is independent of human perceptions. This means that, faced with the same facts, everyone would give the same answer. A subjective measure, on the other hand, is one which is deliberately intended to tap personal perceptions.

There is actually no distinct dividing line between objective and subjective measures. We can ask a meteorologist, for example, to report the number of sunny days in the past month. The answer **will** in part depend on how he or she classifies a partly sunny/partly

cloudy day. Most people would treat the meteorologist's report as an objective measure, but perceptions do play a role in the response.

In AOSIS, measures are treated as subjective if they involve a perception of a state of mind. For example, a person's level of satisfaction with his or her housing is a subjective measure. The same person's report of the amount of money he/she spent on housing costs in the previous year is treated as an objective measure based on the assumption that most people would give the same response when faced with the same objective circumstances (i.e., actual housing costs) .

AOSIS includes both objective and subjective measures because either type of measure by itself may lead to erroneous conclusions. Scientists initially expected that objective and subjective measures of well-being would closely parallel each other; that is, they assumed that a high level of objective well-being would be matched by a high level of subjective well-being. To their surprise, the two measures frequently appeared unrelated, or even inversely related.

There is a good theoretical reason why objective and subjective indicators of well-being may suggest different levels of well-being. Our perceptions are based on more than readily observed objective conditions. We continually compare our conditions with those of other people. Our perceived satisfaction also varies

according to our expectations, our desires, and what we think we deserve. Collectively, these standards of comparison are labeled aspirations.

Differences between objective and subjective indicators of income adequacy provide a good example of the effect of aspirations. Researchers frequently find that as objective indicators of income adequacy increase over time, subjective indicators remain constant or decline. These results are consistent if we assume that people's aspirations have increased at a more rapid rate than their incomes.

Ideally, a social indicator system would include measures of objective conditions, perceived satisfaction with those conditions, and aspirations. Inclusion of all three types of measures, however, would pose an unacceptable burden on survey respondents. AOSIS includes objective and subjective measures under each subgoal. The system also includes aspiration items for several key subgoals.

We have just reviewed the seven rules used to develop social indicators. To highlight their importance, we repeat the rules below. Armed with the rules, we now turn to a review of potential indicators based on existing data.

SUMMARY OF RULES USED
IN THE DEVELOPMENT OF SOCIAL INDICATORS

(1) There must be at least one social indicator for each subgoal. However, the number of indicators included under a single subgoal should be limited to that which is necessary to reliably measure the subgoal.

(2) The meaning of each indicator should correspond to the meaning of one and only one subgoal.

(3) The indicator must directly measure individual well-being.

(4) The indicator must accurately reflect reality.

(5) The indicator must be sensitive to actual change.

(6) Indicators should be expressed both as averages and as distributions of well-being.

(7) Where possible, each subgoal should be described by both objective and subjective measures.

Review of Potential Indicators Based on Existing Data

Basing social indicators on existing data has the advantage of making them substantially less expensive to assemble than if they are based on new or primary data. Major sources of existing data include the U.S. Bureau of the Census, the Alaska Department of Labor, the Alaska Division of Vital Statistics, and dozens of agencies which provide services to the public. Many countries, the United States included, collect enough data to assemble a reasonably comprehensive series of objective social indicators. The availability of subjective indicator data is more spotty. In the Us. at least, periodic national surveys including measures of perceived life quality have been conducted over the past decade. Thus, the goal of constructing a social indicator system solely on

the basis of existing information is not out of the question for most countries and is reasonable for the U.S as a whole (providing that funds are available to assemble the data).

The availability of existing data on a state level is much more constrained. Alaska is at a particular disadvantage because of its small population. National data series that are collected on a sample basis frequently yield Alaska samples that are too small to yield reliable results. The Census Bureau, for example, conducts monthly surveys under its Current Population Survey (CPS) Program. Alaska's CPS sample is very small, however, and excludes the rural areas of the state of most concern to the Minerals Management Service. None of the periodic national surveys measuring subjective well-being include a significant Alaska sample.

The lack of data for Alaska as a whole certainly limits the prospects for basing AOSIS on existing information. Even if a broad spectrum of data existed at a statewide level, however, it would still not provide an adequate basis for a social indicator system whose purpose is to isolate the effects of OCS development. To meet the objectives of AOSIS, existing data should:

(1) Be available on a subregional or place-by-place basis.

(2) Should distinguish between levels of well-being of Natives and non-Natives.

(3) Should be collected at least every five years.

(4) Should meet the general rules for social indicators.

The first three rules really apply to all social indicators, not just those based on existing data. We waited to introduce them because any indicator based on new data can be collected on whatever level of geography, racial breakdowns, and schedule desired. It is important, however, to briefly explain why these rules are critical to the assessment of potential indicators based on existing data.

RULE ONE: To be effective social indicators, existing data must be reported on a subregional or place by place basis.

Many of the potential effects of OCS activities are localized. Unless social indicators are reported on a small area basis, it will be impossible to isolate these localized effects. Ideally, data would be collected and reported for each community. A viable system could be maintained, however, on the basis of subregional data, particularly if key places could be identified separately. By subregional, we mean areas smaller than Native regional corporation regions.

RULE TWO: To be effective social indicators, existing data must distinguish between levels of well-being of Natives and non-Natives.

While we must be concerned with the potential effects of OCS activities on all residents of coastal areas, data which is collected without regard to ethnic background is likely to mask significant effects. A growth in average household income in a subregion, for example, could result from the immigration of non-Natives. It would hence be possible for the average household income of Native residents to decline at the same time that the average household income for all residents increased.

RULE THREE: To be effective **social** indicators, existing data must **be** collected at **least every** five years.

OCS activities can quickly become the major source of change in a subregion populated by a few thousand residents. As a result, change can occur suddenly. In some cases, even annual collection of data would be necessary to adequately monitor change. The choice of a maximum reporting cycle is arbitrary, but five years would appear to be a useful length for an ongoing reporting cycle. The cycle could be accelerated in times of rapid change.

The major implication of rule three is that decennial census data do not provide a source of effective social indicators. Given the arbitrary nature of rule three, however, it would be foolish to dismiss the wealth of decennial census data from consideration. It was, therefore, included in **AOSIS** with the qualification that it may be insensitive to some short term effects of OCS activities.

We used both the general social indicator rules and specific indicator rules for indicators based on existing data to rate the acceptability of **45** potential indicators drawn from the following major sources: U.S. Bureau of the Census **dicennial** census long form, Us. Bureau of Economic Analysis Regional Economic Information System, Indian Health Service Patient Care Information System, Alaska Department of Fish and Game biologists, Alaska Vital Statistics published by Health and Social Services, and Official Returns by Election Precinct published by Division of Elections (see Table **9).**

TABLE 9.
POTENTIAL SECONDARY INDICATORS

Goal Type	Name	Accept-ability	Region Quality	Relevance	Type Measure	Sub-Regional	Race	Source
CULTURAL CONTINUITY								
111	size key wildlife pop as % max size in last 20 yrs	Yes	Unknown	Very Good	output	Yes	NA	ADF&G
113	% recent historic max wildlife pop present in area	Yes	Unknown	Very Good	output	Yes	NA	ADF&G
131	% speaking Native language at home	Marginal	Good	Very Good	output	Yes	Yes	Census
INDIVIDUALS AND FAMILIES THAT FUNCTION WELL IN SOCIETY								
211	birth rates	Yes	Fair	Limited	output	Yes	Yes	ADHSS
	infant survival rate	Yes	Fair	Very Good	output	Yes	Yes	ADHSS
	death rate by cause	Yes	Fair	Very Good	output	Yes	Yes	ADHSS
	% pop. treated for selected medical problems	Marginal	Fair	Limited	Int-Out	Yes	No	1 HS
221	death by homicide rate	Yes	Fair	Very Good	output	No	Yes	ADHSS
	# of arrests by type	No	Poor	Limited	Input	Yes	?	ADPS
222	death by suicide rate	Yes	Fair	Very Good	output	No	Yes	ADHSS
	death rate by alcoholism	Yes	Fair	Very Good	output	No	Yes	ADHSS
	death rate by accident rate	Yes	Fair	Very Good	output	No	Yes	ADHSS
231	% completing eighth grade	Marginal	Good	Good	Int-Out	Yes	Yes	Census
232	% completing high school	Marginal	Good	Good	Int-Out	Yes	Yes	Census
241	% of total households which contain 2+ relatives	Marginal	Good	Very Good	output	Yes	Yes	Census
	% adults married	Marginal	Fair	Very Good	Int-Out	Yes	Yes	Census
242	% adults ever married but never divorced	Marginal	Good	Very Good	output	Yes	Yes	Census
	% households w/children having 2 adults present	Marginal	Good	Very Good	output	Yes	Yes	Census
COMMAND OVER GOODS AND SERVICES								
311	% households (families) below income threshold	Marginal	Good	Very Good	output	Yes	Yes	Census

Table 9. Potential Secondary Indicators
(Continued)

Goal Type	Name	Acceptability	Region Quality	Relevance	Type Measure	Sub-Regional	Race	Source
(311 Cont.)	% of households receiving public assistance	Marginal	Good	Limited	Flow	Yes	No	ADHSS
	total earnings by place of work	No	Good	Poor	output	No	No	BEA
	total payroll for covered employment by industry	No	Good	Poor	output	No	No	DOL
312	median per capita income	Marginal	Fair	Good	output	No	No	BEA
321	% of labor force who are employed	Marginal	Good	Good	Int-Out	Yes	Yes	Census
	% full-time workers who worked 38 weeks or more .	Marginal	Good	Good	Int-Out	Yes	Yes	Census
	nonagricultural employment (total)	No	Fair	Poor	output	No	No	ADOL
	unearned proportion of income (54)	No	Poor	Limited	Int-Out	No	No	BEA
	number (or pounds) of salmon by species	No	Fair	Poor	Int-Out	No	NA	ADF&G
	commercial fishing licenses	No	Good	Good	Input	No	No	ADF&G
	chum salmon aerial survey escapement	No	Fair	Good	Input	No	NA	ADF&G
	commercial fishing periods (hours per week)	No	Good	Limited	Input	No	NA	ADF&G
	labor force status of persons 16+	Marginal	Good	Limited	Flow	Yes	Yes	Census
	hours worked per week by # of weeks worked	Marginal	Good	Good	Int-Out	Yes	Yes	Census
322	% men holding professional, technical, craft jobs	Marginal	Good	Good	output	Yes	Yes	Census
322	% women holding professional, technical, managerial jobs	Marginal	Good	Good	output	Yes	Yes	Census
	nonagricultural employment by industry	No	Good	Poor	output	No	No	ADL
	average monthly wage by industry	No	Good	Poor	output	No	No	ADL
331	gross rent as percentage of income	Marginal	Good	Very Good	output	Yes	Yes	Census
	selected monthly owner costs as % of income	Marginal	Good	Very Good	output	Yes	Yes	Census
332	persons per room	Marginal	Good	Good	Int-Out	Yes	Yes	Census
	% households with running water	Marginal	Good	Good	output	Yes	Yes	Census
SOCIAL OPPORTUNITIES AND PARTICIPATION								
411	% population residing in community for 5+ years	Marginal	Good	Good	Int-Out	Yes	Yes	Census
	existence of local jurisdiction WI plan-zone powers	No	Good	Very Good	Input	Yes	NA	ADCRA
421	% adults voting in statewide elections	Marginal	Fair	Very Good	output	Yes	No	ADE
	registered voters as % adult population	Marginal	Fair	Good	output	Yes	No	ADE

Table 9. Potential Secondary Indicators
(Continued)

Sources: BEA = U.S. Department of Commerce, Bureau of Economic Analysis.
Census = U.S. Department of Commerce, Bureau of the Census.
IHS = U.S. Department of Health and Human Services, Indian Health Service
ADCRA = Alaska Department of Community and Regional Affairs
ADE = Alaska Division of Elections
ADF&G = Alaska Department of Fish and Game
ADHSS = Alaska Department of Health and Social Services
ADL = Alaska Department of Labor
ADPS = Alaska Department of Public Safety

NA = not applicable,

Secondary data was only considered if available for all coastal regions. Data only available for selected places was excluded. To be considered, secondary data also had to be reported on at least a regional level such as a census area or Native regional corporation. With one exception, only secondary data which could be reasonably construed to be output measures of individual well-being were considered. The exception was that we considered all secondary data identified in Technical Report 77 of the Minerals Management Service.

The 45 potential indicators based on secondary data are relevant to 18 of the 42 subgoals initially identified for AOSIS. Potential indicators were rated as acceptable, marginally acceptable or not acceptable using six criteria: quality of measuure at the regional level, relevance, type of measure (output or not), availability of subregional breakdowns, availability of race breakdowns, five-year or less reporting cycle.

In order to be judged at least marginally acceptable, a potential indicator had to be of at least fair quality at the regional level, be of at least limited relevance to a single subgoal, and not be what is called an input measure. An input measure is a measure of resources expended to improve individual well-being, not a measure of individual well-being itself. The number of doctors per capita is an example of an input measure.

Thirty-three of the 45 potential Indicators based on existing data were judged to be at least marginally acceptable (see Table 9). To be fully acceptable, the remaining potential indicators had to be available on at least a five-year cycle, had to be reported on a subregional level, and had to include separate indications of Native and non-Native well-being. Nine of the 33 potential indicators were judged to be fully acceptable.

Not unexpectedly then, available data does not take us very far toward the construction of a comprehensive social indicator system for coastal areas of Alaska. While available data should certainly be Included in AOSIS, it is clearly necessary to collect new information.

The next several paragraphs present more detailed assessments of the major sources of existing data. The reader may wish to skim *or* skip these assessments. The next section of this chapter discusses the steps taken to develop indicators based on new information. The section starts on page 136.

Detailed Assessments of Major Secondary Sources

The primary source of secondary data is the decennial census. While census data should obviously be included in any social indicators system, it cannot be used to detect change within a decade and has limited usefulness in an indicator system based on a five year cycle. We constructed 18 indicators from Census data which

collectively cover ten social subgoals. Census indicators are classified as marginally acceptable due to the ten-year reporting limitation. However, census indicators will serve as important benchmarks for other indicators collected on a more frequent basis. We have deliberately replicated many of the census indicators in the primary data collection component of AOSIS to take advantage of the census benchmark measures.

The vital statistics reporting system of the Alaska Department of Health and Social Services is the principal source for birth and death data. While these indicators were judged as acceptable, they have important limitations. The reliability of the data has deteriorated in recent years due to staff turnover and funding cuts. A report containing a summary of 1983 vital statistics had not been published as of June 30, 1985. There is currently no program for verifying causes of death, yet there "is evidence that causes of key concern (e.g., suicides) are significantly underreported.

Indian Health Service records are the source of data for the indicator on medical treatments by type. This indicator is not a direct measure of individual well-being in that the number of treatments recorded is in part a function of the availability of medical personnel. Given the difficulty of obtaining data on physical health, however, IHS data should be included in AOSIS. IHS data has two other significant limitations. First, the Indian

Health Service does not treat non-Natives except for emergency cases. Second, there are alternative sources of medical care available for Natives, particularly in the area of mental health. These other services are not universally available in rural Alaska and there is no central source of data for them. It is, therefore, not feasible to augment IHS data with data from other health service agencies.

Two major sources of data judged unacceptable for AOSIS were employment, earnings, and payroll data from the U.S. Bureau of Economic Analysis and the Alaska Department of Labor. The reasons for exclusion are that they are not directly and uniquely relevant to single subgoals, they are reported by place of work rather than by place of residence, they do not cover commercial fishermen, they are not available at a subregional level, and they do not report data separately for Natives and non-Natives.

Development of Social Indicators from Primary Data

Consideration of the use of new, or primary, data as a basis for constructing social indicators creates seemingly limitless possibilities for potential indicators. In fact, it sometimes proved difficult to create meaningful indicators for a specific subgoal following the rules described earlier. We started by attempting to identify potential indicators which could be derived from key informants or from direct observations. Key informant or direct observation data for such indicators is usually less

expensive to collect than survey-based data and are therefore preferable as sources for social indicators. However, we were only able to identify six potential indicators which are based on key informant data.

The reason for the low number of key informant-based indicators is that only rarely can key informants provide accurate measures of individual well-being that are sensitive to change over time. Key informant interviews are unquestionably invaluable as a means of identifying important social goals; describing the current structure of social, economic, and cultural relationships; and understanding the dynamics of change. They appear to be less suited to the development of time series data that permits the measurement of change.

The alternative to basing indicators on key informants is to base them on individual self-reports. Individuals can report on factual conditions relevant to their well-being. They are also the only logical source for subjective measures of well-being. We approached the task of developing objective self-report indicators on a subgoal by subgoal basis. If a subgoal lacked at least one acceptable objective indicater based on either existing data or key informants, we identified at least one objective self-report measure. We then identified at least one subjective indicator for each subgoal.

A principal source for objective self-report indicators was the final draft questionnaire of the Directorate for Social Affairs Manpower, and Education of the Organization for Economic Cooperation and Development (OECD 1979). In particular, we adopted a modified version of a series of questions on physical health. We also adapted several employment and subsistence questions successfully employed in a 1977 survey of North Slope Inupiat (Kruse, Kleinfeld, and Travis, 1981) . Many new questions had to be developed to meet the minimal criterion of one objective measure for each subgoal.

The work of Frank Andrews and Stephen Withey at the Institute for Social Research provided the principal source of measures of subjective well-being (Andrews and Withey 1976). Andrews and Withey began their work by developing a large set of social concerns from four types of sources:

- Responses to open survey questions on what matters to people or what they are concerned about.
- Information gathered in focused interviews with heterogeneous groups of people.
- Previously published lists of values, including the work of Kluckhohns (1951, 1953) and Spiegel (1971) who attempted to identify value orientations common to all cultures.
- Official lists of concerns prepared by U.S. agencies, the OECD, and lists prepared by other research groups.

This initial work yielded some 800 concerns which Andrews and Withey distilled down to a list of 123 separate questionnaire items. Each item was phrased, “how do you feel about . ...” Respondents answered

on the following scale: delighted, pleased, mostly satisfied, mixed, mostly dissatisfied, unhappy, terrible.

Various combinations of the 123 items were included in five national surveys and one local survey, all conducted in 1972 or 1973. Andrews and Withey subjected the resulting data to an analysis technique which graphically maps items in a way that reveals how the items relate to each other in people's minds. They also tested to see which combination of items provided the best prediction of individuals' overall perception of well-being. As a result of these analyses, Andrews and Withey were able to recommend a set of 12 concerns for the measurement of subjective well-being. Six of these concerns were measured by indexes composed of two or more variables. The 12 concerns identified by Andrews and Withey are:

(1) Family
(2) Health
(3) Money
(4) Efficacy
(5) Job
(5) Things do with family
(7) Time to do things
(8) Material well-being
(9) House/apartment
(lo) Spare time activities
(11) Fun
(12) Government

The 12 concerns identified by Andrews and Withey fit well within the AOSIS social subgoals, but do not comprehensively cover all subgoals. In particular, the 12 concerns do not address the subgoals under the cultural continuity goal family. We developed

new indicators for each subgoal. not covered by one or more of the measures of subjective well-being prepared by Andrews and Withey.

Field Testing of Indicators

A critical step in the development of new social indicators is field testing. Field testing ensures that questions mean what we think they mean to the people who provide the answers. Field testing also ensures that each question will receive enough variation in response that the question will be sensitive to changing conditions.

In preparation for field testing, we developed a 42-page manual containing initial assessments of all potential indicators and field instructions. The following four examples of indicator assessments and field instructions illustrate the procedure followed for 179 potential indicators initially identified:

> (004) Percent engaging in 50 percent or more of local subsistence activities. This is an indirect measure of interest that is also partially a measure of economic importance. Since all subsistence activities are not equally productive in terms of food value, the diversity of subsistence activities is likely to tap preferences for different experiences and different subsistence products and hence be a reasonable measure of interest.
>
> FIELD: Compile lists of "key" harvest activities (i.e. those that carry high cultural importance) by village. Include activities for both men and women.

(009) Percent sharing selected resource products. The concept of sharing is extremely difficult to measure. We are likely to get a normative response.

> FIELD: We would like to get a behavioral measure rather than a normative response. Try to see if there is a way to capture sharing activity with a behavioral measure even if it is not comprehensive. Examples might include, "Has someone given your household enough meat for an entire meal in the last month?" "When is the last time that you gave away 10 pounds of meat at one time?"

(066) Percent consuming alcohol in last week. In a statewide survey of alcohol use, 46 percent of Native respondents reported that they had consumed no alcohol in the previous 12 months. This appears to be an unrealistically low rate of alcohol use and suggests that self-reports may be subject to substantial negative response bias. As stated, indicator does not measure a true health risk since low amounts of alcohol consumption are not hazardous to most people. Use of a question which incorporates a more meaningful measure of alcohol abuse might be subject to even more negative response bias, however.

> FIELD: Try to determine conditions under which respondents will give inaccurate answers. Consider adding question on whether respondent has had too much to drink in last week.

(130) Percent of households with complete utilities. Use of standard census definitions (hot and cold piped water, a flush toilet, and a bathtub or shower) would provide the opportunity to obtain decennial benchmark data. There should, however, be additional measures directed at community water and waste distribution systems (i.e. are they designed to handle water and waste safely and do they work).

> FIELD: What different types of utility systems are present in each region?

Development of Activity Lists

We entered the fieldwork phase of the study with the fieldwork manual described above and a draft questionnaire. Prior to the fieldwork, the study team also developed preliminary activity and special skill lists related to the harvest and use of renewable resources for each of the five study regions. Because there is significant variation in the mix of subsistence resources across communities associated with the different environmental settings of the villages, separate lists of subsistence activities were developed for each community. An example of this list for Barrow is presented in Table 10. Similar lists were developed for the other four study regions. During the field testing, the activity and special skill lists were evaluated with key informants to ensure that they were accurate and adequately reflected key subsistence activities in each study community. Ten activities and up to six special skills were selected from the lists in each community and incorporated into the first section of the questionnaire. In this manner, regionally specific activities and skills were used in the field tests of the preliminary questionnaire. The main goals of the activity selection process during the field testing of the questionnaire were to:

- develop a valid and comprehensive list of major activities related to renewable resource harvest and use for each community
- include both women's and men's activities
- include individual as well as cooperative activities
- refine the lists to ten activities and test those within the questionnaire format

During the fieldwork, it also became apparent that a list of women's activites was necessary before one could interview women in the villages.

TABLE 10
BARROW HARVEST ACTIVITIES ANO SPECIAL SKILLS
(PRE-FIELDWORK)

Activities	Special Skills
• Hunt caribou	• Build/repair umiak frame
• Hunt ringed seal	• Dry seal meat
• Hunt walrus	• Render seal oil
• Hunt bearded seal	• Sew skin clothing
• Hunt waterfowl	• Sew ugruk skin for boat cover (Barrow only)
• Attend Naluqatuq	• Dry fish
• Participate on whaling crew	• Help butcher bowhead whale
• Go to fishcamp (Barrow only)	• Help butcher beluga
• Fish during the winter	• Make and/or repair fishing net
• Gather greens and/or berries	• Butcher seal
• Maintain or use ice cellar	• Make and/or repair a sled

For example, initial lists for measuring participation in subsistence activities consisted primarily of male-oriented activities such as ugruk, bowhead whale, and caribou hunting. Therefore, two activity lists were generated for each village, one to be used when surveying men and another for surveying women. However, we encountered minor problems with this approach because people whose activities crossed typical gender roles, such as women who were active hunters, were not accurately represented. In many study communities, informants indicated that historic male and female division of labor for harvesting, using, and preserving wild foods has changed and that more women are participating in hunts, and men help more with processing food.

Another problem that developed in the field was differentiating between "activities" and "special skills" associated with the harvest and use of renewable resources. Significant overlap occurred between the two lists and proved confusing to villagers. The intent of asking respondents about various subsistence activities was to measure current levels of participation in these activities. Questions about use of specific "traditional" skills attempted to measure the transfer of key traditional hunting and fishing skills and knowledge from one generation to the next. However, it became clear that participating in a given activity, such as ugruk hunting, and using a set of skills, such as reading sea ice, were so intertwined as to be inseparable.

Furthermore, using skills as a measure of" cultural continuity was problematic because it did not allow for technological changes. Different technologies are adopted and abandoned by people to suit their own needs and purposes and the use of a given technology requires use of a number of associated skills. The specific technological device and the skills that accompany the use of that technology are less important as a gauge of cultural well-being than maintaining qualities of adaptiveness and inventiveness that allow people to learn new skills and adopt new technologies. One individual commented, "If skills get lost, our culture will still go on. Things like sharing and world view are what is important--not technology. It is more important how a person behaves." An emerging trend pointed out in all five study regions is a trend

toward increasing specialization in equipment manufacture (such as basket sleds) as well as in subsistence harvests. In Kotzebue, a respondent commented, "There is more individual enterprise now making these things. People are starting to get specialized." Another informant said, "In Barrow, not a lot of people hunt geese--but a lot of people eat geese." Thus, the number of people who may now participate in certain "traditional skills" would be too small to measure.

Because of the numerous problems with the concept of "traditional," and the overlap and confusion between "activities" and "special skills," the special skills section has subsequently been combined with the activities section. For example, in the Aleutians, respondents said that while making a kayak was a special skill that was no longer practiced, the ability to read weather and water conditions should be considered a skill even though the boat in use was fiberglass. In addition, the continued transfer of traditional skills (like building a kayak) was not as important as the transmission of knowledge between generations. During the fieldwork in King Cove, we repeatedly noted this inter-generational transmission of knowledge; it was not, however, related to "traditional skills" but to things like boat maintenance and diesel engine repair.

Combining the special skills with the activities broadens the definition of "activity" within the social indicators project to mean the harvest and use of renewable resources as well as a variety

of other activities related to the changing harvest technologies used to pursue a subsistence lifestyle. Thus, the new goal family, "Cultural Continuity," that these activities are designed to measure allows for changes in activities and technology while still maintaining continuity with the past.

It also became clear that certain subsistence activities may not provide valid measures of the continued interest in harvesting renewable resources. That is, noncultural influences may determine participation in a given activity more than cultural factors. For example, hunters in Kivalina harvest walrus whenever available. However, several years may pass between successful walrus harvests because walrus are close to Kivalina only sporadically depending on population abundance and local sea ice conditions. Therefore, the level of participation in walrus hunting would be a measure of environmental factors rather than a reliable indicator of cultural change. The study team made an effort not to include activities that were environmentally determined in the final activities lists.

Criteria for Choosing Final Activities

The activity lists are the only part of the questionnaire that will change from one community to the next. Hence, to develop the final activity lists, the study team developed a set of criteria to guide in the choice of community-specific activities. The intention was to standardize activity selection to reduce the chance of inadvertent bias and to make the activities comparable across

regions. While each community has a seperate activity list, the lists must be comparable between regions. For this reason, standard criteria were used to make the activity lists. This ensured that interregional comparison and data analysis over time was possible. The following criteria were used to compile the final activity list for each community:

(1) Represent a seasonal round and variety in diet.

(2) Include activities done by males, females and those done by both.

(3) Include both individual and cooperative activities.

(4) Focus on activities that contribute to cultural continuity.

(5) Include activities that provide adequate variance.

(1) Seasonal round and variety ensure that a wide spectrum of activities and species variety are considered in activity selection. In rural Alaska, there are seasonal influences on different categories of resource users. For example, in Bristol Bay, commercial fishermen and processor workers are not able to participate as extensively in summer food harvesting activities. On the other hand, in upstream areas of the region, people are more mobile and participate in more activities during the winter when snow machines can be, used. The activities chosen for inclusion in the questionnaire should represent all seasons and avoid over-emphasizing any one season. People also desire variety in their diet, which is accounted for somewhat by attention to seasons. Any one food source should not dominate the activity list.

(2) Gender is important so that the lists are not biased toward either men's or women's activities. Although historically there were sharp divisions between men's and women's activities, many activities are now done by both men and women. While there are exceptions, such as big game hunting and trapping which are primarily men's activities, it now appears that for most activities, preference, opportunity, and family tradition are more significant influences on participation than gender. A New Stuyahok resident emphasized the prevalence of men and women sharing activities:

> Of course we both dry caribou! You don't think I would just sit here and watch my wife do all the work, do you? We help each other out when there is work to be done.

The values related to the division of labor based on gender are undergoing change in rural Alaska as they are elsewhere. The study team decided that a single list of activities that represents men's and women's activities, and activities done by both, will contribute to the measurement of cultural continuity.

(3) Cooperation. In rural Alaska, many resource use activities, for reasons of necessity, safety, companionship, or tradition, are done cooperatively. Some activities usually require two or more people such as hunting large sea mammals. Other activities, such as caribou hunting, are often done alone. The final activities lists include both individual and cooperative activities.

(4) Cultural Continuity is measured by the extent of participation in selected activities. The assumption is that if the activities are being done by a broad range of people, and if they continue to be done over the years, then the skills and values associated with the activities are being transferred from one generation to the next. This presumes that the activities selected represent activities that have historical depth. As explained above, the transmission of knowledge and skills from one generation to another best measures cultural continuity. One key informant gave information that supports the notion of "transfer by association" and illustrates the value of knowledge gained in this way:

> I like to go out hunting and camping with the old guys. You can learn a lot from them about hunting and about surviving in the winter. They know how to keep warm out there. Around the fire at night they tell their stories about how it used to be. Those guys are like computers, they know so many things. They know the easiest way to do something, because no matter what it is you are trying to do, they've done it before.

(5) Adequate Variance requires the researcher to evaluate whether or not an activity is too specialized or too commonly practiced to yield adequate variance. For example, if basket or hardwood sled building is used as an activity in the study communities, very few people in the sample population will have participated in that activity. It has become a specialized activity in many communities. The evolution of a common activity into a specialized one is measurable by the survey instrument, but only over a long time period and with a large sample in each community. On the other hand, cleaning and shooting a rifle would be an activity almost all

residents participated in, and "would be of limited utility in measuring change.

Table 11 presents the final activity list for the North Slope. For the final activity selection, we selected activities that reflected the following criteria:

- Four activities that tend to be done primarily by men
- Four activities that tend to be done primarily by women
- Four activities that tend to be done by both men and women
- The list also includes at least three activities that tend to be cooperative

TABLE 11
BARROW HARVEST ACTIVITIES (POST FIELD)

- Hunt bowhead whales 1,2
- Hunt walrus 1,2
- Hunt caribou 1
- Build/repair umiak frame 1
- Go ice fishing 3
- Prepare for Nalukataq 2,3
- Go fishing inland 3
- Go to hunting or fishing camp 2,3
- Sew ugruk skins for umiak 2,4
- Butcher ugruk or seal 4
- Gather berries or greens 4
- Prepare/process skins 4

Key:

1 Activities that tend to be done primarily by males.
2 Activities that tend to be done cooperatively.
3 Activities that tend to be done by both males and females.
4 Activities that tend to be done primarily by females.

Treatment of Arts and Crafts

During the intitial field tests, the study team also developed community specific lists of arts and crafts. These lists were used to ask local residents if they participated in any of the identified arts and crafts. Three problems were uncovered during the field-testing with using art and craft work as a culturally important indicator. First, production of arts and crafts depends in large part on availability of raw materials. Hence, for a year or so following a whale harvest, there is an abundance of whalebone and, at least in Kivalina, a large number of whalebone and baleen items appeared on the shelves of the local store. Second, production of arts and crafts for sale is primarily an economic activity rather than an expressive activity for many people. Third, and finally, some native artists are now experimenting" in new mediums previously unused. Consequently, rather than asking respondents about participating in specific arts and crafts activities, the survey now allows respondents to identify what arts and crafts they produced in the last year. This change made the survey universally applicable.

Fieldtesting of Questionnaire

The second field activity was to test the questionnaire itself. Repeated tests and retests ultimately involved six drafts of the questionnaire. We found numerous instances where the original wording of a question was inappropriate. For example, we observed that the question, "Did you do (ACTIVITY) with a relative who does not live in your household?" was often misinterpreted by Yupik

adults. Apparently questions involving the use of a negative (i.e., "not live") are not interpreted easily. The alternative wording, "Did you do (ACTIVITY) with a relative who lives in another household?" works well.

We also experimented with response categories. For example, an initial set of response categories drawn from national surveys on perceived quality of life did not work well, and we substituted several alternative sets of response categories before arriving at a workable solution. In another example, we found that it was difficult to obtain reliable responses to most questions on alcohol use, but did find a two-question sequence that appears to elicit accurate responses.

Table 7 on page 94 in Chapter 3 displays the number of field tests completed by village and by region. The final section of Chapter 4 consists entirely of the final list of social indicators (see Table 12). The questionnaire that will be used to obtain most of these indicators is presented in the first section of the next chapter.

TABLE 12
ALASKA OCS SOCIAL INDICATORS

GOAL FAMILY ONE
CULTURAL CONTINUITY

SUBGOAL SOCIAL INDICATOR	SOURCE
GOAL ONE: CONTINUED HARVEST OF RENEWABLE RESOURCES	
111 HEALTHY WILDLIFE POPULATION	
size key wildlife pop as % max size in last 20 yrs	SECONDARY
% satis w/ amt. of wildlife there is to harvest	SURVEY
% perceive amt. wildlife is same/more than 5 yrs. ago	SURVEY
% perceive amt. wildlife will be same/more 5 yrs. hence	SURVEY
112 UNRESTRICTED ACCESS TO TRAD. HUNTING & FISHING AREAS	
% trad'l hunting areas accessible to local resid	KEY INF
113 PRESENCE OF WILDLIFE POP. IN TRAD'L HUNTING & FISHING AREAS	
% recent historic max wildlife POP present in area	SECONDARY
114 INTEREST IN ANO USE OF RENEWABLE RESOURCES	
% engaging in 50%+ local hunting/fishing activities	SURVEY
months during which engaged in some activ.rel.to H&F	SURVEY
% eating 2+ meals of fish &game in last 2 days	SURVEY
% HH meat derived from harvested wildlife	SURVEY
% satis. w/ amount hunting/fishing do personally	SURVEY
GOAL TWO: CONTINUED TRADITIONAL SOCIAL RELATIONSHIPS	
121 CONTINUED COOPERATIVE ACTIVITIES	
% engaging in activities cooperatively	SURVEY
% satis. w/ cooperative activ. do personally	SURVEY
122 CONTINUED SHARING OF RENEWABLE RESOURCE PRODUCTS & EQUIP.	
% eating 1+ meal w/ shared food in last 2 days	SURVEY
% satis. with amount share with others	SURVEY
123 CONTINUED EXTENDED FAMILY RELATIONSHIPS	
% engaging in 1+ H/F act w/non-nuclear rel.	SURVEY
% pop eating 1+ meal w/non-nucl.rel.in last 2 days	SURVEY
% satis. with time spent w/non-nuclr. relatives	SURVEY

SUBGOAL	SOCIAL INDICATOR	SOURCE
124	CONTINUE(I RESPECT FOR ELDERS	
	% pop seeking advice from elder in last month	SURVEY
	% satis. w/ extent seek advice of elders personally	SURVEY
	% perceive elders get same/more respect as 5 yrs ago	SURVEY
125	INTERVILLAGE SOCIAL RELATIONSHIPS	
	% adults born in same region of residence	SURVEY
	% satis. w/ social ties to other communities	SURVEY
	no. times left community to visit relatives/friends	SURVEY
	GOAL THREE: CONTINUED CULTURAL SUPPORTS	
131	CONTINUED USE OF NATIVE LANGUAGE	
	% speaking Native language at home	SECONDARY
	% speaking Native language at home at least sometimes	SURVEY
	% satis. with ability to speak Native language	SURVEY
132	CONTINUED ORAL HISTORY TRADITION	
	% adults hearing tradl story from elder last week	SURVEY
	% satis. amt. time spent listening to tradl. stories	SURVEY
133	CONTINUED PRODUCTION OF ARTS & CRAFTS	
	% engaging in arts & crafts activities in last yr.	SURVEY
	% satis. w/ arts and crafts do personally	SURVEY

GOAL FAMILY TWO
INDIVIDUALS & FAMILIES THAT ARE ABLE TO
FUNCTION WELL IN SOCIETY

SUBGOAL	SOCIAL INDICATOR	SOURCE
	GOAL ONE: HEALTHY INDIVIDUALS	
211	PHYSICALLY HEALTHY INDIVIDUALS	
	infant survival rate	SECONDARY
	death rate by cause	SECONDARY
	% pop. treated for selected medical problems	SECONDARY
	% perceive general health to be at least good	SURVEY
	% perceive health as good as should be	SURVEY
	% suffer longstand effects/illness-injury-disablty	SURVEY
	% can see faces clearly on other side of room	SURVEY
	% can hear normal conversation w/at least 2 people	SURVEY
	% can run 300 feet	SURVEY
	% can carry object of 25 pounds 30 feet easily	SURVEY

SUBGOAL SOCIAL INDICATOR	SOURCE
211 PHYSICALLY HEALTHY INDIVIDUALS (Cent't)	
% bite and chew on hard foods	SURVEY
% had daily activ.interrupted for illness in last wk.	SURVEY
% satis. with health and physical condition	SURVEY
212 MENTALLY HEALTHY INDIVIDUALS	
% pop. treated for selected mental health problems	SECONDARY
% satis.with way handle problems that come up in life	SURVEY
% satis. with what accomplishing in life	SURVEY
% satis. with amount respect get from others	SURVEY
% satis. with self	SURVEY
GOAL TWO: INDIVIDUALS WHO ARE SAFE FROM HARM	
221 INDIVIDUALS WHO ARE SAFE FROM HARM BY OTHERS	
death by homicide rate	SECONDARY
% pop. physically harmed by someone else in last yr.	SURVEY
% satis. how safe feel in community	SURVEY
222 INDIVIDUALS WHO ARE SAFE FROM HARM CAUSED BY THEIR OWN ACTIONS	
death by suicide rate	SECONDARY
death rate by alcoholism	SECONDARY
death by accident rate	SECONDARY
% consuming alcohol on 4+ days in last week	SURVEY
% who smoke 20+ cigarettes per day	SURVEY
GOAL THREE: AN EDUCATED & SKILLED POPULATION	
231 INDIVIDUALS HAVE RECEIVED A BASIC EDUCATION	
% completing eighth grade	SECONDARY
% completing eighth grade	SURVEY
% 18-24 year olds who have not dropped out of school	SURVEY
% rating ability to read magazine easily	SURVEY
% rating ability to add 15 prices easily	SURVEY
% rating ability to solve 583/17 easily	SURVEY
% satis. w/ usefulness of educ. children getting	SURVEY
232 ADULTS HAVE THE EDUCATION AND SKILLS NECESSARY TO OB.EMPL	
% completing high school	SECONDARY
% completing high school	SURVEY
% satis. w/ usefulness of educ. personally	SURVEY

SUBGOAL SOCIAL INDICATOR	SOURCE
GOAL FOUR: FAMILIES THAT FUNCTION WELL IN SOCIETY	
241 PREVALENCE OF FAMILIES AS THE PRIMARY SOCIAL UNIT	
% of total households which contain 2+ related indiv.	SECONDARY
% adults married	SECONDARY
% population in family households	SURVEY
% adults married	SURVEY
242 HEALTHY SOCIAL RELATIONSHIPS WITHIN FAMILIES	
% adults who have ever married but never divorced	SECONDARY
% households w/ children having two adults present	SECONDARY
% adults who have ever married but never div./sep.	SURVEY
% households w/ children having two adults present	SURVEY
% satis. with how well family gets along	SURVEY
GOAL FIVE: ADEQUATE LEISURE OPPORTUNITIES	
251 ADEQUATE OPPORT. TO INTERACT INFORMALLY W/ FRIENDS,FAMILY	
no. days in last week went to visit friends/relatives	SURVEY
% satis. with amount of visiting do personally	SURVEY
252 ADEQUATE OPPORTUNITIES TO PARTICIPATE IN RECR. ACTIVITIES	
no. days/last week spent .5 hr. on recr. act.exc. TV	SURVEY
no. hrs/last wk. sat down to watch TV	SURVEY
% satis. w/ how much fun having these days	SURVEY

GOAL FAMILY THREE
COMMANO OVER GOODS ANO SERVICES

GOAL ONE: SUFFICIENT INCOME & EQUITABLE INCOME DISTRIBUTION	
311 ALL HH RECEIVING MIN. INCOME REQ. TO MEET BASIC NEEDS	
% households (families) below income threshold	SECONDARY
% of households receiving public assist	SECONDARY
ratio of income percvd neces to actual income	SURVEY
% below 200% POV level adj for incr cost of living	SURVEY
% satis. with standard of living	SURVEY
312 MOST HOUSEHOLDS EXPERIENCING REAL INCOME GROWTH	
median per capita income	SECONDARY
median per capita income	SURVEY
real median household income	SURVEY
% perceive financial situation has impr.in last 3yrs	SURVEY
% expect financial situation to impr. in next 3yrs	SURVEY
% satis. w/ income	SURVEY

SUBGOAL SOCIAL INDICATOR	SOURCE
GOAL TWO: SUFFICIENT OPPORTUNITIES FOR EMPLOYMENT	
321 SUFFICIENT NUMBER OF LOCAL JOBS	
% employed who are in labor force	SECONDARY
% full time workers who worked 38 weeks or more	SECONDARY
% employed who are in labor force	SURVEY
ratio months worked to months unemployed	SURVEY
ratio mo. worked in comm. to mo. wkd. outside comm.	SURVEY
% satis. with local job opportunities	SURVEY
322 SUFFICIENT OPPORTUNITIES FOR PREFERRED JOBS	
% men holding professional,technical,crafts jobs	SECONDARY
% women holding professional,tech.,managerial jobs	SECONDARY
% men holding job type perceived to be preferred	SURVEY
% women holding job type perceived to be perferred	SURVEY
mean mos.some time spnt H&F actvs among 9+mo.empl.	SURVEY
% reporting could do most or all H&F wanted to do	SURVEY
% satis. with job	SURVEY
% satis. with people work with	SURVEY
% satis. with work do on job	SURVEY
% satis. w/ time have to hunt,fish & pursue rel.act.	SURVEY
GOAL THREE: SUFFICIENT HOUSING	
331 AFFORDABLE HOUSING OPPORTUNITIES	
gross rent as % of income	SECONDARY
selctd mo owner costs as % of income	SECONDARY
housing costs as % of income	SURVEY
% satis. with opport. to get affordable housing	SURVEY
332 SATISFACTORY PHYSICAL LIVING SPACE	
persons per room	SECONDARY
% households with running water	SECONDRY
# of rooms	SURVEY
persons per room	SURVEY
% households w/no difficulty getting enough dr. water	SURVEY
% households with gray water piped away	SURVEY
% households with flush or chemical toilets that wk.	SURVEY
% households perceived warm on cold, windy days	SURVEY
% satis. with housing	SURVEY
% satis. with water have to drink	SURVEY

SUBGOAL	SOCIAL INDICATOR	SOURCE
	GOAL FOUR: SUFFICIENT FOOD	
341	SUFFICIENT FOOD AVAILABLE	
	% satis. w/ food have to eat	SURVEY
342	AFFORDABLE FOOD	
	price standard mkt bskt as propor. of median income	KEY INF
	GOAL FIVE: SUFFICIENT PERSONAL GOODS & SERVICES	
351	SUFFICIENT AVAILABILITY OF GOODS AND SERVICES	
	availability of plywood, dining table, stove in vill.	KEY INF
	% satis. with goods & services can get in vill.	SURVEY
352	AFFORDABLE PRICE FOR GOODS AND SERVICES	
	cost of 3 selected items as % of median income	KEY INF
	GOAL SIX: SATISFACTORY COMMUNITY ENVIRONMENT	
361	SATISFACTORY PUBLIC SERVICES AND FACILITIES	
	water treatment, main power facil. present & working	KEY INF
362	SATISFACTORY PHYSICAL ENVIRONMENT	
	% satis. w/ land & buildings in village	SURVEY
	% satis. w/ land &water near village	SURVEY

GOAL FAMILY FOUR
SOCIAL OPPORTUNITIES AND PARTICIPATION

SUBGOAL	SOCIAL INDICATOR	SOURCE
	GOAL ONE: ADEQUATE LOCAL CONTROL	
411	SENSE OF LOCAL CONTROL	
	% population residing in community for 5+ yrs.	SECONDARY
	% population residing in community for 3+ yrs.	SURVEY
	% perceive opinion makes at least some difference	SURVEY
	% satis. w/amt. influence over harvest of wildlife	SURVEY
	% satis. w/amt. influence over local education	SURVEY
	% satis. w/amt. influence over development	SURVEY
	% satis. w/amt. personal infl. over local affairs	SURVEY
412	CONFIDENCE IN INSTITUTIONS AND LEADERS	
	% perceive local govts. as very effective	SURVEY
	% perceive regional govts. as very effective	SURVEY

SUBGOAL SOCIAL INDICATOR	SOURCE
GOAL TWO: ADEQUATE PARTICIPATION	
421 PARTICIPATION IN ROUTINE PROCESSES OF GOVT	
% adults voting in statewide elections	SECONDARY
% adults registered to vote	SECONDARY
% voting in last local election	SURVEY
% voting in last statewide election	SURVEY
% attending one or more public meetings in last mo.	SURVEY

CHAPTER FIVE
IMPLEMENTATION OF THE ALASKA OCS SOCIAL INDICATORS SYSTEM

Introduction

AOSIS is now a field-tested data collection system ready for implementation. Chapter five describes the steps necessary to actually collect, process, and report social indicators. The first step is the submission of a formal request for approval of the survey program by the federal Office of Management and Budget. This request is currently being prepared and will be submitted as a supplementary product of this study. Section 1 of this chapter contains a copy of the field-tested questionnaire that will be submitted to OMB. Section 2 describes the suggested methods for identifying target populations. Target populations are the groups of people for whom it is desirable to have separate measures of well-being. We want to be able to generalize survey results to each of the identified target populations with a known level of reliability.

Section 3 of Chapter 5 outlines the factors that should be considered in scheduling the implementation of AOSIS. It is financially and logistically impossible to collect AOSIS data in all coastal areas simultaneously. The principal scheduling factor is the timing of proposed lease sales. Section 3 offers a suggested scheduling of AOSIS implementation that will produce data that can be incorporated into upcoming environmental impact statements.

The implementation of AOSIS involves the completion of several tasks before actual data collection begins. Section 4 describes these tasks. They include the preparation of village-specific lists of subsistence activities, the preparation of appropriate translations of the questionnaire, the preparation of written interviewer instructions, and the development of sample frames.

Section 5 of Chapter 5 describes the tasks involved with data collection. Section 6 covers the next sequence of tasks involved in the implementation of AOSIS, collectively called data processing. Finally, Section 7 provides a summary of implementation tasks and a sample schedule for task completion of a single application of AOSIS (i. e., data collection in a single year).

OMB Expiration Date

U.S. Department of the Interior
Minerals Management Service

Alaska OCS Social Indicators Study
Cover Sheet

1. INTERVIEW NUMBER _____

2. DATE OF INTERVIEW' _____

3. LENGTH OF INTERVIEW _____

4. COMMUNITY _____

5. CALL RECORD

CALL NUMBER	1	2	3	4	COMMENTS
DATE					
DAY OF WEEK					
TIME OF DAY					
RESULT					
INTVWR INITIALS					

6. RESPONDENT SELECTION

Hello. I'm (NAME) with (NAME OF SURVEY ORGANIZATION). I am a member of a special research team. We are doing a study on the well-being of people in rural Alaska. Your household has been randomly chosen, and I would like to ask you some questions which will help us to describe the quality of life in rural Alaska.

In this survey, the people we interview are randomly selected, so the first thing I need to know is who lives here. Starting with the oldest person, please tell me who normally lives in your household by telling me their first-name, their sex, their age, and their relationship to the oldest person. Who is the oldest person? (PROBE: 1s there anyone who *you* haven't mentioned that lives here sometimes?)

(IF YES, DETERMINE IF THIS' HOUSEHOLD IS PRINCIPAL RESIDENCE OF PERSON AND LIST IF APPROPRIATE)

In addition to the individuals you have mentioned so far, are there any family members or friends who have eaten or slept here during the last week? (IF YES, could you please give me their first names and relationship to the oldest person who lives here?)

FIRST NAME	RELATIONSHIP TO OLDEST	SEX	AGE	PERSON NUMBER	RESPONDENT	Oil Worker	Food Stamps	AFDC G.A.	Unemployed	Pension	Soc. Sec.	SSI	Arts & Crafts	Trapping
				1										
				2										
				3										
				4										
				5										
				6										
				7										
				8										

INTERVIEWER: SELECT **RESPONDENT USING RANDOM NUMBER** TABLE RECORD SELECTION WITH AN **"R"** BESIDE PERSON NO.

The **person** I need **to** speak **with is** (NAME **OF** R **1). Is (she/he)** home now? **(IF** R **IS** NOT HOME, ARRANGE FOR TIME FOR INTERVIEW, OTHERWISE CONTINUE **WITH** QUESTIONNAIRE.]

TIME:

OMB EXPIRATION DATE

U.S. DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE

ALASKA OCS SOCIAL INDICATORS STUDY
QUESTIONNAIRE
OMB REVIEW DRAFT

1. INTERVIEW NUMBER _____ (1-4)
2. DECK NUMBER 01 (5-6)
3. MONTH ____ (7-8)
4. DAY ____ (9-10)
5. YEAR ____ (11-12)
6. PLACE CODE _____ (13-16)
7. CENSUS AREA CODE _____ (17-19)
8. INTERVIEWER ID _____ (20-27)
9. INTERVIEWER'S INTERVIEW NO. _____ (28-30)

IF SCREENING WAS NOT DONE WITH RESPONDENT, START HERE

Hello. I'm (NAME) with (NAME OF SURVEY ORGANIZATION). I am a member of a special research team. We are doing a study on the well-being of people in rural Alaska. Your household has been randomly chosen, and I would like to ask you some questions which will help us to describe the quality of life in rural Alaska.

CONTINUE BELOW

IF SCREENING WAS DONE WITH RESPONDENT, START HERE

The interview takes about 30 minutes. Your participation is voluntary,* and you can choose not to answer any question, but your participation in the survey is very important. Your answers will help the federal government to take the well-being of rural Alaskans into account in its planning activities. Your answers will remain strictly confidential and will only be used in combination with the answers of other Alaskans. Do you have any questions before we begin?

SECTION A
HUNTING, FISHING, AND CULTURE

A1. The first part of this interview is about the activities you may do like hunting, fishing, preserving wildfoods, or skin sewing. During the last year, did you (ACTIVITY ONE)?

1. YES | 5. NO | 8. CAN'T REMEMBER | 9. REFUSED

SKIP TO Q. A3

A2. The last time you (ACTIVITY ONE), did you do it alone, or with someone else?

1. ALONE | 2. WITH SOMEONE ELSE | 8. DON'T KNOW | 9. REFUSED

SKIP TO Q. A3 | SKIP TO Q. A3

A2a. The last time you (ACTIVITY ONE), did you do it with a relative or friend who lives in another household?

1. YES | 5. NO | 8. DK | 9. REFUSED

SKIP TO Q. A3

A2b. What was the name of this person? _____

A2c. How is this person related to you? _____

CONTINUE WITH Q. A3

A3. During the last year, did you (ACTIVITY TWO)?

1. YES | 5. NO | 8. CAN'T REMEMBER | 9. REFUSED

SKIP TO Q. A5

A4. The last time you (ACTIVITY TWO), did you do it alone, or with someone else?

1. ALONE | 2. WITH SOMEONE ELSE | 8. DON'T KNOW | 9. REFUSED

SKIP TO Q. A5 | SKIP TO Q. A5

A4a. The last time you (ACTIVITY TWO), did you do it with a relative or friend who lives in another household?

1. YES | 5. NO | 8. DK | 9. REFUSED

SKIP TO Q. A5

A4b. What was the name of this person? _____

A4c. How is this person related to you? _____

CONTINUE WITH Q. A5

A5. During the last year, did you personally (ACTIVITY THREE)?

1. YES — 5. NO — 8. CAN'T REMEMBER — 9. REFUSED

SKIP TO Q. A7

A6. The last time you (ACTIVITY THREE), did you do it alone, or with someone else?

1. ALONE — SKIP TO Q. A7

2. WITH SOMEONE ELSE

8. DON'T KNOW — 9. REFUSED — SKIP TO Q. A7

A6a. The last time you (ACTIVITY THREE), did you do it with a relative or friend who lives in another household?

1. YES — 5. NO — 8. DK — 9. REFUSED — SKIP TO Q. A7

A6b. What was the name of this person? _____

A6c. How is this person related to you? _____

CONTINUE WITH Q. A7

A7. During the last year, did you (ACTIVITY FOUR)?

1. YES — 5. NO — 8. CAN'T REMEMBER — 9. REFUSED

SKIP TO Q. A9

A8. The last time you (ACTIVITY FOUR), did you do it *alone,* or with someone else?

1. ALONE — SKIP TO Q. A9

2. WITH SOMEONE ELSE

8. DON'T KNOW — 9. REFUSED — SKIP TO Q. A9

A8a. The last time you (ACTIVITY FOUR), did you do it with a relative or friend who lives in another household?

1. YES — 5. NO — 8. DK — 9. REFUSED — SKIP TO Q. A9

A8b. What was the name of this person? _____

A8c. How is this person related to you? _____

CONTINUE WITH Q. A9

A9 . During the last year, did you personally (ACTIVITY FIVE)?

1. YES | 5. NO | 8.CAN'T REMEMBERI | 9. REFUSED

SKIP TO Q. A11

A10. The last time you (ACTIVITY FIVE), did you do it alone, or with someone else?

1. ALONE → SKIP TO Q. A11

2. WITH SOMEONE ELSE

8. DON'T KNOW → SKIP TO Q. A11

9. REFUSED → SKIP TO Q. A11

A10a. The last time you (ACTIVITY FIVE), did you do it with a relative or friend who lives in another household?

1. YES | 5. NO | 8. DK | 9. REFUSED

5. NO / 8. DK / 9. REFUSED → SKIP TO Q. A11

A10b. What was the name of this person? _____

A10c. How is this person related to you? _____

CONTINUE WITH Q. A11

A11 . During the last year, did you (ACTIVITY SIX)?

1. YES | 5. NO | 8.CAN'T REMEMBER | 9. REFUSED

SKIP TO Q. A13

A12 . The last time you (ACTIVITY SIX), did you do it alone, or with someone else?

1. ALONE → SKIP TO Q. A13

2. WITH SOMEONE ELSE

8. DON'T KNOW → SKIP TO Q. A13

9. REFUSED → SKIP TO Q. A13

A12a. The last time. you (ACTIVITY FOUR), did you do it with a relative or friend who lives in another household?

1. YES | 5. NO | 8. DK | 9. REFUSED

5. NO / 8. DK / 9. REFUSED → SKIP TO O. A13

A12b. What was the name of this person? _____

A12c. How is this person related to you? _____

CONTINUE WITH Q. A13

A13 . During the last year, did *you* personally. (Activity SEVEN)?"

1. YES
5. NO
8. CAN'T REMEMBER
9. REFUSED
SKIP TO Q. A15

A14. The last time you (ACTIVITY SEVEN), did you do it alone, or with someone else?

1. ALONE → SKIP TO Q. A15
2. WITH SOMEONE ELSE
8. DON'T KNOW → SKIP TO Q. A15
9. REFUSED → SKIP TO Q. A15

A14a. The last time you (ACTIVITY SEVEN], didyoudoit with a relative or friend who lives in another household?

1. YES
5. NO → SKIP TO Q. A15
8. DK → SKIP TO Q. A15
9. REFUSED → SKIP TO Q. A15

A14b. What' was the name of this person? _____

A14c. How is this person related to you? _____

CONTINUE WITH Q. A15

A15. During the last year, did you (ACTIVITY EIGHT)?

1. YES
5. NO
8. CAN'T REMEMBER
9. REFUSED
SKIP TO Q. A17

A16. *The* last time you (ACTIVITY EIGHT), did you do it alone, or with someone else?

1. ALONE → SKIP TO Q. A17
2. WITH SOMEONE ELSE
8. DON'T KNOW → SKIP TO Q. A17 1
9. REFUSED → SKIP TO Q. A17 1

A16a. The last time you (ACTIVITY EIGHT), did you do it with a relative or friend who lives in another household?

1. YES
5. NO → SKIP TO Q. A17
8. DK → SKIP TO Q. A17
9. REFUSED → SKIP TO Q. A17

A16b. What was the name of this person? _____

A16c. How is this person related to you? _____

CONTINUE WITH Q. A17

A17. During the last year, did you personally (ACTIVITY NINE)?

1. YES
5. NO
8. CAN'T REMEMBER
9. REFUSED

SKIP TO Q. A19

A18. The last time you (ACTIVITY NINE), did you do it alone, or with someone else?

1. ALONE
2. WITH SOMEONE ELSE
8. DON'T KNOW
9. REFUSED

SKIP TO Q. A19

SKIP TO Q. A19

A18a. The last time you (ACTIVITY NINE), did you do it with a relative or friend who lives in another household?

1. YES
5. NO
8. IDK
9. REFUSED

SKIP TO Q. A19

A18b. What was the *name* of this person? _____

A18c. How is this person related to you? _____

CONTINUE WITH Q. A19

A19. During the last year, did you (ACTIVITY TEN)?

1. YES
5. NO
8. CAN'T REMEMBERI
9. REFUSED

SKIP TO Q. A21

A20. The last time you (ACTIVITY TEN), did you do it alone, or with someone-eke?

1. ALONE
2. WITH SOMEONE ELSE
8. DON'T KNOW
9. REFUSED

SKIP TO Q. *A21*

SKIP TO Q. A21

A20a. The last time you (ACTIVITY EIGHT), did you do it with a relative or friend who lives in another household?

1. YES
5. NO
8. DK
9. REFUSED

SKIP TO Q. A21

A20b. What was the name of this person? _____

A20c. How is this person related to you? _____

CONTINUE WITH Q. A21

A21 . During the last year, did you personally. (ACTIVITY ELEVEN)?

1. YES
5. NO
8. CAN'T REMEMBER
9. REFUSED
SKIP TO Q. A23

A22 . The last time you (ACTIVITY ELEVEN), did you do it alone, or with someone else?

1. ALONE
SKIP TO Q. A23
2. WITH SOMEONE ELSE
8. DON*T KNOW
SKIP TO Q. A23
9. REFUSED

'A22a. The last time you (ACTIVITY ELEVEN), did you do it with a relative or friend who lives in another household?

1. YES
"-" 5. NO
8. DK
9. REFUSED
SKIP TO Q. A23"

A22b. What was the name of this person? _____

A22c. How is this person related to you? _____

CONTINUE WITH-Q. A23

A23 . During the last year, did you (ACTIVITY TWELVE)?

1. YES
5. NO
8. CAN'T REMEMBER
9 . . REFUSED
SKIP TO Q. A25

A24 . The last time you (ACTIVITY TWELVE), did you do it alone, or with someone else?

1. ALONE
SKIP TO Q. A25
2. WITH SOMEONE ELSE
8. DON'T KNOW
SKIP TO Q. A25
9. REFUSED

A24a. The last time you (ACTIVITY TWELVE), did you do it with a relative or friend who lives in another household?

1. YES
5. NO
8. DK
9. REFUSED
SKIP TO Q. A25

A24b. What was the name of this person? _____

A24c. How is this person related to you? _____

CONTINUE WITH Q. A25

A25. Did you spend five or more days altogether on subsistence activities in May of last year? (IF YES, "X" MONTH. REPEAT FOR ALL MONTHS)

MAY 84	JUN 84	JUL 84	AUG 84	SEP 84	OCT 84	NOV 84	DEC 84	JAN 85	FEB 85	MAR 85	APR 85

R - NO MONTHS

'26. During the last 5 years, would you say that the amount of game and fish there is to harvest has increased, decreased, or stayed the same?

1. INCREASED | 2. DECREASED | 3. STAYED THE SAME | 8. DON'T KNOW | 9. NA

A27. Do you think that 5 years from now the amount of game and fish there is to harvest will increase, decrease, or stay the same?

1. INCREASE | 2. DECREASE | 3. STAY THE SAME | 8. DON'T KNOW | 9. NA

A28. Was subsistence food a large part of any of the meals you ate yesterday?

1. YES

5. NO | 8. DON'T KNOW | 9. REFUSED

SKIP TO Q. A30

A29. Was any of this subsistence food harvested by someone who lives in another household?

1. YES

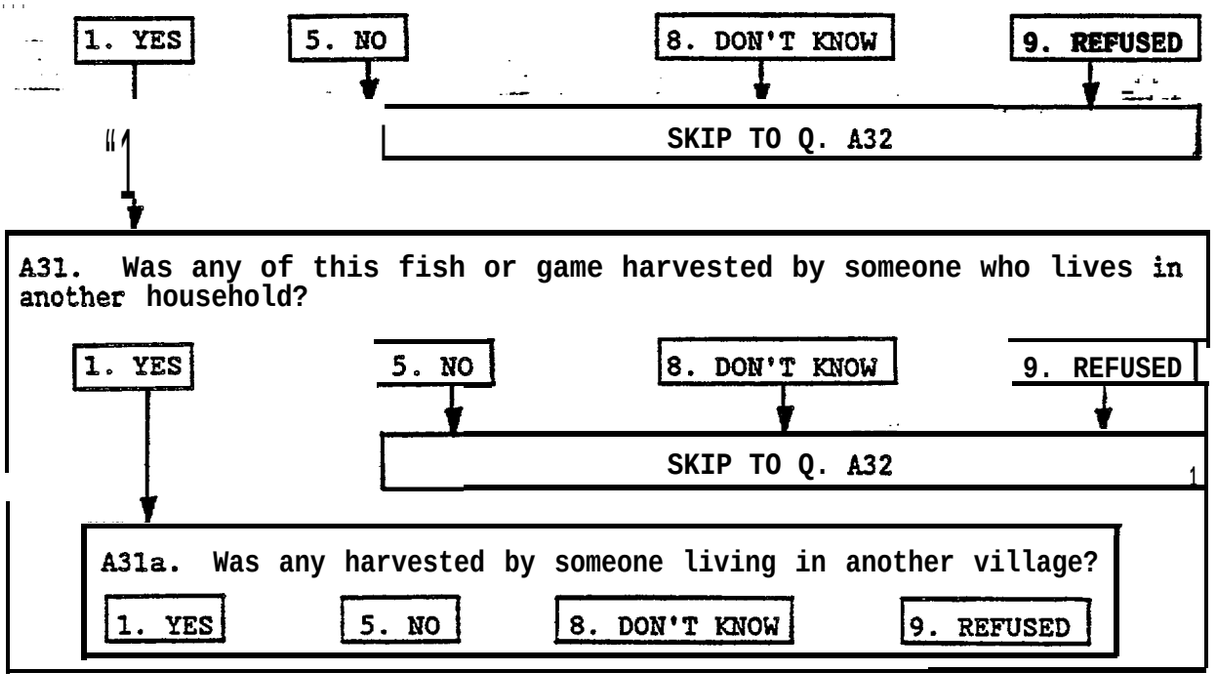
5. NO | 8. DON'T KNOW | 9. REFUSED

SKIP TO Q. A30

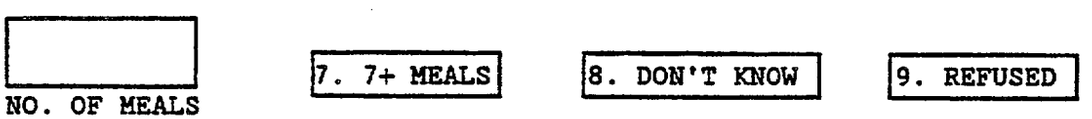
A29a. Was any harvested by someone living in another village?

1. YES | 5. NO | 8. DON'T KNOW | 9. REFUSED

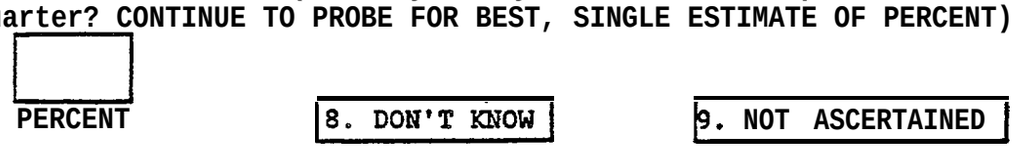
A30. How about the day before yesterday, (DAY OF WEEK); did you eat any meals in which subsistence food was a large part of the meal?



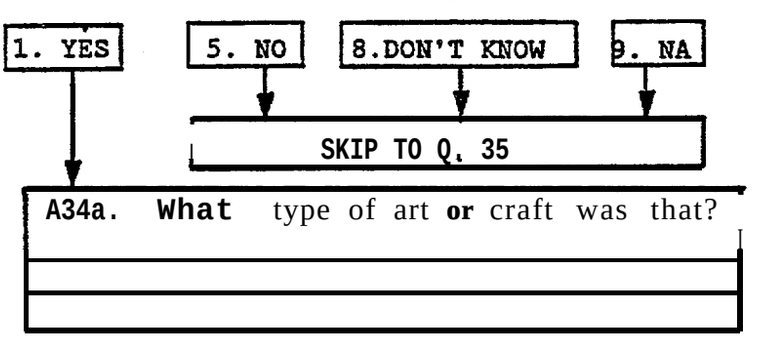
A32. In the last two days, how many meals did you eat with a relative who lives in another household?



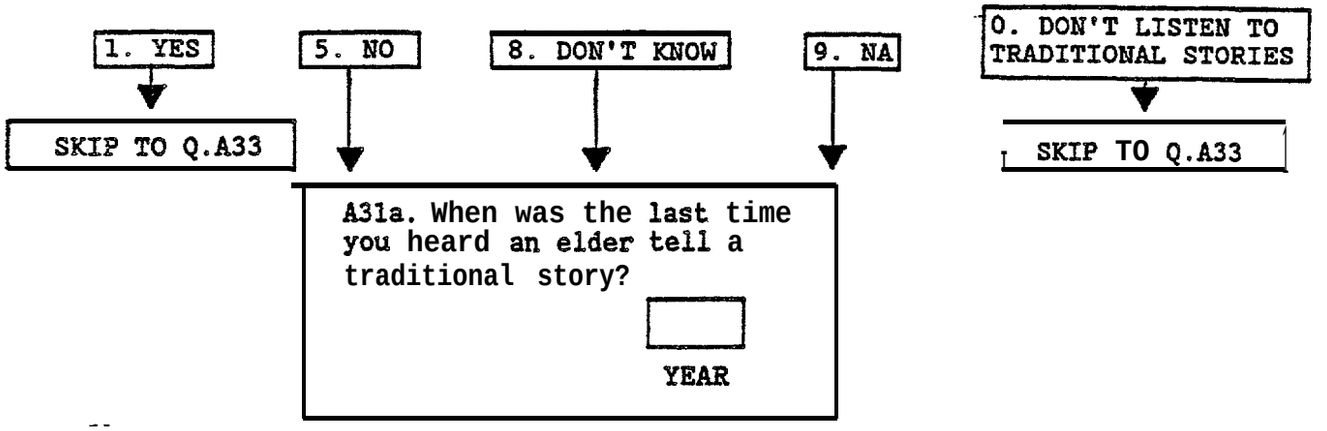
A33. What percent of all the meat and fish that you ate in the last year was subsistence food? (Would you say more than one-quarter or less than one-quarter? CONTINUE TO PROBE FOR BEST, SINGLE ESTIMATE OF PERCENT)



A34. Have you made any art or crafts in the last year?



A35. During the last week, have you personally heard an elder tell a story?



A36. When was the last time you asked an elder for advice?

[ ] YEAR | 95. NEVER | 98. CAN'T REMEMBER | 99. NA

A37 Would- you say that elders get more, less, or the same amount of respect from people in your community now than they did 5 years ago?

1. MORE | 1-1 | 3. THE SAME | 8. DON'T KNOW | 9. NA

A38. How often do you speak. (NATIVE LANGUAGE) at home: never, sometimes, most of the time, or always?(IF RESPONSE VARIES ACCORDING TO PERSON R SPEAKS TO, GET BEST OVERALL RESPONSEI

1. NEVER | 2. SOMETIMES | 3. MOST OF THE TIME | 4. ALWAYS | 8. DON'T KNOW | 9. NA

SECTION B
HEALTH

B1. In general, how would you describe your health? Would you say it *was* very good, good, fair, poor, or very poor?

1. VERY GOOD	2. GOOD	3. FAIR	4. POOR	5. VERY POOR
	8. DON'T KNOW		9. NA	

B2. Considering the level of health other people like You have, about how good do you think your health really should be: very good, good, fair, poor, or very poor?

1. VERY GOOD	2. GOOD	3. FAIR	4. POOR	5. VERY POOR
	8. DON'T KNOW		9. NA	

B3. How much do you suffer from any long-standing illness, the effects of an injury, or any disability: a lot, some, or not at all?

1. A LOT	3. SOME	5. NOT AT ALL	8. DON'T KNOW	9. NA

B4. How clearly can you normally see faces on the other side of the room: very clearly, somewhat clearly, or not at all clearly? (OTHER SIDE OF ROOM MEANS ABOUT 15 FEET}

1. VERY CLEARLY	3. SOMEWHAT CLEARLY	5. NOT AT ALL CLEARLY	8. DON'T KNOW	9. NA

B5. How clearly can you normally hear what is said in a conversation: would you say very clearly, somewhat clearly, or not at all clearly?

1. VERY CLEARLY	3. SOMEWHAT CLEARLY	5. NOT AT ALL CLEARLY	8. DON'T KNOW	9. NA

B6. How easily can you run at least 300 feet: very easily, with some difficulty, or not at all?

1. VERY EASILY	3. WITH SOME DIFFICULTY	5. NOT AT ALL	8. DON'T KNOW	9. NA

B7. How easily *can* you carry 25 pounds thirty feet: very easily, with some difficulty, or not at all? (That's about the weight of a two-year old)

1. VERY EASILY	3. WITH SOME DIFFICULTY	5. NOT AT ALL	8. DON'T KNOW	9. NA

B8. How easily can you bite and chew on hard foods (like Pinuktuk/salmon strips, beef jerky): very easily, with some difficulty, or not at all?

1. VERY EASILY	3. WITH SOME DIFFICULTY	5. NOT AT ALL	8. DON'T KNOW	9. NA

B9. Within the past two weeks. were there times that you could not do some of your everyday activities due to-illness or injury?

1. YES	5. NO	8. DON'T KNOW	9. NA

B10. During the past twelve months, has anyone ever intentionally struck you or physically hurt you in some way?

1. YES	5. NO	8. DON'T KNOW	9. NA

B11. Do you currently smoke cigarettes?

1. YES	5. NO	8. DON'T KNOW	9. NA

SKIP TO Q B12. 1

B11a. About how many cigarettes do you usually smoke each day?

CIGARETTES	98. DON'T KNOW	99. NA	00. DON'T *SMOKE*

B12. In the last week, on how many days did you drink alcohol?

DAYS	8. DON'T KNOW	9. NA

B12a. On how many of these (_) days did you have more than 3 drinks?

DAYS	8. DON'T KNOW	9. NA

SECTION C
EDUCATION AND EMPLOYMENT

C1. The next series of questions are about your education and employment. First, how many years of education have you completed (HIGH SCHOOL = 12; TRADE SCHOOL = *14;* COLLEGE GRADUATE, BA OR BS = 16; MASTERS = 18; LAWYER, DOCTOR, Pm. = 19)?

GRADE SCHOOL								HIGH SCHOOL				COLLEGE						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

C2. Are you currently enrolled in school?

1. YES | 5. NO | 9. NA

C3. How easily can you read a magazine like Newsweek or Readers Digest: easily, with some difficulty, or with great difficulty?

1. EASILY | 2. SOME DIFFICULTY | 3. GREAT DIFFICULTY | 4. CAN'T READ | 8. DON'T KNOW | 9. REFUSED

C4. How easily could you add a list of the prices of fifteen items: easily, with some difficulty, or with great difficulty?

1. EASILY | 2. SOME DIFFICULTY | 3. GREAT DIFFICULTY | 4. CAN'T ADD | 8. DON'T KNOW | 9. REFUSED

C5. How easily could *you* figure out the answer to a problem like S83 divided by 17, using pencil and paper: easily, with some difficulty, or with great difficulty?

1. EASILY | 2. SOME DIFFICULTY | 3. GREAT DIFFICULTY | 4. CAN'T DIVIDE | 8. DON'T KNOW | 9. REFUSED

C6. Last year, during which months did you have a job for two weeks or more? (Have you included any commercial fishing? INCLUDE IN RESPONSE TO Q. C6)

MAY 84	JUN 84	JUL 84	AUG 84	SEP 84	OCT 84	NOV 84	DEC 84	JAN 85	FEB 85	MAR 85	APR 85

ALL MONTHS ▼ NO MONTHS

IF RESPONDENT WORKED 12 MONTHS, SKIP TO Q. C9

C7. Which months in the last year were you unemployed but wanted a job?

MAY 84	JUN 84	JUL 84	AUG 84	SEP 84	OCT 84	NOV 84	DEC 84	JAN 85	FEB 85	MAR 85	APR 85

ALL MONTHS NO MONTHS

C8. Which months in the last year did you decide not to work for wages (or commercial fish)?

MAY 84	JUN 84	JUL 84	AUG 84	SEP 84	OCT 84	NOV 84	DEC 84	JAN 85	FEB 85	MAR 85	APR 85

ALL MONTHS NO MONTHS

C9. What are the main kinds of work to earn money that you did in the last year?

(PROBE FOR EXACT OCCUPATION) _____

C10 What kind of business did you work for? _____

C11. If you had your choice, what kind of work would you do? _____

C12. Did you work at all away from your community in the last year?

1. YES

5. NO → SKIP TO Q. C13

C12a. What kind of work did you do away from your community? _____

C12b. Where did you work? _____

C12c. During how many months did you work 2 weeks or more away from home? ☐ MONTHS

C13. In the last year, how much of the subsistence activities that you wanted to do did you actually have the time to do: all, most, some, few, or none?

1. ALL 2. MOST 3. SOME 4. FEW 5. NONE

8. DON'T KNOW 9. NA

SECTION D
INCOME, GOODS AND SERVICES

D1. Let's turn now to your housing situation. About how much money did your household spend on heating costs in 1984? How much on electricity? How much on housing payments? On telephone? How much on water and other utilities? And how much on repairs? Were you reimbursed for any of these costs? (ADD NON-REIMBURSED COSTS AND SAY:) So would you say that (AMOUNT) is about what your total housing costs were in 1984?

	WARM MONTHS		COLD MONTHS		REIM-	
	PER MO.	NO. MOS.	PER MO.	NO. MOS.	BURSED	TOTAL
HEATING						
ELECTRICITY						
HOUSING PAYMENTS						
TELEPHONE						
WATER/OTHER UTIL.						
REPAIRS						

D2. Considering all sources of income you and all other members of your household received in 1984, what was your total household income for 1984, before taxes and deductions were made? Please tell me the figure to the nearest thousand dollars. (What is your best guess?)

[ ]
INCOME IN THOUSANDS

[998. DON'T KNOW] [999. REFUSED]

SKIP TO Q. D2a

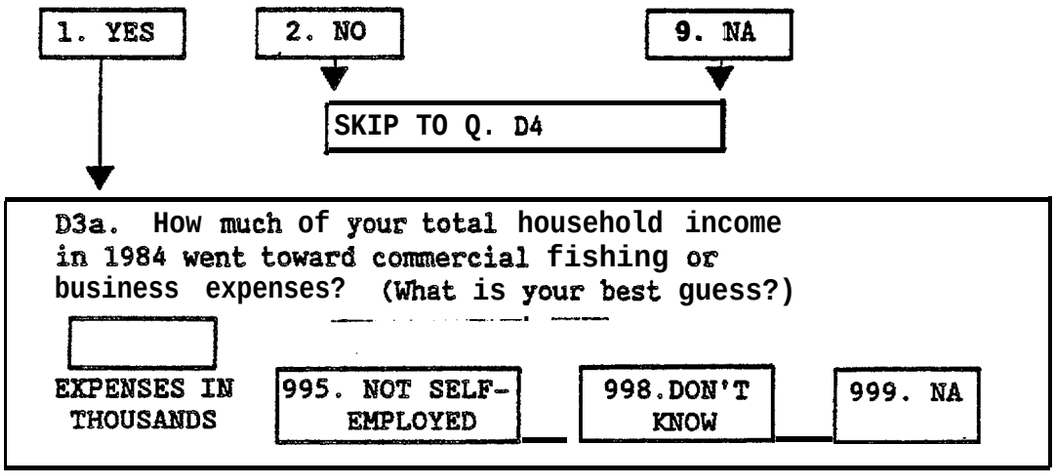
D2a. We don't need the exact dollar figure; could you tell me which of these broad categories it falls into:

Less than $5,000	1
Between $5,000 and $10,000	2
Between $10,000 and $20,000	3
Between $20,000 and $30,000	4
Between $30,000 and $40,000	5
Between $40,000 and $50,000	6
Or more than $50,000?	7

[8. DON'T KNOW] [9. REFUSED] [0. INAP]

D2b. Has any household member or any individual that slept or ate here in the last week received any income in the last year from an oil company *or* company doing work for an oil company? (CHECK APPROPRIATE BOX ON COVER SHEET AND CONTINUE WITH NEXT SOURCE.)

D3. Are you a commercial fisherman or do you have your own business?



D4. What is the very smallest amount of income per month your household needs to make ends meet?

INCOME IN DOLLARS

998. DON'T *KNOW*

999. REFUSED

D5. How about the family income you'd like to have. Of course, we'd all like to have huge incomes, but considering what other households like yours have, what You deserve, and what you need, about how much income per month do You think-would be about right for your family?

INCOME IN DOLLARS

998. DON'T KNOW

999. REFUSED

D6. Would yOU say that your household is better off, the same, or worse off financially now than three years ago?

1. BETTER NOW | 3. SAME | 5. WORSE NOW | 8. DON'T KNOW | 9. NA

D7. Do you think that three years from now your household will be better off financially, worse off, or about the same as now?

1. BETTER OFF | 3. SAME | 5. WORSE OFF | 8. UNCERTAIN | 9. NA

D8. **How many** rooms do **you have in** *your* **house, not counting bathrooms?**

[ ] NO. ROOMS

[98. DON'T KNOW]

[99. NA]

D9. **Would yOU say that your household has no trouble getting enough good drinking water, some trouble, or quite a bit of trouble?**

[1. NO TROUBLE] [2. SOME TROUBLE] [3. QUITE A BIT OF TROUBLE] [8. DON'T KNOW] [9. NA]

D10. **What** happens' to the water you use **for** washing **dishes** and bathing: 'does **it** empty out on the ground **near** your household, does **it go into** a septic system, **or is** it **piped away?**

[1. EMPTIES ON GROUND] [2. SEPTIC SYSTEM]

[7. OTHER _____] [8. DON'T KNOW] [9. NA]

D11. **Does your household** have **honey buckets, flush toilets, or chemical toilets?**

[1. HONEY BUCKETS] → [SKIP TO Q. D12]

[2. FLUSH TOILETS] → D11a. How **frequently does** (the **sewer system/your** chemical toilet) **break down? Would you say rarely or never, occasionally, or frequently?**

[1. RARELY OR NEVER] [2. OCCASIONALLY] [3. FREQUENTLY]

[5. DON'T KNOW] [9. NA] [0. INAP]

[3. CHEMICAL TOILETS] → D11a. How **frequently does** (the **sewer system/your** chemical toilet) **break down? Would you say rarely or never, occasionally, or frequently?**

[1. RARELY OR NEVER] [2. OCCASIONALLY] [3. FREQUENTLY]

[5. DON'T KNOW] [9. NA] [0. INAP]

D12. **On cold, windy days, 'how easy is it to keep your house or apartment warm: very easy, somewhat difficult, or very difficult?**

[1. VERY EASY] [2. SOMEWHAT DIFFICULT] [3. VERY DIFFICULT] [8. DON'T KNOW] [9. NA]

D13. Now I would like to ask about some of you weekly activities., During the last week, on how many days did you go visit with friends or relatives? (What is your best guess?)

[ ] DAYS

[8. DON'T KNOW]

[9. NA]

D14. During the last week, on how many days did you spend half an hour or more on some recreational activity other than watching television?

[ ] DAYS

[8. DON'T KNOW]

[9. NA]

[IF ZERO DAYS OR DK OR NA, SKIP TO Q. D15.]

D14a. What kinds of things did you do for recreation?

D15. How many hours during the last week did you sit down and watch television?

[ ] HOURS

[98. DON'T KNOW]

m

D16. During the last month, how many times did you attend a public meeting?

[ ] TIMES

[98. DON'T KNOW]

[99. NA]

D17 . This next set of questions concerns local and regional organizations. How effective is your community's city council in doing what you think it should be doing? Would you say very effective, somewhat effective, or not at all effective? (REPEAT FOR OTHER ORGANIZATIONS)

		1. VERY EFFECTIVE	2. SOMEWHAT EFFECTIVE	3. NOT AT ALL EFFECTIVE	0. DOESN'T APPLY	8. DON'T KNOW	9. NA
D17a.	CITY COUNCIL	☐	☐	☐	☐	☐	☐
D17b.	TRAD . IRA COUNCIL	☐	☐	☐	c 1	☐	☐
D17c.	VILL. NATIVE CORPORATION	☐	☐	☐	c 1	☐	☐
D17d.	REGIONAL PROFIT NATIVE CORP.	☐	☐	☐	c 1	☐	☐
D17e.	REGIONAL NONPROFIT NATIVE CORP.	☐	☐	☐	☐	☐	m

D18 . How much difference do you think your opinion makes in what happens in your community? Would you say your opinion makes a lot of difference, some difference, not much difference, or no difference in what happens in your community?

☐ 1. A LOT OF DIFFERENCE ☐ 2. SOME DIFFERENCE ☐ 3. NOT MUCH DIFFERENCE ☐ 4. NO DIFFERENCE

☐ 8. DON'T KNOW ☐ 9. NA

D19 . Did you happen to vote in the last city council election on (DATE)?

☐ 1. YES ☐ 2. NO ☐ 8. DON'T KNOW

4

D20 . Did you happen to vote in the last statewide election on (DATE}?

☐ 1. YES ☐ 2. NO ☐ 8. DON'T KNOW

D21. And the last tribal council election?

1. YES	2. NO	8. DON'T KNOW	0. NON-NATIVE

D22. The last village Native corporation election?

1. YES	2. NO	8. DON'T KNOW	0. NON-NATIVE

D23. The last regional Native corporation election?

1. YES	2. NO	8. DON'T KNOW	0. NON-NATIVE

D24. In what community were you born? _____

D25. How many years have you lived in (COMMUNITY)?

	97. ALL MY LIFE	99. NA
YEARS		

IF RESPONDENT LIVED IN COMMUNITY MORE THAN TEN YEARS, SKIP TO Q. D27

D26. Where did you live before you moved to (COMMUNITY)? _____

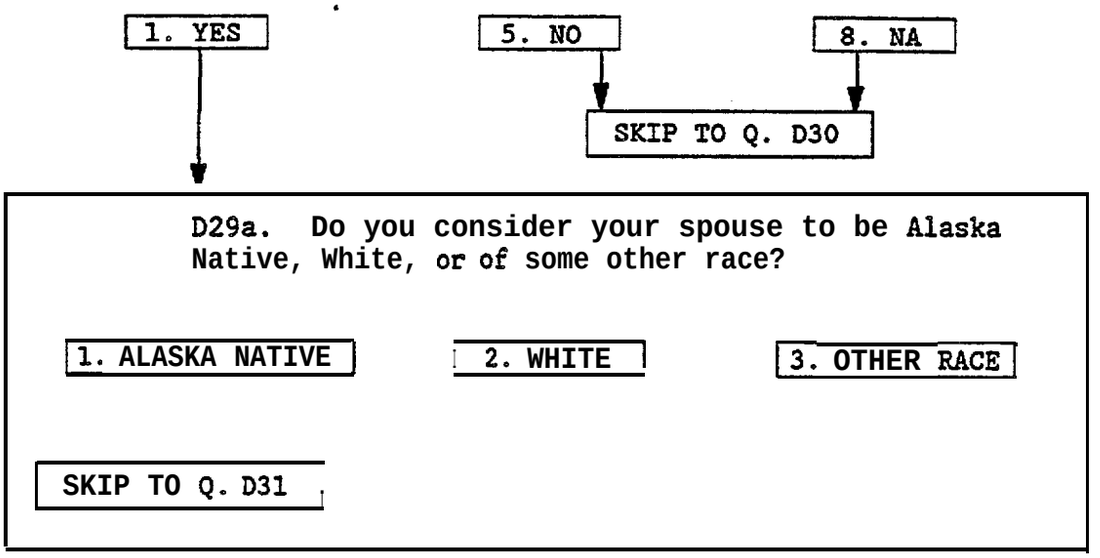
D27. During the last year, how many times have you left your community and visited relatives or friends?

	98. DON'T KNOW	99. NA
TIMES		

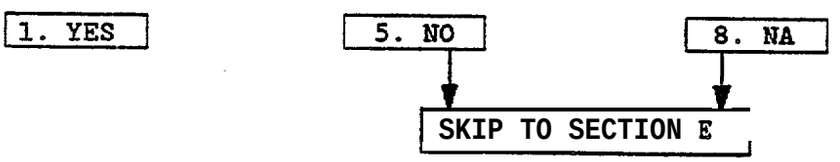
D28. (UNLESS RACE IS OBVIOUS, ASK:) Do you consider yourself to be Alaska Native, White, or of some other race?

1. ALASKA NATIVE	2. WHITE	3. OTHER RACE

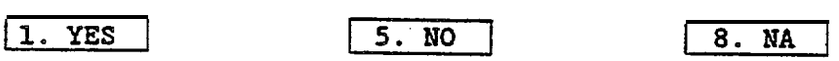
D29 . Are you currently married?



D30 . Have you ever been married?



D31. Have you ever been divorced or separated?



SECTION E
PERCEIVED WELL-BEING

In the next section of this interview, we want to find out how you feel about parts of your life and life in this community as you see it. Please tell me the feelings you have now--taking into account what has happened in the last year and what you expect in the near future.

I am going to read a list of things. I would like you to tell me how satisfied you are with each one, using one of five answers: 5 for completely satisfied, 4 for very satisfied, 3 for mostly satisfied, 2 for somewhat satisfied, or 1 for not satisfied. (Here is a card you can use to choose your answers/If you have a pencil and paper, let me read them to you so that you can write them down.)

5. COMPLETELY SATISFIED	4. VERY SATISFIED	3. MOSTLY SATISFIED	2. SOMEWHAT SATISFIED	1. NOT SATISFIED

8. NEVER THOUGHT	0. DOES NOT APPLY	9. NA

E1. First of all, how do you feel about your house (or apartment)? (What number fits best for you?) ☐

E2. How do you feel about your life as a whole? ☐

E3. How do You feel about the amount of game and fish there is to available to harvest? ☐

1%4. How do you feel about the amount of subsistence activities that you do? ☐

E5. How do you feel about the extent to which you respect elders? ☐

E7. How do you feel about the sharing you were able to do last year? ☐

E8. . . . The amount of time you spend with relatives who live in another household? ☐

E9. The extent you work on things cooperatively with other people? ☐

E10. Your ability to speak (NATIVE LANGUAGE)? ☐

E11. The amount of time you spend listening to stories? ☐

E12 . The social ties you have to people in other communities? ☐

E13. The arts and crafts you do? ☐

E14 . How do you feel about your own health and physical condition? ☐

Ei5 . The way you handle the problems that come up in your life? ☐

E16 . The amount of respect you get from others? ☐

E17 . What you are accomplishing in life? ☐

E18 . Yourself? ☐

E19. How much fun you are having these days? ☐

E20 . How well members of your family get along with each other? ☐

E21 . The amount of visiting you do? ☐

E22 . The usefulness, for you personally, of your education? ☐

E23 . And how do You feel about the usefulness of the education children in this tom-unity are getting these days? ☐

E24 . The opportunities you have for finding a good job? ☐

E25 . Your present job? (IF 0, SKIP TO Q. E28) ☐

E26 . The people you work with? ☐

E27 . The work you do on your job? ☐

E28 . The time you have for subsistence activities? ☐

E29 . The income you (and your family) have? ☐

E30. Your standard of living--the things you have like housing, snow machines, furniture, televisions, and the like? ☐

E31. How do you feel about the opportunity you have to live in good housing that you can afford? ☐

E32. How do you feel about the food you have to eat? ☐

E33 . The water you have to drink? ☐

E34. How safe you feel in this community? ☐

E35 . The goods and services you can get in your community--like food, appliances, and clothing? ☐

E36. How do you feel about the amount of local influence over the harvest of game and fish?

E37. . . . And the amount of local influence over local education?

E38. . . . And the amount of local influence over development?

E39. The amount of influence you have over local affairs?

E40. The condition of the land and buildings in your community?

E41. The condition of the land and water near your community?

E42. Overall, how do you feel about your community?

E43. Finally, how do you feel about your life as a whole?

E44. I just asked you how you feel about your life as a whole. NOW I'd like to ask you a slightly different question. Some people are very satisfied with their life but recognize that, objectively speaking, it isn't very good. Other people, objectively speaking, are doing well but are not very satisfied. How would you rate your overall life quality: would you say it is excellent, very good, good, fair, or poor?

1. EXCELLENT	2. VERY GOOD	3. GOOD	4. FAIR	5. POOR

8. DON'T KNOW	9. NA

Identification of Target Populations

In designing an effective social indicators system, it is necessary to decide whose well-being is to be measured. Unless these "target populations" are explicitly identified, the reliability of sample survey results will be unacceptably low for some key populations groups. Suppose, for example, that the target population for Lease Sale 97 in the Beaufort Sea were simply identified as all North Slope residents. A survey designed on this basis would not reliably measure the well-being of Nuiqsut residents separately, despite the fact that the sale might produce effects that are localized to the Nuiqsut area. In this case, Nuiqsut residents should be treated as a separate target population.

Five criteria appear to be particularly relevant to the identification of target populations:

- region
- subregion
- type of place (regional center vs. other)
- "place likely to experience localized OCS effects
- Native vs. non-Native ethnic origin

The first step in defining target populations is to identify the coastal area of concern to a particular lease sale area. Given the large size of most lease sale areas, and the uncertainties associated with what coastal areas might ultimately be affected, it is desirable to define coastal areas broadly. It is also important to keep in mind that a variety of regional definitions have already

been developed. The use of some set of existing regional boundaries as a starting point for the definition of AOSIS target populations will ensure that AOSIS can draw on the best data sources and that AOSIS data will be relevant to organizations representing resident populations.

The single best set of regional boundaries are those of the Native regional corporations. Both Census Areas and Rural Education Attendance Areas closely match regional corporation boundaries. The regional corporations themselves and other organizations which have adopted similar regional boundaries collectively represent local residents. Table 13 shows the relationship between OCS lease sale areas and the regional corporations.

TABLE 13
RELATIONSHIP BETWEEN
OCS LEASE SALE AREAS AND REGIONAL CORPORATIONS

Lease Sale Area	Regional Corporation
Gulf of Alaska	Chugach
Kodiak	Koniag
Cook Inlet	Cook Inlet
Shumagin	Aleut
North Aleutian Basin	Bristol Bay Aleut
St. George Basin	Bristol Bay Aleut
Navarin Basin	Calista

Lease Sale Area	Regional Corporation
Norton Basin	Bering Straits
Hope Basin	NANA
Chukchi Sea	Arctic Slope
Beaufort Sea	Arctic Slope

Native regional corporation boundaries provide the starting point for the definition of target populations. It should be financially and logistically feasible to implement AOSIS in two or three Native regions per year.

It is not enough, however, to define the broad region in which data will be collected. It is also necessary to identify the population groups within each region that may experience localized effects of OCS development or which may respond differently to region-wide OCS effects.

Although Native regions correspond to major cultural groups, significant cultural differences exist within most regions. For example, Pribilof Islanders culturally differ from King Cove residents. There are, in addition, important subregional differences in economic activity. Commercial salmon fishing, for example, is considerably more important to residents of the Alaska Peninsula than it is to residents of Unalaska in the Aleutians region. Since both cultural and economic subregional differences are likely to influence population responses to OCS activities, AOSIS should be implemented to produce measures of well-being on a subregional basis.

There is another reason to measure well-being on a subregional basis. OCS activities are not the exclusive source of change. Measurement of well-being on a subregional basis will permit comparisons of well-being in regions most directly experiencing the effects of OCS activities with nearby, culturally similar subregions. A subregional comparison of well-being in Chukchi and Beaufort Sea villages, for example, will help isolate the effects of OCS activities.

The definition of subregions is more problematic than the definition of regions. There always appears to be a reason to subdivide a proposed subregion into smaller and smaller units. The logical conclusion of repeated subdividing would be to report well-being on a village by village basis. However, AOSIS would cease to be a feasible enterprise if each village were treated as a separate target population. The costs of data collection would be exorbitant. The generation of reliable village level data would also require a virtual census of households.

There are two exceptions to the general rule that individual communities should not be separate target populations. The first exception applies to regional centers. Regional centers are likely to experience different types of OCS effects simply because of their size and economic role. The second exception applies to any community that is likely to experience localized effects of OCS

activities. Communities located nearby known or anticipated onshore supply bases, pipeline landfalls, nearshore staging areas, or airports servicing offshore activities should be considered separate target populations.

Before providing a suggested list of subregional and community target populations, we would like to introduce the fifth, and final, factor to be considered in the identification of target populations: Native and nonNative ethnic origin. In general, Native and nonNative residents differ in their educational and occupational backgrounds. They also obviously markedly differ in their cultural backgrounds. These differences suggest that Natives and non-Natives will respond differently to OCS activities. As a result, the well-being of Native and non-Native residents may be affected in different ways and to different degrees. It is, therefore, important to measure their well-being separately.

There is a direct relationship between the number of identified target populations, the reliability of measured well-being for each target population and cost of collecting survey data. Each identified target population requires a separate sample size calculation. The reliability of the data collected on each subpopulation is primarily a function of the absolute size of the sample. Sampling reliability is commonly expressed as a maximum level of sampling error at a chosen level of confidence. At a 95 percent level of confidence, the sample size required to achieve

a maximum estimated sampling error of plus or minus 5 percentage points is 400. This number can be adjusted downward if the sample exceeds about 10 percent of the population. Even adjusted sample sizes, however, are likely to be at least 100 for the smallest target populations. Thus, every target population added will increase the total sample size and survey costs.

Table 14 shows a recommended combination of subregion, community, and ethnic target population definitions. These definitions can be easily changed. They do, however, serve to illustrate the extent to which AOSIS will provide data for subpopulations.

TABLE 14
ILLUSTRATION OF
AOSIS TARGET POPULATIONS

Region	Subregion
North Slope	Beaufort Native
	Nuiqsut Native
	Chukchi Native
	Wainwright Native
	Barrow Native
	N. Slope non-Native
Aleutians	Pribilof Islands
	Unalaska
	Aleutians East CRSA communities
	Other villages
	Aleutian non-Native
Bristol Bay	Togiak, Nushagak Native
	Iliamna Lake/Kvichak River Native
	Bristol Bay Borough Native
	Upper Ak. Peninsula Native
	Dillingham Native
	Bristol Bay non-Native

TABLE 14 (Cent'd)

Bering Straits	Diomede Island, Te' ler, Wales, Brevig Mission, Shismaref St. Lawrence Islan Unalakleet Norton Sound Native Nome Native Nome non-Native Rmdr. Bering Straits non-Native
Calista	Lower Yukon Native Lower Kuskokwim, Nelson Isl.Native Middle Kuskokwim Native Bethel Native Bethel non-Native Rmdr. Calista non-Native
NANA	Kotzebue Native Other village Native NANA non-Native
Koniag	Koniag Native Koniag non-Native
Cook Inlet	Cook Inlet Native Cook Inlet non-Native

Scheduling of AOSIS Implementation

Implementation of AOSIS in a single region will require the completion of between 500 and 1,500 structured interviews. Each region will require the development of separate sample frames; and the hiring, training, and supervision of separate interviewers. The simultaneous implementation of AOSIS in all coastal areas would pose severe management challenges and would consume a substantial portion of the present annual budget of the SESP. It is, therefore, more reasonable to stage the implementation of AOSIS so that two or three regions are covered each year.

The particular regions covered each year should be determined by the proposed leasing schedule. In this way, AOSIS data will be available for the preparation of pre-lease environmental impact statements (see Table 15).

TABLE 15
HATCH BETWEEN SUGGESTED AOSIS SCHEDULING
AND PROPOSED LEASE SALES

Fiscal Year	AOSIS Region(s)	AOSIS Implementation Date	Lease Sale Area	Proposed Issuance Date for DEIS	Proposed Lease Sale Date
1986	Aleutians	February 1986	St. George Basin	August 1987	July 1988
	Bristol Bay	"	"	"	"
1986	Aleutians	February 1986	N. Aleutian Basin	January 1988	December 1988
	Bristol Bay	"	"	"	"
1987	Bering Straits	October 1986	Norton Basin	April 1988	March 1989
1987	Calista	March 1987	Navarin	October 1988	Sept. 1989
1988	North Slope	October 1987	Beaufort	January 1989	December 1989
1988	North Slope	October 1987	Chukchi	April 1989	March 1989
	Nana	"	"	"	"
1989	Cook Inlet	October 1988	Cook Inlet	July 1989	June 1990
1989	Aleutians	February 1989	Shumagin	October 1989	Sept. 1990
1990	Kodiak	October 1989	Kodiak	February 1990	January 1991

Preparation for Fieldwork

The major tasks in preparation of actual data collection include:

- Generation of village specific activity lists
- Translation of questionnaire into Yupik and Inupiat
- Preparation of written interviewer instructions
- Sample frame development

Several AOSIS indicators are based on respondent self-reports on hunting and fishing activities. The activities in question vary by village in accordance with differences in the availability of various species of fish and game. Ten village specific activity lists have already been developed.

Key informants should be used to identify the principal hunting and fishing activities of the village. The list should include activities which involve the processing and use of fish and game. An initial, working list of 12 activities should be constructed which is balanced to include the principal activities of both men and women. The initial list should be reviewed by a second key informant and modified as necessary.

The translation of the questionnaire into Yupik and Inupiat will ultimately be necessary. A taped translation should be prepared in each language. The two tapes should then be translated back to English and verified against the original interview. The original translations should be modified as appropriate. Each Yupik or Inupiat speaker should receive a copy of the appropriate taped translation during training.

Interviewers must be trained in general interviewing techniques, informed about the purpose of the AOSIS survey, and provided with question-by-question instructions. The basis for such training should be a written manual.

Several steps must be taken to develop a sample frame for each region. First, all places in the region should be categorized as eligible or ineligible for inclusion in the telephone sample frame. Eligibility should be determined by the extent of residential telephone coverage in the village. Information on the distribution on assigned residential telephone numbers within each eligible prefix should be obtained to minimize costly dialing of nonworking numbers.

The development of the nontelephone sample frame will require the construction of multistage sample of villages, households, and individuals. Once villages have been selected, village households must be listed so that households can be randomly selected. Village listings can be prepared by interviewers immediately prior to fieldwork if they have been properly trained in listing procedures and can be effectively supervised.

Data Collection Procedures

Structured Interviews

Three types of data collection are used in AOSIS: sample surveys, key informant interviews, and assembling existing information. The

sample survey will include face-to-face and telephone interviews. If possible, face-to-face interviewers should be hired within the survey region, Local hiring will enhance the acceptability of the survey to local authorities. Telephone interviewers should operate from a centralized facility to permit adequate supervision. All interviews should be editted, first by the interviewer as soon as possible after the interview is completed, and second by a supervisor before it becomes impossible to recontact the respondent. Effectively, the latter requirement means that two people should travel to each village in the face-to-face sample and should edit each other's interviews. Ten percent of all interviews should be verified.

Key Informant Interviews

Key informant information forms the basis for the following indicators:

- Percent of productive hunting and fishing areas accessible to local residents.
- Cost index of standard market basket of goods.
- Availability of three selected items in village,
- Cost index of selected goods and services.
- Percent of selected services and facilities present and working.

To maximize the comparability of key informant and survey results, the villages sampled for key informant data should be the same villages sampled for survey data. To avoid having to travel to

villages included in the telephone survey sample, key informants in these villages will have to be contacted by telephone.

Assembling Secondary Data

The 32 acceptable and marginally acceptable indicators based on secondary data are available from six sources. The largest source of secondary data is the U.S. Census. While some Census data is available in published form, AOSIS requires the more detailed tables reported on computer files. Assuming that future census data are organized as in 1980, the construction of indicators will require the processing of three tapes: Summary Tapes 1, 2, and 4. The census also provides the baseline population and household counts used to calculate rates for both secondary and primary indicators.

The Alaska Department of Health and Social Services (DHSS) collects and publishes data on births and deaths. The DHSS summarizes their data in its annual publication Alaska Vital Statistics. Since this publication has been delayed in recent years, it may be necessary to make a special request to obtain recent data.

Selected data on morbidity of the Native population are available from the Indian Health Service of the U.S. Public Health Service. This information is collected and reported through the IHS Patient Care Information System. The Statistical Section of IHS in Anchorage maintains summary reports from this system.

The Alaska Division of Elections maintains records on registered voters and election returns. The most comprehensive source of data is the publication, Official Returns by Election Precinct which is published following each statewide primary and general election.

The U.S. Department of Commerce, Bureau of Economic Analysis, publishes estimates of per capita income. Statewide estimates are published in the "Survey of Current Business." Census area forcasts are available from BEA on microfiche and computer tape.

Data Processing

The AOSIS survey is designed so that most data can be directly entered for computer processing. Coding will be required for a few open-ended questions (e.g., occupation, type of art or craft, place of birth). Survey data entry should be 100 percent verified. The survey raw data file will be organized so that each logical record corresponds to the responses of an individual. The Statistical Package for the Social Sciences, Version X, (SPSSX) should be used to create an analysis file. The use of SPSSX will ensure that the data can be installed on the maximum number of computer systems. The survey analysis file will be used to construct social indicators for each target population and to investigate relationships which can be applied to projections.

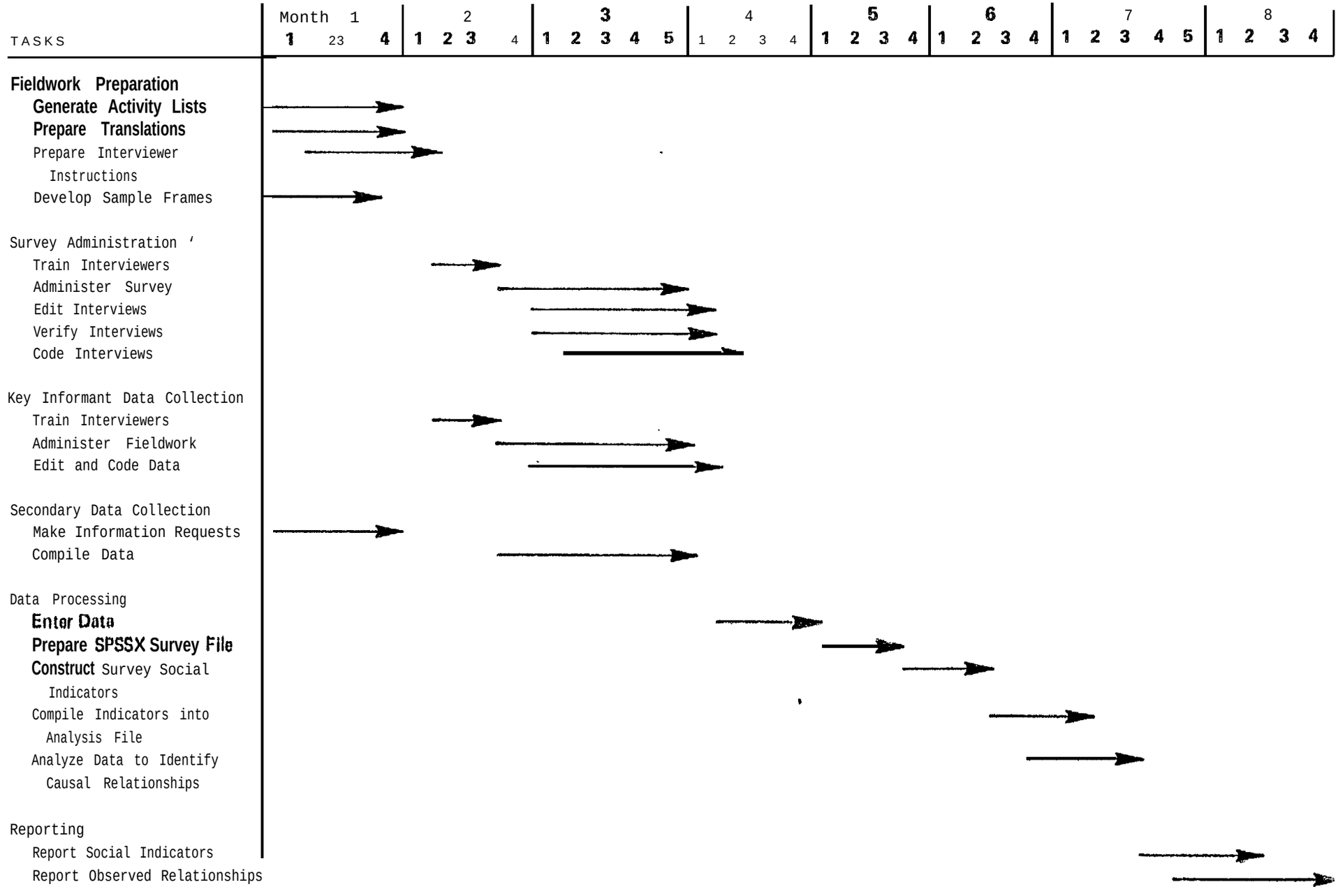
The social indicator values for each target population will be entered as a component of a second raw data file. The second raw

data file will be organized so that each logical record corresponds to a target population. Key informant- and secondary-based social indicator values will be entered in the same raw data file. Thus, the second raw data file will have a complete set of social indicator data for each target population. Data from additional applications of AOSIS will be entered on the same file so that it is possible to directly compare values for each social indicator over time. SPSSX will be used to process data from the second raw data file.

The methods used to apply AOSIS data to pre-lease analyses and monitoring are described in the next chapter. Figure 13 below summarizes the tasks necessary to implement AOSIS and illustrates the approximate timing of each task.

Figure 13

Illustration of Scheduling of AOSIS Tasks



CHAPTER SIX
APPLICATION OF THE ALASKA SOCIAL INDICATOR SYSTEM

As we mentioned in the Introduction, AOSIS has two purposes. First, it is intended to document changes in the human environment resulting from major federal actions on the outer continental shelf. Second, it is intended to contribute to pre-lease decisions. This chapter describes how AOSIS can be used both as a monitoring system and as an integrated component of existing pre-lease studies.

AOSIS as a Monitoring Tool

Table 16 illustrates how repeated measurement of social indicators can be used to document change in those indicators. If OCS activities were the only source of change, the use of repeated measures to document the effects of OCS activities on the human environment would be straightforward. There are clearly many other sources of change, however. We must, therefore, address the question of how AOSIS can be used to isolate the effects of OCS development activities.

Documentation of No Change

The first way in which AOSIS can isolate the effects of OCS development activities is to document conditions in the human environment which have not significantly changed. The lack of change in specific aspects of the human environment may at first

sound unlikely, but it is important to remember that AOSIS attempts to be comprehensive in its coverage of social concerns and it is entirely possible that the combined forces for change will not touch on many aspects of the human environment. Thus, for example, indicators of cooperative activity may not change while indicators of income and standard of living change rapidly (see Table 17).

TABLE 16
ILLUSTRATION OF HOW SOCIAL INDICATORS
DOCUMENT CHANGE

Native Family Income (1986 Dollars)	1986	1991	Change
Under $5,000	14%	8%	-6%
$5,000 to $9,999	18%	10%	-10%
$10,000 to $19,999	23%	18%	-5%
$20,000 to $29,999	7%	22%	5%
$30,000 to $39,999	15%	26%	11%
$40,000 to $49,999	9%	11%	2%
$50,000 or more	4%	5%	1%
Median Income (1986 dollars):	$17,826	$26,364	$8,538

TABLE 17
ILLUSTRATION OF NO SUBSTANTIAL CHANGE
IN ACTIVITIES DO COOPERATIVELY

Activities Do Cooperatively	1986	1991
Percent Engaging in Activities Cooperatively	68%	71%
Percent Very Satisfied with Activities Do Cooperatively	78%	75%
Number of respondents:	242	236

The lack of change may also not appear to be very important in terms of decision making. Yet decision makers constantly face public concerns raised due to fears of potential change. If such changes do not actually occur and the lack of change is documented, decision makers will be in a better position to allay public fears and to base future decisions on a factual understanding of change.

The absence of change in specific indicators does not necessarily mean that OCS activities have not influenced the levels or distributions of the indicators. It is possible that the effects of OCS activities could be neutralized by the effects of some other source of change. An exact neutralization of OCS effects is more of theoretical than practical interest. The more likely outcome is that the effects of OCS activities will be completely masked by larger effects in the opposite direction.

Opposing Sources of Change

Changes in North Slope employment is a case of opposing sources of change. The North Slope Borough is likely to reduce its rate of capital spending at the same time that OCS activities increase in the Beaufort Sea. These two trends will have an opposite but hardly equal effect on employment for North Slope Natives. How, then, can AOSIS distinguish between declines in employment caused by reduced public spending and increases in employment caused by exploration, development, and operation on the OCS?

It is possible to document conflicting trends in employment by directly tracking changes in the employer of North Slope residents. Respondents to the AOSIS questionnaire not only indicate the extent to which they have been employed over the past twelve months, but also their principal employer. This information, coupled with a knowledge of the structure of employment on the North Slope, and information from the industry monitoring program, can be used to identify conflicting trends (see Table 18).

TABLE 18
ILLUSTRATION OF ISOLATION OF
OPPOSING EMPLOYMENT CHANGES

Percent of Labor Force Employed	1 9	8 1991 6
Total '.	81%	72%
North Slope Borough	30%	1 0%
Oil and Gas Industry (including support)	6%	15%
Other Private Industry	25%	26%
Other Public Industry	20%	21%
No. of Respondents:	180	183

Complementary Sources of Change

Two or more sources of change can also have a cumulative effect on specific social concerns. For example, the decline in the Western Arctic Caribou herd during the late 1970s has been blamed on natural cycles, human predation, and habitat disruptions caused by the construction and operation of the trans-Alaska pipeline. How can the effects of one source of change be distinguished from another?

Separate but cumulative employment effects can be distinguished in the same way conflicting employment effects can be isolated, by tracking changes in employers. The isolation of sources of change in subsistence activities requires a different approach. In anticipation of this problem, we designed AOSIS to include four subgoals which are really inputs to the general goal of continued harvest of renewable resources:

- Healthy Wildlife Population
- Unrestricted Access to Productive Hunting and Fishing
- Presence of Wildlife in Hunting and Fishing Areas
- Interest in and Use of Renewable Resources

We reasoned that each of the above subgoals have to be met in order for the general goal of continued harvest of renewable resources to be achieved. An observed decline in one, but not all, of the subgoals would narrow the possible sources of change and increase the likelihood that the effects of OCS activities can be distinguished from other effects (see Table 19).

AOSIS cannot be expected to operate independently of other studies designed to isolate the effects of OCS activities. The above example suggests that the cause of a decrease in bowhead harvest must have dislocated the bowhead, probably further offshore. The attribution of cause for the observed change would require information from biological and industry monitoring studies.

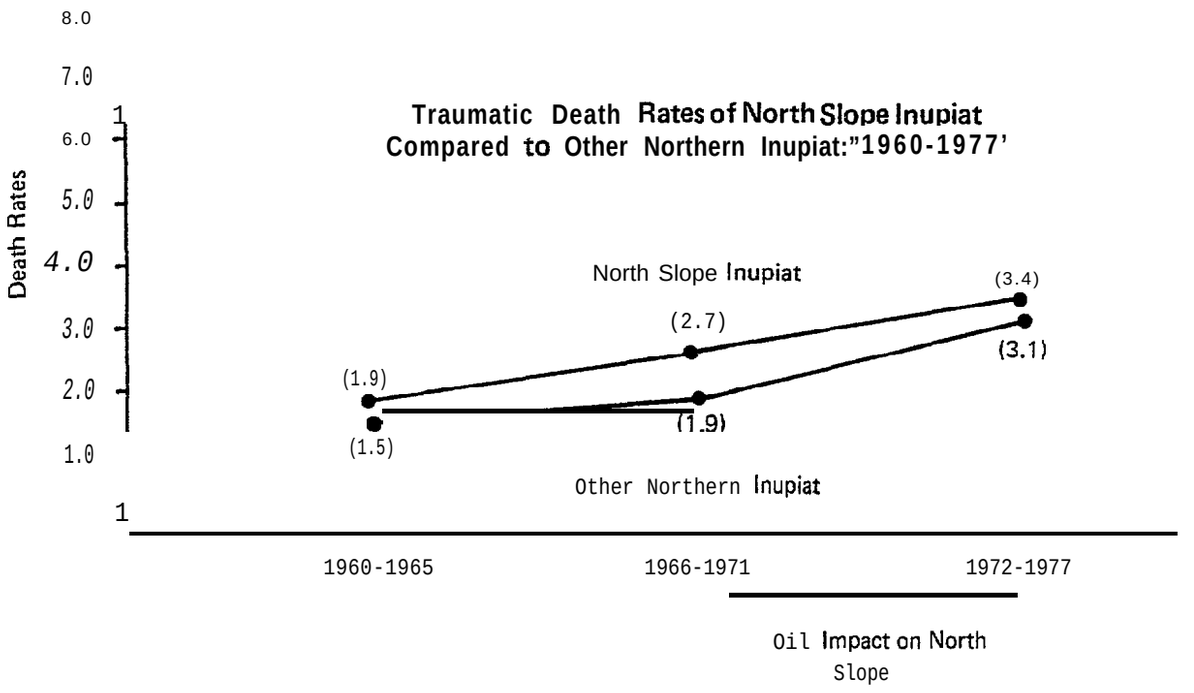
TABLE 19
ILLUSTRATION OF
ANALYSIS TO IDENTIFY SOURCE OF CHANGE

Subgoal and Indicator	1986	1991
HEALTHY WILDLIFE POPULATION		
Size of Bowhead Population as % Max. Size in Last 20 Years.	45%	53%
UNRESTRICTED ACCESS TO PRODUCTIVE HUNTING & FISHING		
Percent of hunting & fishing areas accessible to Barrow residents	91%	90%
PRESENCE OF BOWHEAD POPULATION IN HUNTING AREA		
Size of Bowhead Population Present in Area as % Max. Size	95%	60%
INTEREST IN AND USE OF RENEWABLE RESOURCES		
Percent of Adults Participating in Whaling Crews	40%	42%
Percent Household Meat Derived from Harvested Wildlife	75%	56%

Comparison of Area-specific Changes

AOSIS data for different areas can also be used to isolate the effects of OCS activities. We designed AOSIS to provide comparable data across subregions with this type of analysis in mind. On the North Slope, for example, changes in specific indicators can be compared between Chukchi and Beaufort Sea communities. Changes on the North Slope as a whole can be compared with the culturally similar NANA region. This approach has been used in the past to conclude that petroleum development activities on the North Slope have not reduced the mental health of Inupiat residents (Kruse, Kleinfeld, and Travis, 1982; see Figure 14).

FIGURE 14
ILLUSTRATION OF USE OF REGIONAL COMPARISONS
TO ISOLATE OCS EFFECTS



*Traumatic Deaths include suicides, homicides, accidental, and alcoholism deaths.

Source: Alaska Department of Health and Social Services, Office of Information Systems, 1980.

We recognize that some of the effects of OCS development activities may only be felt by a single village. Village-specific changes might not be large enough to influence data reported on a subregional basis. While it is theoretically desirable to monitor change on a village level, the cost of doing so would be prohibitive and the reporting burden placed on village residents would be excessive. However, it is possible to selectively expand AOSIS to include villages expected to experience the effects of OCS activities (See Table 20). The North Slope villages of Nuiqsut and Wainwright, for example, may experience localized OCS effects associated with development activities in the Beaufort and Chukchi Seas, respectively. The community of Unalaska is another example. Rapidly changing technologies and uncertain development plans may make it impossible to anticipate which specific villages should be monitored separately, but the existence of an OMB-approved questionnaire will make it possible to respond quickly to new information.

TABLE 20
ILLUSTRATION OF USE OF VILLAGE DATA
TO DOCUMENT LOCALIZED OCS EFFECTS

Selected Indicators of Family Functioning	Beaufort Natives 1986	Beaufort Natives 1991	Nuiqsut Natives 1987	Nuiqsut Natives 1991
(1) % Households Containing 2 or more related indiv.	75%	74%	75%	60%
(2) % Adults Ever Married Who Have Never Divorced	60%	61%	59%	48%
(3) % Households with Children with 2 adults	80%	79%	81%	70%
(4) % Satisfied with how Family Member Get Along	83%	84%	82%	74%

Indirect Effects of OCS Activities

The two components of the human environment most likely to be directly affected by OCS activities are employment and renewable resource harvest. Changes in either may induce changes in virtually all other aspects of the human environment. The causal connections between specific changes may prove to be complex. One hypothetical causal chain is shown below:

- OCS activities increase employment.
- Increased employment increases household income.
- Increased income is used to upgrade housing.
- Move to new housing increases total housing stock and results in new household formation.
- Despite new household formation, extended family relationships persist at current levels.

Relationships among social indicators can be statistically examined on the basis of a single application of AOSIS. Since a level for each AOSIS indicator is assigned to each individual sampled in the AOSIS survey, it is possible to observe the degree to which the observed level of one indicator varies according to the observed level of another indicator (See Table 21). In our example, we see that households with higher incomes per capita tend to have fewer persons per room. We also observe that households with fewer persons per room do not tend to engage in fewer hunting and fishing activites cooperatively. These two analyses tend to support the hypothesized causal relationships listed above.

TABLE 21
ILLUSTRATION OF ANALYSES
TO EXPLORE HYPOTHESIZED CAUSAL RELATIONSHIPS

	Per Capita Income (Percents)		
Persons Per Room	Under $3,000	$3,000 $4,999	$5,000 or more
0.5-0.75	12	18	29
0.76-1.00	16	23	30
1.01-1.50	32	26	20
1.50 or more	40	33	21
	100	100	100

Number of Hunting & Fishing Activities Engaged in Cooperatively	Persons Per Room 0.5-0.75	0.76-1.00	l*ol-1.50	1.50 or more
0	20	23	18	21
1-2	46	44	47	46
3 or more	34	33	35	33
	100%	100%	100%	100%

Statistical analyses of the sort described above will help to identify the effects of OCS activities, but should not be considered a substitute for in-depth studies of the causes of significant changes identified by AOSIS. Rather, AOSIS should be viewed as an integral component of the SESP.

Application of AOSIS to Pre-lease Decisions

Use of AOSIS Goals to Ensure Comprehensiveness of Pre-lease Studies

Over the long term, understandings of change in the human environment gained through AOSIS monitoring efforts willimprove our ability to project change. Thus, there is a direct connection between monitoring efforts and pre-lease decisions. Our experience

to date, however, is that there has been little actual OCS activity to monitor. While we certainly want to have a monitoring system in place so that we can test the accuracy of our projections and learn from our mistakes, we would like AOSIS data to immediately contribute to pre-lease decisions as well.

The most immediate contribution of AOSIS to pre-lease decisions is the use of identified social goals as a means of defining the scope of work of pre-lease studies. It is important to recognize that we should be interested in projecting the same things that we monitor. The focus of both projection and monitoring efforts should be those aspects of the human environment of greatest concern to the population potentially affected by OCS activities. AOSIS was deliberately designed around a comprehensive set of social goals. Lack of attainment of a goal is bound to be a source of concern. We should, therefore, see a close match between the set of social goals included in AOSIS and the concerns which are the focus of current pre-lease studies, and we do. Figure 15 is based on a comparison between the social concerns addressed in a representative selection of SESP technical reports and AOSIS social goals. An "X" in Figure 15 indicates that a concern addressed in a particular technical report corresponds with an AOSIS subgoal. On the basis of the comparisons shown in Figure 15, it apppears to be true that AOSIS addresses the same elements of the human environment that are cumulatively addressed in pre-lease SESP studies. The difference is that AOSIS will be able to produce quantitative data on these elements that can be generalized to entire target populations.

Figure 15

SUBGOALS RELEVANT TO SELECTED TECHNICAL REPORTS

Goal	TECHNICAL REPORT NUMBERS										
	64	70	89	92	95	96	99	100	101	103	111
I. Continued Existence of Traditional Culture											
1. Continued harvest of renewable resources					X						
1. Healthy wildlife population	X	X	X						X		
2. Access to traditional hunting areas	X					X				X	
3. Presence of wildlife in traditional hunting areas	X	X	X		X	X					
4. Interest in use of renewable resources	X	X	X	X	X	X					
2. Continued traditional social relationships										X	
1. Continued traditional cooperative activities	X		X		X	X				X	
2. Continued sharing of renewable resource products and harvest equipment	X	X	X		X	X				X	
3. Continued extended family relationships	X	X	X	X	X	X					
4. Continued respect of elders	X		X			X					
5. Traditional intervillage social relationships	X	X	X	X	X	X				X	
6. Continued traditional intrafamily relations	X		X		X	X					
3. Continued cultural supports											
1. Continued use of Native language	X	X				X					
2. Continued oral history tradition											
3. Continued transfer of traditional skills						X					
4. Continued production of traditional arts and crafts		X	X								
5. Continued traditional religious/health beliefs and practices		X	X			X					
II. Individuals and Families That Are Able to Function Well in Society											
1. Healthy individuals											
1. Physically healthy individuals		X				X	X			X	
2. Mentally healthy individuals		X				X					
2. Individuals who are safe from harm											
1. Individuals who are safe from harm by others						X	X			X	
2. Individuals who are safe from harm caused by their own actions						X				X	

*See Key at bottom of table for titles of Technical Reports.

Figure 15. (Continued)

Goal	TECHNICAL REPORT NUMBERS										
	64	70	89	92	95	96	99	100	101	103	111
II. Individuals and Families That Are Able to Function Well in Society (Continued)											
3. Education and skilled population											
1. Individuals have received a basic education		X	X	X							
2. Adults have the education and skills necessary to obtain employment						X					
4. Families that function well in society											
1. Prevalence of families as primary social unit	X			X	X	X				X	
2. Healthy social relationships within families						X					
5. Adequate leisure opportunities											
1. Adequate opportunity to interact informally with friends and famiy		×	×	×		×					
2. Adequate opportunities to participate in recreational activities		×		X		X					
III. Adequate Command Over Goods and Resources											
1. Sufficient income & equitable income distribution					X						
1. All households receiving at least minimum income required to meet basic needs			X			X	X		X	X	X
2. Most households experience real income growth						X	X		X	X	
2. Sufficient opportunities for employment	X				×						
1. Sufficient number of local jobs		X	X	×	%	X	×	×	×	×	×
2. Sufficient opportunities for preferred types of local employment		×			%	X	×	×	×	X	X
3. Sufficient housing					×						
1. Affordable housing opportunities		%								×	
2. Satisfactory physical living space		×									
3. Physically adequate housing		×		×	×	×			×	×	
4. Sufficient food											
1. Sufficient food		×	×	×	×	X	×		×		
2. Affordable food		%	×			X	×		×		
5. Sufficient personal goods and services							×				
1. Sufficient availability					×						
2. Affordable price			×		×	×	X				
6. Satisfactory community environment											
1. Satisfactory public services and facilities		×		×	X				X	×	
2. Satisfactory physical environment		×									

Figure 15. (Continued)

Goal	TECHNICAL REPORT NUMBERS										
	64	70	89	92	95,	96	99	100	101	103	111
IV. Sufficient Social Opportunities and Participation											
1. Perception of adequate local control				X	X						
1. Perception that there are institutional mechanisms relevant to exercise of local control	X				X	X	X		X		
2. Perception that institutions are effective to achieve local control	X					X	X				
2. High level of individual participation in political activities	X			X							
1. Perceived opportunities to participate						X	X				
2. Belief in utility of participation						X	X				

KEY: The titles of the Technical Reports are as follows:

TR-64: Beaufort Sea Sociocultural Systems Update Analysis.

TR-70: Navarin Basin Sociocultural Systems Baseline Analysis.

TR-89: Effects of Renewable Harvest Disruptions on Socioeconomic and Sociocultural Systems: Norton Sound.

TR-92: Unalaska: Ethnographic Study and Impact Analysis.

TR-95: Subsistence Based Economies on Coastal Communities of Southwest Alaska.

TR-96: Nuiqsut Case Study.

TR-99: A Description of the Socioeconomic of Norton Sound.

TR-100: Economic and Demographic Systems Analysis, North Slope Borough.

TR-101: Barrow Arch Socioeconomic and Sociocultural Description.

TR-103: Sociocultural/Socioeconomic Organization of Bristol Bay: Regional and Subregional Analyses.

TR-111: Community Economic and Demographic Systems Analysis of the Norton Basin Lease Sale 100.

AOSIS represents the first attempt in the SESP to produce a comprehensive list of the components of the human environment affecting individual well-being. The list can be immediately used as a guide in the development of the scope of work for pre-lease studies. In this way, pre-lease studies will be more likely to contribute relevant data to the decision making process.

Use of AOSIS Social Indicators as Projection Indicators

We believe the social indicators included in AOSIS collectively provide the best description of the human environment affecting individual well-being that is presently available. The indicators are equally useful as descriptors of projected human environment conditions as they are as descriptors of current or past human environment conditions. Ideally then, we would like to project the level and distribution of each social indicator with and without OCS activity as a means of identifying significant potential effects. Such pre-lease projections would obviously be of great value to decision makers.

Suppose, for example, that the mean percent of household food derived from harvested wildlife was projected to change from 60 percent to 40 percent under one OCS scenario. Such a change would be at least moderate (as the term is used in environmental impact statements), or even major. Suppose, on the other hand, that the projected decrease was 5 percentage points, from 60 to 55 percent. In this case, the change would probably be judged minor

(again, as the term is used in an EIS). Each AOSIS indicator is measured in units which will permit comparisons like the example just given.

The measurement of human environmental conditions in units that can reflect degrees of "change is a necessary, but not sufficient, prerequisite- to project change. It is also necessary to know the relationships between the OCS activities themselves and the marine, coastal and human environments in which they take place. It would be naive to think that our understanding of these relationships has advanced to the point that we can construct a formal predictive model that includes all AOSIS social indicators as dependent variables. By formal predictive model, we mean a system of mathematical equations which translates a description of projected OCS activities into a projection of changes in the human environment.

AOSIS can be used, however, to advance toward this goal. We have already provided an example of how data from a single application of AOSIS can be used as a basis for identifying relationships between social indicators. We can examine relationships between individual circumstances, behaviors, and perceptions to learn how differences in circumstances are linked to differences in behaviors and perceptions. Assuming that these observed relationships reflect causal connections that will persist following the onset of OCS activities, we can use them to help project change.

Table 22 illustrates the use of this form of analysis, called cross-sectional analysis. Survey data collected from a sample of 158 Inupiat males in 1977 was used to examine the relationship between the number of subsistence activities pursued and household income. The observed relationship was positive, with variations in income explaining from 4 to 12 percent of the variation in number of subsistence activities pursued (depending on the region). Similar analyses incorporating more variables could be performed to improve our ability to project change.

Table 22

Average Number of Male Subsistence Activities and Average Number of Months During Which Men Spent Some Time on Subsistence, by Household Income and Region

Household Income: 1976	Average Number of Subsistence Activities			Average Number of Months SomeTime Spent on Subsistence		
	North Slope	NANA	UpperYukon-Porcupine	North Slope	NANA	Upper Yukon. Porcupine
Under $5,000	2.6[a]	4.3[b]	6.8[c]	3.3[d]	4.9[e]	Not Available
$5,000–$14,999	2.2	4.1	6.1	3.1	4.3	
$15,000–$24,999	3.3	4.5	10.0	3.6	4.9	
$25,000 and over	4.5	3.3	11.3	6.0	3.0	
Respondents	(158)	(114)	(119)	(158)	(114)	

aANOVA, F=5.59, P < .01, ETA=.31
bANOVA, F=0.49, p(ns), ETA=.11
CANOVA, F=3.69,P < .05, ETA=.30
dANOVA, F=6.80, p < .01, ETA=.34
'ANOVA, F=1.42, p(ns), ETA=.19

Sources: ISER North Slope Survey, 1977; NANA Survey, 1978; ISER Upper Yukon-Porcupine Survey, 1977.

The form of analysis used to identify the relationships between circumstances, behaviors, and perceptions--cross-sectional analysis--can be conducted with data collected at a single point in time and in a single region. It is, therefore, not necessary to collect data at two points in time in order to use AOSIS as an analytical data base.

While it is important not to overlook the potential applications of AOSIS data to the projection of change, it is equally important to recognize the limitations of cross-sectional analysis of AOSIS data. As we pointed out earlier, AOSIS includes only a limited set of possible indicators. It is not intended to support a detailed analysis of change within each subgoal. If we want to improve our ability to project employment behavior, for example, we would like to have data on wages, length of employment, and other employment factors. AOSIS includes only a few employment indicators, and therefore presents limited opportunities for detailed analyses.

Cross-sectional analyses also do not conclusively establish causal relationships; rather, they identify statistical relationships which may indicate a causal relationship. Other types of studies, including longitudinal studies, in-depth case studies, and experiments are often needed to establish the existence of causal relationships. AOSIS is, however, an indispensable source of baseline measures that are in a form suitable for projection.

Whether AOSIS or some other source is used to identify the relationships needed to make projections, the best set of variables to actually project are the social indicators included in the Alaska Social Indicator System.

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