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**BEACH MANAGEMENT SURVEY:
AN EXAMINATION OF ATTITUDES AND CONCERNS
OF COASTAL PROPERTY OWNERS, RESORT MERCHANTS,
AND REALTORS IN SUSSEX COUNTY, DELAWARE**

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EXECUTIVE SUMMARY

This study examined a sample of coastal property owners, resort merchants, and realtors in Sussex County, Delaware. Survey questionnaires were sent to 441 property owners, 184 resort merchants, and 80 realtors during mid-July, 1987. An overall response rate of 62% was attained after a follow-up mailing.

One-half of the responding property owners indicated that their property was primarily a seasonal residence. Only eight percent of the owners noted that their coastal property was their permanent residence.

Forty-two percent of the owners had owned their property for ten years or less. Even though the average length of owning coastal property in Delaware was 17 years, the average time that property owners had either lived in or visited the coastal area was 32 years.

Property owners identified three major reasons, in decreasing order of importance, as reasons for purchasing coastal property: the beaches are restful and relaxing; the beaches are scenic; and the beaches are well maintained.

Thirty-two percent of the property owners indicated that the effects of erosion were influencing their plans for their property. Most of these owners elaborated that if erosion continued unchecked, they would soon sell their property.

Approximately 54 percent of resort merchants owned the building in which they operated their business. Fifty-five percent of the merchants operated their business for ten years or less. About

21 percent had more than 20 years of service operating their coastal area business. On the average, they had operated a business in the coastal area for approximately 14 years. More than 93 percent of the resort merchants mentioned that their businesses would suffer if sandy beaches were not part of the environment.

According to responding realtors, property values along Delaware's Atlantic shoreline have increased an average of 450 percent in the past fifteen years. Additionally, 49 percent of the realtors responded "yes" that erosion affects coastal property values; 39 percent conceded that erosion affects values somewhat; and 12 percent believed that erosion has no effect on property values.

Realtors mentioned the following reasons, in decreasing order of importance, why they thought buyers purchased coastal property: saw it as a good long-term financial investment; the beaches are restful and relaxing; and the beaches are scenic.

Fifty-nine percent of the realtors indicated that they informed prospective buyers of the possible effects of shore erosion and storm damage, 16 percent did so if asked; and 20 percent indicated that they were not qualified to respond to questions about erosion and storm damage.

Realtors ranked the following groups, in decreasing order of importance, as having the responsibility of informing prospective buyers about the effects of shore erosion and storm damage: realtors themselves, state government officials, local government officials, university specialists, and consultants.

Each interest group felt strongly about how a person should be required to rebuild his property if it was destroyed due to erosion, storms, or flooding. Property owners (55%), resort merchants (50%), and realtors (57%) all felt that an individual should be allowed to rebuild at the same location using personal funds and insurance.

Each group also agreed on which agency should have primary management authority for managing Delaware's beaches. Property owners (70%), resort merchants (61%), and realtors (52%) felt that the state of Delaware should be the primary resource manager.

Eighty percent or more of all respondents mentioned that a wide variety of beach user groups, county residents, governmental units, and coastal businesses benefited by the presence of the Atlantic beaches. Each interest group also felt strongly that state, county, and municipal governments should be primarily responsible for financing beach preservation efforts. They also felt that some of the other beach users, residents, and businesses that benefit by the beaches should help absorb some of the costs.

Property owners, resort merchants, and realtors all favored the same non-engineered methods to protect beaches. They were dune stabilization, beach nourishment, and imposing zoning regulations and setback lines.

Property owners, in all coastal locations, favored increasing resort business taxes to generate revenue to support beach management efforts. There was also support for beach fees and an area sales tax. Resort merchants in the Rehoboth Beach/Dewey Beach area favored imposing local real estate transfer taxes and assessing

higher state taxes. Merchants in the Bethany Beach/Fenwick Island area favored a state tax increase and imposing beach fees. Realtors favored the creation of a coastal tax district and beach fees as a means of generating revenue to support beach management efforts.

Most of the respondents expressed serious concerns about erosion, and a majority of both property owners (87%) and resort merchants (85%) mentioned that they would be willing to help finance worthwhile beach preservation projects.

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INTRODUCTION

Much has been written lately in the popular media about the effects of beach erosion and sea level rise¹ on beachfront property (Lawlor, 1987; Lemonick, 1987). In addition to the enormous economic impacts associated with erosion, potential concerns also include serious personal injury or loss of life. Natural resource planners and managers, federal, state, and local officials, as well as coastal property owners, have debated the issue of how to effectively deal with both the immediate and long-term effects of erosion.

Delaware, like many coastal states, is faced with the problem of erosion, and scientists have studied the natural processes that affect the state's coastline (Kraft, 1971; Kraft, et al., 1978). The physical effects of erosion--the movement of sand, displacement of dunes, increased flooding, property destruction, and saltwater intrusion--are well known (Titus, 1986). Numerous reports and publications document the severity of the problem (Jensen, et al., 1978; Maurmeyer and Carey, 1985). A variety of shoreline protection measures, such as bulkheads, groins, and sand replenishment, have been employed to combat the physical effects.

As coastal development continues to increase, and coastal population centers continue to grow, major decisions are being made

¹The earth is presently undergoing a climatic warming trend. Global sea level is rising due to melting ice and the molecular expansion of water caused by higher temperatures. This increase in sea level causes shorelines to retreat landward. Accurate estimates of future sea level rise are difficult to make. Scientists estimate that a global rise of between 144 cm (4.8 ft.) and 217 cm (7 ft.) by 2100 is most likely. They also estimate that along most of the Atlantic and Gulf Coasts of the United States, the rise will be 18 to 24 cm (0.6 to 0.8 ft.) more than the global average (Hoffman, et al., 1983).

on how to battle coastline erosion. To date, many of the decisions have been made by government agencies and vocal community interest groups. Often, individual property owners or resort merchants with an interest fail to voice their concerns about erosion and issues related to beach management.

To obtain additional viewpoints, the University of Delaware Sea Grant Marine Advisory Service, with the support of officials in the Beach Preservation Section of the Division of Soil and Water Conservation, Department of Natural Resources and Environmental Control (DNREC), surveyed a sample of coastal interest groups. The survey questionnaires were designed to obtain attitudinal information that could assist resource managers in making current decisions and implementing future policies about beach management issues.

The interest groups surveyed were chosen to obtain a cross-section of views from individuals with different interests in and uses of the Delaware coastline. Some of the survey recipients had a strong economic and business interest; others had a personal and more emotional interest in the issue of erosion.

Property Owners

The Delaware coastline attracts numerous year-round residents and part-time summer residents who enjoy the amenities of the Atlantic Ocean. These property owners were surveyed to obtain insight from individuals with a personal interest, as well as a financial investment, in coastal real estate. More than any other interest group, property owners should be concerned with the potential

problems associated with shoreline erosion and sea-level rise and should have sound views on how to confront the issue.

Resort Merchants

Resort merchants were surveyed to find out how much the Atlantic beachfront means to them as owners or managers of coastal businesses. Many of these merchants depend on the summer tourist trade for a major portion of their business revenues. Therefore, their views were especially important from an economic standpoint. The responses from this group helped outline the important economic benefits of the coastal setting to businesses in Delaware beach communities.

Realtors

Real estate development and the sale of coastal property are thriving along Delaware's coastline. Therefore, members of the Sussex County Board of Realtors were surveyed to gain their perspective. Their views and opinions on coastal erosion are important, since policies or management strategies may affect their approaches to real estate transactions. Their views were also used, in part, to confirm or support the opinions of responding property owners.

OBJECTIVES

The primary objective of this study was to document the concerns of coastal property owners, resort merchants, and Sussex County realtors regarding erosion issues and beach management practices. More specifically, the objectives were:

1. to characterize responding interest group members and solicit general attitudinal information about erosion issues and beach management concerns;
2. to obtain specific information from respondents on how erosion has affected them and may affect future decisions about living or working along the Delaware coast; and
3. to gain a better understanding of how respondents from the various interest groups feel about beach management options and techniques for financing preservation efforts.

METHODS

Sample Selection

Coastal Property Owners

The names of 491 property owners in Delaware's Atlantic coastal area were obtained from the Sussex County Tax Assessment Office. This list included property owners from coastal municipalities and unincorporated areas stretching from North Shores in Rehoboth Beach to Fenwick Island. Each property was chosen on

the basis of parcel location on county tax maps. Twenty parcels were selected from each map--ten randomly chosen within the oceanfront block and ten randomly chosen within the first two blocks west of the beach block.

If an owner of multiple pieces of property was selected more than once, the owner was included only once in the sample. Publicly-owned properties also were rejected. Based on these criteria, the final sample of property owners included 441 names.

To examine if differences between property owners of different coastal locations occur, the owners were divided into three groups. Residents of Rehoboth Beach, Dewey Beach, Henlopen Acres, Indian Beach, and North Shores were grouped together as "northern coastal." Property owners in Fenwick Island, South Bethany, and Bethany Beach were grouped together as "southern coastal." Owners in Ocean Village, Cotton Patch Hills, and Tower Shores were identified as "mid-coastal" (Figure 1). Table 1 lists the breakdown of this sample on the basis of property location.

Table 1. Number and percent of property owners by location of property (n = 441).

Location of Property	Number of Property Owners	Percent of Sample
Northern Coastal	168	38.0
Mid-Coastal	56	12.8
Southern Coastal	217	49.2

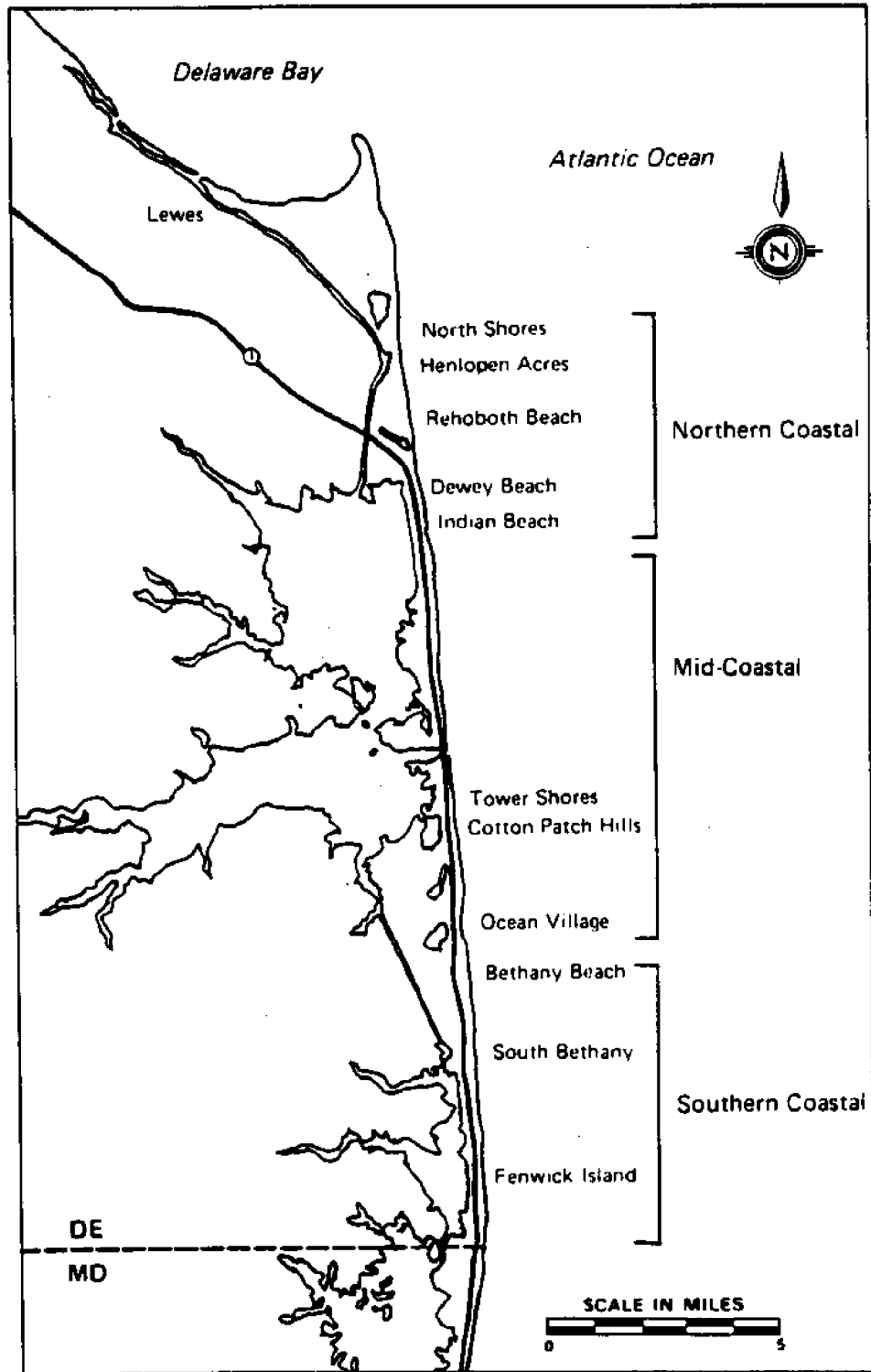


Figure 1. Northern coastal, mid-coastal, and southern coastal communities along Delaware's Atlantic coastline.

Many of the responding owners of Delaware shore property maintain permanent residences in other states. Figure 2 illustrates the place of permanent residence for the entire sample of property owners. The 26 percent figure for Delawareans represents those who live year-round along the coast, as well as those who live elsewhere in the state and own a second home along the shoreline.

Resort Merchants

Names and addresses of 184 coastal businesses were obtained from the membership listings of the Rehoboth Beach/Dewey Beach and Bethany Beach/Fenwick Island area Chambers of Commerce². From these lists, businesses were selected first on the basis of location and then by service or function. All businesses located on or directly east of Route 1 (Coastal Highway) were included. Businesses situated west of Route 1 were included if the business had a function or service related to the coastal area, such as a resort arcade or bait and tackle shop.

As a result of these selection criteria, 132 of the 184 (72%) businesses were within the Rehoboth Beach and Dewey Beach area. The remaining 52 (28%) businesses were from the Bethany Beach, South Bethany, and Fenwick Island area. Since the two Chambers of Commerce reflect different coastal locations, business owners were

²Care was taken to avoid sending more than one questionnaire to an individual. In one instance, a business owner received both a business survey and a property owner survey. The individual returned only the completed business survey and these responses were included for data analysis. The property owner survey was discarded and not included as part of the original sample.

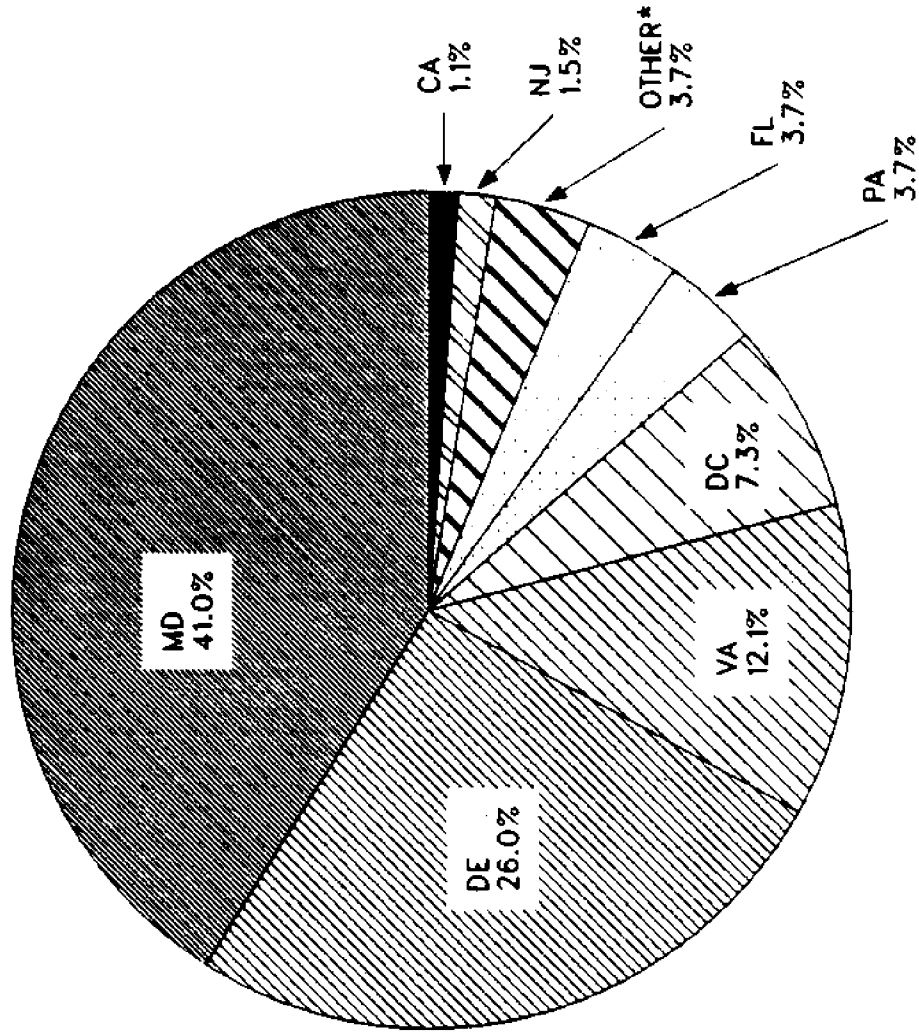


Figure 2. Permanent residence of property owners (n=441).
(Total exceeds 100% due to rounding.)
*less than 1% each from GA, IL, KS, MA, MI, NC, OH, SC, TX, WV

grouped by Chamber of Commerce affiliation for comparative data analysis.

Sussex County Realtors

The names of 80 realtors were obtained from the Sussex County Board of Realtors. These 80 realtors represent each real estate sales office in the county. Even if a realtor's mailing address was outside of coastal towns, their names were still included on the basis of their probable experience within Delaware's oceanfront communities. Assuming this to be the case, these realtors would also have the most exposure to and opinions about erosion and beach management issues.

Survey Mailing and Response

Survey questionnaires were sent to 441 property owners, 184 owners or managers of resort businesses, and 80 realtors on July 17, 1987. Included with each questionnaire was a cover letter explaining the study and a self-addressed business reply envelope (Appendix). Each questionnaire was coded only to keep track of responses. Once the questionnaire was returned and logged in, association of each questionnaire with a respondent ended.

Three weeks after the initial mailing, a follow-up cover letter, replacement questionnaire, and business reply envelope were mailed out to those who had not yet responded. By the deadline of September 1, 1987, the response rate was greater than 50 percent for each interest group. When nondeliverable surveys were eliminated from the original sample, the total response rate exceeded 62 percent.

The largest response rate was from property owners (66%). The lowest response rate was that of resort merchants at 55 percent. This could reflect the timing of the survey, which occurred at the peak of summer business. The response rate for each group is shown in Table 2.

Table 2. Questionnaire response by interest group.

	Total Sample		Property Owners		Resort Merchants		Sussex Realtors	
	#	%	#	%	#	%	#	%
Original Sample Size	705		441		184		80	
Nondeliverable	17		12		5		-	
Effective Sample Size	688	100	429	100	179	100	80	100
Received (Usable)	430	62.5	284	66.2	96	54.5	50	62.5

Data Analysis

All questionnaires received prior to September 1, 1987, were included in the data analysis. Partially completed surveys were included since, in most cases, the completed questions were pertinent and well answered. Responses from each interest group were analyzed separately on the University of Delaware IBM mainframe computer system using SPSSX (Statistical Package for Social Sciences Extended). All three data sets were analyzed for percentages based on frequency of response.

As previously mentioned, the property owners' and merchants' responses also were examined for differences by location of property

or business. Property owner data were grouped by northern coastal, southern coastal, or mid-coastal areas; business data were grouped according to Chamber of Commerce affiliation into Rehoboth Beach/Dewey Beach or Bethany Beach/Fenwick Island. Differences significant at a level less than or equal to .05 are noted in tables.

RESULTS

The following sections present responses on personal preferences and experiences from those individuals who live and work along the Delaware coast. More specifically, responses reflect the importance of beaches to the three interest groups, gauge their awareness and opinions of erosion as a problem in Delaware, and measure their willingness to contribute financially to maintaining beaches.

Coastal Property Owners

Property owners were asked questions about the use of their property and their time of residence there. These results indirectly confirm that most property owners likely have lived in the area long enough to see first-hand the effects of coastal processes.

One-half of the responding coastal property owners indicated their property was primarily a seasonal residence; 29 percent indicated part-time seasonal, part-time rental; approximately 8 percent indicated permanent residence; 7 percent indicated full-time rental; 6 percent indicated "other." "Other" responses included inherited property or permanent residence for part of the family.

When asked how many years they had owned their coastal property, 42 percent indicated 10 years or less. Thirty-nine percent had owned their property between 11 and 25 years; 14 percent between 26 and 40 years; 5 percent more than 40 years. The average length of ownership was 17 years (Table 3).

Although the average number of years of ownership did not encompass the 20-year storm interval³, most property owners had visited or lived along the coast for years. Approximately 30 percent had lived or visited the coastal area for more than 40 years. Only 11 percent indicated 10 years or less. On the average, property owners had lived in or visited the coastal area for 32 years. These results reaffirm the assumption that the average property owner most probably has direct experience or memory of major storms and erosion-related events (Table 3).

Coastal property owners were asked to rank by importance 11 reasons influencing their decision to purchase coastal property. A score of 5 was assigned to "extremely important," 1 to "not at all important." Restful and relaxing beaches scored the highest with an average ranking of 4.4 on the scale of importance. In addition, scenic beaches (4.2) and well-maintained beaches (4.1) were also viewed as very important reasons. The reasons viewed as

³The 20-year storm interval is commonly used to identify the intensity level of a particular coastal storm. The storm interval designations are based on storm data collected over time and then averaged to arrive at intensity levels for different interval periods. For example, one would expect to experience the intensity of a 20-year storm only once every 20 years on the average. In addition to the 20-year storm interval, the 100-year storm interval is also widely recognized.

Table 3. Percent of property owners who have lived in or visited the coastal area and owned property by number of years (n = 283).

Years	Percent Lived/Visited	Percent Owned
1- 5	3.5	23.3
6-10	7.8	18.7
11-15	8.9	9.2
16-20	8.9	17.4
21-25	12.4	12.0
26-30	15.2	7.0
31-40	14.6	7.5
41-50	13.8	2.4
>50	14.9	2.5

least important for buying coastal property were the availability of local activities and beach activities, scoring means of 2.7 and 2.9, respectively.

When location of property was examined, all three coastal areas ranked restful and relaxing beaches, scenic beaches, and well-maintained beaches as the most important reasons for purchasing coastal property. All three groups also were consistent in ranking local activities, beach activities, and minimum regulations as relatively unimportant reasons for buying coastal property. In addition, residents of mid-coastal communities gave a low score to lifeguards attendance as a reason to own coastal property. A complete breakdown of the scores is shown in Table 4.

Table 4. Property owners' reasons for purchasing coastal real estate by property location.

Reasons*	All Property Owners n=255	Northern Coastal n=83	Mid-Coastal n=33	Southern Coastal n=135
Rest and Relaxation	4.4	4.3	4.5	4.5
Scenic Beaches	4.2	4.1	4.7	4.2
Beaches are Well Maintained	4.1	4.1	4.3	4.1
Financial Investment	3.7	3.8	3.7	3.6
Secure Property	3.7	3.8	3.7	3.6
Life-Long Dream	3.6	3.5	3.9	3.6
Closeness to Family and Friends	3.6	3.4	3.6	3.7
Lifeguards**	3.5	3.5	2.6	3.4
Minimum Regulations	3.0	3.0	3.0	2.9
Beach Activities	2.9	3.1	2.6	2.7
Local Activities**	2.7	3.1	1.9	2.5

* Values given are mean scores from a scale ranging from not important (1) to extremely important (5).

** Differences between property owners are significant at .05 level.

When asked if they would be willing to live along the coast if sandy beaches were not part of the environment, only 33 percent indicated they would choose to retain property in the area. When examined by coastal location, results indicated that 42 percent of northern coastal owners would be willing to live in the area, 30 percent of southern coastal owners would be willing to remain, and 25 percent of mid-coastal residents would remain. Astoundingly, nearly all (99.6%) of the responding coastal property owners stated they were aware of beach erosion as being a problem along Delaware's Atlantic coast. Eighty percent indicated that they were concerned

about all degrees of erosion (long-term, storm-related, short-term/seasonal erosion)". Of those who did not recognize all three degrees as concerns, the majority indicated concern with storm-related erosion and long-term erosion.

When asked about future plans for their property, 32 percent indicated that the effects of erosion were influencing their plans. Most of these owners expanded upon this question and indicated that if erosion continued unchecked, they would soon sell their property. When comparisons by property location were made, 39 percent of southern coastal owners, 30 percent of northern coastal owners and 11 percent of mid-coastal property owners indicated the effects of erosion were influencing their future plans.

One of the objectives of this section was to gauge how much money property owners had spent protecting or repairing their property from coastal hazards. Approximately three-fifths of the respondents indicated they had made investments in their property due to the effects of erosion and storms. Of this fraction, 29 percent spent greater than \$10,000; 42 percent indicated between \$1,000 and \$10,000; 28 percent spent less than \$1,000. A detailed breakdown of spending is shown in Table 5.

"The definitions for the varying degrees of erosion are: (1) long-term--erosion caused by the long-term effects of sea-level rise; (2) storm-related--erosion caused by periodic storms (e.g. hurricanes and northeasters); (3) short-term/seasonal--erosion caused by seasonal influences. For example, fall and winter wave and storm action have a tendency to erode beaches, whereas spring and summer conditions tend to rebuild eroded beaches.

Table 5. Percent of property owners who spent money to protect or repair their property (n = 179).

Dollars Spent	Percent Who Spent*
1- 500	12.7
501- 1,000	15.6
1,001- 5,000	24.9
5,001-10,000	17.1
10,001-20,000	12.2
>20,000	17.2

* Does not total 100% due to rounding.

In describing their efforts, the most expensive activities often centered on repairs made after the 1962 storm⁵ and/or the construction of protective bulkheads and seawalls. The least costly efforts focused on dune stabilization or yearly maintenance and repair due to winter storms.

Only one-fifth of the respondents indicated that they did not spend any money protecting their property from erosion or storms. Another 20 percent of the respondents indicated that they did not own oceanfront property. Those owners who indicated that they did not own oceanfront property but did check a dollar response were included in the previously discussed results.

Among those non-oceanfront property owners who did not estimate a

⁵In March 1962, a three-day storm battered the Mid-Atlantic coast. Waves over 15 feet high coupled with unusually high tides destroyed many structures and caused severe erosion. In Delaware alone, the storm destroyed \$21 million of property and killed seven people (Jensen, et al., 1978).

dollar figure, many cited contributions to community efforts or homeowner associations toward combatting erosion.

When asked if they would personally be willing to contribute to funding worthwhile beach preservation measures, 87 percent indicated they would. When asked further as to the maximum amount they would be willing to pay annually, 36 percent indicated greater than \$500. Approximately 40 percent would pay between \$100 and \$500. Another 20 percent were willing to contribute up to \$100. The mean contribution would lie between \$200 and \$250.

In parallel with dollars spent on storm or erosion damage, southern coastal owners were also willing to pay more, with 43 percent responding greater than \$500. In contrast, just over one-quarter of the northern coastal and mid-coastal owners were willing to contribute over \$500. Table 6 shows the results of this question in detail.

Table 6. Percent of property owners willing to pay for beach preservation efforts by property location.

Dollars Willing to Pay	All Property Owners n=207	Northern Coastal n=70	Mid-Coastal n=25	Southern Coastal n=112
0	2	3	4	1
1- 50	8	10	12	6
51- 100	14	17	12	13
101- 250	22	17	32	22
251- 500	18	26	12	15
501-1000	16	11	16	19
>1000	20	16	12	24

Additional Comments

Many property owners provided additional comments on their returned questionnaires. Overall, they appeared pragmatic, and do not expect miracle cures for stopping the forces of erosion. They realize that when battling nature, there are no guarantees.

On an economic level, property owners realized that beach management is a very costly venture. Many owners felt strongly that those who use or benefit from the beach should help pay for its preservation. As indicated by their comments and willingness to finance such projects, property owners realize they are primary beneficiaries of the beach.

Many owners also linked the beach to coastal Delaware's healthy economy and tourist industry, and felt that the beaches are vital to maintaining that economic health. Also, property owners viewed beach management and preservation as "important as any issue facing Delaware today."

Resort Merchants

A variety of businesses were represented in the survey. Restaurants made up the largest group (20.2%), followed by hotel/motel establishments (19.1%) and gift shops (14.9%). Clothing stores (10.6%), food/liquor establishments (7.4%), convenience/drug stores (7.4%), and resort-type businesses such as arcades, bait/tackle shops, and recreational equipment rental shops (3.2%) represented the remaining businesses. An additional 17 percent of responding businesses were included in a miscellaneous category. These

included such businesses as hairstyle shops, hardware stores, and basic repair shops.

Nineteen percent of the respondents noted that their businesses were located on the oceanfront, while 26 percent were in the first block; 35 percent in the second block, and 20 percent further than two blocks from the ocean. When examined by location, both Rehoboth Beach/Dewey Beach and Bethany Beach/Fenwick Island area merchants exhibited similar patterns.

Approximately 55 percent of the merchants operated their businesses for ten years or less. About 21 percent had more than 20 years of service operating their coastal area business. On the average, they had operated a business in the coastal area for approximately 14 years (Table 7). Fifty-four percent of the respondents owned the building in which they operated their business. This also was consistent between northern and southern merchants.

Table 7. Percent of merchants who have operated a business in the coastal area by number of years (n = 92).

Years Operated Business	Percent Responding
1- 5	27.7
6-10	27.6
11-15	17.0
16-20	6.4
21-25	6.4
26-30	5.3
31-40	3.2
41-50	4.3
>50	2.1

Of the responding merchants, almost 98 percent were aware that erosion is a problem along the Delaware shoreline. For the most part, respondents stated that all aspects of erosion (storm-related, long-term, and short-term/seasonal) were concerns to them.

Business owners and managers also were asked to estimate how much of their business revenue was dependent on the existence of a wide, sandy beachfront. Approximately 70 percent of Rehoboth Beach/Dewey Beach merchants and 88 percent of Bethany Beach/Fenwick Island area merchants responded that between 75 and 100 percent of their business activity is a result of the wide, sandy beaches. Table 8 includes total responses from northern and southern merchants on how much of their business is dependent on Delaware's beaches. These responses, in part, may suggest that a healthy tourist economy is directly linked to wide, sandy beaches.

Table 8. Percent of merchants whose business is dependent on beaches by business location.

Percent of Businesses Dependent on Beaches	Percent Responding Rehoboth/Dewey* n=67	Percent Responding Bethany/Fenwick* n=26
0	4.5	0
25	14.9	3.8
50	10.4	7.7
75	34.3	61.5
100	35.8	26.9

* Does not total 100% due to rounding.

When asked whether their sales would suffer if the sandy beaches were no longer a part of the natural environment, greater than 94 percent of merchants in both areas responded "yes." This response further suggests the economic importance of Delaware's sandy beaches.

No significant differences were evident between northern and southern businesses concerning spending money to protect or repair property from erosion or storm damage. Approximately one-half of the responding businesses reported spending some money to protect or repair their property from the effects of erosion or coastal storms. Of those who had spent money on protection or repairs, 40 percent had invested more than \$10,000. Almost 28 percent spent between \$1,000 and \$10,000. About 33 percent spent less than \$1,000 on protecting or repairing their personal property (Table 9).

Table 9. Percent of merchants who spent money to protect or repair their property (n = 40).

Dollars Spent	Percent Who Spent
1- 500	25.0
501- 1,000	7.5
1,001- 5,000	17.5
5,001-10,000	10.0
10,001-20,000	12.5
>20,000	27.5

An important component of any proposed beach protection plan is how it would be financed. Merchants were asked whether they would be willing to help finance such projects they felt were worthwhile. More than 85 percent of all the respondents said that they would help finance a worthwhile effort.

When queried further as to the maximum amount they would pay annually to support beach protection efforts, some differences were evident between area businesses. About 47 percent of Rehoboth Beach/Dewey Beach merchants noted that they would only be willing to pay \$100 or less to fund a worthwhile project. Fifty percent noted that they would be willing to pay between \$100 and \$1000. Bethany Beach/Fenwick Island area merchants were more willing to support a worthwhile project. About 77 percent of these respondents indicated that they would pay between \$100 and \$1000. The total amounts that merchants would be willing to pay are presented in Table 10.

This willingness to pay on the part of businesses is further evidence that the Atlantic beaches are indeed valuable assets to resort merchants and the entire community, and that they realize the need to help support beach preservation efforts.

Table 10. Percent of merchants willing to pay for beach preservation efforts by business location.*

Dollars Willing to Pay	Percent Responding Rehoboth/Dewey** n=48	Percent Responding Bethany/Fenwick** n=22
0	4.2	4.5
1- 50	22.9	4.5
51- 100	18.8	13.6
101- 250	16.7	13.6
251- 500	8.3	40.9
501-1000	25.0	22.7
>1000	4.2	0.0

* Differences between responding merchants and amounts willing to pay are significant at .05 level.

** Does not total 100% due to rounding.

Additional Comments

Many resort merchants noted that without the beaches their businesses would not exist. They also reiterated that Sussex County and the entire state benefit from the beaches. There is the realization that action needs to be taken to protect the beaches from the effects of erosion. Resort merchants, however, did not feel that it was their sole responsibility to finance beach protection projects, nor was it entirely up to the local municipalities or county. They commented that everyone who benefits should help support beach preservation efforts.

Merchants felt that the state of Delaware should assume the primary responsibility to finance beach protection efforts with federal government support. There was also a concern that funds

should be earmarked by the Delaware General Assembly in the event that an emergency, such as a hurricane, should occur. Like property owners, resort merchants also felt that it is urgent to begin seriously addressing the problem of erosion.

Sussex County Realtors

Today, real estate transactions and land development are thriving along Delaware's Atlantic coastline. In addition to obtaining information on general beach management issues, the questionnaire sent to coastal realtors was designed to gain insight on the values of coastal real estate and the possible effects of erosion, and to acquire information on buyers' preferences and perceptions of coastal erosion.

According to responding realtors, property values along Delaware's Atlantic shoreline have increased an average of 450 percent since the 1972 assessment by the Sussex County Tax Office. Thus, these 1972 values are often a fraction of the current market value. When asked if erosion affects coastal property values, 49 percent of the realtors replied "yes;" 39 percent conceded that erosion affected values somewhat; 12 percent believed erosion has no effect on property values.

As in a similar question posed to property owners, realtors were asked to rank 11 reasons why people would purchase coastal property, with a score of 5 assigned to "extremely important" and 1 being "not at all important." In contrast to property owners, realtors ranked that buyers see coastal property as a good financial investment as the most important reason, with a mean score of 4.4.

(Property owners rated this variable 3.7.) Following closely, restful and relaxing beaches scored 4.3 and scenic beaches scored 4.2, which are consistent with those reasons ranked highest by property owners. Mean scores of all the reasons realtors felt buyers purchase coastal property are shown in Table 11.

Table 11. Realtors' reasons for why property owners purchase coastal real estate (n = 49).

Reasons*	Mean Scores
Financial Investment	4.4
Rest and Relaxation	4.3
Scenic Beaches	4.2
Beaches are Well Maintained	3.9
Life-Long Dream	3.5
Beach Activities	3.4
Closeness to Family and Friends	3.4
Lifeguards	3.4
Local Activities	3.3
Secure Property	3.2
Minimum Regulations	2.7

* Values given are mean scores from a scale ranging from not important (1) to extremely important (5).

Although realtors correctly believed property owners are concerned about shore erosion, only 38 percent of the realtors felt prospective buyers of coastal property are "very concerned" about the effects of beach erosion. Fifty-six percent felt buyers are slightly concerned and only 6 percent saw buyers as not caring at all. This may suggest that buyers feel the benefits of living

by the shore outweigh the possible effects of erosion, unless such effects are obvious.

When asked if they were aware of beach erosion as a problem along Delaware's coast, all of the realtors replied "yes." Eighty-two percent indicated concern for all three degrees of erosion, long-term, short-term, and seasonal. Of the remaining 18 percent, the majority cited long-term erosion and storm-related erosion as serious concerns.

Greater than one-half (59%) of the realtors indicated that they informed prospective buyers of the possible effects of shore erosion and storm damage. Sixteen percent said they informed buyers if they are asked about erosion. Twenty percent felt they were not qualified to respond to questions about erosion and storm damage.

Realtors were also asked to indicate who they felt should be responsible for informing prospective buyers about these effects. They were given the option of checking more than one group. Surprisingly, 71 percent placed responsibility on themselves and 61 percent felt state officials should inform buyers. Fifty-three percent indicated local officials; 31 percent indicated university specialists; and 16 percent indicated consulting businesses (Table 12). Although realtors recognized they could share the responsibility for informing prospective buyers, a good portion did not feel they were qualified to answer questions about shore erosion and storm damage.

Table 12. Percent of realtors who advised which groups should inform prospective buyers about the effects of erosion (n = 50).

Group	Percent Who Advised
Realtors	71
State Officials	61
Local Officials	53
University Specialists	31
Consulting Businesses	16

Additional Comments

Realtors viewed coastal erosion and its management as critical and urgent issues for Delaware. Additional comments showed support for a long-term, all-encompassing, "not piece-meal" plan that would address the problems of erosion and its control. Realtors believed that the beach is a valuable asset that Delaware cannot afford to lose.

Management Considerations

A series of management questions were asked of each interest group surveyed. To see if major differences were evident between the responding groups, the responses were examined and compared. A statistical test to detect significant differences between responding groups was not performed; therefore, any notable differences are reported simply as frequency responses.

Destroyed Property Options

Interest groups were asked a hypothetical question designed to gain insight about how property should be rebuilt if it was destroyed by erosion, storms, or flooding. Property owners and resort merchants were asked to respond as if their property was destroyed. Realtors were requested to respond as if another individual's property was destroyed.

Four distinct options were presented (Table 13). The highest rated option from each group was that individuals should be allowed to rebuild at the same location using personal funds and insurance. Fifty-five percent of the property owners, 49 percent of responding merchants, and 57 percent of Sussex County realtors felt this way. Twenty-four percent of the property owners and 37 percent of the resort merchants felt that they should be allowed to rebuild at the same location and also be entitled to government aid and relief. One-quarter of the realtors felt that owners with damaged property should be compensated for their loss, but also be required to rebuild in a safer area. For complete responses to this question, see Table 13.

Beach Management Authority

One question asked who should have the primary authority for managing Delaware's beaches. Not surprisingly, each interest group indicated that the state of Delaware should have primary management authority. Almost 70 percent of the property owners, 61 percent of resort merchants, and 52 percent of Sussex County realtors felt this way. Realtors also expressed a stronger preference

Table 13. Percent of property owners, resort merchants, and realtors responding which rebuilding and/or compensation option should take place.*

Option	Property Owners n=317	Resort Merchants n=109	Realtors n=56
Allowed to rebuild at same location with personal funds and insurance.	54.6	49.5	57.1
Allowed to rebuild at same location and entitled to government aid and relief.	24.0	37.6	12.5
Compensated for loss, but required to build in safer area.	13.2	7.3	25.0
Required to build elsewhere without compensation.	5.0	4.6	1.8
Other.	3.2	1.0	3.6

* Respondents had the choice of selecting two options.

for towns (12.5%) and the county (14.6%) to exert primary management authority than did the other interest groups. Each group also indicated limited support for a combination of agencies having management authority. Many respondents commented that the state should have primary authority, but that cooperation was needed at all levels (Table 14).

Table 14. Percent of property owners, resort merchants, and realtors responding which agency should have primary authority for managing Delaware's beaches.

Agency	Property Owners n=275	Resort Merchants n=95	Realtors n=48
Coastal Towns	8.0	8.4	12.5
Sussex County	6.5	7.4	14.6
State of Delaware	69.5	61.0	52.1
Federal Agencies	3.3	8.4	4.1
Private Citizen Organizations	0.7	1.1	2.1
Other*	12.0	13.7	14.6

* Other was usually represented by a combination of state, local, and federal agencies.

Benefit by Beaches/Finance Beach Preservation

A two-part question asked all three interest groups who they felt receives benefits from Delaware's Atlantic beaches and who should help finance beach preservation efforts. Twelve distinct groups were listed on the survey questionnaire. The groups represented

beach user groups, county residents, governmental units, and various businesses.

Eighty-eight percent or more of all respondents mentioned that most of the groups listed benefit by the presence of the Atlantic beaches. The federal government and large businesses and industries were the only groups to receive lower support ratings from each of the responding groups.

Individually, property owners felt that the real estate industry (99%) benefits the most from the Atlantic beaches. This was followed closely by out-of-state tourists, Delaware tourists, Sussex County government, local municipal governments, and the hotel/motel sector (each being mentioned by 98% of the respondents). They felt that large businesses and industries (67%) and the federal government (66%) benefit the least.

One hundred percent of the responding merchants felt that the hotel/motel industry along the coast benefits the most from the Atlantic beaches. Other groups receiving high support included oceanfront property owners (99%), out-of-state tourists (98%), real estate industry (98%), small resort businesses (98%), and Delaware tourists (97%). Merchants also felt that the federal government (74%) and large businesses and industries (69%) benefit the least.

One hundred percent of the responding realtors indicated that they felt out-of-state tourists and Delaware tourists benefit the most from the Atlantic beaches. They also felt that oceanfront property owners (98%) and the hotel/motel sector (98%) benefit

greatly. Realtors, like property owners and merchants, felt that the federal government (78%) and large businesses and industries (56%) benefit the least from the Atlantic shoreline. See Table 15 for complete responses to the question of who benefits from Delaware's Atlantic beaches.

All three responding interest groups mentioned large businesses and industries benefit the least. This may be due to the fact that there are currently no large industries, like a shipyard or major processing facility, along the Delaware Atlantic shoreline that benefits from the coastal setting.

When asked who should help finance beach preservation efforts, the following responses were provided. Property owners felt that state government (96%) and Sussex County government (96%) should be primarily responsible for financing beach preservation efforts. They also felt strongly that municipal governments (93%), real estate industry (93%), and the hotel/motel sector (92%) should provide support. Property owners felt that large businesses and industries (69%) should be least responsible.

Resort merchants believed that Sussex County government (94%) should be primarily responsible for financing beach preservation efforts. They also felt strongly about municipalities (92%), state government (92%), and oceanfront property owners (90%) providing financial support. Merchants least favored placing the responsibility on small resort businesses (76%) and large businesses and industries (68%).

Table 15. Percent of property owners, resort merchants, and realtors' responses to which groups benefit from the Atlantic beaches and which groups should help finance beach preservation efforts.

Group	Property Owners n=241		Resort Merchants n=81		Realtors n=47	
	<u>Benefit</u>	<u>Finance</u>	<u>Benefit</u>	<u>Finance</u>	<u>Benefit</u>	<u>Finance</u>
Out-of-State Tourists	98	81	98	85	100	77
Delaware Tourists	98	83	97	84	100	80
Sussex Residents	92	80	91	79	88	62
Oceanfront Owners	92	84	99	90	98	77
County Government	98	96	95	94	94	91
Municipal Governments	98	93	94	92	92	87
State Government	95	96	92	92	94	94
Federal Government	66	79	74	86	78	91
Hotels and Motels	98	92	100	87	98	71
Real Estate Developers	99	93	98	88	96	58
Small Resort Businesses	97	88	98	76	94	65
Large Businesses/Industries	67	69	69	68	56	57

Sussex County realtors supported state government (94%) for the primary responsibility of financing beach preservation efforts. They also strongly supported Sussex County government (91%) and the federal government (91%). Realtors felt that small resort businesses (65%), Sussex County residents (62%), real estate industry (58%), and large businesses and industries (57%) should be least responsible for financing beach preservation efforts. See Table 15 for complete responses to the question of who should help finance beach preservation measures.

Overall, positive responses to the question of who should help finance beach preservation efforts were not as high as for the question of who benefits from the Atlantic beaches, even though the questions were asked together. This may suggest that there is still considerable debate, on the part of respondents, as to who should be the primary source of funds to support future beach preservation efforts.

Favored Beach Protection Measures

Interest groups were asked to rank various beach preservation measures as possible options for Delaware's Atlantic shoreline. A series of seven measures were listed. Respondents were requested to rate the variables from 1 to 5, with 1 indicating "very much opposed" and 5 indicating "very much in favor." Table 16 lists the mean ratings for the seven types of beach preservation measures.

In nearly every case, the three interest groups favored measures that did not require major engineered structures to accomplish the goal of preserving the beach. Dune stabilization, beach

Table 16. Property owners, resort merchants, and realtors' responses to their most-favored method of beach preservation by location.

	PROPERTY OWNERS				RESORT MERCHANTS				REALTORS			
	Northern Coastal n=72		Mid-Coastal Communities n=31		Southern Coastal n=122		Rehoboth/Dewey n=58		Bethany/Fenwick n=23		Sussex County n=43	
	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand	Percent Who Don't Understand
Protective Measures*	Rating	Measure	Rating	Measure	Rating	Measure	Rating	Measure	Rating	Measure	Rating	Measure
Beach Nourishment	4.5	27	4.8	23	4.7	15	4.6	16	4.6	4	4.7	11
Breakwaters	4.0	12	3.2	18	3.7	19	4.1	16	3.6	17	4.2	13
Dune Stabilization	4.8	4	5.0	0	4.7	1	4.9	5	4.8	4	4.8	2
Groins & Jetties	4.1	10	2.9	12	3.6	5	4.4	12	3.7	0	4.2	7
Revetments (Riprap)	3.3	37	2.8	24	3.3	25	3.2	54	2.7	13	3.6	16
Seawalls/Bulkheads	3.2	8	2.7	6	3.1	5	3.8	9	2.5	0	3.6	4
Zoning Regulations & Setback Lines	4.3	1	4.8	3	4.3	2	4.4	3	4.0	0	4.1	2

* Values given are mean scores from a scale ranging from very much opposed (1) to very much in favor (5).

nourishment, zoning regulations, and setback lines received higher mean ratings than methods such as building groins, jetties, or seawalls.

When examined by property location along the coast, owners consistently favored dune stabilization, replenishing the beaches with sand, and imposing zoning regulations and setback lines. Respondents from each location least favored seawalls/bulkheads and revetments (riprap).

Resort merchants also favored beach protection measures that required little or no engineering activity. Both Rehoboth Beach/Dewey Beach and Bethany Beach/Fenwick Island area merchants most favored dune stabilization, beach nourishment, zoning regulations, and setback lines. Merchants in both areas remained consistent and rated seawalls/bulkheads and revetments the lowest. Bethany Beach/Fenwick Island area merchants expressed lower ratings for the two methods than did Rehoboth Beach/Dewey Beach merchants: seawalls/bulkheads 2.4 vs. 3.8 and revetments (riprap) 2.7 vs. 3.2.

Sussex County realtors favored the same three non-engineered methods to protect beaches as did property owners and merchants: dune stabilization (4.8); beach nourishment (4.7), zoning regulations, and setback lines (4.1). They also felt the least supportive of building seawalls/bulkheads (3.6) and revetments (3.6).

Respondents also had the option of indicating that they did not fully understand the function of a particular beach protection measure. More than one-quarter of all property owners indicated

that they did not fully comprehend the function of revetments (riprap). Northern coastal owners (37%) had the highest misunderstanding about the measure than did owners living in mid-coastal areas (24%) and in southern coastal locations (25%). Beach nourishment was also not fully understood by about one-quarter of the northern coastal owners (27%) and mid-coastal owners (23%). Southern coastal owners had a higher rate of understanding for this method since it is a measure that has been discussed as a method of beach preservation in the southern coastal area in the past.

Resort merchants did not express a high degree of misunderstanding about many of the measures. The only measure that about one-half of the Rehoboth Beach/Dewey Beach merchants did not understand was revetments (riprap). Bethany Beach/Fenwick Island area merchants did not indicate a significant lack of knowledge about this measure.

There was no major misunderstanding on the part of Sussex County realtors about any of the beach protection measures listed. See Table 16 for complete responses from property owners, merchants, and realtors.

Sources of Revenue

Each of the responding interest groups were provided a listing of eight sources of revenue that could potentially be used to support beach preservation efforts. Individuals were requested to respond (yes, no, or maybe) as to whether they would support certain alternatives. Table 17 provides results from those who responded yes or maybe that they would support a certain measure.

Table 17. Percent of property owners, resort merchants, and realtors responding yes or maybe that they would support sources of revenue for beach management efforts by location.

Source of Revenue	PROPERTY OWNERS				RESORT MERCHANTS			REALTORS		
	North Coastal n=77	Unincorporated Communities n=30	South Coastal n=124		Rehoboth/Devey n=57	Bathany/Fenwick n=22		Sussex County n=44		
	Yes	Maybe	Yes	Maybe	Yes	Maybe	Yes	Maybe	Yes	Maybe
Beach Fees	54	12	70	10	33	13	63	8	49	9
Area Sales Tax	52	8	57	7	14	11	35	17	31	13
Property Tax Increase	34	18	32	16	35	16	36	9	30	16
Municipal Taxes	26	17	30	17	29	20	41	18	41	7
Resort Business Taxes	58	13	77	10	16	14	18	23	32	7
Real Estate Transfer Taxes	37	10	55	14	47	22	45	10	14	7
Coastal Tax District	30	14	41	14	35	22	41	18	34	30
State Tax Increase	44	14	50	12	51	13	55	20	37	12

Maybe answers were tallied since they suggest that respondents did not entirely disregard that option. If detailed information was provided regarding how the revenues would be generated and used, these maybe responses could have changed to yes responses.

Seventy-one percent of northern coastal property owners responded yes or maybe they would support an increase in resort business taxes to fund beach preservation measures. Sixty-one percent of northern coastal owners also said yes or maybe they would approve of beach fees as a revenue generator. The least-favored revenue source by northern property owners was municipal taxes (43%).

Southern coastal property owners felt strongly about increasing resort business taxes to support beach preservation efforts. Approximately 85 percent said yes or maybe they would favor such a measure. Southern coastal owners also felt strongly about an area sales tax (77%). Property tax increases (76%), beach fees (74%), and a state tax increase (69%) were other measures that received yes or maybe support. Southern property owners' least favorite measure was a coastal tax district; less than one-half (45%) indicated yes or maybe they would support such a plan.

Eighty-seven percent of mid-coastal property owners said yes or maybe they would support the idea of an increase in resort business taxes. Another 80 percent felt strongly about imposing beach fees. Property owners in mid-coastal communities mentioned their least support for municipal taxes (47%).

Resort merchants had different feelings about the types of measures that they would support to finance beach preservation efforts. Sixty-nine percent of Rehoboth Beach/Dewey Beach merchants said yes or maybe they would favor a real estate transfer tax to raise additional revenues. Sixty-four percent said yes or maybe they would support a state tax increase. Not surprisingly, only 30 percent favored increasing resort business taxes. Bethany Beach/Fenwick Island area merchants also supported a state tax increase (75%) and beach fees (71%). Similar to northern merchants, only 41 percent said yes or maybe they would approve of an increase in resort business taxes.

Sussex County realtors had less strong feelings about which revenue source they would favor. However, 64 percent indicated yes or maybe they would support the idea of a coastal tax district. Fifty-eight percent of the realtors also noted that they would support beach fees as a means of raising revenues. As one might imagine, only 21 percent indicated yes or maybe they would prefer a real estate transfer tax plan.

All respondents had the opportunity to indicate that they did not understand the concept behind any of the revenues listed. However, very few respondents from any of the groups mentioned that they misunderstood a particular revenue source; therefore, such responses were not listed (Table 17).

CONCLUSIONS

The purpose of this study was to examine the attitudes and opinions of coastal property owners, resort merchants, and Sussex County realtors on various aspects of beach erosion and management issues. In addition, the questionnaire responses characterized each interest group, provided information on management options, and suggested alternative funding sources.

In general, respondents were well-informed, conscientious citizens with concerns about beach erosion and management issues. All three groups indicated they were aware of erosion as a problem along Delaware's Atlantic coast. The average resort merchant and property owner indicated that they had been working or living in coastal Delaware long enough to be aware of severe storm erosion and long-term erosional trends. In fact, many ranked the issue of erosion as important as any facing Delaware today.

According to property owners, and confirmed by realtors, the beach and its relaxing, aesthetic qualities were the most important reasons for purchasing property in the coastal area. Perhaps being more practical, many realtors felt that the financial investment of owning coastal property was also an important reason for purchasing real estate.

Responses from all three interest groups independently, as well as together, suggest that the existence of Delaware beaches are vital to Delaware's economy. Realtors noted that property values are indirectly affected by erosion, with higher erosion rates

yielding lower property values. Local merchants link their financial success to the beach with greater than two-thirds attributing between 75 and 100 percent of their business to the existence of wide, sandy beaches. Almost every merchant replied that their business would suffer if the sandy beaches were no longer a part of the natural environment.

All three interest groups were acutely aware of the costs involved in beach preservation efforts. The majority of merchants and property owners had first-hand experience in investing substantial amounts to protect or repair property due to erosion or storms. If a property was destroyed by the effects of storms and erosion, all three interest groups agreed that the owner should be allowed to rebuild at the same location using personal funds. Coastal property owners and resort merchants realize there are risks involved in living along the coast and do not expect any free handouts.

Each interest group also recognized that they directly benefit from the beaches of Delaware and were consequently willing to contribute financially to worthwhile preservation efforts. Property owners, perhaps exhibiting more emotional ties in addition to their financial investment, were willing to contribute more than area merchants. According to opinions expressed by these interest groups, they did not stand alone as beneficiaries of Delaware's beaches and should not be expected to assume full responsibility for financing restoration ventures. Beach fees and a state tax increase received consistent support from all three interest

groups as alternative sources of revenue for beach preservation efforts.

Comparison of responses between business and property locations did not reveal many significant differences. Most of the differences, however, involved questions directly related to erosion of the beach with southern localities sending a stronger, hard-line message. This could be due to the fact that variations in local erosion rates and narrower beaches in southern coastal Delaware may make the issue more obvious and important in the minds of these merchants and property owners.

Results of this survey fulfilled the primary objective of documenting the concerns of coastal property owners, resort area merchants, and Sussex County realtors with respect to beach erosion and management issues. Such information can be useful to resource managers at all levels of government as a valuable source of public opinion. Interest groups in this survey appeared amenable to new sources of revenue and innovative ideas to preserve what they consider a most important resource. Such results can be used as a foundation for identifying new funding sources. Also, these survey results help to establish the link between the coastal economy and a well-preserved beach. This information can be used by economists when assessing the costs and benefits of beach preservation efforts.

Although this study contains valuable data, it is limited in scope to documenting the concerns of interest groups with the most at stake in beach management issues. Similar studies polling additional interest groups such as other Delaware residents and

out-of-state tourists may be necessary before implementing policies that would affect these groups.

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A P P E N D I X

DATA COLLECTION MATERIALS

Study Questionnaires

Initial Cover Letters

Follow-Up Cover Letters



UNIVERSITY OF DELAWARE
SEA GRANT MARINE ADVISORY SERVICE

BEACH MANAGEMENT SURVEY
SUMMER 1987

Please answer the following questions about your property.

1. What is the primary use of your property in the vicinity of Delaware's Atlantic shoreline?

- ☐ a. year-round residence ☐ c. full-time rental property
☐ b. seasonal residence ☐ d. part-time residence/part-time rental
 ☐ e. other, explain _____

2. If you are not a full-time resident, where is your permanent residence? _____

3. How many years have you owned this property? _____ years

4. How many years have you lived or visited the Delaware beach area? _____ years

5. Are you aware that beach erosion is a problem along Delaware's coast? ☐ Yes ☐ No
If yes, are you concerned about: (check all that apply)

- ☐ a. storm-related erosion ☐ c. short-term (seasonal) erosion
☐ b. long-term erosion ☐ d. all of the above

6. Are the effects of erosion influencing your future plans for this property? ☐ Yes ☐ No
If yes, explain _____

7. Below are several possible reasons for your purchasing property along the Delaware coastline. By circling the appropriate number for each, indicate how important these reasons were in your decision to purchase your current property.

	not at all important	slightly important	moderately important	very important	extremely important
a. The beaches are scenic.	1	2	3	4	5
b. The beaches are well-maintained.	1	2	3	4	5
c. The beaches are restful and relaxing.	1	2	3	4	5
d. There are plenty of activities to enjoy on the beach.	1	2	3	4	5
e. There are plenty of activities/events in the local area.	1	2	3	4	5
f. It is close enough for family and friends to visit.	1	2	3	4	5
g. I have always wanted to live at the beach.	1	2	3	4	5
h. I felt the property was secure from the effects of storms and erosion.	1	2	3	4	5
i. I saw it as a good long-term financial investment.	1	2	3	4	5
j. Beach rules and regulations are kept to a minimum.	1	2	3	4	5
k. The beaches are well-attended by lifeguards.	1	2	3	4	5
l. other (specify) _____	1	2	3	4	5

8. Natural forces may eventually erase Delaware's beaches. Would you still be willing to live along the coast if sandy beaches were not part of the environment?

☐ Yes ☐ No

9. Since owning this property, how much have you spent protecting or repairing it from the effects of beach erosion and/or coastal storms?

- ☐ \$0 ☐ \$ 1,001- 5,000 ☐ Greater than \$20,000
☐ \$1-500 ☐ \$ 5,001-10,000 ☐ Do not own oceanfront property
☐ \$501-1,000 ☐ \$10,001-20,000

Please describe your efforts: _____

10. If your property was destroyed by natural causes of erosion, storms and/or floods, do you feel that you should be:

- ☐ a. allowed to rebuild your home at the same location using personal insurance and funds?
☐ b. allowed to rebuild at the same location and entitled to government aid and relief?
☐ c. compensated for your loss but required to rebuild in a safer area?
☐ d. required to build elsewhere without compensation (your tough luck, act of God)
☐ e. other (specify) _____

11. (A) In your opinion, do the following groups receive benefits from Delaware's Atlantic beaches and
(B) should they help finance beach preservation measures?

	<u>Receives Benefits</u>		<u>Help Finance</u>	
	Yes	No	Yes	No
a. oceanfront property owners	—	—	—	—
b. Sussex County residents	—	—	—	—
c. small resort businesses	—	—	—	—
d. large businesses/industry	—	—	—	—
e. Delaware tourists	—	—	—	—
f. out-of-state tourists	—	—	—	—
g. state government	—	—	—	—
h. Sussex County government	—	—	—	—
i. local municipal government	—	—	—	—
j. federal government	—	—	—	—
k. real estate industry/developers	—	—	—	—
l. coastal hotel/motel industry	—	—	—	—

12. Who should have primary authority for managing Delaware's beaches? (check one)

☐ a. coastal towns ☐ c. State of Delaware ☐ e. private citizen organizations
☐ b. Sussex county ☐ d. federal agencies

13. How do you feel about the following beach preservation measures for Delaware's Atlantic shoreline?

	very much opposed	somewhat opposed	neutral	somewhat in favor	very much in favor	don't understand
a. beach nourishment	—	—	—	—	—	—
b. breakwaters	—	—	—	—	—	—
c. dune stabilization	—	—	—	—	—	—
d. groins & jetties	—	—	—	—	—	—
e. revetments (riprap)	—	—	—	—	—	—
f. seawalls & bulkheads	—	—	—	—	—	—
g. zoning regulations/setback lines	—	—	—	—	—	—
h. other	—	—	—	—	—	—

14. If the government and other sources were unable to cover the total costs of beach preservation, would you be willing to help finance such projects if you felt them worthwhile?

☐ Yes ☐ No

If yes, what is the maximum annual amount you would be willing to pay?

☐ \$0 ☐ \$51-100 ☐ \$251-500 ☐ Greater than \$1000
☐ \$1-50 ☐ \$101-250 ☐ \$501-1000

15. If it becomes necessary to identify new sources of revenues for beach management efforts, which alternative would you support?

	Yes	No	Maybe	Don't understand
a. beach fees (user pays)	—	—	—	—
b. beach area sales tax	—	—	—	—
c. county property tax increase	—	—	—	—
d. impose town/city taxes	—	—	—	—
e. increase resort business taxes	—	—	—	—
f. real estate transfer tax	—	—	—	—
g. special coastal tax district	—	—	—	—
h. state tax increase	—	—	—	—
i. other (specify) _____	—	—	—	—

Please feel free to give any additional comments: _____

Please place your completed questionnaire in the prepaid, self-addressed envelope and drop in a convenient mailbox. Thank you for your time.

UNIVERSITY OF DELAWARE
LEWES, DELAWARE
19958

SEA GRANT COLLEGE PROGRAM
MARINE ADVISORY SERVICES
COLLEGE OF MARINE STUDIES
CANNON BUILDING
PHONE: 302-645- 4235

16 July 1987

Dear Property Owner:

The University of Delaware Sea Grant Marine Advisory Service is conducting a study to assess the public's views on issues related to beach erosion and to gain insight into various beach management options for the state's valuable coastal resource. Your name has been randomly selected to provide input on these topics. The information that you provide is important because it will help characterize attitudes and feelings of property owners on a variety of issues that must be addressed by resource managers in the future.

The accuracy of this study depends on the number of questionnaires returned. Would you please take a few minutes to answer the questions on the enclosed questionnaire?

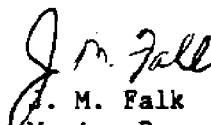
Please place your completed questionnaire in the enclosed postage-paid envelope and return it to us as promptly as possible. All responses will be handled in strict confidence. Survey data will be summarized, so there will be no way to associate your name or address with any particular set of responses.

Thank you for your interest and cooperation.

Sincerely,



V. Crouse
Marine Advisory Service Intern



J. M. Falk
Marine Recreation & Tourism Specialist

Enclosures



University of Delaware

SEA GRANT COLLEGE PROGRAM
CANNON LABORATORY
MARINE STUDIES COMPLEX
LEWES, DELAWARE 19958-1298

302-645-4235

7 August 1987

Dear Property Owner:

About three weeks ago you were sent a questionnaire which is part of a study on beach management issues in Delaware. If you have already returned the questionnaire, we thank you for your prompt reply. If you have not completed the questionnaire, would you please take the time to do so today?

The accuracy of the study depends on the number of questionnaires returned. The information you provide is important because it will help characterize attitudes and feelings of property owners on a variety of issues that must be addressed by resource managers in the future. Remember, all responses will be summarized and handled in strict confidentiality.

A questionnaire and postage-paid return envelope are enclosed in case you did not receive one or no longer have the first one we sent you.

Thank you again for your interest and cooperation.

Sincerely,

A handwritten signature in cursive script, appearing to read "V. C. Crouse".

V. C. Crouse
Marine Advisory Service Intern

A handwritten signature in cursive script, appearing to read "J. M. Falk".

J. M. Falk
Marine Recreation Specialist

Enclosures



UNIVERSITY OF DELAWARE
SEA GRANT MARINE ADVISORY SERVICE

BEACH MANAGEMENT SURVEY
SUMMER 1967

Please answer the following questions expressing your opinions and concerns as a business owner or manager.

1. Where is your business located?

- ☐ a. oceanfront (boardwalk) ☐ b. first block from beach
☐ c. second block ☐ d. further than second block

What municipality? _____

2. How long have you operated a business in the Delaware beach area? _____ years

3. Do you own the building in which your business is located?

☐ Yes ☐ No

4. Are you aware that beach erosion is a problem along Delaware's coast? ☐ yes ☐ no
If yes, are you concerned about: (check all that apply)

- ☐ a. storm-related erosion ☐ c. short-term (seasonal) erosion
☐ b. long-term erosion ☐ d. all of the above

5. How much do you estimate your business depends on the existence of wide, sandy beaches on Delaware's shoreline?

☐ 0% ☐ 25% ☐ 50% ☐ 75% ☐ 100% other ☐ %

6. If present trends continue, Delaware's beaches may disappear. Do you think your sales would suffer if sandy beaches were not part of the environment?

☐ Yes ☐ No

7. Since operating this business, how much have you spent protecting or repairing it from the effects of beach erosion and/or coastal storms?

- ☐ \$0 ☐ \$ 1,001- 5,000 ☐ Greater than \$20,000
☐ \$1-500 ☐ \$ 5,001-10,000 ☐ Do not own building
☐ \$501-1,000 ☐ \$10,001-20,000

Please describe your efforts: _____

8. Your business has been destroyed by natural causes of erosion, storms and/or floods. Do you feel that you should be:

- ☐ a. allowed to rebuild (reopen) your business at the same location using private insurance and funds?
☐ b. allowed to rebuild (reopen) at the same location and entitled to government aid and relief?
☐ c. compensated for your loss but required to rebuild (reopen) in a safer area?
☐ d. required to build (reopen) elsewhere without compensation? (your tough luck, act of God)
☐ e. other (specify) _____

9. Who should have primary authority for managing Delaware's beaches? (check one)

- ☐ a. coastal towns ☐ c. State of Delaware ☐ e. private citizen organizations
☐ b. Sussex county ☐ d. federal agencies

10. (A) In your opinion, do the following groups receive benefits from Delaware's Atlantic beaches and
(B) should they help finance beach preservation measures?

	<u>Receives Benefits</u>		<u>Help Finance</u>	
	Yes	No	Yes	No
a. oceanfront property owners	___	___	___	___
b. Sussex County residents	___	___	___	___
c. small resort business	___	___	___	___
d. large business/industry	___	___	___	___
e. Delaware tourists	___	___	___	___
f. out-of-state tourists	___	___	___	___
g. state government	___	___	___	___
h. Sussex County government	___	___	___	___
i. local municipal government	___	___	___	___
j. federal government	___	___	___	___
k. real estate industry/developers	___	___	___	___
l. coastal hotel/motel industry	___	___	___	___

11. How do you feel about the following beach preservation measures for Delaware's Atlantic shoreline?

	very much opposed	somewhat opposed	neutral	somewhat in favor	very much in favor	don't understand
a. beach nourishment	___	___	___	___	___	___
b. breakwaters	___	___	___	___	___	___
c. dune stabilization	___	___	___	___	___	___
d. groins & jetties	___	___	___	___	___	___
e. revetments (riprap)	___	___	___	___	___	___
f. seawalls & bulkheads	___	___	___	___	___	___
g. zoning regulations/setback lines	___	___	___	___	___	___
h. other	___	___	___	___	___	___

12. If the government and other sources were unable to cover the total costs of beach preservation, would you be willing to help finance such projects if you felt them worthwhile?

___ Yes ___ No

If yes, what is the maximum annual amount you would pay?

___ \$0 ___ \$51-100 ___ \$251-500 ___ Greater
___ \$1-50 ___ \$101-250 ___ \$501-1000 ___ than \$1000

13. If it becomes necessary to identify new sources of revenues for beach management efforts, which alternatives would you support?

	Yes	No	Maybe	Don't know
a. beach fees (user pays)	___	___	___	___
b. beach area sales tax	___	___	___	___
c. county property tax increase	___	___	___	___
d. impose town/city taxes	___	___	___	___
e. increase resort business taxes	___	___	___	___
f. real estate transfer tax	___	___	___	___
g. special coastal tax district	___	___	___	___
h. state tax increase	___	___	___	___
i. other (specify) _____	___	___	___	___

Please feel free to give any additional comments: _____

Please place your completed questionnaire in the prepaid, self-addressed envelope and drop in a convenient mailbox. Thank you for your time.

UNIVERSITY OF DELAWARE
LEWES, DELAWARE
19958

SEA GRANT COLLEGE PROGRAM
MARINE ADVISORY SERVICES
COLLEGE OF MARINE STUDIES
CANNON BUILDING
PHONE: 302-645-4235

17 July 1987

Dear Coastal Businessman:

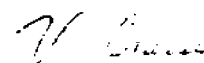
The University of Delaware Sea Grant Marine Advisory Service is conducting a study to assess the public's views on issues related to beach erosion and to gain insight into various beach management options for the state's valuable coastal resource. Your name has been randomly selected to provide input on these topics. The information that you provide is important because it will help characterize attitudes and feelings of coastal businessmen on a variety of issues that must be addressed by resource managers in the future.

The accuracy of this study depends on the number of questionnaires returned. Would you please take a few minutes to answer the questions on the enclosed questionnaire?

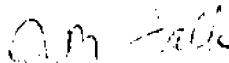
Please place your completed questionnaire in the enclosed postage-paid envelope and return it to us as promptly as possible. All responses will be handled in strict confidence. Survey data will be summarized, so there will be no way to associate your name or address with any particular set of responses.

Thank you for your interest and cooperation.

Sincerely,



V. C. Crouse
Marine Advisory Service Intern



J. M. Falk
Marine Recreation & Tourism Specialist

Enclosures



University of Delaware

SEA GRANT COLLEGE PROGRAM
CANNON LABORATORY
MARINE STUDIES COMPLEX
LEWES, DELAWARE 19958-1298

302-645-4235

7 August 1987

Dear Coastal Businessman:

About three weeks ago you were sent a questionnaire which is part of a study on beach management issues in Delaware. If you have already returned the questionnaire, we thank you for your prompt reply. If you have not completed the questionnaire, would you please take the time to do so today?

The accuracy of the study depends on the number of questionnaires returned. The information you provide is important because it will help characterize attitudes and feelings of coastal businessmen on a variety of issues that must be addressed by resource managers in the future. Remember, all responses will be summarized and handled in strict confidentiality.

A questionnaire and postage-paid return envelope are enclosed in case you did not receive one or no longer have the first one we sent you.

Thank you again for your interest and cooperation.

Sincerely,

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V. C. Crouse
Marine Advisory Service Intern

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J. M. Falk
Marine Recreation Specialist

Enclosures

UNIVERSITY OF DELAWARE
SEA GRANT MARINE ADVISORY SERVICE



BEACH MANAGEMENT SURVEY

Please answer the following questions expressing your opinions and concerns as a real estate agent.

1. Are you aware that beach erosion is a problem along Delaware's coast? ☐ Yes ☐ No
If yes, are you concerned about: (check all that apply)
☐ a. storm-related erosion ☐ c. short-term (seasonal) erosion
☐ b. long-term erosion ☐ d. all of the above
2. How much do you estimate coastal property values (lots and houses) have increased since the 1972 Sussex County assessment?
☐ times
3. To what extent are prospective buyers of coastal property concerned about beach erosion?
☐ don't care ☐ slightly concerned ☐ very concerned
4. Who do you think should inform prospective buyers of the possible effects of shore erosion or storm damage? (check all that apply)
☐ a. consulting businesses ☐ c. realtors ☐ e. university specialists
☐ b. local government officials ☐ d. state officials
5. Do you inform prospective buyers of the possible effects of shore erosion or storm damage?
☐ Yes
☐ No
☐ If they ask
☐ I'm not qualified to respond to questions about erosion/storm damage
6. Does beach erosion affect coastal property values?
☐ Yes, a great deal
☐ Somewhat
☐ No, not at all
7. If a person's property was destroyed by natural causes of erosion, storms, and/or floods, do you feel that he/she should be:
☐ a. allowed to rebuild his/her home at the same location using personal insurance and funds?
☐ b. allowed to rebuild at the same location and entitled to government aid and relief?
☐ c. compensated for his/her loss but required to rebuild in a safer area?
☐ d. required to build elsewhere without compensation (his tough luck, act of God)
☐ e. other (specify) _____

8. Below are several possible reasons why people purchase property along the Delaware coast. From your perspective as a real estate agent, circle the appropriate number indicating how important these reasons might be to people purchasing coastal property.

	not at all important	slightly important	moderately important	very important	extremely important
a. The beaches are scenic.	1	2	3	4	5
b. The beaches are well-maintained.	1	2	3	4	5
c. The beaches are restful and relaxing.	1	2	3	4	5
d. There are plenty of activities to enjoy on the beach.	1	2	3	4	5
e. There are plenty of activities/events in the local area.	1	2	3	4	5
f. It is close enough for family and friends to visit.	1	2	3	4	5
g. Buyer has always wanted to live at the beach.	1	2	3	4	5
h. Buyer felt property was secure from the effects of storms and erosion.	1	2	3	4	5
i. Buyer saw it as a good long-term financial investment.	1	2	3	4	5
j. Beach rules and regulations are kept to a minimum.	1	2	3	4	5
k. The beaches are well-attended by lifeguards.	1	2	3	4	5
l. other (specify) _____	1	2	3	4	5

9. (A) In your opinion, do the following groups receive benefits from Delaware's Atlantic beaches and
(B) should they help finance beach preservation measures?

	<u>Receives Benefits</u>		<u>Help Finance</u>	
	Yes	No	Yes	No
a. oceanfront property owners	___	___	___	___
b. Sussex County residents	___	___	___	___
c. small resort business	___	___	___	___
d. large business/industry	___	___	___	___
e. Delaware tourists	___	___	___	___
f. out-of-state tourists	___	___	___	___
g. state government	___	___	___	___
h. Sussex County government	___	___	___	___
i. local municipal government	___	___	___	___
j. federal government	___	___	___	___
k. real estate industry/developers	___	___	___	___
l. coastal hotel/motel industry	___	___	___	___

10. Who should have primary authority for managing Delaware's beaches? (check one)

___ a. coastal towns ___ c. State of Delaware ___ e. private citizen organizations
___ b. Sussex county ___ d. federal agencies

11. How do you feel about the following beach preservation measures for Delaware's Atlantic shoreline?

	very much opposed	somewhat opposed	neutral	somewhat in favor	very much in favor	don't understand
a. beach nourishment	___	___	___	___	___	___
b. breakwaters	___	___	___	___	___	___
c. dune stabilization	___	___	___	___	___	___
d. groins & jetties	___	___	___	___	___	___
e. revetments (riprap)	___	___	___	___	___	___
f. seawalls & bulkheads	___	___	___	___	___	___
g. zoning regulations/setback lines	___	___	___	___	___	___
h. other (specify) _____	___	___	___	___	___	___

12. If it becomes necessary to identify new sources of revenues for beach management efforts, which alternative would you as a real estate agent support?

	Yes	No	Maybe	Don't understand
a. beach fees (user pays)	___	___	___	___
b. beach area sales tax	___	___	___	___
c. county property tax increase	___	___	___	___
d. impose town/city taxes	___	___	___	___
e. increase resort business taxes	___	___	___	___
f. real estate transfer tax	___	___	___	___
g. special coastal tax district	___	___	___	___
h. state tax increase	___	___	___	___
i. other (specify) _____	___	___	___	___

Please feel free to give any additional comments: _____

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UNIVERSITY OF DELAWARE
LEWES, DELAWARE
19958

SEA GRANT COLLEGE PROGRAM
MARINE ADVISORY SERVICES
COLLEGE OF MARINE STUDIES
CANNON BUILDING
PHONE: 302-645- 4235

17 July 1987

Dear Real Estate Agent:

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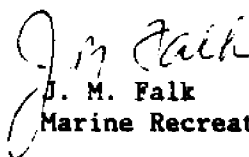
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Thank you for your interest and cooperation.

Sincerely,



V. C. Crouse
Marine Advisory Service Intern



J. M. Falk
Marine Recreation & Tourism Specialist

Enclosures



University of Delaware

SEA GRANT COLLEGE PROGRAM
CANNON LABORATORY
MARINE STUDIES COMPLEX
LEWES, DELAWARE 19958-1298

302-645-4235

7 August 1987

Dear Realtor:

About three weeks ago you were sent a questionnaire which is part of a study on beach management issues in Delaware. If you have already returned the questionnaire, we thank you for your prompt reply. If you have not completed the questionnaire, would you please take the time to do so today?

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Marine Recreation Specialist

Enclosures