

AN ABSTRACT OF THE THESIS OF

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This research questions the effectiveness of newspapers as a vehicle of environmental information by determining whether the public attitude in Alaska towards off-shore oil exploration was consistent with that expressed in the local newspapers. All newspaper articles about off-shore oil exploration published in Alaska between 1980 and May 1987 were examined for content (pro-environment, pro-economy or neutral) and readability level. Two surveys of samples of Alaska residents were conducted in 1985 and 1987 to determine public knowledge and attitude towards off-shore oil exploration. Comparison of the content analysis with the public attitude surveys showed important and consistent differences. In 1985 the newspaper articles were stressing environmental concerns while the public's attitude was pro-economy. The newspaper articles gradually became more pro-

economy oriented by 1987, while during the period surveyed the public shifted to a pro-environment attitude. The differences between attitudes members of the public and newspaper perspective could not be attributed to the readability level of the newspapers. The notion that newspapers are an effective means of communicating environmental information was not valid for Alaskan newspapers between 1980 and 1987.

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Off-Shore Oil Exploration in the Arctic Ocean:  
A Comparative Analysis of Newspaper  
Information and Public Attitude

by

Charles B. Tombropoulos

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OFF-SHORE OIL EXPLORATION IN THE ARCTIC OCEAN:  
A COMPARATIVE ANALYSIS OF NEWSPAPER  
INFORMATION AND PUBLIC ATTITUDE

PURPOSE

The purposes of this study were three fold:

- 1) to determine whether public attitude in Alaska concerning the economic and environmental impacts of off-shore drilling in the Arctic Ocean differed from the attitude in the local newspapers;
- 2) to determine whether the results of the attitude assessment research were consistent over time (1985 versus 1987); and,
- 3) to determine whether the differences, if any, could be attributed (all or in part) to the readability level of the newspapers being inappropriate for the reading level of the public.

Context and Significance

The economy of Alaska has traditionally been dependent on the exploitation of its natural resources. From the mining of precious metals in the late 19th century, to fishing in more recent times, to the oil boom of the 1970's and 1980's, the economic and social conditions of Alaska have followed a "boom and bust" cycle. While economic pressures can be quite severe, serious concerns are emerging in regard to the environmental impact of development practices. Public opinion can play an important role in the process of balancing economic and environmental interests.

Off-shore drilling in the Arctic Ocean is a case in point. The sale of federal permits for oil exploration in this remote area has led to the discovery of large oil fields such as Prudhoe Bay. The development of oil reservoirs has benefitted the American economy at large, and the Alaskan economy specifically because of its effect on business and employment.

While the economic effect is generally positive, concern over the environment began to increase in the early 1980's as oil exploration started to move from onshore (Prudhoe Bay) to off-shore (the Endicott Field). The exploration and development of a project such as Endicott involves the construction of gravel causeways several miles long jutting into the frigid waters of the Arctic Ocean and connecting to large man-made gravel islands. In addition to the disruption of the habitat of fish, migratory fowl and other animals caused by construction, the possibility of oil spills threatens the integrity of the area as well as the subsistence livelihood of the native inhabitants.

The focus of this study was not to determine whether the information presented to the public was accurate and complete. Nor, was it to validate cause-effect relationships between newspaper information and public attitude. The study was not designed to determine whether the newspapers were responsible for influencing public opinion, but rather to ascertain whether the newspapers' attitudes were consistent with the newspapers' readerships on a specific issue and during a specific time interval. Accordingly, this study was designed to answer the question: "did the newspapers address off-shore oil development in the Arctic

Ocean in a manner consistent with public opinion?" Therefore, this research compares public attitudes with the local Alaskan newspapers perspective concerning the tradeoff issues "economy versus environment," to explore the potential effect of newspapers on public attitudes on off-shore oil drilling in the Arctic Ocean.

The issue is significant because it revolves around the concept of public information as the key to public participation in the democratic process. The public receives "expert" information concerning the implications of off-shore drilling from two sources. The first is through public hearings, with expert testimony given at various locations. As "expert" information is often perceived as biased, the public tends to rely heavily on the second source, news media, and particularly local newspapers.

The results of this research may contribute to the development of effective policies concerning public information. This issue will be particularly critical for future decisions concerning the development of other Alaskan resources where it is necessary to strike a compromise between economic benefits and environmental risks.

## SURVEY OF THE LITERATURE

### Issues

The relevant literature can be classified into two major issue groups. The groups are: the role of newspapers in informing the public about environmental issues and the role of the public in environmental decision making.

Role of newspapers in informing the public about environmental issues. Abundant literature confirms the importance of newspapers in influencing public opinion (McCombs and Shaw, 1971; Becker and Dolittle, 1975; Becker, Whitney and Collins, 1980). Specific research has confirmed the importance of newspapers as a source of information about environmental issues (Bailey, 1971; Stamm and Bowes, 1972; Schoenfeld, 1980; Mazur, 1981; Larson, 1982; Atwater, Salwen and Anderson, 1985; Ostman and Parker, 1986).

While the public relies heavily on the newspapers for environmental information, the effectiveness of the newspapers in this role has been discussed from the standpoint of how the message is presented by the media as well as how it is received by the public.

Some researchers have focused their inquiry upon how environmental information is acquired, filtered and presented by the press. Stamm and Bowes (1972), Murch (1971), Sellers and Jones (1973), Rubin, Harris, Jones, Sachs and Schoenfeld, (1974), Schoenfeld (1975 and 1977), and Ostman and Parker (1986) have identified constraints and trends in the internal processes of the media. The most signif-

icant problems reported are a tendency to over-rely on government and industry sources; to emphasize news-issues as opposed to ongoing trends; to cover national and far away problems instead of "backyard" issues; to present general issues but fail to identify consequences; and to fail to offer alternative solutions. Ostman and Parker (1986) think while these are concerns shared by communication experts, there is some evidence that the public is aware of these shortcomings.

Numerous other authors have analyzed the factors that affect how environmental information is absorbed by the public. Generally, research has shown that newspapers are most effective with the general public, as opposed to environmental activists who tend to rely on other sources for their information (McGarity, 1986). Age and education also are significant factors, since the press tends to be most effective on environmental issues with younger and more educated individuals (Bailey, 1971).

Other research, by Mazur (1981), determined that media exposure of an environmental issue tends to stimulate a conservative, pro-environment reaction in the public, regardless of whether the media attitude was negative or positive. This theory may be valid, however, only as long as the conservative, pro-environment posture does not require the readers to take action and modify their lifestyle.

Stamm and Grunig (1977) tested the correlation of environmental attitudes to the impact of environmental issues (and their solutions) on the respondents' lifestyles and found that the single most important issue was "cognitive dissonance." According to the

"cognitive dissonance" theory the public tends to absorb information about environmental issues poorly when the information implies the need for a change in the respondents' lifestyles. The findings of Stamm and Grunig were confirmed by Schoenfeld (1980), Bowman (1978), and Atwater et al., (1985).

Role of the public in environmental decision making. The basic assumption of this research was that the public most affected by an environmental decision of the government should be informed and educated about the topic of concern and then allowed to participate in how that decision is made.

A number of researchers have supported this assumption. For example, Huffman (1990) has pointed out that while the experts are qualified to determine risks and consequences, their opinions about values and choices have the same weight as any other citizen's opinions. Ortolano (1984) recognized the value of public involvement specifically in conjunction with environmental issues and described ways to stimulate such participation.

Not all literature is in agreement with the assumption. Traditionally, the role of the public has been a reactive one, often as plaintiff in a class action suit after environmental problems have emerged (Grad, 1986). McGarity (1986) also stresses the difficulties that individual members of the public have in appreciating the complexities of the issues as well as in obtaining sufficient power to manage the risks. Regulatory agencies, he concludes, are best qualified to deal with environmental issues.



## Method Applied

### Content Analysis

Abundant literature exists to support the validity of content analysis applied to media research. In addition to the key texts on content analysis by Berelson (1952 and 1970), Carney (1972), Krippendorff (1980) and Budd, Thorpe, and Donohew, (1967), research done by Janowitz (1976) supported the extension of content analysis to the role of newspapers as indicators of public trends and influencers of public opinion.

Further research has investigated the use of more refined techniques in content analysis. Levy (1968) utilized multi-dimensional techniques. Ryan and Owen (1976) studied the frequency of event-oriented versus issue-oriented stories. Stewart (1943) argued in favor of using more sophisticated techniques such as "stress by channel devices." Taking the opposite view, Windhauser (1979), Lasswell (1942), Markham and Stempel (1957) demonstrated that varying coding and context units had only a marginal effect on the results of content analysis. Generally, however, there is consensus that content analysis is a valid research technique in application to newspapers and public policy.

Content analysis has specifically been applied to the press' coverage of environmental issues. Research by Bailey (1971), Schoenfeld (1980), Nielsen (1983), Atwater et al., (1985), Strodroff (1985), Ostman and Parker (1986), Burrus-Bammel, Bammel, and Kopitsky (1988) and McGeachy (1988), validates the use of content analysis as a research tool in this area.

Researchers in the environmental field have also extensively utilized surveys and questionnaires to probe public opinions and attitudes about environmental issues (Murch, 1971; Grunnig, 1979; Stamm, 1977; Bailey, 1971; Fortner, 1985; Atwater et al., 1985; Ostman and Parker 1986). In addition to being a viable research tool about public opinion on environmental issues, surveys and questionnaires have confirmed that the general public relies heavily on the newspapers for environmental information.

The subject of this analysis was confined to newspapers for two main reasons. First, the literature indicates that newspapers are the predominant source of information about the environment for the general public. Secondly, local newspapers in Alaska have a very high readership level, as confirmed by the readership figures of the Belden Continuing Market Study (1989) used to monitor newspaper readership in Alaska.

### Readability

In addition to analyzing the content of the articles, it is also important to investigate the article's ability to be understood by the reader, since readability greatly affects content comprehension. Ample literature exists in support of the three indicators utilized in this research (Klare, 1975). The indicators are, first the Flesch-Kincaid Readability Formula based on the 1942 method formulated by Rudolf Flesch. This formula was later automated by Kincaid and McDaniel in 1974. The second readability formula to be applied is the Flesch Reading Ease Score created in 1949 by Rudolf Flesch. Rudolf Flesch attempted to take into account the interest in the

reading material, therefore the change in the formula. The third formula is the FOG Index created by Robert Gunning, which results in a very similar level of readability as the two Flesch formulas. Therefore, in this study the term "readability" will mean the results of the combination of the three formulae as applied to the articles.

Since Flesch and Gunning created their readability formulas, there have been numerous other studies and methods applied to the creation of a more effective formula. All later readability tests were based on these three early pioneering works. The retesting of the new techniques (Klare, 1975) showed only a five percent improvement in the accuracy of the new formula over the earlier formulas. Also, the three formulas selected were designed for easy application.

In this section the issues addressed were: the role of newspapers in informing the public about environmental issues and the role of the public in environmental decision making. Additionally, literature related to content analysis was reviewed.

## METHODOLOGY

### Survey of Newspaper Articles

This study applies quantitative as well as qualitative content analysis methodologies to newspaper articles which deal with off-shore oil drilling in the Arctic Ocean. The articles are listed in Appendix A. The articles are all those on the subject published by all seven newspapers in Alaska during the period 1980 through 1987.

For the purpose of this research, these articles were broken into two groups by date of publication: June 1980 (when off-shore oil drilling began to emerge) to July of 1985 (when the first survey was conducted). The second period is from August 1985 to May 1987, when the second survey was conducted. This methodology for arranging the articles assumes that public opinion in July 1985 was influenced by articles published prior to that period, and that public opinion in May 1987 was affected by articles published during the period August 1985 through May 1987.

Three types of content analysis were performed on the articles:

First, a quantitative analysis was performed by counting the number of words within each article that dealt specifically with the following topics:

- environmental issues, namely the description of how oil exploration is conducted in the Arctic Ocean (gravel scraping, building of causeways and artificial islands etc.) as well as the possible environmental consequences of such drilling;
- economic issues, namely, the affects of oil drilling on the Alaskan economy, including the impact on employment.

An example of the application of this technique is reported in Appendix B. The article in Appendix B was selected because it offered samples of all three topic criteria: environmental description, environmental concern and economic issues. The results of the analysis' are reported in Appendix C and presented in Table 1.

Secondly, a qualitative analysis of the articles was performed. Qualitative analysis focuses on the intent of the author, not on what the words mean by themselves. In accordance with content analysis procedures (Berelson, 1970), each article was rated for overall tone and content (pro-environment, pro-economy or neutral). Appendix C shows the overall scoring as well as a short description of the key theme contained in each article. The scores are then summarized in Table 2.

Thirdly, each article was scored for readability using the Flesch - Kincaid Score, the Flesch Reading Ease Score and Gunning's FOG Index as described earlier. The data are presented in Appendix E and are summarized in Table 3.

Application of and procedures within the various formulae are described under the three test names which constitute the following headings:

Flesch - Kincaid grade level. To compute the first readability formula (Flesch, 1942, p. 98):

Multiply the percentage of the average number of letters per easily understood word (.39) by the average number of words per sentence. Multiply the average number of words per sentence by the average number of syllables in a sentence from

a 6th grade reader (11.8.) Add together. Now take the total and subtract the level of the average college senior (15.59.) This yields the article's reading grade level. In other words:

.39 times average number of words per sentence plus (+)  
11.8 times average number of syllables per word. Then,  
 Take the total and subtract 15.59 to find Grade Level.

Readability scores of between the 6th - 10th grade are considered the most effective (Flesch, 1942.) Higher grade level scores are thought to be too difficult to comprehend by the average reader.

Flesch Reading Ease Score. The Reading Ease Score was a revision of Flesch's earlier readability test. It was meant to be compared to the human interest formula. In comparing the two scores the writer would be able to tell how his material would be received. This "new" readability (Reading Ease Score) formula (Flesch, 1949, p. 216) is the quickest and easiest to apply.

Multiply the average sentence length of the article by 1.015. Multiply the number of syllables per 100 words by .846. Add together. Subtract the sum from 206.835. This yields the Reading Ease Score. Or, more simply put:

1.015 times the average sentence length, plus (+)  
.846 times the number of syllables per 100 words  
 Take 206.835 and subtract the total above for the Flesch Reading Ease Score

The resulting score is on a scale of 0 - 100. The lower the score the greater the difficulty the writing is to read. The categories of score ranges and their equivalents to formal schooling grade level, including reading difficulty descriptive words are listed below (p. 216):

<u>Score</u>	<u>Reading Difficulty</u>	<u>Approximate Grade Level</u>
90 - 100	Very Easy	4th grade
80 - 90	Easy	5th grade
70 - 80	Fairly Easy	6th grade
60 - 70	Standard	7th - 8th grade
50 - 60	Fairly Difficult	Some High School
30 - 50	Difficult	High School - College
0 - 30	Very Difficult	College Level and up

Gunning's Fog Index. In 1952, Robert Gunning created his FOG Index to measure readability. To apply the formula to the articles (Gunning, 1952, p. 37):

Divide the total number of words in a passage (of 100 word length) by number of sentences. This gives the average sentence length. Count the number of words of three syllables or more per 100 words. Now total the two figures and multiply by .4. This yields the FOG Index. Or simply:

add the average number of words per sentence, plus (+) the number of words of 3 syllables or more  
multiply the total by 0.4 which equals the Fog Index

According to Gunning (1952, p. 38) the desired reading level, should be between the sixth and tenth grade level, with anything written at a higher level putting the reader at a handicap.

## Survey of Public Attitudes

Protocol of Data Collection Procedure. A survey of a sample of the public was conducted to determine the attitude and knowledge on the topic of off-shore oil drilling in the Arctic Ocean. The survey utilized a questionnaire which was personally handed to a sample of 500 respondents, 100 in Pt. Barrow, 200 in Fairbanks and 200 in Anchorage. A self-addressed-stamped envelope was included with the questionnaire. The survey was distributed outside the State Office Buildings in Fairbanks and Anchorage and outside the General Store in Pt. Barrow. The author solicited the response of all individuals who were entering or exiting the buildings during business hours over a two day period until the desired numbers were reached. The survey was repeated twice (in July 1985 and in May 1987) with the same sample size (500) and at the same locations. These locations and numbers were selected on the basis that over 60 percent of the population of Alaska is urban and therefore, the two largest towns in Alaska (Anchorage and Fairbanks) might be expected to yield a fair representation of that segment of the population. Pt. Barrow was selected because of the issue of off-shore oil drilling in the Arctic Ocean: Pt. Barrow is within 50 miles of the drill sites. Also, the Eskimo population depends upon the arctic for its subsistence. Because Pt. Barrow is the largest Eskimo village north of the Arctic Circle, it would best represent the rural population most affected by the topic.

There were three parts to the survey questionnaire: first, a demographic section was incorporated to determine the sex, age,



education and residence of the respondents. Secondly, two questions were asked to determine the respondents' interest in reading the local newspapers and the respondents awareness of off-shore exploration in the Arctic Ocean. Thirdly, a nine question attitude survey with a direct scale of preference (strongly agree to strongly disagree) was administered.

Demographic and other general data are presented in Appendix F (for 1985) and Appendix G (for 1987) and summarized in Tables 6 and 7.

## RESULTS

### Presentation of Results

Newspaper articles' word count. Table 1 shows the results of the quantitative analysis of the articles per year from 1980 to 1987 as taken from Appendix C. The number of issue-related articles climbed consistently between 1980 and 1985, from one article to 27 articles. There were no articles printed on the topic during 1981. The increase occurred when the various federal, state and local agencies were in the process of releasing permits for off-shore oil drilling. The number of articles then declined rapidly in 1986 and 1987 as off-shore drilling was under way.

The percentage of total words in the articles which dealt directly with the impact of drilling on the environment and/or on the economy fluctuated from a low of 17 percent for all categories in 1983 to a high of 48 percent for all categories in the second half of 1985, with an increasing and decreasing trend. Overall, 39 percent of the words were issue specific for the period 1980-1985. The percentage continued to climb in 1985 and 1986, then declined quickly in 1987.

The issue-orientation of the articles varied widely, as shown in Table 1. Overall, the pro-economy content decreased from 1980 to 1985, then increased significantly from 1985 to 1987. The pro-environment content fluctuated erratically during the period 1980 through 1985, reaching its maximum in 1984. It then declined dramatically during the period 1985 through 1987.

Table 1

Quantitative Analysis of Newspaper Articles, Word Count by Year

Period	No. of articles	(1) Related words in article		Topics					
				(2) Enviro descrip		(3) Econ/emp		(4) Enviro concern	
				No.	%	No.	%	No.	%
1980	1	81	21%	38	47%	43	53%	0	0%
1982	5	1428	41	484	34	493	35	451	31
1983	5	469	17	221	47	248	53	0	0
1984	12	1988	30	153	8	751	38	1084	54
1985	27	6377	48	2407	37	1409	23	2561	40
Combined 1980 to July 1985	50	10343	39%	3303	32%	2944	28%	4096	40%

Table 1 (continued on next page)

Table 1 (continued)

Period	No. of articles	(1) Related words in article		Topics					
				(2) Enviro descrip		(3) Econ/emp		(4) Enviro concern	
		No.	%	No.	%	No.	%	No.	%
1985	2	899	89%	823	92%	76	8%	0	0%
1986	13	5518	62	767	14	3641	66	1110	20
1987	1	36	11	0	0	36	100	0	0
-----									
Combined from August 1985 to May 1987									
	16	6453	63%	1590	25%	3753	58%	1110	17%

**Key:** (1) percentage of total words in the article that are classified as (2), (3), or (4)  
 (2) percentage of relevant words that describe what off-shore oil exploration is and how it is conducted  
 (3) percentage of relevant words that describe the impact of off-shore oil exploration for the Alaskan economy and/ or employment levels  
 (4) percentage of relevant words that describe either the possible impact of off-shore oil exploration on the Alaskan environment and/or the concern over the possible impact

Overall, during the period 1985 to 1987 there was an increase in the percentage of the content-specific material that was slanted toward the economic affects of off-shore exploration (from 28 percent for a combined 1980 through July 1985 to 58 percent for a combined August 1985 through May 1987 as seen in Table 1). During the same period (combined 1980 through July 1985 and August 1985 through May 1987), the pro-environment content of the articles decreased from 40 percent to 17 percent.

Newspaper articles' content. As shown in Table 2, qualitative analysis of the overall content of the articles are consistent with the results of the quantitative analysis. These data are summarized in Appendix C. From the period of June 1980 to July 1985, to the period of August 1985 through May 1987, the pro-environment content of the articles dropped from 48 percent to 19 percent, and the pro-development content increased from 28 percent to 75 percent.

Table 2

## Qualitative Analysis of the Newspaper Articles' Content

Period	Content					
	Pro-development		Pro-environment		Neutral	
	No.	%	No.	%	No.	%
1980 through July 1985	14	28	24	48	12	24
August 1985 to May 1987	12	75	3	19	1	6

Newspaper articles' readability. The readability of the articles (as measured according to the three indexes) remained relatively constant during the period 1980 through 1985. As summarized in Table 3, the articles became easier to read over the period 1985 through 1987, dropping about two grade levels.

Table 3

## Newspaper Articles' Readability Level by Year

Period	Readability		
	Grade level (1)	Reading ease (2)	Fog index (3)
1980	13	43	17
1982	13	49	16
1983	13	48	15
1984	13	44	16
1985 (July)	13	43	17
Combined 1980 to July 1985	13	45	16
1985 (August)	12	48	15
1986	11	50	15
1987 (May)	10	58	13
Combined from August 1985 to May 1987	11	50	14
<u>Key:</u>	(1) established using Flesch-Kincaid Grade Level analysis		
	(2) established using Flesch Reading Ease Test		
	(3) established using Gunning's Fog Index		

Comparison of articles' readability with survey respondent's education level. Table 4 presents data which shows that it is unlikely that the differences between the attitudes presented in the articles and the respondents' attitudes are due to the articles being written at a level above the respondents' reading ability.

Table 4

Comparison of Readability to Respondents' Reading Level

	<u>1985</u>	<u>1987</u>
Articles' readability grade level	13	11
Survey respondents' reading level (1)	13 (2)	13-14 (3)

-----

Key: (1) as determined by education level identified in Appendices E and F  
(2) equivalent to 1.2 years of college  
(3) equivalent to 1.7 years of college

-----

Overall readability of the articles did not exceed the respondents' reading ability, and the respondents reading level did increase between 1985 and 1987 slightly while the readability level of the articles decreased. It is noted that the readability level was above the level suggested by both Flesch (1949) and Gunning (1952), and restated by Klare (1975).

Evaluation of readability level in relation to articles' content. Fowler and Smith (1982) tested the differences between what is

described as "hard news" (topic is issue oriented or has a delayed reward) and "soft news" (there is an immediate response or affect) with readability. The "softer" the topic, the easier the material was to read. The relationship between an articles' readability and content was tested, and reported in Table 5, to determine whether a content bias existed as Fowler and Smith had found. For Table 5, low readability means articles with readability levels above Grade 13, as identified in Appendix C.

Table 5

## Articles' Readability Level Compared to Content

Period	Low Readability		Content					
	No.	%	Pro-develop.		Pro-enviro.		Neutral	
	No.	%	No.	%	No.	%	No.	%
1980 through July 1985	18	36	3	17	9	50	6	33
August 1985 through May 1987	2	12	2	100	0	0	0	0

Comparative analysis determined that, while overall readability was adequate, there was an association between readability level and content of the articles. During the period 1980-1985, 36 percent of the articles were written at a level above the readers' ability to comprehend. During that same period, 50 percent of the "difficult" articles were pro-environment. In 1987, the overall percentage of "difficult" articles dropped from 36 percent to 12



percent of the total, but 100 percent of the "difficult" articles were pro-development in overall content.

Demographic data of those surveyed. Demographic and other general data are presented in Appendix F (for 1985) and G (for 1987) and utilized in Tables 6 and 7.

The demographic data of the respondents differed somewhat between the two surveys. The respondents of the 1985 survey tended to be older (70 percent over the age of 42, as opposed to 51 percent in 1987). Education levels were comparable but a lower percentage of respondents were male (46 percent in 1985 compared to 69 percent in 1987). The percentage of Alaska residents remained constant, but there were a relatively higher percentage of respondents from non-urban areas (Pt. Barrow and other) in 1987 compared to 1985.

Survey respondents' awareness of issues and newspaper articles. As shown in Table 6, the percentage of respondents who stated they read the local papers was very high throughout the analysis period, with a slight decline from 1985 to 1987 (from 88 percent to 82 percent in 1987).

The respondents' awareness of off-shore drilling in the Arctic Ocean increased slightly from 1985 to 1987 but did not exceed 50 percent.

Table 6

## Newspaper Reading and Awareness of Off-Shore Exploration

	<u>1985</u>	<u>1987</u>
Do you read the local papers ?		
Yes	88%	82%
No	12%	18%
Are you aware of off-shore exploration in the Arctic Ocean ?		
Yes	44%	50%
No	56%	50%

Survey Results. As shown in Table 7, the respondents' attitudes in favor of development decreased between 1985 and 1987, while pro-environment attitudes increased during the same period. In the 1985 survey, 66 percent of the respondents indicated agreement with pro-development statements, while only 27 percent indicated agreement with pro-environment statements.

In 1987 the results were reversed, with only 43 percent of the respondents agreeing with pro-development positions, and 54 percent agreeing with pro-environment positions. The 1985 data are summarized in Appendix G and the 1987 data are summarized in Appendix H.

Also noteworthy is the fact that the percentage of "neutral" responses for the pro-development statements increased from five percent to eight percent, whereas the percentage of "neutral" responses for the pro-environment statements decreased from 13 percent to six percent.

Table 7

## Attitudes Toward Economic and Environmental Effects

	<u>1985</u>	<u>1987</u>
Awareness of economic impacts / pro-development attitude		
agree/strongly agree	66%	43%
neutral	5%	8%
disagree/strongly disagree	29%	49%
Awareness of environmental impacts / pro-environment attitude		
agree/strongly agree	27%	54%
neutral	13%	6%
disagree/strongly disagree	60%	39%

Differences between newspapers and survey respondents'.

Table 8 summarizes the results of the analyses of newspapers and the surveys of public attitudes. These data, then, have been previously reported in Tables 1, 3 and 7.

Table 8

## Summary of Differences Between Newspaper Articles and Survey Results Over Time

	<u>1985</u>	<u>1987</u>
Awareness of economic impacts / pro-development attitude		
Newspapers, word count	33%	58%
Newspapers, content	28%	75%
Survey	66%	43%
Awareness of environmental impacts / pro-environment attitude		
Newspapers, word count	37%	17%
Newspapers, content	48%	19%
Survey	27%	54%

There are clear differences between positions revealed in the newspapers and the attitudes shown in the public surveys. In 1985 both the quantitative and the qualitative analysis of the articles show a definite preference toward environmental issues, whereas the public surveys show a pro-development attitude. The situation was reversed by 1987, when the newspapers' focus shifted toward economic issues, but the respondents' interest in economic issues decreased and the concern over environmental issues doubled, the expression of environmental concerns was 27 percent in 1985, and was 54 percent in 1987.

## DISCUSSION

### Interpretation of the Results

High readership of the newspapers. The results of the public surveys confirm that a high percentage of the respondents rely on newspapers as information sources. Newspapers are particularly important in Alaska because of the remoteness of the towns and villages, and the limited availability of other news media.

The survey findings (80 percent overall readability) compare favorably with the Belden Continuing Market Study (1985) which shows 75 percent of the adult population of Anchorage read the daily newspaper, and 86 percent read the Sunday paper. In 1987 the results were similar, with daily readership in Anchorage at 71 percent and Sunday readership at 88 percent. Although the Belden Study is limited to the Anchorage area, it can be considered representative of the urban areas of the state, where the majority of the population lives.

Readability. While low readability was closely related with pro-environment content, overall readability was good if we accept the public's statements of education attained. This is in contrast to several studies (Hotaling, 1941; Flesch, 1951; Razik, 1969; Johns and Wheat, 1978 and 1984; Smith and Smith, 1984; and Fortner and Lyon, 1985) which have indicated that the average newspaper article is written at a level higher than the reading level of the average newspaper reader.

The educational level of the survey respondents is representative of the Alaska population as documented in the 1980 U. S. Census and in the Belden Study. The U. S. Census found 82.5 percent of the Alaskan population were high school graduates, with 21.1 percent having four or more years of college, and the median years of school completed was 12.8. The Belden Study of the Anchorage area shows that in 1985, 93 percent of the residents had at least graduated from high school and 58 percent had at least one year of college. These percentages were confirmed again in the 1987 results of the Belden Study.

Low awareness of off-shore drilling issues. Only approximately half of the survey respondents indicated they were aware of off-shore drilling in the Arctic Ocean. This percentage may appear low since oil drilling is a key component of the Alaskan economy. However, two reasons may provide at least a partial explanation:

First, the wording of the question may have been too abstract for the public to recognize. A higher percentage of respondents may in reality have been aware of off-shore drilling and would have responded affirmatively had the question been worded more specifically (i.e., using references such as "Sohio's drilling the Endicott Field in Prudhoe Bay").

Secondly, although 65 articles were published on off-shore drilling, they appeared over a period of seven years and in a number of different newspapers. These issue-specific articles really represent only a minute portion of the overall material presented by the press. Additionally, the impact of off-shore oil exploration,

both in terms of employment and environment, was largely local in scope. In light of these facts, perhaps a 50 percent awareness level should be considered appropriate.

Differences between newspapers and public attitudes. The differences between newspapers and public attitudes are consistent and difficult to explain. It appears that the press' interest in the issue from 1980 to 1985 was not dictated by concern for the overall affect of off-shore drilling, but rather by a desire to cover the "news-breaks." This follows the Becker et al. (1980) theory of how news is presented. In 1985 especially, the off-shore drilling permit process was long and hotly contested. Accordingly, the press had newsworthy items to report. The tone of the articles during this crucial period was a "blow-by-blow" rendition of the permit issuance process, with the reporters relying almost exclusively on statements by the industry and government agencies for their information, as indicated in the text of the articles.

Qualitative analysis of the key themes in each article (as reported in Appendix B) tends to support the observation that the newspapers may have conveyed to the public a false sense of security. Newspaper coverage, although lengthy, may have suggested that the environmental issues were being handled competently by various agencies, and that the only disagreements were over the conditions required for issuing the permits. Thirty-one of the 50 articles published during the period 1980 through 1985 dealt with the permit process and the requirements of the various agencies involved.

After 1985 the situation reversed rapidly. As the Alaskan economy nose-dived into a severe recession, the newspapers lost interest in the off-shore drilling issue. The occasional article dealt with the subject from a standpoint of income production and employment creation. However, even in the absence of supporting information in the newspapers, the public sentiment was changing, and pro-development attitudes were being replaced by pro-environment sympathies.

The data of this study do not aid in understanding why the public's attitudes changed, assuming the sample represented the population in this regard. It is possible that the public may have been sensitized by sources other than the newspapers. It is also possible that the public felt "let down" by the oil industry and may have manifested this general feeling of discontent. Another possibility is that as the economy collapsed, many Alaskan Natives returned to subsistence hunting and fishing. Realizing their dependence on the environment for sustenance, their concern about environmental damage may have been heightened.

Regardless of the reasons for the reversal of the public opinion, it is clear that at least in this specific instance the newspapers failed to "read" their audience. While the circumstances in Alaska between 1980 and 1987 may have been unique, this research casts doubt on the traditional generalization about the role of newspapers in either mirroring the public opinion, or in shaping it. The results of this study suggest that media other than newspapers (such as direct mailings, television or radio) should be



considered and evaluated as an alternative for effectively communicating environmental issues to the public.

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## APPENDICES

## APPENDIX A

Newspaper Articles Evaluated in this Study  
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No.	Date	Newspaper	Title
1.	10/2/80	Anchorage Daily News	"2 Oil Strikes in Beaufort 'Substantial'"
2.	1/6/82	Fairbanks Daily News-Miner	"Big Oil to Launch New Fight to Cut Drill Restraints"
3.	1/19/82	Fairbanks Daily News-Miner	"2.4 Billion Barrel Oil Bonanza Seen in Beaufort"
4.	8/15/82	Fairbanks Daily News-Miner	"New Ruling Promises Stiff Bidding for Oil Firms' Gravel"
5.	10/19/82	Fairbanks Daily News-Miner	"Duck Island Means Construction Jobs Here"
6.	10/19/82	Fairbanks Daily News-Miner	"First Arctic OCS Permits Asked"
7.	2/9/83	Fairbanks Daily News-Miner	"Impact Hearing Look's at Firms' Prudhoe Plan"
8.	4/30/83	Fairbanks Daily News-Miner	"Sohio to Build Biggest Island"
9.	8/2/83	Anchorage Daily News	"Gulf Plans Drilling Site in Far North"
10.	10/23/83	Anchorage Daily News	"Oil Firms Hope Expensive Gamble in Beaufort Sea Pays Off"
11.	11/12/83	Anchorage Daily News	"Mukluk Estimate Shakes Stock"
12.	1/21/84	Anchorage Daily News	"Sohio Admits Dry Well"

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No.	Date	Newspaper	Title
13.	1/22/84	Anchorage Daily News	"Mukluk Bust, Lawsuits Weigh Heavily on Oil Firms"
14.	3/22/84	Anchorage Daily News	"Seal Island Well Termed Commercial Find by Shell"
15.	4/7/84	Anchorage Daily News	"State May Ease Drilling Restrictions"
16.	4/7/84	Anchorage Daily News	"Lost Pipe Holds Up Drilling at Seal Island"
17.	5/10/84	Anchorage Daily News	"Beaufort Sea Drilling Comments Allowed No Deadline Extension"
18.	11/15/84	Anchorage Daily News	"Endicott Causeways Permit Denied"
19.	11/21/84	Anchorage Times	"Gravel Holds Up Drilling"
20.	11/29/84	Anchorage Times	Borough OK's Oil Development"
21.	11/29/84	Anchorage Daily News	"North Slope Approves Endicott Plan"
22.	12/6/84	Juneau Empire	"Corps Says Sohio Can Build Beaufort Causeway"
23.	12/6/84	Anchorage Daily New	"Sohio Gets Final Ok On Endicott Plan"
24.	1/85	Northland News	"Oil Industry Looks Beyond Prudhoe Bay"
25.	1/6/85	Fairbanks Daily News-Miner	"Shell to Build Island in Beaufort"
26.	1/7/85	Alaska Journal of Commerce	"Aggressive Drilling Plans Are Announced"
27.	1/14/85	Alaska Journal of Commerce	"Breached Causeway OK"
28.	1/24/85	Prudhoe Bay Journal	"Endicott Gets Approval"
29.	1/26/85	Anchorage Daily News	"Sohio Wins Permit to Develop Endicott Oil Field"
30.	1/26/85	Anchorage Times	"NOAA Clears Way for Causeway"

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No.	Date	Newspaper	Title
31.	1/30/85	Anchorage Times	"Construction to Start on Off-Shore Wells"
32.	1/31/85	Anchorage Daily News	"Endicott Field to Boost Job Market"
33.	1/31/85	Anchorage Times	"State to Benefit from Endicott"
34.	1/31/85	Anchorage Daily News	"Endicott Awaiting Borough Sanction"
35.	2/1/85	Anchorage Daily News	"North Slope Borough Official Says OK for Oil Field Likely"
36.	2/4/85	Alaska Journal of Commerce	"Work to Begin Soon on Endicott Oil Field Production Project"
37.	2/7/85	Prudhoe	"Corps Outlines Agreement for Endicott Project Permit"
38.	2/7/85	Prudhoe Bay Journal	"Borough, Sohio Will Have Meeting"
39.	2/7/85	Prudhoe Bay Journal	"Corps Outlines the Agreement for Permits for the Endicott Project"
40.	2/9/85	Anchorage Times	"Slope Cool to Further Causeways"
41.	2/14/85	Anchorage Daily News	"North Slope Approves Sohio Project"
42.	2/17/85	Anchorage Times	"Sohio Causeway Illegal"
43.	2/21/85	Prudhoe Bay	"Endicott Squeaks By on a 4-3 Borough Vote"
44.	3/85	Alaska Oil and Gas News	"Sohio Wins Approval to Develop Endicott Oil"
45.	3/8/85	All Alaska Weekly	"Army Corps of Engineers Issues Endicott Permit"
46.	3/11/85	Alaska Journal of Commerce	"Marginal Fields Must Move to Production"

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No.	Date	Newspaper	Title
47.	3/21/85	Prudhoe	"'No Comment' From Sohio Co. on News Story"
48.	5/5/85	Anchorage Daily News	"Navarin Basin Plans"
49.	5/5/85	Anchorage Times	"Oil Firms Plan More Exploring"
50.	5/10/85	Anchorage Daily News	"What Do You Think About Building Roads to Oil Fields' in the Beaufort Sea?"
51.	8/30/85	All Alaska Weekly	"Endicott Project on Slope Reported Ahead of Schedule"
52.	10/25/85	All Alaska Weekly	"Endicott Gravel Project Nears Completion"
53.	1/24/86	Anchorage Times	"Sohio Receives Permit"
54.	1/28/86	Anchorage Times	"Firm Makes Beaufort Discovery"
55.	1/29/86	Anchorage Daily News	"Hess Strikes Oil in Beaufort Sea"
56.	2/6/86	Prudhoe Bay	"Oil, Water & Politics- The Oil Opinion"
57.	3/4/86	Anchorage Daily News	"Study: Causeway Didn't Disrupt Fish Migration"
58.	3/5/86	Juneau Empire	"Gravel Causeway to Oil Field May Have Affected Nesting Colony of Snow Geese"
59.	4/13/86	Fairbanks Daily News-Miner	"Doyon Christens Endicott Field Project"
60.	5/4/86	Anchorage Times	"Oil Firms Planning Projects"
61.	5/5/86	Alaska Journal of Commerce	"Standard Alaska Spuds First of 100 Wells in Endicott Field"
62.	7/27/86	Anchorage Times	"Firm Makes Environment a Top Priority at Endicott"

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No.	Date	Newspaper	Title
63.	8/3/86	Anchorage Daily News	"Oil Companies Test Beaufort for Better Times"
64.	8/17/86	Anchorage Times	"Non-Union Firms Win Strong Grip on Slope"
65.	8/17/86	Anchorage Daily News	"Oil Islands Take Shape in Beaufort, Endicott on a tight budget"
66.	1/24/87	Anchorage Times	"Standard, Arco to Drill 130 Wells on Slope in '87"



## APPENDIX B

Example of Application of Quantitative Analysis, Word Count-  
 Article Number 41  
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=====  
 Epler, Patti, "North Slope Approves SOHIO Project." Anchorage Daily News, February 14, 1985, p. A-1.

The North Slope Borough on Tuesday gave final approval to an oil company's plan for developing the first oil field in the Alaska Beaufort Sea.

The Endicott project received the borough's mixed blessing at a special meeting of the borough assembly. The vote was 4 to 3 to approve the controversial plan that allows for the construction of gravel causeways in a valuable fisheries area.

Sohio Alaska Petroleum Co. will develop the field, expected to produce about 100,000 barrels of oil a day in 1988.

The Endicott project has been criticized by a number of people because of its potential effect on North Slope fisheries and the marine environment. The oil company wants to build gravel causeways out to drilling islands about three miles offshore and officials have been worried that the causeways might disturb fish migration.

Last month, the U.S. Army Corps of Engineers approved Sohio's plan for causeways.

Tony Kesler, special assistant to North Slope Mayor George Ahmaogak, said the assembly action provides for rezoning of one



## APPENDIX C

Quantitative Analysis of Word Count  
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Article No.	Total Word Count	Topics		
		Enviro/ descrip	Econ/ empl	Enviro/ concern
1.	382	38	43	0
2.	789	0	84	194
3.	544	0	99	214
4	766	122	0	0
5	279	0	279	0
6.	1071	362	31	43
7.	173	0	44	0
8.	322	81	14	0
9.	115	40	0	0
10.	1750	100	134	0
11.	366	0	56	0
12.	528	0	82	0
13.	2196	0	431	136
14	152	0	42	0
15.	670	0	0	268
16.	279	23	19	0
17.	437	31	0	40
18.	358	23	29	75
19.	326	0	22	113
20.	518	0	79	99
21.	519	19	47	120
22.	389	36	0	49
23.	595	21	0	184
24.	1044	0	658	0
25.	78	53	0	0
26.	478	227	0	0
27.	377	90	0	93
28.	439	81	31	45
29.	454	94	15	99
30.	374	54	16	51
31.	538	69	28	103
32.	468	116	216	64
33.	332	53	222	0

Appendix C Continued  
(page 2 of 2)

Article No.	Total Word Count	Topics		
		Enviro/ descrip	Econ/ empl	Enviro/ concern
34.	751	107	43	51
35.	244	5	31	55
36.	454	139	70	109
37.	454	139	67	87
38.	560	0	99	26
39.	455	106	0	298
40.	405	0	41	182
41.	316	98	21	99
42.	3021	194	34	579
43.	612	139	124	52
44.	258	138	17	64
45.	453	106	0	291
46.	396	0	206	0
47.	184	0	0	63
48.	525	141	66	0
49.	788	114	62	43
50.	272	144	0	107
51.	431	421	28	0
52.	581	402	48	0
53.	365	181	43	0
54.	331	11	92	0
55.	327	0	83	0
56.	2252	0	1087	236
57.	525	0	0	522
58.	330	0	0	326
59.	304	10	93	0
60.	569	218	204	0
61.	433	22	206	0
62.	602	111	60	26
63.	843	0	843	0
64.	828	0	828	0
65.	1164	214	102	0
66.	333	0	36	0

## APPENDIX D

Qualitative Analysis of Newspaper Articles: Content  
(page 1 of 3)

Article No.	Overall content	Overall attitude
1.	+	oil production
2.	+	•in favor of extending drilling season
3.	0	balance of environment and economy
4.	0	environment discussion
5.	+	benefits of drilling for employment
6.	0	description of planned development
7.	0	economics
8.	+	Mukluk drilling means jobs
9.	0	describes island building
10.	+	Mukluk gamble
11.	+	Mukluk
12.	0	Mukluk
13.	+	•concern on oil production
14.	+	oil production
15.	-	•concern with environmental impact
16.	-	•impact of extending drilling season
17.	-	•Beaufort Sea drilling season extension
18.	-	•Beaufort Sea controversy
19.	-	•Beaufort Sea controversy
20.	-	•Endicott environment conditions
21.	0	•environment versus economy
22.	-	Endicott, environmental impact
23.	-	•Endicott permits awarded, enviro
24.	+	oil industry plans for Arctic Ocean
25.	0	new man made island
26.	0	plans for developing Endicott revealed
27.	-	•environmental concerns
28.	-	•permit release

Appendix D Continued  
(page 2 of 3)

Article No.	Overall content	Overall attitude
29.	-	•permit release
30.	-	•permit release
31.	+	•Endicott const starts despite concerns
32.	+	•economy and employment
33.	+	economic impact
34.	0	•all aspects of Endicott
35.	-	•local concerns over Endicott
36.	-	•description of Endicott project and e/i
37.	-	•conditions for Endicott permits
38.	0	•negotiations to release permit
39.	-	•conditions for awarding permits
40.	-	•e/i concern in the native community
41.	-	•Endicott e/i
42.	-	•politics of Endicott permits
43.	-	•e/i concern with political questions
44.	-	•Endicott will require monitoring
45.	-	•environmental impact monitoring
46.	+	•politics, oil production ='s employment
47.	-	political influence by oil for permits
48.	+	emphasis on development
49.	0	•oil industries plans to continue to explore
50.	-	•concern over e/i of Endicott
51.	+	need to complete construction now
52.	+	quick completion of construction needed
53.	+	•oil industry receives enviro permits
54.	+	new oil find
55.	+	production of new wells
56.	+	oils viewpoint
57.	-	environmental impact of causeway

Appendix D Continued  
(page 3 of 3)

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Article No.	Overall content	Overall attitude
58.	-	ENVIRONMENT AFFECTED by Endicott
59.	+	oil production
60.	+	economy and exploitation of ANWR
61.	+	economy and employment
62.	-	concern over oil prod. vs. environment
63.	+	economics of drilling in the Arctic
64.	+	employment
65.	0	describes construction process
66.	+	plans for further exploration

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=====

Key to Scoring:

0	neutral
+	pro-economy/ development
-	pro- environment
•	reports information about litigation or permit process- these are key articles concerning permit process and the position of various agencies.

=====

## APPENDIX E

Newspaper Articles: Readability  
(page 1 of 3)

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Article No.	-----Readability-----		
	Flesch-Kincaid	Flesch reading ease	Fog Index
1.	13	43	17
2.	12	54	15
3.	14	44	17
4.	13	50	16
5.	14	43	18
6.	12	52	15
7.	18	33	21
8.	10	55	12
9.	10	57	12
10.	12	52	15
11.	14	41	17
12.	9	59	12
13.	12	54	15
14.	15	46	18
15.	15	35	19
16.	9	63	12
17.	13	42	16
18.	13	35	17
19.	14	30	19
20.	12	41	17
21.	14	35	19
22.	13	46	16
23.	12	44	16
24.	13	49	16
25.	15	39	17
26.	10	58	13



Appendix E Continued  
(page 2 of 3)

Article No.	-----Readability-----		
	Flesch-Kincaid	Flesch reading ease	Fog Index
27.	14	36	17
28.	13	42	17
29.	14	42	18
30.	16	35	20
31.	13	45	16
32.	11	52	14
33.	12	51	16
34.	11	51	14
35.	15	34	19
36.	13	41	16
37.	15	32	19
38.	12	52	15
39.	15	33	18
40.	13	48	17
41.	12	43	16
42.	11	48	15
43.	12	50	15
44.	14	39	18
45.	15	33	18
46.	11	52	15
47.	17	23	26
48.	13	46	16
49.	12	50	14
50.	12	48	15
51.	12	47	14
52.	11	49	15
53.	14	38	17
54.	12	45	15
55.	11	53	15
56.	11	49	15

Appendix E Continued  
(page 3 of 3)

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Article No.	-----Readability-----		
	Flesch-Kincaid	Flesch reading ease	Fog Index
57.	11	53	14
58.	10	55	13
59.	14	41	17
60	11	51	14
61.	12	43	16
62.	10	58	12
63.	10	57	13
64.	12	48	15
65.	10	59	13
66.	10	58	13

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## APPENDIX F

Survey Questionnaire  
(page 1 of 2)=====  
Demographics  
-----

What is your age bracket

- a. 18-25
- b. 26-34
- c. 35-42
- d. 43-50
- e. 51-58
- f. 58-65
- g. 65 +

Level of education attained

- a. elementary
- b. secondary, but did not finish high school
- c. graduated from high school or trade school
- d. college
- e. college +

What is your sex

- a. male
- b. female

-----  
Do you reside in Alaska

- a. yes
- b. no

If yes, do you reside in

- a. Anchorage
- b. Fairbanks
- c. Pt. Barrow
- d. other

-----  
Do you read the local papers

- a. yes
- b. no

Are you aware of off-shore oil exploration in the Arctic Ocean

- a. yes
  - b. no
-

Appendix F Continued  
(page 2 of 2)

=====

Do you \_\_\_\_\_ with the statements:

a. strongly agree      b. agree      c. neutral      d. disagree      e. strongly disagree

1. The Arctic Ocean should be explored for oil.
  2. Off-shore drilling is harmful for the environment.
  3. Off-shore drilling will not disturb marine life.
  4. Off-shore exploration will help the Alaska economy.
  5. Oil industry will protect the environment.
  6. The economy is more important than the environment.
  7. The environment can be cleaned up if any spill occurs.
  8. Any damage can be minimized without long term effects.
  9. Arctic National Wildlife Refuge should be explored for oil.
- =====

## APPENDIX G

Demographics of 1985 Survey Respondents  
(percentages)  
(page 1 of 2)

Variable	Values	Male	Female	Total
AGE	a. 18-25	5%	10%	8%
	b. 26-34	8%	17%	13%
	c. 35-42	17%	21%	19%
	d. 43-50	19%	15%	17%
	e. 51-58	32%	18%	24%
	f. 58-65	13%	13%	13%
	g. 65 +	6%	6%	6%
EDUCATION	a. elementary	6%	2%	4%
	b. secondary (dnf)	11%	9%	10%
	c. high school grad	38%	33%	35%
	d. college	26%	38%	32%
	e. college +	19%	18%	19%
SEX	a. male	46%		
	b. female	54%		
Do you reside in Alaska?	a. yes		85%	
	b. no		15%	
If yes, do you reside in	a. Anchorage?		40%	
	b. Fairbanks?		43%	
	c. Pt. Barrow		16%	
	d. other?		1%	

Appendix G Continued  
(page 2 of 2)

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Question	Values	Totals
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Do you read the local papers?

a. yes	88%
b. no	12%

---

Are you aware of off-shore oil exploration in the Arctic Ocean?

a. yes	45%
b. no	55%

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## APPENDIX H

Demographics of 1987 Survey Respondents  
(percentages)  
(page 1 of 2)

Variable	Values	Male	Female	Total
<hr style="border-top: 1px dashed black;"/>				
AGE	a. 18-25	5%	10%	6%
	b. 26-34	23%	24%	23%
	c. 35-42	25%	15%	22%
	d. 43-50	27%	13%	23%
	e. 51-58	12%	12%	12%
	f. 58-65	3%	20%	9%
	g. 65 +	5%	6%	5%
<hr style="border-top: 1px dashed black;"/>				
EDUCATION	a. elementary	5%	5%	6%
	b. secondary (dnf)	14%	8%	12%
	c. high school grad	27%	35%	29%
	d. college	37%	36%	37%
	e. college +	17%	16%	17%
<hr style="border-top: 1px dashed black;"/>				
SEX	a. male	69%		
	b. female	31%		
<hr style="border-top: 1px dashed black;"/>				
Do you reside in Alaska?	a. yes		89%	
	b. no		11%	
If yes, do you reside in	a. Anchorage?		31%	
	b. Fairbanks?		35%	
	c. Pt. Barrow		24%	
	d. other?		10%	

Appendix H Continued  
(page 2 of 2)

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Question	Values	Totals
----------	--------	--------

=====

Do you read the local papers?	a. yes	83%
	b. no	17%

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Are you aware of off-shore oil exploration in the Arctic Ocean?

a. yes	50%
b. no	50%

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## APPENDIX I

## Results of 1985 Survey

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Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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Pro-development

1.	51	123	16	18	29
4.	72	134	8	17	6
6.	114	18	3	39	63
9.	27	81	17	38	74
combined	264	356	44	102	172
%	28%	38%	5%	11%	18%

Pro-environment

2.	46	22	13	114	42
3.	29	22	34	129	63
5.	19	42	61	92	23
7.	42	54	41	82	18
8.	17	36	12	108	64
combined	153	176	161	525	210
%	13%	14%	13%	43%	17%

-----

Note: the results of questions 3,5,7,8 were reversed for consistency in this frame of analysis.

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## APPENDIX J

## Results of 1987 Survey

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Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
<u>Pro-development</u>					
1.	132	33	43	67	81
4.	123	169	17	35	12
6.	19	38	22	205	72
9.	13	89	28	112	114
combined	287	329	110	419	279
%	20%	23%	8%	29%	20%
<u>Pro-environment</u>					
2.	62	141	23	87	43
3.	82	127	12	73	62
5.	69	135	54	67	31
7.	59	76	62	121	38
8.	85	143	8	8	39
combined	357	522	99	429	213
%	22%	32%	6%	26%	13%

---

Note: the results of questions 3,5,7,8 were reversed for consistency in this frame of analysis.

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