The land is our basic resource, and from it comes the new wealth that sustains our economy. The homes on this land supply the new blood that sustains our country. Planning the wise use of our natural resources is the privilege and responsibility of each succeeding generation.

This report deals with the future of Tillamook County. It presents the judgment of over 200 local citizens concerning the opportunities for the development of natural and human resources in Tillamook County.

The 1968 conference was organized and conducted by the Tillamook County Agricultural Planning Council in cooperation with the Oregon State University Extension Service. Members of the Extension staff of Tillamook county who assisted with the conference were Mrs. Margaret Palen, home extension agent; Dale Friedemann, 4-H Club agent; and H.G. Smith, agricultural agent. Staff members from Oregon State University supplied statistical information and assisted on reports as requested by the various committees. Similar conferences have been held in 1936, 1938, 1941, 1946, and 1956. Each of these conferences has predicted trends and influenced the development of the resources of the county.

In planning the 1968 report, an advisory committee was called together in June 1967. This committee included the Extension advisory committee as well as other civic and community leaders representing all parts of the county. The committee elected Jack Madison as chairman of the conference and H.G. Smith as secretary. Six problem areas were selected by the group for study. These were human resource development, agriculture, forestry, industrial development and transportation, water resources, and recreation. A chairman for each committee was selected by the group. Committee membership was developed by the overall planning committee in cooperation with the committee chairmen and Extension agents.

**OVERALL PLANNING COMMITTEE**

<table>
<thead>
<tr>
<th>Jack Madison, chairman</th>
<th>Tillamook</th>
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<tbody>
<tr>
<td>H.G. Smith, secretary</td>
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<td>Carl Benscheidt</td>
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<tr>
<td>Kenneth Christensen</td>
<td>Rockaway</td>
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<td>Paul Hanneman</td>
<td>Pacific City</td>
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<td>Theo Pease</td>
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<td>Jack Ruff</td>
<td>Cloverdale</td>
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<td>Bernice Tubbesing</td>
<td>Nehalem</td>
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<td>Carl Bosch</td>
<td>KIlchis</td>
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<td>John Davy</td>
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<td>Lee Hanson</td>
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<td>Clay Myers</td>
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<td>Bob Penland</td>
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<td>Otto Schild</td>
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<td>Fritz Vermilyea</td>
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<td>Willis P. Carver</td>
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<td>Clair Edner</td>
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<td>Mrs. Ed. Hatch</td>
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<tr>
<td>Esther Pangborn</td>
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<tr>
<td>Archibald Pye</td>
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<td>Bernard Stacy</td>
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<td>Darlene Wright</td>
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<td>Betty Cruse</td>
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<td>John Genger</td>
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<td>Glen Hawkins</td>
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<td>Ken Wilson</td>
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<tr>
<td>Karl Zweifel</td>
<td>Fairview</td>
</tr>
</tbody>
</table>

**CONFERENCE COMMITTEES**

Human Resource Development—Darlene Wright, chairman
Agriculture—Albert Bohren, chairman
Forestry—Bob Madison, chairman
Industrial Development and Transportation—Jack McGuire, chairman
Water Resources—Archibald Pye, chairman
Tourism and Recreation—Paul Hanneman, chairman
EARLY HISTORY

Tillamook County was first inhabited by the Indian tribes of the Killamuch, Ne-ay-lem, and the Staga-us. The Ne-ay-lem tribe lived on the banks of the Nehalem River, the Killamuch tribe on Tillamook Bay, and the Staga-us tribe on the Nestucca River.

The first confirmed account of a white man living in the area dates from April 2, 1851, when Joe Champion made his first home in a hollow spruce tree. He was soon followed by other settlers. Henry W. Wilson brought the first cattle into the county. In the spring of 1852, Elbridge Trask filed the first land claim for 640 acres. Tillamook County was officially established on December 15, 1853. The first railroad was built in 1911 between Portland and Tillamook.

PHYSICAL CHARACTERISTICS

SIZE AND LOCATION

Tillamook County is located on the Oregon coast. It has an area of 1,088 square miles and about 50 miles of coastline extending from Lincoln County on the south to Clatsop County on the north. The county is bordered by the Pacific Ocean on the west and by Yamhill and Washington counties on the east. Tillamook is the county seat. It is located near Tillamook Bay, about 74 miles west of Portland, 74 miles northeast of Salem, 69 miles north of Newport, and 66 miles south of Astoria.

Tillamook County has 713,600 acres, of which 467,543 acres, or 65.5%, are public lands; of this, 150,000 acres, or 21%, are federally owned, and 317,550 acres, or 44.5%, are state owned or managed. Some 66,243 acres are used as farm lands.

TOPOGRAPHY

The elevation range is from sea level along the coast to the top of Mt. Hebo, with an elevation of 3,174 feet above sea level. There are a few peaks in the northwestern part of the county that exceed 3,500 feet. Except for the valley along the coast, Tillamook county is rough and mountainous. The county is characterized by broad coastal valleys, a narrow discontinuous coastal plain up to 4 miles wide, an old dissected plateau composed of sedimentary rock and monadnocks composed of basalt bedrock, which protect the underlying sedimentary material and form the backbone of the Oregon Coast Range. The coastline is relatively straight and has moderately broad sandy beaches between isolated rugged volcanic headlands.

SOILS

In Tillamook County there are 19 soil series. The flood plains are occupied by the Nehalem soil series. The Nehalem soils occur in association with Gardiner, Nestucca, and Brenner soils. The tidelands soil consists of the Coquille, Brenner, and Brallier series. The Nehalem and Coquille associations occur at elevations up to approximately 50 feet. The extensive alluvial terraces occupied by the soils of the Quillayute, Knappa-Hebo association have elevations up to 80 feet. The hill soils include the Astoria-Hembre soil association.

THE COQUILLE SOILS These soils occur in tideland flats, are poorly drained, very strongly acid, and nearly level. They are subject to tidal overflow if not protected by dikes.

THE NEHALEM SOILS These soils occur along the rivers, are well drained, very deep, nearly level to gently sloping. They are adapted to the production of most crops generally used for improved pasture. The Nehalem soils formed under forest are brownish, medium to moderately fine-textured stream alluvium that washed from igneous and sedimentary rocks.

THE QUILLAYUTE SOILS These soils are found on
the first terrace above the river-bottom soils, are moderately deep to very deep, well drained, very strongly acid. Most of the Quillayute soils are nearly level, but some are gently undulating and strongly sloping. They are better drained or deeper usually than the Meda, Knappa, Ginger, and Hebo soils associated with the Quillayute series. The surface is black, loose, and high in organic matter. The subsoils are grayish brown to dark yellow brown and compact. This soil series is adaptable to a rather wide range of crops. It usually has a rather high lime requirement. The present acreage is in improved pasture and forage crops.

THE ASTORIA SOILS These soils are found on the hills and valley foothills. They are well-drained, fine-textured soils derived from weathered soft shale. These are the main upland soils in Tillamook county. They are associated with Hembre, Winema, and Neskwoin soils, although the Astoria soils are deeper or lighter in color. This series is used mainly for timber, with some acres cleared for pastures. The most valuable forest trees are Douglas-fir and hemlock.

CLIMATE

Tillamook has a typical marine climate. The average temperature is 50 degrees F. The average rainfall is 93.5 inches. The warmest month is July, with an average temperature of 58.9 degrees F. The coldest month is January, with an average temperature of 42.5 degrees F. The absolute maximum temperature in a 47-year period occurred in June, with a high of 101 degrees F. The absolute minimum temperature during the same period was in January when the temperature reached 1 degree F. Eighty-four percent of the precipitation falls during the seven-month period from October to May. The driest period is the five months from May to October, when 16% of the moisture falls. However, even during the driest months there is an average of about three inches per month. The average date of the first killing frost in the fall is October 25, and the last killing frost in the spring, April 1. This gives the county an average growing season of 201 days.

ECONOMY

TRANSPORTATION, COMMUNICATION, AND PUBLIC UTILITIES

Tillamook County is served by the Southern Pacific railroad and the Tillamook Bay shoreline. The Southern Pacific railroad extends south from Wheeler to Tillamook. This railroad connects the Tillamook County Industrial Park with the Southern Pacific at Tillamook. Both lines maintain daily freight schedules. There are two motor freight lines in the county that maintain terminals at Tillamook.

Telephone service is supplied to all parts of the county. There is one radio station in operation at Tillamook. Radio reception is received from all parts of the state. TV is received from Portland and to a limited extent from Seattle.

The county has one weekly newspaper in Tillamook. Electricity is serving all parts of the county. The Tillamook Peoples Utility District serves all parts of the county.

AGRICULTURE

Dairying has been the major source of agriculture income in Tillamook County for more than 100 years. A favorable climate, expert dairymen, and a successful marketing program for both cheese and grade A milk are all factors influencing the dairy industry. Dairy farms continue to increase in size and decrease in number. Dairy cattle numbers have stabilized at about 18,000 milk cows, two years old or over. Milk production continues to increase. Income from the sale of dairy products, dairy cattle, and calves was more than $8 million of the total estimated agricultural sales of $9,300,000 for 1967. More than 86% of gross sales was from the dairy farms.

A number of row crops show promise for future development. The cool marine climate gives Tillamook an economic advantage in the production of some crops. Research is underway in cooperation with Oregon State University in an effort to find crops which are best suited to the area and have economic advantages in marketing.

Cropland is in short supply in Tillamook County. Of the 66,234 acres of land in farms, only about 42% is in cropland. The development of additional cropland will require high-cost drainage, diking, or land clearing, and in some instances all three.

INDUSTRY

Tillamook County industries are founded on the use of renewable natural resources. Nearly one half of the more than 6,000 employed persons in the county work in forest products or agriculture. Tourism and commercial fisheries have great potential for future development.

There are about 600,000 acres of forest land. Estimates indicate there are about 14.5 billion feet of timber (12 inches or over) growing in Tillamook County. Production has been about 250 million board feet annually. The rehabilitation of the Tillamook Burn and modern management policies in effect on the federal forest and the Bureau of Land Management forests promises to improve future timber production in Tillamook County.

Plywood mills are located at Garibaldi and Tillamook. Diamond Lumber Company and Publishers Paper have sawmills at Tillamook. There are several other mills in the county.
SOCIAL STRUCTURE

CHURCHES

Tillamook county has both Catholic and Protestant churches situated throughout the county with almost every denomination represented. Families will have little difficulty in finding the church of their choice in or near their community.

MEDICAL SERVICES

The Tillamook County Health Office consists of two registered nurses, and one part-time nurse, one sanitarian, and one part-time county health doctor. There are two hospitals in the county with a total bed capacity of about 109. There are 11 registered practicing physicians and 6 dentists in the county.

The county also has two nursing homes and a geriatric section at Tillamook Hospital. The total capacity of these facilities is 78 beds. A mental health clinic in Tillamook serves the entire county.

EDUCATION

Tillamook County has 4 public school districts, 1 union high school, and 2 consolidated high schools. Tillamook has a junior high school which serves rural and urban students living in the Tillamook district. There are 13 active grade schools and 3 high schools and 1 Catholic high school in the county. There are also two parochial grade schools. College credit courses are available at Tillamook, Neah-Kah-Nie, and Nestucca high school through the Division of Continuing Education. A public library is operated in cooperation with the state library in Tillamook and branch libraries at Manzanita, Garibaldi, and Bay City. A bookmobile serves the entire county.

Public kindergartens are operated in the Beaver-Sandlake district, Hebo, and Neah-Kah-Nie school districts. Two private kindergartens are operated in Tillamook.

The county has a special education program for retarded pupils. This program consists of 5 elementary classes and 1 high school and 1 trainable class. High school classes are coupled with a work-experience program. This program requires 11 teachers and has 125 students.

FARM ORGANIZATIONS AND OTHER SERVICE GROUPS

Tillamook County has 10 active granges and a Pomona grange. The Farm Bureau has one center and operates the only livestock auction in the county. They work toward improvement of rural living and community improvement.

The Tillamook County Chamber of Commerce serves the entire county. There are also local chambers of commerce in the major communities and a junior chamber of commerce in Tillamook. These organizations work and support programs for the betterment of communities and the county.

Service clubs such as the Kiwanis and Lions Club are keenly interested in the development of human and natural resources of the county and give active support to this type of development.

AGRICULTURAL AGENCIES

COUNTY EXTENSION SERVICE

The Cooperative Extension Service is an off-campus educational activity of Oregon State University. Its major objective is to help people understand and apply scientific developments in agriculture, home economics, and related sciences in order to enjoy a better life.

The education provided by the Extension service is an informal and distinct type directed to helping people solve day-to-day problems. It is education for action and is directed toward helping individuals make sound decisions to:
* Earn more money and make the best use of available resources.
* Improve living and home environment
* Develop a better community in which to live.
* Develop increased ability and willingness by both adults and youth to assume the responsibilities of leadership and citizenship.

The guiding principle of Extension then is “to help people help themselves.”

AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

Tillamook county’s Extension service staff consists of 1 agricultural agent, 1 4-H and Youth Agent and 1 home economics agent. Offices are located in Rooms 202-206 in the courthouse, Tillamook. The Tillamook Extension staff offers services and information from OSU Extension specialists, experiment stations, and resident instructors to the residents of the county.

The Tillamook Agricultural Stabilization and Conservation Service (ASCS) administered in Tillamook County be a 3-man county committee and three 3-man community committees. County committees are elected annually from cooperators in each community, voting under uniform election procedures set up by Congress. The county Extension agent is an ex officio member of the committee.

The ASCS administers a variety of federal farm programs, most of which involve cost-share payments to farmers.

The ASCS program is directed towards reducing significantly the loss of agricultural soil, water, woodland, and wildlife resources and improving the prospect of their multipurpose use in the provision of an adequate supply of...
food, fiber, water, and wildlife for the future and for the
general improvement of man's total environment.

County programs are developed from the state ASCS
program and include practices most applicable to the
county. The county program is developed by the County
ASCS Committee including the county Extension agent,
the local SCS technician and the State Forest Service
representative, in consultation with the Soil Conservation
District supervisors. It takes into consideration
recommendations of the Supervisor of the Farmers' Home
Administration and the ASC community committeemen.
The county ASCS office is located in the courthouse, room
206, Tillamook.

SOIL AND WATER CONSERVATION DISTRICT

Tillamook county has one soil conservation district. The
office is located in the post-office basement, Tillamook.
The S&WCD is governed by a seven-man board. The Soil
Conservation Service has assigned 1 work-unit
conservationist and 1 work-unit engineer.
The Tillamook S&WCD is a legal subdivision of the state
established in accordance with the provisions of the
S&WCD law. The objectives of the district are to provide
for conservation of soil and soil resources, for the control
and prevention of soil erosion, for the prevention of
damage from floodwater and sediment, and for the
conservation, development, utilization, and disposal of
water.

STATE EMPLOYMENT SERVICE

The State of Oregon maintains an employment service in
Tillamook. This office acts as a clearing house for labor in
the county, servicing the needs of agriculture, industry, and
forestry.

FARM HOME ADMINISTRATION

The Farmers Home Administration provides credit,
financial and managerial assistance to farmers, rural
families, and organizations. A representative of the
Washington County office visits Tillamook once a month at
the County Extension Office. Here eligible borrowers make
application for assistance. FHA is an agency of the United
States Department of Agriculture. Services include
operating loans; farm ownership loans; water facility loans;
emergency loans; and livestock loans.
Human resource committees studying Tillamook County looked to the families of the county to determine the future, the opportunities, the challenges, the changes taking place in the community.

The lives of all Tillamook County families are influenced by the home and its environment. Basic needs of each individual and each family move through certain periods or stages in life. Certain developmental tasks must be accomplished at each stage if the family is to adapt to an ever changing society.
Family life in Tillamook County revolves around a changing population. In 1966, the population of Tillamook County was estimated to be 16,000, which was slightly more than 14 persons per square mile. Slightly less than one-quarter of the total population lives in urban areas, about 15 percent live on farms, and the remaining 60 percent make up the rural non-farm population. There are presently seven incorporated cities with a total population of 7,600 persons, Tillamook being the largest city with 4,250.

TABLE I – POPULATION GROWTH

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Period</th>
<th>Percent Increase</th>
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<tbody>
<tr>
<td>1940</td>
<td>12,263</td>
<td>1930-1940</td>
<td>3.7</td>
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<tr>
<td>1950</td>
<td>18,606</td>
<td>1940-1950</td>
<td>51.7</td>
</tr>
<tr>
<td>1960</td>
<td>18,955</td>
<td>1950-1960</td>
<td>1.9</td>
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<tr>
<td>1966</td>
<td>16,000</td>
<td>1960-1966</td>
<td>-15.6</td>
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In 1952 at the height of logging operations in the county, the population count reached a high never since equaled. In 1952-53 the population numbered 21,700. Since then, an almost uninterrupted decline has decreased the population to its present level of 16,000.

TABLE II – TOTAL NUMBER OF FAMILIES

BY CLASSIFICATION, MEDIAN FAMILY INCOME, AND SPECIFIED FAMILY INCOME GROUPS

<table>
<thead>
<tr>
<th>Family Classification</th>
<th>Number of Families</th>
<th>Median Family Income</th>
<th>Income Under 3,000</th>
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<tr>
<td>Oregon</td>
<td>459,812</td>
<td>5,892</td>
<td>78,195</td>
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<tr>
<td>Tillamook</td>
<td>4,861</td>
<td>5,382</td>
<td>982</td>
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EDUCATION

Because of several restrictions, some self-imposed, others imposed by the public, American education remained more or less unchanged for decades. Experimentation was rare, even shunned in some areas. Teachers were respected in their communities, but in lieu of proper remuneration for their abilities, they were complimented by being called “dedicated” and “devoted”.

The 1957 emergence of the “space age” caused American education to be condemned in all circles: surely America was not going to be bested by a Communist civilization. Immediately science programs in the schools were shored up, provided with more equipment, looked upon with pride. After the anxiety had abated, all programs in the schools were improved remarkably, because educators found that it was the whole person who needed education not just part of him.

What has happened nationally in the past decade has happened in Tillamook County. The educational system is turning out individuals who can compete in their respective areas with anyone else in the nation. The educational system keeps pace with those in the rest of the state and often leads the way.

In 1968 there were 242 certified personnel employed in Tillamook County Schools, educating 3,921 students. This does not include the three parochial schools. Special services in the schools of the county take into consideration individual differences of children and young people, and provide for students with learning problems. Additional educational opportunities are provided for children in special areas, such as remedial reading, speech therapy, special testing, elementary and secondary guidance, junior primary classes, special reading programs, and vision testing.

Public school kindergartens are not available. There is a shortage of teachers, facilities and funds to include public kindergartens in the school system.

Tillamook is one of the 21 locations in the state at which GED tests are administered. These tests of General Education Development are administered to persons over...
18 who for one reason or another have not had an opportunity to complete a high school education. Persons successfully passing the tests receive a Certificate of Equivalency from the State Department of Education, which may be used in place of a high-school diploma when applying for a job, military service, and the like.

In the fall of 1958 a county wide adult education program was started using District No. 9 facilities. The program, called Tillamook County Adult Education Center, offers three types of courses: lower division, upper division-graduate and non credit education. The lower division courses consist for the most part of post graduate courses for teachers, but occasionally they appeal to others. Both lower and upper division courses are offered through the Division of Continuing Education of the Oregon State System of Higher Education. The “non credit” division is largely vocational and offers courses such as typing, sewing, foreign languages, welding, painting, and the like. These courses do not carry college credit.

Now in its tenth year, the program already had an enrollment of 4,000. The average yearly cost is about $4,000, and this includes more than $1,000 given in scholarship tuition-assistance to high-school seniors. District No. 95 has contributed to the cost of maintaining the program; District U.3 contributes yearly to this cost; and District No. 9 contributes to the cost and furnishes the facilities.

Problems

Tillamook school districts are facing building problems, i.e., how to house 7th through 12th graders best: 9th grade into the junior high school and expand there, or remodel the high-school facility The high school needs remodeling to accommodate the flexible scheduling program it has adopted.

As the years go by, it is becoming apparent that small communities cannot maintain high standards of education and continue to have small grade schools. This is a matter of contention in some areas of the county.

Recommendations

The committee recommends:

That always uppermost in the minds of boards of directors, administrators, and teachers in the planning of education be what is best for the boys and girls of our county, and how they may best be prepared to meet the challenge of the future, more than likely outside Tillamook County.

That administrators and teachers of the Clatsop-Tillamook County area work together to coordinate educational activities to effect better education through the sharing of ideas and facilities.

That a study of vocational and technical education programs be completed and a workable program be affected in the Clatsop-Tillamook area.

That a study of an audio-visual teaching-materials center or centers be made to be administered under a two-county program.

That every effort be made to recognize the fact that public-school kindergartens are needed. The need is especially felt by children of low-income families.

TILLAMOOK COUNTY LIBRARY

The Tillamook County Library system, comprised of a central headquarters, 3 branch libraries and 1 bookmobile, is equipped to provide library materials and service to every resident in the county. The library acquires its materials by purchase or as gifts and also organizes and interprets the collection to make it readily accessible to the individual.

Circulation of library materials (books periodicals, pamphlets, and recordings) reached 131,704, or 8.2 per capita, for the fiscal year ending June 30, 1967. Registration statistics reveal that there are 7,294 borrowers, indicating that almost 50% of the county population has a library card.

The book collection has 49,418 volumes, including 1,363 new titles of which 994 are books for adults, 369 books for children. During the last fiscal year $8,304.82 was used to buy 2,002 volumes, while in the preceding year, 3,312 volumes were purchased at a cost of $8,318.57.

Changing needs of the community have brought about the impact of new federal education and library legislation, subsequent programs.

Problems

There is need for a larger book budget, because of the decline of the book dollar, if the book stock in the county library is to be maintained at the present educational level.

The emphasis on continuing adult education calls for pertinent nonfiction materials. To meet the needs in adult programs changes in book selection may be in order: to replace light reading with paperback materials and to spend more of the book budget on nonfiction materials and significant fiction.

Recommendations

Continue to make resources of the central library, the local branches, the bookmobile, the interlibrary loan services of the Oregon State Library and the Pacific Northwest Bibliographic Center available to all county residents.

Offer and encourage the use of services, including reference and reader’s guidance, class visits, story hour, reading programs, and audio-visual materials. Service to schools is intended to supplement rather than replace.

Develop programs to attract and reinforce the library’s image as a cultural center: art exhibits, poetry readings, displays, and workshops.

Make the future goal of the public library a service to provide an equalization of intellectual and aesthetic resources to the people of Tillamook County.

CHRISTIAN EDUCATION

There are major changes in Christian-education instruction in Tillamook area churches. All are keeping up with scientific discoveries.

The education within the churches is not confined to the formal classroom and teacher and pupils, but often involves the whole Message of the church. This Message is printed
and mailed out; it is also spoken from the pulpits and to some extent through radio and TV. The Message has changed, and yet only on the surface. It is the basic love of God for man. Where it has changed is in man's understanding and use of this Message.

In a questionnaire sent to the pastors in the county, the responses, which were about one third, showed that the big change for most was in ecumenical relations and social action. The fact of denominations cooperating and working together is a new and growing fact in American church life. In Tillamook County there are 18 churches in the Ministerial Association which have sponsored a store for the American Bible Society during its 150th Anniversary, and a School of Religion during Lent. Through this means, church members become acquainted and understand one another much better. The Ministerial Association also has been cooperating in the work of indigent transients who need help. Membership roles show 4,725 church members in Tillamook County. The population in 1966 was 16,000.

Problem and Recommendations

Christendom is tied up with structure, morals, etc., and demeaned by a "do-gooder" stigma. It is difficult to reach non-Christians.

The committee recommends:

That churches in general make use of the methods of teaching which have been discovered by studies in motivational research, to make more relevant use of the Message.

That union services, such as Thanksgiving and vacation church schools, with an exchange of pastors and joint youth work be carried on through the Tillamook County Ministerial Association in as many areas of the county as possible.

PHYSICAL EDUCATION

The incorporated county-wide Young Men's Christian Association, with 800-1,000 members per year, serves the Tillamook community with physical education and therapy for citizens. The adult program emphasis is on health.

Excellent coaches teach youth classes and day camps to emphasize the learning process.

Almost all schools in the county utilize the "Y" for swimming classes.

Problems

The Tillamook County YMCA board recognizes a need for a new public swimming pool for use of county citizens. A financial problem is involved.

Another staff member is needed for women's programs, counseling, teaching etc.

The extension of additional services to outlying areas of the county is a need of this county-wide organization.

Recommendations

The committee recommends:

That public support be given to the construction of a swimming pool for both school and adult use.

That the services and classes of the Tillamook County YMCA become known throughout the Tillamook County area.

That another staff member be added for women's programs, counseling, teaching etc., for the county-wide YMCA program.

* Committee members: Mrs. Rose Zweifel, chairman; Rev. Arnold Knudsen; Mrs. Ruth Lundy; John Gardner; Richard Larson; and Mrs. Margaret Palen.

FAMILY HEALTH AND STABILITY

Tillamook County is a changing community. In 1960, 18,955 people resided in Tillamook County. The population decreased to 16,000 in 1966, a 15% decrease. Rapidly changing technology has caused Tillamook community values to change. Cultural ethics and traditions that once prevailed do not limit Tillamook County young people today.

Agencies and organizations within the community find themselves in an increasing role of responsibility for the various members of the family in keeping pace with the changing world.

Children report that parents do not care where they are or what they are doing. This causes fragmentation of family life. Many parents are absent from home, with both parents working in a two paycheck society or seeking personal satisfaction in activities outside the home rather than in the home as parents.

A general breakdown in society's moral values affects the home. A lack of respect for law and order and authority is evident. A contributing cause is teen-age marriages. Lack of maturity of the couples in these marriages leads to marital and child-rearing difficulties and lack of acceptance of responsibility in family life.

Many parents seem to be ignoring the responsibility of developing in their children a moral code and a sense of responsibility for their own behavior, and are placing a burden on school personnel and civic authorities.

An increasing amount of alcohol consumption is evident throughout the county as measured by the rise in liquor sales per capita. This would tend to have an effect on family stability and health. Social problems are created as chronic drinkers impose themselves upon friends, neighbors, and community. Tillamook Alcoholics Anonymous reports processing 50-60 different alcoholics in the area in the last five years.

The increase in the incidence of arrest for possession and use of drugs and narcotics in the Tillamook area has risen sharply since December 1967. Little is known by parents and children about the use and abuse of drugs and narcotics.
Existing County Health Department services that are offered are being well utilized. Mental Health Clinic services are also used, being primarily for the guidance of children and families with retarded youngsters or adults.

There is a lack of physicians in the county. Residents in the south part of the county have no medical services available.

Over half, or 58.1% of Tillamook County households had $4,000 or less income in recent years. Two thirds of these had inadequate diets. Inadequate nutrition deters growth, hampers learning, makes the body more susceptible to illness, causes early senility and disease and slows the healing process.

Problems and Recommendations

* Forty-three divorces in 1967 in Tillamook County created a social problem of consequence to family stability. The number of divorces in the county has increased during the years when the population has decreased. This has caused a marked effect on children, a bending of emotions. The economic consequence of divorce is that two households must exist on same amount of money. ADC is often required as a result.

* The availability and value of services and programs of the community such as mental health public health, public welfare, OSU Extension Service, churches, juvenile court, etc., should be made known to citizens by increased publicity and education.

* The churches of Tillamook County need to revaluate their contribution to the community, since it is estimated that only about one third of population has any church affiliation.

* Coordination of all existing community social agencies should be encouraged for more adequate treatment and diagnostic services, such as consideration of a court of conciliation, marriage, and family counseling.

* The moral code of some children is questionable. Some parents seem to shirk responsibility of children.

* Greater emphasis in schools, churches, and families of Tillamook County should be placed on education for today's social living.

* A permanent county council should be formed to study and coordinate activities related to family health and stability. Further study needs are in the area of recreation, entertainment, cultural interests, and the relationship of cost of living and average family income in the county and its influence on family health and stability.

* The effects on family stability when drinking and drugs become a problem manifest themselves not only as behavioral problems but as increased financial demands on the home. Lack of educational information on the subject of drugs and narcotics has led to popular misconceptions about the use of marijuana, etc.

* One step toward a solution might be to promote greater understanding about the nature of alcoholism, drugs, and narcotics by expanding the educational offerings of the community to include the subjects.

Residents in the south part of the county have no medical services available. Dental services are not available to many people of the county who cannot afford to go to a dentist. There are no funds at present for dental service to school children who need dental care or for educational prevention programs.

* The need for a dental clinic, more physicians, and social workers for the Tillamook area should be emphasized.

Teenagers, young families, and low-income families do not have adequate diets; nutrition is insufficient for sound health.

Nutrition programs should be fostered throughout Tillamook County including nutrition education for school children, homemakers of all ages, and senior citizens.

* Committee members: Mrs. Darlene Wright, chairman; Cecil Nims; Mrs. Sybil Specht; Mrs. Lois Ball; Mrs. Peggy Evans; Rev. Lester Braddock; Mrs. Clara Terwilliger; Mrs. Jola Thorpe; Robert Wilson; Judge J.S. Bohannon; Mrs. Jean Rogers; Mrs. Helen Bailey; and Mrs. Margaret Palen.

YOUTH

Today the greatest conflict is between youth and their parents. Race relations or the Vietnam conflict are not half as real to many people as the conflict between parents and their children.

Tillamook County youth are no different from those in other geographical areas. They are merely trying to grow up, to satisfy their needs. They need to develop values and they need adults who can help them to learn sound and reasonable values.

Tillamook County has over 4,000 youth scurrying to schoolrooms each day. After school, during summers, and on weekends many of the same boys and girls scurry off to some activity or club or class which makes up the all-important phase of learning, informal education.

It is the small group of youth who fail to show up at the club meetings or Sunday School classes or those that unwillingly report to school each day that create problems.

Major concerns expressed by the Youth Committee included: juvenile delinquency, youth employment, youth recreation, and youth education.

One of the most rewarding efforts of this committee's work involved the formation of the Tillamook County Youth Council. Initially a group of highschool students were assembled by the committee to gain insight into how youth looked at their problems. The high school youth are now meeting through the formation of a council.
Participation in outdoor educational programs includes youth throughout Tillamook County.

YOUTH EDUCATION

Statistics show that about 50% of the high-school graduates in Tillamook County do enter college or training programs upon graduation. However, a large college dropout occurs soon after entrance. Our educational systems should provide more opportunities for youth to learn about alternatives which would make them more employable in areas of their major interests if major interests are shown.

About 14% of Tillamook’s people are in the pre-school age classification. These youth too have needs which should be considered as this segment provides the resources for the future.

Recommendations

A study should be undertaken to determine the educational needs of pre-school youth of Tillamook County, and support should be given to actions as determined by such a study.

Support should be given to efforts in establishing technical education curriculums in the public schools of Tillamook County and encouragement given to adult (post-high-school) use of facilities.

Work-study programs should be a vital part of the curriculums in all high schools of Tillamook County.

Adult education programs should continue to grow and continued study should be given to the feasibility of a community college to serve future educational needs of the peoples of Tillamook County.

YOUTH NEEDS

Youth of today as in the past need a “cause”. This cause is dictated by the values they hold and by those values that are imposed on them by society in general.

Involvement in society is a paramount need of the youth populace. Provision must be made to allow youth to become involved, to be helpful in making decisions which directly affect their everyday activities.

Young people need to be presented alternatives in decision making. They need to be given all the facts and shown how to organize their decision-making abilities. They need to be taught how to think and not what to think.

Recommendations

Full support should be given to the Tillamook County Youth Council by school officials, businessmen, and other youth organizations in carrying out their goals and objectives.

The recreational needs of youth should be understood by all peoples of Tillamook County and full support should be given to help youth satisfy these needs.

An 18-year-old voting issue should be put to the vote of the people of Oregon.

Families of Tillamook County should be encouraged to participate in exchange programs which would increase their understanding of people of other race, creed, and color.

Encouragement should be given to public and private school systems to include curriculums in the schools on the religions of the world.

Churches must be urged to be more cosmopolitan in the teaching of religious values and the relevance of God to everyday life.

YOUTH EMPLOYMENT

The youth of today are fast becoming major consumers of marketable goods. In addition to providing money to youth for purchase of goods and services, much can be taught in terms of vocation, dignity of work, and usefulness of our youth.

Employment will instill responsibility and work habits which are quite valuable commodities in the work force of our affluent society.

Recommendations

Youth employment centers should be established and maintained in the more populous areas of Tillamook County.

Both public and private sectors of Tillamook County’s economy should be encouraged to employ youth in their businesses where applicable.

LAW ENFORCEMENT

Law enforcement among youth is a major concern.
"Law breaking" is a concern which must be dealt with by agencies in the field. It is also a fact that law-enforcement people must fulfill their responsibilities in enforcing the laws imposed by society.

In too many cases laws are made without apparent study or adequate consideration as to the enforcement of such laws. This is a challenge to our law-making bodies.

As in any regulatory agency, some people tend to criticize the actions of those engaged in enforcing the law if they are doing their job. It is hoped that through modern education and training standards for law-enforcement personnel a better relationship can be achieved between them and our youth.

Recommendations

All law-enforcement agencies operating in Tillamook County should cooperate to the fullest in enforcing laws consistently among people of all ages in Tillamook County.

Law-enforcement agencies should made every attempt to communicate with the youth of Tillamook County as to the present laws by which our youth are expected to abide.

Law-enforcement agencies should involve youth as much as possible in the enforcement of laws which directly affect the youth population.

* Committee members: Rev. Truman Robbins, chairman; Milt Easton; Mrs. Virgil Chadwick; Dr. Howard Kaliber; Richard Schlachter; Mrs. Bob Atkinson; Mrs. Charles Cruse; Ralph Buell; Glenn Barber; Ross Thomas; Delbert Walpole; Mrs. Margaret Duvall; Mr. and Mrs. Ray Bones; James Coon; Wink Dunn; Mrs. Mary Jane Widenoja; Mr. and Mrs. Gene Burgess; Don Whitney; Jim Kelley; Mr. and Mrs. Don Watters; Rev. Jack Qualls; Mrs. Fred Schestak; Jack Madison; and Dale Friedemann.

Housing that is adequate for the health and comfort of senior citizens not in need of nursing-home care but who find living independently difficult is essential to the welfare of an increasing number of Tillamook County senior citizens.

Sub-standard housing exists throughout the county, a result of the population decline from 21,700 in 1952 to 16,000 in 1966. Some communities, such as Rockaway, have as high as 80% population of retirement age.

Companionship and added income are important considerations of interim living. Services for older people in the county are very much needed. Legal advice and counseling, health counseling, housekeeping services, plumbing, lawnmowing, etc., are needs of Tillamook area senior citizens.

The nutritional level of diets of senior citizens is inadequate. Many senior citizens are unable both financially and physically to provide adequate diets for themselves. The problem is of enough magnitude to cause the United States Department of Agriculture to call for an all-out nutrition educational program for senior citizens of the nation.

Senior Citizens Inc. of Tillamook, an organization for citizens 55 years of age and older, has worked with high-school administrators in arranging for free admission for people over 65 to all school athletic events and musical and drama programs. A car is sent to the Tillamook Nursing Home every meeting day to bring interested senior citizens to potluck meetings.

The south end of Tillamook County has no buses, no public transportation. People are stranded. Senior citizen transportation for shopping trips, medical attention, recreation, etc., is needed.

The hobby shop in the Manhattan-Rockaway area, organized to help older citizens sell craft work, closed after three years of operation because of a lack of people to help operate the shop. This cooperative non-profit organization was successful in selling local crafts. Seventy-five percent of profit was turned back to members. There are no plans for reopening the center at the present time.

Problems and Recommendations

Senior citizens are affected by the kind of housing in which they live. Those living on Social Security have limited income to allocate to housing and furnishings. A permanent senior citizens county council should be organized to continue to study and survey the housing needs of senior citizens of the county.

Loneliness is a problem of many senior citizens, particularly widows, widowers, and single people, who have retired in Tillamook County area away from relatives and
family friends. There is then no one to “look after” them.

Senior citizens should be encouraged to adopt a family and families should be encouraged to adopt senior citizens. A telephone service arrangement could be cooperatively established to assist the general welfare of the many senior citizens of the county area.

* The lack of public transportation along the beach areas of the county and the entire county area south of Tillamook is a problem to senior citizens in need of medical and dental services and in need of shopping for necessities, and for those wanting to attend senior citizens meetings. Additional senior citizen centers should be organized in the north and south sections of the county to assist in serving the various needs of senior citizens of the county.

* Ninety percent of citizens of 65, retired on Social Security, have Medicare coverage. The limited nursing-home and extended-care facilities of Tillamook County qualifying for Medicare limits the use of Medicare by senior citizens of the area. An effort should be made to further study and encourage the establishment of qualified Medicare facilities and services for senior citizens of the area.

* Senior citizens need information on food budgeting, on how to serve meals attractively for older people, and nutritional counseling for special diets and cooking for one or two. They need motivation to eat and transportation for food. The ill need food at home. Educational programs should be developed for senior citizens according to the demand and interest of organized groups.

* Committee members: Judge Otto Effenbert, chairman; Mrs. Bernice Tubbesing, Rev. Kenneth Coggon; Mrs. Wava Clifton; Mrs. Thelma Huson; Mrs. Ruth Stoll; Mr. and Mrs. Floyd Duncan; Miss Lola Martin; Ray Lindsay; Alfred Boquist, Mrs. Pearl Pierce; and Mrs. Margaret Palen.

CONSUMER COMPETENCE

Tillamook County citizens live in a consumer society. The need to be well-informed and capable consumers, skilled in the ability to manage and spend family income, is apparent.

Eighty per cent of families use consumer credit. Personal bankruptcy in Tillamook County in 1968 during the first 6 months numbered 17. Many families leave this area owing firms in Tillamook County, but filing bankruptcy in another area.

The average age for filing bankruptcy is 29 years. A reason for this may be that following marriage there is a period of acquisition—home appliances, furnishings, car, etc. Six to eight years and several children later, the need to replace all these properties starts over again. The cost is usually higher the second time, and there are children to raise. Couples who do not have financial help resort to bankruptcy to care for bills.

Family spending involves decisions that wife, husband, and children must make, considering family obligations and standard of living. Problems of 12 young families interviewed by this committee included: The need for information on the buying of household furnishings, appliances, clothing and food; the lack of variety and choice in Tillamook-area shopping; and the lack of competition in the local area, which eliminates price advantages of other areas in the state.

Problems and Recommendations

* Many families are living beyond family income. How to determine best buys or how to evaluate consumer information in planning for the family is not known.
COMMUNITY CULTURAL RESOURCES

Cultural resources of the Tillamook community include the Tillamook County Art Association, the Shakespeare Club, Little Theatre, The Monday Musical Club, the Poetry Association, the County Historical Society, photography, and other related cultural arts groups. Each cultural group sponsors various events and activities from time to time of interest to all people of the area.

There is a growing interest in holding a cultural festival, tentatively set for September 14-15, 1968. This event will replace the longtime traditional dairy festival activities of the past in Tillamook County.

Problems and Recommendations

Most people like to live in a community where there are cultural activities and events, but people do not always support cultural activities.

There is a need to coordinate support and specific efforts of community cultural activities in Tillamook County to organize a cultural festival in 1968.

The committee recommends:
* That each cultural group be invited to send representatives to a cultural resources steering committee, a clearing house for coordinating a calendar of committee, a clearing house for coordinating a calendar of community cultural activities and stimulating interest in cultural events in the Tillamook area. This steering group would meet at the Tillamook County Library.
* A coordinated effort be made to organize a cultural arts festival for Tillamook County in cooperation with the Tillamook County Festival committee.

COMMITTEE MEMBERS: Mrs. Arnold Knudsen, Chairman; Mrs. Annabelle Meyer; Mrs. Joanne Widmer; Don Whitney; and Mrs. Margaret Palen.

EMPLOYMENT OPPORTUNITY

The outlook for the next several years in Tillamook County is for more employment than during the previous period, primarily because of expected industrial growth. This growth is expected to come from various areas. Among them, the committee foresees a new food processing plant for vegetables. Increases in construction are expected, particularly in the highway, jetty, and homebuilding areas.

Problems and Recommendations

The committee feels that the changes mentioned above will materialize in the near future and that the prime concern is that the county decision-makers keep pace with this change, which may be rapid, in order to cope properly with the problems that always accompany such changes.

* The committee recommends that the conference urge the increase of industrial growth in these areas in order to keep pace with the expected population increase. We need more semi-skilled and unskilled jobs to help keep people off the welfare roles.
* The committee recommends that the conference stand firmly behind the proposal for completion of the Tillamook Bay jetty. Tillamook could be an important port for (among other things) the import and export of timber and its by-products.
* Local funds should be collected (which will be matched equally by the United States Government) for rehabilitation of handicapped persons. (Funds for local training.)
* COMMITTEE MEMBERS: Russ Campbell, Chairman; Miss Lola Martin; Willis Carver; Ray Dufur; Ron Ewing; and Bill Berry.
Fine Dairy herds are the basis of Tillamook County's agriculture. Tillamook County dairymen lead the state in sales of dairy products.

AGRICULTURE COMMITTEE REPORT

The gross cash farm income for 1967 was estimated at more than $9 million. The dairy industry accounted for about 90% of the total farm income. Tillamook county is the leading dairy county in the state in both gross cash farm income and production of milk. In fact, the combined sales value of dairy products produced in the next two high-ranking counties will not equal the value of milk marketed by Tillamook County dairymen in 1967. Dairy cattle numbers have stabilized at about 17,500 milk cows. In 1955 there were 18,000 cows in the county.

Estimated Gross Cash Farm Income
Jan. 1- Dec. 1, 1967

<table>
<thead>
<tr>
<th>Category</th>
<th>1955</th>
<th>1967</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy products</td>
<td>7,368,000</td>
<td></td>
</tr>
<tr>
<td>Cattle &amp; calves</td>
<td>955,000</td>
<td></td>
</tr>
<tr>
<td>Hogs</td>
<td>38,000</td>
<td></td>
</tr>
<tr>
<td>Sheep &amp; wool</td>
<td>11,000</td>
<td></td>
</tr>
<tr>
<td>Poultry</td>
<td>37,000</td>
<td></td>
</tr>
<tr>
<td>Mink &amp; other livestock</td>
<td>351,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total livestock income</strong></td>
<td><strong>8,800,000</strong></td>
<td></td>
</tr>
<tr>
<td>Veg. for fresh market &amp; processing</td>
<td></td>
<td><strong>141,000</strong></td>
</tr>
<tr>
<td>Forest products</td>
<td></td>
<td>130,000</td>
</tr>
<tr>
<td>Special horticultural crops</td>
<td></td>
<td>65,000</td>
</tr>
<tr>
<td>Fruit, small</td>
<td></td>
<td>5,000</td>
</tr>
<tr>
<td>Hay (sales)</td>
<td></td>
<td>17,000</td>
</tr>
<tr>
<td><strong>Total crops</strong></td>
<td></td>
<td><strong>358,000</strong></td>
</tr>
<tr>
<td>Shellfish oyster farms</td>
<td></td>
<td><strong>125,000</strong></td>
</tr>
<tr>
<td><strong>All crops</strong></td>
<td></td>
<td><strong>483,000</strong></td>
</tr>
<tr>
<td><strong>Total gross farm income</strong></td>
<td></td>
<td><strong>9,283,000</strong></td>
</tr>
</tbody>
</table>

The total value of farm sales for 1955 was $7,000,000. Changes in livestock numbers and land use are as follows:

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>1955</th>
<th>1967</th>
</tr>
</thead>
<tbody>
<tr>
<td>All farm land</td>
<td>78,816</td>
<td>66,234</td>
</tr>
<tr>
<td>Tillable acres</td>
<td>29,477</td>
<td>29,430</td>
</tr>
<tr>
<td>Other pasture</td>
<td>16,358</td>
<td>10,505</td>
</tr>
<tr>
<td>Woodland pastures</td>
<td>8,865</td>
<td>7,600</td>
</tr>
<tr>
<td>Woodland not pasture</td>
<td>11,324</td>
<td>13,848</td>
</tr>
<tr>
<td>Other land</td>
<td>12,792</td>
<td>4,851</td>
</tr>
</tbody>
</table>
LIVESTOCK NUMBERS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All cattle</td>
<td>28,000</td>
<td>27,500</td>
<td>27,000</td>
<td>26,500</td>
<td>26,000</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>19,700</td>
<td>17,500</td>
<td>15,200</td>
<td>13,000</td>
<td>10,800</td>
</tr>
<tr>
<td>Sheep and lambs</td>
<td>500</td>
<td>1,000</td>
<td>1,500</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Hogs all ages</td>
<td>3,300</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Chickens</td>
<td>19,000</td>
<td>15,000</td>
<td>11,500</td>
<td>9,000</td>
<td>6,500</td>
</tr>
<tr>
<td>Turkeys</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

POUNDS OF MILK MARKETED

<table>
<thead>
<tr>
<th>Grade</th>
<th>1940</th>
<th>1945</th>
<th>1950</th>
<th>1955</th>
<th>1960</th>
<th>1964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese</td>
<td>19,416,963</td>
<td>97,778,251</td>
<td>139,909,000</td>
<td>117,195,214</td>
<td>117,195,214</td>
<td>117,195,214</td>
</tr>
<tr>
<td>Grade A</td>
<td>44,727,000</td>
<td>95,182,000</td>
<td>139,909,000</td>
<td>117,195,214</td>
<td>117,195,214</td>
<td>117,195,214</td>
</tr>
</tbody>
</table>

Cost Price Relationship—Milk Production
Tillamook 1940-1964

<table>
<thead>
<tr>
<th>Year</th>
<th>Grade A</th>
<th>Inc. Surplus</th>
<th>Cheese</th>
<th>Hay</th>
<th>Grain</th>
<th>Labor</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>39.6</td>
<td>$30</td>
<td>$52</td>
<td>$30 to $50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945</td>
<td>77.5</td>
<td>$60</td>
<td>$80</td>
<td>$60 to $80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>$1.27</td>
<td>103.0</td>
<td>40</td>
<td>65</td>
<td>35</td>
<td>35</td>
<td>100 to 120</td>
</tr>
<tr>
<td>1955</td>
<td>1.05</td>
<td>91.8</td>
<td>35</td>
<td>50</td>
<td>35</td>
<td>35</td>
<td>100 to 120</td>
</tr>
<tr>
<td>1963</td>
<td>1.14</td>
<td>93.0</td>
<td>36</td>
<td>60</td>
<td>36</td>
<td>36</td>
<td>100 to 120</td>
</tr>
<tr>
<td>1967</td>
<td>1.35</td>
<td>100.0</td>
<td>35</td>
<td>60</td>
<td>35</td>
<td>35</td>
<td>100 to 120</td>
</tr>
</tbody>
</table>

Commercial dairy farms have been decreasing in number and increasing in cow numbers as well as increasing production per cow.

FARMS BY ECONOMIC CLASS

<table>
<thead>
<tr>
<th>Economic Class</th>
<th>1967</th>
<th>1959</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales 10,000-150,000 and above</td>
<td>240</td>
<td>189</td>
</tr>
<tr>
<td>Sales 2,500-9,999</td>
<td>115</td>
<td>265</td>
</tr>
<tr>
<td>Sales $50-$2499</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>Total commercial</td>
<td>400</td>
<td>515</td>
</tr>
<tr>
<td>Other farms</td>
<td>286</td>
<td>250</td>
</tr>
<tr>
<td>Part time</td>
<td>186</td>
<td>180</td>
</tr>
<tr>
<td>Part retired</td>
<td>100</td>
<td>70</td>
</tr>
<tr>
<td>All farms</td>
<td>686</td>
<td>741</td>
</tr>
</tbody>
</table>

Most of the cropland in the county is used to grow improved pastures for dairy cows. The rapid increase in the size of herd on the commercial dairy was accompanied by a decrease in the number of cows milked on the smaller farms. A number of the smaller dairies quit producing milk and leased land for heifer pasture or raised replacement heifers for the commercial dairies or raised beef cattle. In 1964 Extension planning groups asked about the feasibility of growing vegetable crops. Trials resulted in developing interest in the production of broccoli for freezing. Two hundred acres of broccoli for freezing were grown in the county in 1967. It is expected this acreage will double in 1968.

DAIRY

The dairy industry in Tillamook County has shown only a slight decrease in dairy cattle numbers since 1955. The number of cows in the milking herd has stood at about 18,000. The 1967 figure was 17,500 cows 2 years old or over in Tillamook County. Production, however, has shown a steady increase. In 1955 Tillamook dairymen marketed 117,195,000 pounds of milk; in 1967 the milk marketed was increased to 139,909,000 pounds. The increase in Grade A production was more than 25,000,000 pounds of milk during this same period.

The dairy situation in Oregon during this same period was quite different. In the state, dairy cattle numbers decreased from 244,000 in 1955 to 140,000 in 1966. The production per cow increased rapidly, but not enough to keep pace with demand. The estimated usage of milk or milk products in Oregon for 1966 required 1,183 million pounds of milk. This means that 218 million pounds of milk during this same period.

Dairymen have developed better herds, kept the present dairy farms have been producing milk for 30 years or more. Dairymen have developed better herds, kept up with modern quality inspection standards, and kept production costs at a minimum.

It is expected that the high demand for milk and milk products will continue. The threat of imitation milk, however, cannot be ignored. This challenge must be met by the dairy industry with united action on a nationwide basis.

The opportunity for the dairy industry to get a fair share of the consumer dollar in the future looks promising. This
will require a continued high level of efficiency by both the dairyman and the processor marketing agency. Cooperation of the dairymen with their processor will be most essential in the years ahead.

Problems
- The cost of living and dairy production costs continue upward without a corresponding increase in the price of milk and milk fat.
- Imitation milk and milk products threaten to reduce sales of present dairy products.
- Marketing problems include duplication in marketing Grade A quotas, advertising, and inefficiency.

Recommendations
- The committee recommends that each dairyman:
  - Produce the maximum forage on each acre of cropland on the dairy.
  - A minimum goal should be 5,000 TDN per acre in the form of pasture, silage, or hay. This would be the equivalent of 6 tons of alfalfa hay or 15.5 tons of silage per acre. Taking advantage of green chop, silage, strip grazing, and other improved methods of harvesting forage.
  - Produce 700,000 lbs. of 4% (FCM) milk per worker. Minimum production per cow should be 500 pounds of butterfat or 14,000 pounds of milk 4% (FCM). This would mean the minimum size herd would be one producing 700,000 pounds of milk and 28,000 pounds of fat, with 50 cows in the herd for each worker. This is a goal for successful dairyman.
  - Adopt efficiency measures and machinery to reduce labor and increase production to the above levels.
- The committee recognizes the value of DHIA testing in improving the efficiency of dairy herds. The DHIA county average has increased from 7,841 pounds of milk to 12,171 pounds per cow in 10 years. Production projected to 1978 would indicate DHIA average production could be above 15,000 pounds of milk per cow. Every effort should be made by breeders, breed associations, and artificial insemination firms, as well as the Extension Service, to increase enrollment in DHIA testing. The goal within the next 10 years should be to increase herds on test by 50%.
- Increased efficiency of labor, capital, and land to meet the decreasing margin between the market price and cost of production will make both increased production per cow and milk output per man year imperative. Increased forage production per acre in the form of pasture with only enough hay or silage produced on the farm to take care of short periods of surplus pasture production may be a necessity on many farms because of limited acreage and high land values. Studies indicate 25% of total forage needed may be produced on the farm, with 75% purchased in the form of hay or silage, and the operation would still be profitable with efficient management.
- Milk and dairy products move freely in trade channels both intrastate and interstate. Selling prices are competitive, and costs of production in Tillamook must be equal to or below those of other producing areas to insure a strong industry. The increased use of farm records to improve management so as to reduce production costs is recommended.
- All milk producers in the county should work toward qualifying for a Class I milk quota.
- Dairymen and dairy groups need to work together to see that milk is marketed efficiently and to the best advantage of all producers of dairy products.
- The problem of imitation dairy products is recognized. The entire dairy industry must work together to meet this challenge. Filled or imitation milk depends on milk as its prime ingredient in the form of nonfat dry milk or skim milk. Pricing protein in skim or nonfat dry milk at a more realistic level, in order to take the profit out of the imitation milk, or other pricing methods should be studied by dairy research and marketing specialists, as well as by the dairy industry.
DISEASE CONTROL AND MILK QUALITY

The dairymen of Tillamook County achieved a Modified Certified Brucellosis-Free Area 12 years ago and an Accredited TB Free Area more than 20 years ago. Since accreditation, a careful testing program has been in effect for both TB and brucellosis. County, federal, and state cooperation on TB and brucellosis control has been excellent.

Tillamook County has long been noted for the production of high-quality dairy products, both Grade A and manufactured. Quality inspection has been considered of utmost importance. The Tillamook County milk inspection program on manufacturing milk has been considered as one of the first in the nation. Full cooperation is given both the federal and state milk inspection service.

FARM SIZE INCOME

In comparison with national income figures, the incomes of Tillamook County farmers are well above the average. Eighty-three percent own their own farms, 11% are part-owners and only 6% tenants. In 1966, 60% of all commercial farms had farm sales of more than $10,000; 31% had gross farm sales of from $1,500 to $10,000, and 9% below $1,500 gross farm sale. Almost three fourth (72.5%) of the farms in the United States had gross farm sales of under $10,000.

The relatively high individual income level was made with 40% of the farms under 50 acres in size. There were 160 rural families operating farm businesses grossing less than $10,000 in Tillamook County. However, of this group about 20% were handicapped by lack of physical or financial resources. More than 50% were nearing retirement, no longer had children at home to help with the farm operation, and did not have the pressing need for a higher annual income from farm sales. Many of the others worked in the woods or commercial fisheries or were "seasonal" workers in the mills or on other farms. Almost 90% were involved in the dairy industry either producing milk or raising dairy replacements.

CROPS

The increase in size of dairy farms has resulted in a sharp decrease in the number of farms in the county. The 1954 United States Census of Agriculture listed 880 farms. The 1964 census shows 716, or a decrease of 164 farms. This decline in numbers is expected to continue. Some farms have been combined with existing dairy operations, while others have discontinued dairying and are growing a few beef cattle or producing grass-hay or leasing the farmland for pasture. The owners have found off-farm employment. The cropland acreages on these farms is not large; however, if more intensive crops could be produced, the return from this land might be increased, resulting in an increased return to the owner and adding to the agricultural income of the county.
The problem is what crops can be grown that will have an economic advantage.

Field trials were established by the Tillamook County Extension service in cooperation with OSU horticultural and marketing specialists in 1965. Crops included globe artichokes, broccoli, cauliflower, and Brussels sprouts. Pole bean trials were put out in 1967.

NEW CROPS

BROCCOLI Results of trials were as follows: Trials in Tillamook during 1965-66-67. High yields, excellent quality, and an early harvesting date. The cool marine air made possible early planting of broccoli and summer harvest starting in June and continuing until late August or early September. This enabled processing plants in the Willamette Valley to freeze coast broccoli from June to September. The Willamette Valley production starts in August or September. In 1967 one processing plant rented about 200 acres from the Tillamook Port Commission, and a few farmers grew broccoli for processing. Since operation was successful, the acreage was increased to 400 acres for 1968.

GLOBE ARTICHOKES Trials established in 1965 and continued through 1967. Quality excellent, yields on trial plots at the rate of 3,500 pounds per acre. This is below the usual 4,000 to 5,000 pounds per acre yields in San Mateo County, California. One large Portland store was supplied by Tillamook growers in 1967. It is expected planting will increase to seven acres in 1968. There is an opportunity for 1,000 acres on the coast.

BRUSSELS SPROUTS Trials in Tillamook 1965. Production and quality good. No special advantage noted. May offer possibilities when mechanical harvesting is available.

POLE BEANS Trials in 1967. Production on certain strains about 10 tons per acre. Harvest mid-August to mid-September. Quality excellent, yield about average. The warm season in 1967 could have influenced production above average for area. At harvest time little help from school-age youth will be available.

SHRUBS The production of shrubs, including rhododendrons, azaleas, camellias, and other ornamentals is now limited to small acreage by experienced growers. Market outlets limited. Quality excellent, few production problems.

FARM FORESTRY There are now more than 10,000 acres of land in farms devoted to forest trees or shrubs, including Christmas trees and cascara. In addition to this acreage there may be small acreages of cropland on part-time farms that would bring in increased income to their owners if the land were under a good farm-forestry program.

CRANBERRIES AND BLUEBERRIES There is a limited acreage of bogland adapted to cranberry growing. Cranberry plantings should be made when market conditions justify expansion of production. Blueberries are successfully produced on the Oregon coast. There is a possibility of blueberry production in the future. Yields, adapted varieties, and market demand should be determined before extensive plantings are undertaken.

HOLLY The supply of high-quality holly is not meeting the demand. In 1967 a local dealer purchased 80,000 pounds of holly from orchards in north Lincoln and Willamette Valley counties. Local yields average from 75 to 150 pounds per tree annually, or from 7,500 to 15,000 pounds per acre. Price to local dealers has averaged about 25c per pound. Advantages: High quality, no loss from freezing, rapid growth of foliage. Adapted varieties are essential to successful marketing.

Problems

* Change in size of dairy farm cropland on smaller farm available for change in type of crop.
* Shortage of experienced dairy help, encouraging some larger operators to consider row crops.
* No research available on production methods, yields, or quality of vegetable crops that might be produced in Tillamook County.

Recommendations

* In view of the large investment necessary in machinery and equipment for broccoli production as well as experience needed to produce a quality product, it is recommended that broccoli be grown by an experienced grower. A broccoli grower might include other crops such as cauliflower, Brussels sprouts, and lettuce in his annual planting plan. There may be an opportunity for local growers to produce under contract to Williamette Valley processing firms. Leasing of land on a short-term basis could prove as successful as in commercial areas in California.
Broccoli, a new cash crop in Tillamook County

* There is a real opportunity in the production of globe artichokes, and plantings should be increased as rapidly as possible. The goal should be 500 acres, not to exceed 1,000 acres on the Oregon coast. If local growers are not interested, it is suggested that the Tillamook Chamber of Commerce in cooperation with Tillamook real estate agents invite California artichoke growers to visit the Tillamook area and inspect trial plantings. This could encourage California growers to move in or establish a second operation to extend their marketing season.

* Trials on new crops could be continued in cooperation with OSU specialists.

* The committee also recommends that the Extension service work towards increasing grower experience in the production of horticultural crops.

* The number of crops that can successfully be grown in Tillamook County far exceed those that are economically feasible or that can find profitable markets. It is recommended that an educational program on marketing of horticultural and specialty crops be developed in cooperation with OSU marketing specialists. This could include short courses, special meetings, and the actual cooperative marketing of a crop such as globe artichokes or holly as soon as production justifies.

* There is an opportunity for expansion in holly acreage. Holly is well adapted to small acreages and would increase the income of the part-time farmer.

**DRAINAGE**

Because of the heavy rainfall and their low position or slow permeability, many soils in Tillamook need drainage. Artificial drainage is generally necessary on the following soils:

<table>
<thead>
<tr>
<th>Soil Series</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brallier</td>
<td>.236</td>
</tr>
<tr>
<td>Brenner</td>
<td>3,311</td>
</tr>
<tr>
<td>Coquille</td>
<td>6,264</td>
</tr>
<tr>
<td>Hebo</td>
<td>2,580</td>
</tr>
<tr>
<td>Yaquina</td>
<td>1,237</td>
</tr>
</tbody>
</table>

Drainage is helpful for production of many crops on the following soils:

<table>
<thead>
<tr>
<th>Soil Series</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chitwood</td>
<td>1,787</td>
</tr>
<tr>
<td>Ginger</td>
<td>1,170</td>
</tr>
<tr>
<td>Nestucca</td>
<td>1,539</td>
</tr>
</tbody>
</table>

A great deal of progress has been made in draining cropland in Tillamook County; however, the State Conservation Needs Committee lists 4,200 acres as still needing additional drainage. Diked areas with tide gates total about 8,400 acres. Of this total 6,900 acres is in organized drainage districts.

**Problems**

* Drainage is complicated by the flooding of rivers during heavy runoff periods.

* To date no comprehensive drainage plan has been developed for each river basin.

* Drainage is very costly on some farms.

* Annual floods inundate about 8,000 acres of cropland as well as affect farmsteads, roads, business buildings, and bridges.

**Recommendations**

* The committee recommends that drainage projects on the Nehalem and Nestucca rivers using practices under ASCS program for individual farms or pooling agreements be installed as rapidly as possible. It is estimated that 3,250 acres on 70 farms could be benefited by improved drainage.

* The complex problem of drainage and flood control in the Tillamook Valley, including the Wilson, Tillamook, Trask, Kilchis, and Miami rivers, should be planned for the entire area. If plans now under development by the Corps of Army Engineers prove to be not economically feasible, it is recommended that the SCS as well as all other federal or state agencies be urged to work on plans that will improve flood control and drainage of the area. All ASCS or SCD soil drainage projects should fit into an overall plan. It is estimated that 35,000 acres need flood control in the Tillamook Valley, with about 200 farms affected. There are about 8,000 acres that need improved drainage.

* Stream bank protection from water erosion is needed on the lower Nehalem, Wilson, Kilchis, Trask, and Nestucca rivers. It is recommended that a program be developed by the soil conservation districts to protect stream banks along these rivers and that cost-sharing under ASCS, Army engineer assistance, and RC&D programs be developed to accomplish this goal.

* Beaver work along stream banks in the Nestucca, Tillamook, and Nehalem valleys is causing excessive bank erosion. It is recommended that the State Game Commission take steps to control the beaver population on these rivers to prevent damage to river banks in the agricultural areas.

* The Agricultural Stabilization Conservation program has done much to help farmers solve drainage, erosion, and other soil conservation problems on Tillamook farms. All groups interested in soils and soil conservation are urged to work for a continued program adequately financed as provided for in the Soil Conservation and Domestic Allotment Act.
IRRIGATION

Supplemental irrigation during the dry summer months through the use of sprinkler irrigation is quite successful in Tillamook County. There are about 250 water rights for 75cfs for irrigation of more than 6,500 acres of land. USDA field estimates made in 1959 show about 3,000 additional acres, most of which did not hold water rights, irrigated from tide estuaries and drainage ditches.

<table>
<thead>
<tr>
<th>Month</th>
<th>Truck Crop - IR In.</th>
<th>Pasture - IR In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>2.49</td>
<td>.6</td>
</tr>
<tr>
<td>July</td>
<td>2.98</td>
<td>2.91</td>
</tr>
<tr>
<td>August</td>
<td>2.49</td>
<td>2.91</td>
</tr>
<tr>
<td>Total</td>
<td>6.49</td>
<td>6.49</td>
</tr>
</tbody>
</table>

Problems
* Some streams may be overappropriated in the near future.
* Water rights are needed for truck-crop productions.
* Wells are uncertain and streams not available in some areas.

Recommendations
* It is recommended that an application for a water right be filed with the state engineer before installing an irrigation system. The need for water for irrigation will increase.
* It is recommended that efforts be made to increase water-storage facilities to meet both agricultural and industrial water needs as well as to supply water for domestic use.

PLANT NUTRIENTS

Soils in Tillamook are acid, low in base saturation, and low in calcium. The proper and timely application of lime indirectly increases the availability of nitrogen, phosphorus, and other plant nutrients that plants need. Lime also provides a suitable environment for the activity of soil bacteria. Calcium, nitrogen, phosphorus, and potassium are deficient in most soils of the area.

Plants need at least 16 chemical elements for growth. They get carbon, hydrogen, and oxygen mainly from water and air. Iron, magnesium, zinc, chlorine, magnesium appear to be adequate in Tillamook soils. Boron and sulfur are deficient on some soils. Molybdenum—induced copper deficiency in cattle has been recognized and is under investigation.

Problems
* The cost of ground limestone is high.
* Heavy use by dairy cattle on pasture has resulted in very low value of phosphorus on certain soils.

* Potassium is naturally low, and removal of crops and little return of barnyard manure or crop residue results in critical shortages for the production of clovers.
* A nitrogen shortage exists

Recommendations
* Lime and other soil amendments should be applied according to OSU soil test recommendations.
* Research on soil fertility problems on soils commonly found in Tillamook County, including agricultural and forest soils, should be continued.
* The cost of limestone to farmers has been reduced through the ASCS program.
* A change in hauling schedules by lime companies serving the area has also lowered costs for most farms. Better roads have reduced the hauling costs to south Tillamook and central Tillamook farms. Hauling costs on lime are high and need to be reduced.

WEED CONTROL

Tillamook County was declared a weed-control district for the control of tansy ragwort and Canada thistle under the Oregon weed law in 1943. Since that time there has been an active control program under the direction of the Tillamook County Court. Tansy ragwort is a poisonous weed and had spread over an estimated 2,500 acres before the weed-control district was adopted. Chemical control is effective on tansy ragwort. Canada thistle continues to be a problem. ASCS cost-share payments, available in 1967, increased control efforts.

Problems
* Tansy control on cut-over land and small open fields on abandoned farm or open forest land.
* The spread on river banks or on overflow land.
* The problem of educating the public of the danger of these noxious weeds.

Recommendations
The committee recommends that the cooperation of the county court, the ASCS, the State of Oregon, and individuals be continued and improved in the area of noxious-weed control. Steps must be taken and methods developed to insure better control of noxious weeds on lands under supervision of non-cooperative owners. An effective means of forcing control of noxious weeds on all lands should be developed under Oregon laws. Education on the need for a vigorous weed control should be continued.

ANIMAL PRODUCTION

MINK

The climatic conditions in Tillamook County are favorable for ranch mink production. However, the feed supply is critical and promises to be more so in the future.

The Oregon Fur Producers are not taking in new members at the present time.

Mink feed is more expensive in the Pacific Northwest than in competing areas. Expansion of the industry should be closely geared to price and availability of mink feed.
Problems
* Limited amount of scrap fish and other low-cost protein feeds.
* Competition from foreign and domestic markets.
* The effect of changes in fashion and national income on price received.
* Increase of production costs.

Recommendations
Mink farming is a high-risk enterprise. Those interested must have adequate financing, have an assured feed supply, and understand nutrition genetics, and marketing. The present mink industry is made up of experienced growers who are producing high-quality pelts. Any further expansion in the number of mink farms should be given very careful consideration.

POULTRY
Poultry numbers continue to decline and feed prices are high because of the cost of transporting grain from Portland. Prices of eggs, when production is above local needs, are less than Portland prices because of the cost of trucking eggs to Portland. The climate is favorable for poultry production but not enough to overcome the feed cost-price disadvantage of Tillamook producers.

Problems and Recommendations
* The demand for eggs has decreased.
* Price decreased 10c to 15c per dozen in the last 10 years.
* Feed must be brought from grain producing areas and eggs shipped to central markets, resulting in a disadvantage to local producers.
* Large commercial units are replacing farm-type units in favorable locations.

BEEF CATTLE
Beef cattle production has always been on a limited scale in Tillamook County. High land values and a good market for milk either for cheese or Grade A has discouraged the growing of beef cattle.

Limited production on part-time farms has resulted in an increase in beef cattle numbers in the county. These small farms were dairies in the early days and shifted to a part-time basis as living costs increased. Dairy-beef may prove more successful for grass-fat cattle than straight-bred beef cattle.

Problems and Recommendations
* High land values in Tillamook County resulting in high cost of production.
* High cost of grain and hay.
* Low price for meat, poor bargaining power, and small market demand.

The committee recommends the limited production of beef cattle and then only on farms too small or in too remote location for a profitable dairy operation. There may be some opportunity on a part-time basis on low cost land. Holstein or dairy steers may prove to be more profitable than conventional beef breeds.

LAND USE AND ZONING
The protection and best use of natural resources, if they are to benefit the greatest number of citizens, must be under a long-range land-use plan. Cropland can be lost to agriculture through housing developments, highways, and industrial development. It is also true that industrial development can spoil housing for developments or recreational areas. Land-use planning and zoning are important for the best use of all resources.

Recommendations
* A sound zoning law should be developed and the voters given an opportunity to approve or reject it after a workable land-use plan has been developed with the people living in the area to be zoned.
* Highways should not be constructed on the best agricultural lands, especially when other lands not suited to crop production are available.
* In view of the large acreage dedicated to county and state parks at the present time, it is recommended that no additional land be placed in public parks at this time. It is also recommended that no additional county lands be sold to tax-exempt organizations.
* It is recommended that dairy pastures be reseeded every 5 to 10 years to adapted mixtures of high-yielding grasses and clovers in line with research and recommendations of OSU crop specialists. Best stands are usually secured by seeding a combination of grasses and clovers at the rate of 20 to 30 pounds per acre. Clovers properly inoculated should usually make up about 25% of the mixture.

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Wendell Blondo
FORESTRY COMMITTEE REPORT

Trees and other natural resources found on the timberlands of Tillamook County are its greatest capital asset. Trees are the county's largest manufacturing complex in themselves and provide the basic resource for the county's industry.

Trees grow on 93% of the county's land area. Public agencies control 69% of these timberlands. Presently, timberlands are being managed to the best advantage in light of alternative capital investments. The crop is being utilized to the extent permitted by existing markets.

Presently local markets consist mainly of sawmills and plywood plants. Some minor products such as fern, evergreen brush, Christmas trees, etc., are harvested and sold. Markets for Tillamook's forest products are found worldwide.

Other products of the forest enjoyed by the people of the county and their visitors are recreation areas, water, and the aesthetic beauty of growing trees.

At the present time, Tillamook County appears to have adequate manufacturing facilities for the forest products now being harvested and marketed. Competition for the materials is becoming more severe from marketing areas and manufacturing plants outside the county boundaries.

The quantity of available forest products for Tillamook County industry will increase each year as utilization standards decline and as the young forests grow into maturity. The county will experience a wealth of wood fibre from these immature forests which have resulted from early 1900 harvesting and from the Tillamook Burn Forest rehabilitation program. The availability of such quantities of wood fibre will require that industry and the people of the county analyze the proper methods of utilization in order to enhance the economic well-being of the county.

The wood-pulp industry in the United States is predicted to increase 2.5 times by 1985. Tillamook County's role in this increase will not be limited by the availability of its natural resource, but by people and their actions in evaluating the best use for our timber and timberlands. They cannot permit chance to decide this use. The county's economic dependence on the sawlog and plywood industry must give way to other forest products during this period of time.

The people of Tillamook County, when evaluating the economic base of the county, must consider the following conclusions and recommendations. The recommendations have been prepared on the assumption that the people are interested in maintaining and expanding their basic natural resource and one of their prime industries.

ALLOCATION OF TIMBERLANDS

With the projected increase in population of Tillamook County and with the increase of population pressures from the Willamette Valley, the proper allocation of land use will become more imperative if a stable year-around economy is to be maintained. The timber industry will be the nucleus for this stability. Rational decisions about optimum
allocation of natural resources must be based on these considerations: economic criteria, social criteria and all relevant alternatives. A continuous re-evaluation program must be employed to adjust to changing needs.

**Recommendations**

To assure the proper use of our timberlands for timber production, recreational use, power developments, roads, and other public uses, the committee recommends that:

* The county court, cities, and other interested parties must give continued consideration to and prepare overall county plans for present and future land uses.
* Hereafter, public and private utilities and public agencies should give consideration to the location of their right-of-ways in order to prevent the further depletion of our timberland base.
* Management policies on all timberlands should consider the applicability of multiple-use concepts, since they affect total forest-land use and development.
* Sustained-yield production of forest lands should be a manageral technique practiced on all timberlands, with allowable annual cuts reflecting this concept.

**UTILIZATION OF TIMBER RESOURCES**

Complete utilization of the timber resource of Tillamook County means more than just harvesting the forest products in the form of logs. Complete utilization includes maximum yield of wood fibre, maximum use of this wood fibre as determined by current economic conditions, and maximum use of the land base for the social and economic welfare of the county.

**Recommendations**

Since maximizing the yield of wood fibre on timberlands is imperative in maintaining a strong economic base, the committee recommends that:

* Nonproductive timberlands of Tillamook County (10%) growing brush or low-fibre species should be converted to a timber species that will maximize growth and yield of wood fibre to provide the greatest returns.
* Existing timberstands of low productivity should be replaced with species that will produce the greatest yield commensurate with predicted future markets.
* Research and development should be carried out on local timberlands that will provide information on how to increase yields, improve technology, and increase utilization under natural timberland conditions.
* The continued protection of our timberstands and timberlands from depredation by fire, insects, disease, and erosion must be a cooperative goal of all peoples of Tillamook County.

Maximizing the use of the wood fibre produced on timberlands is controlled by current markets, material handling, and access. Therefore, the committee recommends that:

* Through research industries of Tillamook County must continue to develop new products and markets. (Because of the future material size of the timber resource, explorations should be conducted in the field of moldable wood fibre products.)
* Equipment manufacturers must produce low-cost machinery suitable for handling small forest products to permit an equitable rate of return for the capital dollar invested.
* Private owners and public agencies should allocate funds to build and maintain such roads as necessary to carry out intensive forest-management practices on all timberlands.

More complete utilization must be thought of as an effect rather than a cause. Market development and the profit motive must exist to move the resource from the forest. The outlook is very encouraging. Spectacular advances are being made in wood chemistry and wood technology. Tillamook County should experience an increase in job opportunities and its general economy because of these advances.

Logs being utilized through modern chipper. These logs at one time were left in the woods to rot.

**YOUNG-GROWTH TIMBER MANAGEMENT**

The future of the timber industry and resulting economy of Tillamook County depends on the intensification of young-growth timber management. The era of old-growth-timber management is dead.

**Recommendations**

It is imperative that through intensive management practices each acre of land yield to its fullest economical capacities. Therefore, the committee recommend that:

* The latest techniques must be applied in maximizing growth, harvesting, and marketing of young-growth forest products.
Public agencies and private timberland owners periodically should review their computations of allowable cuts and revise these computations and utilization standards to permit greater growth and utilization of wood fibre.

* A farm forester who would coordinate a consultant service of forest industries people, both public and private, should be made available in Tillamook County on a full-time basis. He would provide help in maximizing the growth and volume of wood fibre and minor forest products.

**SOCIAL AND ECONOMIC CONSIDERATIONS**

"The earth and everything on it exists for the benefit of man." This may be true, or is it perhaps a commentary on the egotism of the human animal?

Given this, then advocating any use of natural resources other than that which will be most beneficial to people is clearly unacceptable, in Tillamook County or anywhere else. It is in the determination of what is the most beneficial to people that we are so often confounded.

Industrial development will arise in the form of expansion of existing facilities and increased utilization of the raw material supply. Expansion and utilization will take the form of increased production of currently manufactured products and the creation of new or substitute products.

The problems arising in public acceptance of any proposed industrial development are centered around (1) pollution—air, water, (2) zoning, and (3) the education of and communications to all the people in the community.

Water quantity and quality comprise the one natural resource that will be the limiting factor in the complete utilization of wood fibre from Tillamook County's forests. This resource must be protected and allocated to its best use for recreational, industrial, and domestic use. The proper management and allocation of water and wildlife is part of the multiple-use concept of timberland management.

The short supply of skilled labor is a constant threat to the continuation of a prosperous and progressive forest industry. Pressures from outside the county have beckoned youth into other fields of endeavor regardless of the high wage scale in the local forest industries.

**Recommendations**

The social and economic benefits to be derived from our timberlands will undergo constant changes as the knowledge and wants of Tillamook County residents change. In an attempt to lessen the sudden impact of such changes on the general economy, the committee submits the following recommendations:

* An intensive educational program which would provide a basic understanding of our total natural resources should be undertaken in the school systems. Such a program could be implemented by the following procedures:

(a) Public school teachers should participate in summer conservation workshops.
(b) The sixth-grade conservation outdoor school should be expanded to include all schools in Tillamook County.
(c) Industry and public schools should cooperate in developing a vocational education program designed to produce employees for the timber industry.
(d) The present seventh-grade one-day forestry tour should be conducted in preceding grades as an introductory lesson to the outdoor-school program.

* The people of Tillamook County should be more thoroughly informed of the tax structure and sources of revenue for Tillamook County.
* Equitable taxation which will encourage the full utilization and retention of forest lands in private ownership must be an important consideration.
* The level of taxes imposed upon forest lands and wood products should be based upon taxing policies and programs that give full recognition to the unique characteristics of timber, particularly the long growing period, inherent risk of loss, and the carrying costs which must be borne by owners during this period.
* Taxation policies should offer positive incentives for prompt and adequate reforestation of private timberlands.
* Training schools to train and retrain workers in the timber industry should be established and maintained.
* The problems of urban expansion must be recognized and additional industrial development should be encouraged at such places as the Port of Tillamook's industrial park, Tillamook bay-side (with the south jetty and channel development) and/or other areas suitably removed from urban areas.
* Pollution controls should be encouraged in all types of industry.
* Every attempt should be made to meet with and communicate to all public and private interests the importance of maintaining a progressive, expanding forest industry.
* Allocation of water quantity and quality must be given to provide a fishery habitat for existing fish species.
* Roads and logging projects must be properly planned in connection with the fishery habitat.
* Adequate water should be planned for and provided in order to interest industrial developers.
* Every effort should be made to develop a sufficient industrial capacity to fully utilize and process Tillamook County's wood fibre.

Lee Hanson, Tillamook County School Superintendent, handing out trees to school forestry tour participants.
SUMMARY

Public agencies, industry, private timberland owners, and the residents of Tillamook County should cooperatively recognize the above stated conclusions and cooperatively strive for the attainment of the recommendations. Such cooperation will permit the expansion of their basic natural resource and of one prime industry.

TILLAMOOK COUNTY ECONOMIC PLANNING COUNCIL

COMMITTEE MEMBERS

BOB MADISON, Chairman
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JACK WILLFORD
DAVE WILLIAMS
CHUCK STEWART
Tillamook Bay Boat Basin at Garibaldi, owned & operated by the Port of Bay City. This will be an important deep water port on the completion of the South jetty.

INDUSTRIAL DEVELOPMENT

Tillamook County industries are founded on the wise use of renewable natural resources. Nearly one half of the more than 6,300 employed persons in the county work in forest products or agriculture. Tourism forms a significant segment of the economy and will become more important in the decades to follow. Commercial fisheries are beginning to show a rebirth with the completed north jetty and pending south jetty construction. Many other small industries are active in Tillamook County.
Civic Interest in Industrial Development

All civic and certain government groups have provided active leadership in industrial development through the years. The Tillamook County Chamber of Commerce, incorporated in 1931, has been a leader, with development of industry a principle goal. The Tillamook County Court, Port of Tillamook Bay, and Port of Bay City, are examples of government groups active in fostering industrial growth.

Transportation

A branch line of the Southern Pacific is the only railroad in the county. It enters the county in the northeastern corner, follows the coast south, and ends at the United States Naval Base about 5 miles south of Tillamook. The county is also served by the Tillamook-Portland Auto Freight, the Tillamook Mayflower Delivery Service, and by common carrier bus.

U.S. Highway 101 follows the coast from the north to the south end of the county. State highways 22, 18, and 6 connect Tillamook County with the Willamette Valley. State Highway 53 runs from Mohler Junction to the north county line. Communities not on these highways are served by county roads, nearly all of which are blacktopped.

Water transportation, once the principle method of travel, is now nearly nonexistent. The construction of the south jetty on Tillamook Bay will alter this situation. Charter boats are available for deep-sea fishing. Tugs move a limited amount of logs within the Tillamook Bay area. (Transportation is covered in detail in another section of this report.)

Telephone Service

Telephone service is readily available in the county. The north is served by the Nehalem Telephone Company; the central section by Pacific Northwest Bell Telephone, and the south by United Pacific Utilities Company.

Electric Service

Electric service is provided throughout Tillamook County by the Tillamook People's Utility District. Any reasonable amount would be made available to any industry at rates comparable to or below those available at any other location in Oregon. Continuity of service is assured by three 115 KV transmission lines entering the county from different directions.

Industrial Parks

Currently, several major industrial sites are available in the central Tillamook County area. An airport and an industrial park are owned by the Port of Tillamook Bay. The Port of Bay City has industrial land available in the Garibaldi area adjacent to the dock facilities which will be especially useful when jetty and harbor constructions are completed.

Climate and Living Conditions

Tillamook County is a desirable industrial area from the standpoint of living conditions. The moderate temperatures and restful recreational opportunities contribute to the welfare of the worker. The proximity to metropolitan areas of Portland and Salem with their markets and cultural and educational facilities increase the area's values.

WOOD PRODUCTS

An old-growth economy is fading. Some of the past will survive, but the health of the industry depends on developing new and better uses for wood fiber (as such), hardwoods, and small trees. Intensive management tailoring the individual acre, on both public and private lands, to its maximum potential must involve concrete projections of the availability of raw material.

Residues in the form of mill wastes, bark, logging, residue, and thinnings may be the key to profit or loss. With the change to a young-growth management program, a revamping of appraisal procedures on public lands may be necessary.

The worst of the boom-and-bust years should be over for the Northwest forest-products industry, and years of stable, steady growth should be ahead.

With timber from the "Tillamook Burn" a thing of the past, attention must now turn to the use and intense management of young growth. Emphasis will be placed upon intermediate cutting (thinning) and the development of ways to utilize the type of logs thus made available.

TIMBER RESOURCE

There are approximately 14½ billion feet of timber (12 inches or over) growing in Tillamook County. Production in recent years has approached ¾ billion board feet. A considerable amount of this production is exported from the county as logs. Some logs are imported, primarily for special uses. Private holdings have been more intensively harvested than public lands, although this trend is reversing. The timber resource base is over 600,000 acres of forest land.
The allowable annual cut on public lands is nearly 150 million board feet. It seems reasonable that this cut will materially increase in a decade or two with present young-growth management practices.

APPRAISAL METHODS FOR YOUNG GROWTH

With the changeover to young-growth harvest on the public lands, it seems that methods of appraising this timber for sale should be modified to provide the economic incentive to maximize utilization. Appraisal methods seem to be based on old-growth management. Thinnings, use of lower quality trees, and other aspects of young-growth use tighten the cost-benefit ratio and may require changes of policy in appraising. Appraisals should serve to strengthen local economies while also stimulating proper forest management.

MILL AND PLYWOOD CAPACITIES

Although the sawmill capacity in Tillamook County is about one half of the 1950 level, plywood plant capacity is up by about one third. The plywood increase, because of the shutdown of a major plant in 1962, has not kept pace with the national level, where the annual increase of plywood production and consumption has averaged 14% since 1947.

SHINGLES AND SHAKES

The shingle-and-shake industry in Tillamook County is remarkably stable in comparison with other aspects of the timber industry. Employment has averaged about 125 men for the past 30 years. Old-growth cedar is required for this industry. Logs with a 22-inch top are the minimum size.

More than half, 58% to 60%, of the log that enters the shingle mill comes out the other end as waste. This if often long-fiber waste and although most of it is burned at present, the fiber has value as a component of alder-cedar flakeboard.

The future of the shingle industry appears stable, although large cedar logs may be of premium value and in moderate supply. The residue resource, nearly three fifths of the cedar material, presents a challenge to develop worthwhile uses.

CHIPS, WOOD FIBER AND MILL WASTE

Flakeboard and chipboard manufacturing facilities have become commonplace in the Northwest since the late 1950's. These products in various forms compete with both structural lumber and plywood or sometimes are made a part of veneer products. Tillamook County produces a wide variety of chips or residues for use in flakeboards or particle boards. Shingle-mill wastes and alder are two examples.

The production of chips has become a prime method for using mill residues, lower quality logs, and pulp species in the past few years. Currently about 60,000 units a year are shipped out of the county in rail cars or trucks. Logs also leave the county, destined for the chipping plants of paper or pulp mills in the valley or north.

The market for chipped, debarked, wood fiber is growing. Transportation costs from Tillamook County to the chip user are high. For example, the Murray report, 1962, indicated a cost of about $8 a unit in shipment from Tillamook to Longview, by rail or truck.

The completed construction of usable jetty facilities at the mouth of Tillamook Bay will make lower cost barge transportation of chips a probability. Barges could take a large mixed load of chips for domestic use at plants on the Columbia or Puget Sound. Foreign countries have indicated an interest in shiploading chips out of Garibaldi.

Any type of pulping operation, including hardboard, would require more industrial water than we presently have available. Effluent disposal situations and smell in relation to existing industry in the form of tourism, shellfish production, etc., have not been satisfactorily solved.

Flake or chipboard plants cost less to build and use much less water than a pulp mill. Construction costs would run from $1 to $5 million. A variety type of product could be made, depending on types and quantities of raw material available. Market development and competition from domestic and foreign manufacturers is severe.

At present, large quantities of mill wastes are burned. One mill alone burns an average of 800 tons a day. Mills in certain areas have been asked, by the Oregon Sanitary Authority, to shut down their burners. This is an air-pollution-control measure. There are no concrete indications that coastal mills will face this same request. If this closure does occur, however, waste disposal will become a real factor in the economy of any coastal mill. The problem of finding a way to get rid of this waste, at a break-even figure, may force the development of some form of residue plant.

Recommendations

* The economic growth of Tillamook County, from nearly every angle, depends on the development of adequate jetty channels and dock facilities to increase deep-sea shipping. We recommend that the development of the south jetty on Tillamook Bay, channels, and dock facilities be the first project of all Tillamook County citizens.
* We recommend that all sources of credit, management, and technical knowledge be directed towards the further development and improvement in efficiency of local mills and plants in order to mill and process Tillamook County logs more completely.
* The problem of log shipments out of the county, either to foreign lands or to domestic mills, is not new or easily resolved. In view of the importance of supporting the economy of Tillamook County, the committee recommends that efforts be made to utilize as large a percentage as possible of county logs in local mills. This will, in some cases, require updating wood-utilization plants or the construction of new facilities where economically feasible.
* The committee commends the improvements in managerial procedures being followed on public lands and
recommends that every effort be made through intensive management to increase allowable cut to the maximum.

* The committee recommends that immediate studies on the utilization of mill residues, bark, and chips in Tillamook County be undertaken by appropriate private companies and by state and federal agencies. These studies should consider a production plant for hardboard, refined methods of shipping chips, and other methods of manufacturing or processing of forest products that would be economically feasible.

* The need for trained manpower in the wood-products industry is increasing because of the rapidly changing technology in this industry. The committee recommends that high-school graduates be encouraged to secure advanced training in forest-products industry fields and also that vocational training, in the industrial-forest-product field, be made available at high-school level.

* The port authorities on Tillamook Bay are commended for their work in planning and developing industrial parks to serve the future expansion of industry in Tillamook County. The committee recommends that, insofar as practical, future industrial development be encouraged to locate in the industrial park areas.

* The need for an adequate water supply to serve both domestic and industrial needs is recognized. The committee commends the work of the Tillamook Water Resource Committee and the county court in securing a study of water and sewage needs in the county and recommends that steps be taken by private and public agencies to develop an adequate water and sewage system to serve Tillamook County’s present and future needs. There is a need for the protection of our present water resources and planning for their wise use in the future.

* The committee commends the Tillamook County Court and the Oregon State Forestry Department for the progress made in the utilization of the forest resources of county-owned lands under Oregon State Forestry Department management. The committee recognizes the responsibility of the county for the repayment of state funds used in the rehabilitation of the Tillamook Burn. It is recommended that a proportional retirement of state bonds used to finance the rehabilitation of these lands be made on an annual sales basis, when the rehabilitation areas are harvested. The present division of monies received from all timber sales of 75% to the county and 25% to the State of Oregon should not be changed.

**Recommendations**

* The committee recognizes alder as an important forest product in Tillamook County and recommends the alder men for progressive use of the resource in lumber, plug mill operation, specialty handles, and chips.

* The committee recommends that the public agencies refine alder inventories and schedule and offer for sale the annual available cut of this species. This is the principal material assistance that can be offered the alder-dependent industries.

* The committee recommends: that uniform market standards for grading logs and lumber be adopted by the alder industry.

* Market research and development seem necessary in determining uses and consumer acceptance of alder products. Public agencies and private industry are asked to aid in this work.

* A custom alder-drying facility seems to be an important need in Tillamook County. It will be necessary to make compete utilization of the alder resource where economically feasible.

* Many important alder growing areas in Tillamook county are located on private river-bottom lands, etc. We suggest that short courses on alder management and growth might be of value in teaching cultural methods. The end result might be better logs for the alder industry and better returns to the land owner.

**HARDWOOD-ALDER**

Alder, the weed tree of a few short years ago, has a useful present and a promising future in the wood-products industry of Tillamook County. Alder is a wood of many uses. Easily worked for furniture, paper roll plugs, and paint handles, alder is also an important pulp ingredient.

Nearly one billion board feet of alder is available for harvest in Tillamook County. The short-range outlook is for a maximum abundance of marketable alder. Alder acreage will level off on a long-range basis. Poorly drained areas, creek bottoms, and small private holdings will probably continue in alder production. Alder may be the biggest dollar on many of these areas.

The substantial alder acreage on small private holdings, river-bottom pastures, etc., is sometimes cut to clear the land for additional pasture. In reality, these sites may produce greater return if maintained as an alder farm. On well-adapted and stocked sites a crop of 20,000 BF/A can be produced in 40 to 60 years. The wood products industry could profit from the production of more desirable logs.

Alder logging and utilization require a technology that is unique and differs from the harvest and use of softwoods. It is fortunate that the county has a number of excellent alder loggers and lumbermen.

Although alder stumpage prices have increased almost 300% in the last few years, market developments have not kept pace. Lower grades of alder lumber are generally unsalable. Air drying is not possible on the Oregon coast. The several alder mills in the county ship the green lumber to Portland for kiln drying. Even-toned honey-colored alder is preferred by buyers.

On the public lands, many so-called alder sales are in reality multispecies sales with one half or more of the volume in spruce, hemlock, small fir, etc. This works a hardship on the alder logger. The appraised price is often based on the softwoods instead of the alder. The softwood logger, who may purchase the sale, may flood the market with alder, leave much of it in the woods, or experience technical difficulties in handling the logs.

Alder chips must form an important part of the market if the industry is to be economically sound. The production of semi-chemical pulp may eventually exceed all other alders uses. Unresolved questions of where and how to chip and what to do with the product must be answered. For full utilization, plant integration to handle the entire log is important.

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MISCELLANEOUS WOOD PRODUCTS

Tillamook County is an important area for the production of sword fern, evergreen huckleberry, salal, noble fir, noble fir boughs, and cones for seed. Many of the above items are processed for the florist trade. Cascara bark is harvested and sold either wet or dry. Small quantities of other medicinal plants find an occasional market.

Christmas trees are another important forest product. Varieties include Douglas-fir, shore pine, and noble fir. They are big business in many areas of the Pacific Northwest and promise to become increasingly important in Tillamook County. Most Tillamook Christmas trees are from naturally reseeded logged-off forest lands. Some are cut as surplus from stands managed primarily for timber.

FOOD PRODUCTS AND AGRICULTURAL MARKETING

Total milk production has been increasing each year. Grade A milk production has been on the increase. Cheese milk production shows a slight decline. The trends in milk production for the past 10 years are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Grade A Milk</th>
<th>Cheese Milk</th>
<th>Total Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>21,342,000</td>
<td>97,639,000</td>
<td>118,981,000</td>
</tr>
<tr>
<td>1962</td>
<td>44,727,000</td>
<td>95,182,000</td>
<td>139,909,000</td>
</tr>
<tr>
<td>1967</td>
<td>59,000,000</td>
<td>89,845,000</td>
<td>148,845,000</td>
</tr>
</tbody>
</table>

It is expected that total production of milk will continue to increase at about the same rate as during the past 5 years. Income from dairy-product sales accounts for about 85% of the county's $9,283,000 annual sales of agricultural products.

The increase in size of the dairy farm has caused smaller units to go out of production. Efforts are being made to locate cash crops that might increase farm sales on farms too small for a successful dairy enterprise. These cash crops could give rise to processing plants such as quick freeze, canneries, etc.

There has been a decrease in the agricultural labor force from 890 in 1962 to 790 in 1966. Food-processing and manufacturing-plant employment declined from 316 in 1962 to 250 in 1967. It is expected that further declines in employment will occur in dairying.

Recommendations

In view of the large volume of milk produced in Tillamook, it is recommended that research dealing with quality control, manufacturing, new products, and use of waste products be increased as soon as possible. The establishment of a dairy research laboratory in the area or a stepped-up research program by OSU on manufacturing dairy products is suggested. Better use of milk sugar, whey solids, and fats are current problems of the local industry.

Gift packs of cheese have proved to be popular items for a number of years. We have other agricultural items that might lend themselves to gift packaging alone or in combination with other foods. These might include mushrooms, wild berries, huckleberries, and seafoods. The seafoods might be combined with dairy products in many different combinations such as oyster stew, clam chowder, etc. Holly could be sold as sprays, wreaths, or in combination with food items. Wild mushrooms could be an interesting specialty item.

The availability of a food processing plant that could process a wide variety of foods is essential to the development of a gift-package or tourist-pack food specialty business. It would require a plant that could handle specialty products from mushrooms to meat. Swiss sausage, smoked oysters, smoked salmon, canned crab, ocean shrimp, blueberry preserves, etc., are a few specialty items that could be considered. Containers might be made of local woods such as driftwood or of shells.

The climate in Tillamook is ideal for production of ornamental shrubs, certain cut flowers, and bulbs. Local markets are needed. Cut-flower and holly production depends on fast, low-cost transportation to central markets. Air freight connections with eastern markets could also benefit this enterprise. The committee urges the chambers of commerce and other organizations to do everything possible to promote air freight service from Tillamook.

Small fruits and vegetables may offer some opportunity for the development of a food-processing or freezing plant. It is recommended that trials be established to determine yield, cost of production, and quality of certain small fruits and vegetables adapted to coastal conditions.
The ocean remains a new frontier. The coastal estuaries, of which Tillamook County has about half of Oregon's total, are often referred to as tide flats. Tide flats they may be, but in life processes few more productive areas may be found. Harnessing these bays is a real challenge. We know little about them or the food chains which trigger the phenomenal growth within them.

Tillamook started early in the use of fish resources. As other industries advanced, the fisheries declined. Now, perhaps, it is time to consider seriously fish resources as promising opportunities. Much of Tillamook's heritage and future lies in the sea.

SALMON

At one time five salmon canneries operated in Tillamook Bay. A few short years ago, the Tillamook Bay Fish and Crab Company employed about 50 people during the fall season. The fishermen's union on Tillamook Bay once boasted 179 paid-up members. Now there are none.

The commercial salmon industry on the bay was principally a chum fishery, although silvers, steelhead, and a few chinook were also taken by the nets. The runs of fish dropped off especially the chums. This was apparently not a local phenomenon, since the chum runs on the north Pacific rim from Tillamook to Siberia reflect a similar history. Perhaps stream pollution, logging, fires, or gravel dredging in local rivers had an adverse effect on the chum run. After a dismal 1961 November chum season, the Oregon Fish Commission closed the Tillamook Bay season until such time as the runs of fish had rebuilt.

The Oregon Fish Commission is conducting spawning-ground surveys on chum, chinook, and silver salmon. These studies are conducted annually to determine trends of abundance. Chum salmon are studied more intensively than the other two species since, if numbers can be restored to further abundance, a commercial fishery would be possible under the existing regulatory statute. Fish commission activities at present are confined to monitoring the annual runs and developing recommendations for habitat improvements.

Salmon, fortunately, are a living resource. With increased effort the abundant chum runs may come again to Tillamook Bay. The return of the chum may necessitate studies and a great deal more knowledge than we now have. Salt-water rearing or other advanced techniques may have a place.

Salmon Troll Fishery

Salmon feeder runs are taken in the troll fishery off Tillamook County. Most of the fishermen dock at Astoria, Depoe Bay, and Newport. A few trollers work out of Cape Kiwanda and on good days out of Garibaldi. The construction of the south jetty is necessary to bring these boats into Tillamook Bay.

CLAMS

Cockles and eastern soft-shell clams are the important commercial clams in Tillamook County. The blue (gaper) clam, the cockle, and perhaps other species were canned on Tillamook Bay a decade or so ago. Currently, cockles form about three-fourths of the commercial production. The eastern soft shell is dug commercially in both Nehalem and Tillamook bays. Cockles are used for crab and fish bait by commercial crabbers and sport crabbers and fishermen. Commercial crabbers purchase Washington-grown razor clams for crab bait also. Cockles and eastern soft-shell clams are utilized by restaurants for chowder and fritters.

Although clams are still abundant, production seems to be much lower now than in the past. Intensive management might well bring production back to former levels. Probably the significant industrial aspect of the clam resource is the estimated 30,000 clam-digging trips made by sports diggers on Tillamook County bays each year. These excursions result in the harvest of approximately one million clams a year.

A Tillamook bay oyster bed. This oyster crop is valued at $16,000 per acre over a three year period.

OTTER-TRAWL FISHERY

Although Lincoln and Clatsop county ports indicate otter-trawl production totaling $10 million a year, Tillamook County produces little or no bottom fish. There is only one reason. The bar crossing is too hazardous. The south jetty on Tillamook Bay will spur development of an otter-trawl fleet out of Garibaldi.

The otter-trawl fishery (bottom-fish industry) from Tillamook Bay ports started in 1915 when the Union Fish Company operated a trawler out of Bay City. Since then, trawlers have landed in Tillamook Bay in a sporadic fashion. Trawling has never been considered a thriving industry. One small processing plant is still in operation. Only small amounts of bottom fish, however, have been landed in the past few years.

FISHERIES
OYSTERS

The oyster industry in Tillamook County was conceived in the mind of J.S. Hayes in 1910 when he found half of a native oyster shell in the tailing pile of a channel dredge at Bayocean. From that time on, Hayes searched for an area and an oyster that was suitable for oyster culture. In 1922 he tried some small plantings of Pacific oysters from Japan. These oysters grew very well, and oyster farming on Tillamook Bay was launched.

With four commercial operators, Tillamook Bay now produces 85% of Oregon’s oysters, mostly Pacific oysters. In 1947 a small Kumamoto industry was started. This farm now produces about 40% of the North American production of the Kumamoto cocktail oyster. The bulk of the oyster pack enters the fresh trade. In years of abundance, sizable quantities are packed as stew. A small cannery operates on the bay, but most of the stew processing is done in Seattle. Three shucking houses operate on the bay. Production in 1962 averaged about 80,000 gallons of shucked meats. However, the use of scientific advances promises a great increase in production. The industry employs 40 to 50 people at the present time. It is possible for Tillamook Bay to produce between $1/4 to $1 million worth of oysters per year and increase employment to more than 200 people in the oyster industry.

CRABS

Although Tillamook Bay was an important crab-canning area at one time, current production is at a low ebb. Crabs are scarce, with the 1964 catch estimated to be 70% less than the 1961 harvest. Commercial landings in Tillamook Bay usually total about 10% of the Oregon take.

Two major commercial crabbers process crab for the fresh market. This product is sold shucked or in the shell. A number of individual crabbers fish the bays, selling their product locally.

The completion of the south jetty on Tillamook bay is a vital need for commercial crabbers. The hazardous bar crossing limits commercial crabbing efforts during the prime winter season.

SHRIMP

The two major pink-shrimp beds off northern Oregon lie in 60 to 90 fathoms off Cape Falcon and off Tillamook Head. There are currently large quantities of shrimp on these beds. In 1967 Smith Brothers begin a sizable shrimp-processing plant in Garibaldi employing up to 75 women. Continued development is encouraged.

MISCELLANEOUS FISHERIES

Bait fisheries, utilizing mud and ghost shrimp and herring, provide part-time income for about a dozen people in the county. The shrimp are dug every day or so and sold live. Herring are seined in early spring and frozen.

There has been sporadic interest in the collection and preservation of invertebrate animal forms for educational and scientific uses. Tillamook County coastal areas have abundant invertebrates. Collection, however, requires specialized zoological knowledge and experience in microtechnique and other highly technical subjects. The raw material is here, and a small market for the product could probably be developed.

Recommendations

* A safe entrance and exit to Tillamook Bay through construction of a south jetty is essential to expansion of commercial and recreational salmon fishing, trawling, crabbing, shrimping, and other commercial uses of the sea.
* The committee recommends the development of a shellfish and fisheries experimental farm, similar to agricultural experiment stations, in a Tillamook County estuary. This station would determine new methods and techniques applicable to the production of fish and shellfish.
* The committee advises that immediate studies on chum salmon biology, including adaptability for salt-water rearing-pond techniques, be commenced by the Oregon Fish Commission or appropriate groups. A goal would be to determine when a commercial chum salmon fishery might be reestablished in Tillamook Bay.
* The committee recommends that the United States Bureau of Commercial Fisheries, the OSU Agricultural Experiment Station, the OSU Marine Science Center, and other state and federal groups expand studies to develop new harvest methods for the products of the sea and new ways to utilize this harvest.
* Netarts, Nehalem, and Nestucca bays have potential for redevelopment of sports and commercial fisheries. This includes oyster, shrimp, and other shellfish. The committee recommends that citizen groups and county, state, and federal agencies offer help and ideas toward the full development of these valuable estuaries.

(U.S. 26) on the east and leads directly into U.S. 101 at Tillamook.

In Tillamook County there are 130.03 miles of primary
MISCELLANEOUS INDUSTRIES

Although timber, agriculture, fisheries, and tourism will be major industries in Tillamook County, there are many other possibilities for local enterprises using the talents and materials available.

RETIRED CITIZENS

An important resource in the county is our force of retired citizens. Retirement is coming at an earlier age. Many of these people choose to settle in the county after successful careers in management or as skilled craftsmen. Some of these people would welcome the opportunity to use their talents, at least on a part-time basis, in industry, labor, management, or craftsmanship.

The committee suggested that shelter workshops and craft and cottage-type industries might be a suitable outlet for some of these talents. The products could be offered for sale at a specialty market in the area.

Beach locations are especially attractive to art-oriented persons. Opportunities for craftsmanship in the arts—painting, sculpturing, rock and shell work, driftwood and dry arrangements, and other types of crafts are readily available.

MINING INDUSTRIES

Mining industries in the county are limited to tile manufacturing and gravel mining. One tile factory produces an excellent grade of irrigation tile in sizes ranging from 3 to 12 inches in diameter. One family operation uses clay deposits adjacent to the factory.

Small deposits of low-grade coal have been found on Neah-Kah-Nie mountain. This material has not been used but may be of some value at a later date.

The “chemical soup,” off the Tillamook coast, which we call sea water contains virtually all of the elements known to man. Soon the sea will be an important area for mining operations. With new techniques, prospecting for minerals on the ocean floor is now possible.

Mineral deposits in the ocean can be separated into three groups: (1) the ocean itself, (2) the minerals beneath the continental shelf; and (3) the mineral deposits which have been concentrated on the ocean floor.

Although mining the ocean poses a challenge, geological and geophysical equipment designed for oceanographic research can be used now in prospecting for marine mineral deposits. Technology is bringing bringing us close to the time when those with initiative and imagination will turn to the sea simply because it is easier to make a profit from the sea than from the land.

Recommendations

* The committee recommends that: Special attention be given by community, state, and federal planning agencies toward the development of cottage and craft industries to utilize the talent of the skilled retired and semiretired people in Tillamook County. These opportunities could be enlarged to include a public specialty market in the county to sell craft products.

* The OSU Department of Oceanography give increased attention to the potentials of mining the sea and that Tillamook County residents understand the potentials of sea-mining operations.

* Specialty industries, large and small, consider Tillamook County as the site of plant location—pointing out that climate and living space are important concerns in the happiness and productiveness of the worker.

TRANSPORTATION

HIGHWAYS AND ROADS

STATE HIGHWAYS

Highway transportation plays a vital role in the economy of Tillamook County. The forest industry is dependent upon roads to transport logs and other forest products to mills. The sawmills and plywood plants need highway transportation to get products to market. The dairy industry, which accounts for 90% of the agricultural income of the county, is dependent on good highway-transportation facilities to get milk to processing plants as well as to get dairy products to market. Markets for Tillamook forest and dairy products are found throughout the Pacific Northwest and the nation.

The tourist industry is dependent upon good roads as well as bus service. In the last decade progress has been made in improving highways leading into Tillamook County from the south and east. The cutoff from the Sunset highway to the Wilson River highway and the Cascade Head road between Lincoln County and Neskowin on Highway 101 are outstanding examples of state highway improvements resulting from the demand of traffic. The effective work of the Tillamook Chamber of Commerce and many other organizations is recognized.

Tillamook has unlimited tourist attractions. These include 60 miles of beaches, 3 bays, 8 major streams, 7 boat landings, deep-sea dory fishing, charter deep-sea fishing boats, clamming, crabbing, and stream as well as surf fishing. Hotels, motels, and camping facilities need to be improved and expanded. Improved highways and the Columbia interstate bridge at Astoria have begun to stimulate tourist traffic. This will continue to create a need for additional accommodations.

Highway U.S. 101 extends from the Lincoln County line on the south to the Clatsop County line on the north. It is the coast highway and connects beach towns from the California line through Tillamook to Astoria. Oregon 6, the Wilson River highway, connects with the Sunset highway.
and 18.38 miles of secondary state highways. The Oregon coast highway, U.S. 101; Wilson River, Oregon 6; Necanicum, Oregon 53 are the main primary state highways. The little Nestucca and Netarts roads make up the state secondary highways in the county.

The state highways generally need improvement to handle present and future traffic loads. The completion of the Cascade Head road from Otis to Neskowin and the Bay City road to Hobsonville Point have greatly improved the Oregon coast highway, U.S. 101, on these sections. Future improvements of state highways within Tillamook County are recommended as follows.

Recommendations

* Highway 101 from Pacific City to Manzanita should be improved and modernized at the earliest possible date.
* Relocation of the section of Highway 101 from Manhattan to Manzanita would encourage the development of the Manhattan and Manzanita recreational areas and open to the public a beautiful section of the Oregon coastline.
* Studies and relocation surveys should be made on Highway 101 extending from Hobsonville Point to Manhattan to bring this section of highway up to modern traffic standards. The projected increase in traffic resulting from the construction of the bridge across the Columbia at Astoria may make action on this project imperative in the near future.
* Highway 6 is the main route from Tillamook to Portland. The section from Mills bridge to the Sunset highway should have the shoulders widened and be resurfaced in the near future. The section from McNamers Camp (mile post 28) to the Devils Lake bridge (mile post 31) should be realigned, resloped, and brought up to modern highway safety standards.
* The committee recognizes the need for a cutoff from Dolph on Oregon 22 to Boyer on the Salmon River highway, Oregon 18. The construction of about 5 miles of the highway could improve the route from Hebo to Valley Junction by eliminating the need to travel Oregon Highway 22 from Dolph to Valley Junction. We urge this project be given early consideration by the State Highway Department.
* Highway 53 from Mohler to the Sunset Highway does not meet modern traffic requirements. It is recommended that studies be made immediately to determine the most feasible method of improving or developing a modern highway connection between north Tillamook County and the Sunset highway. Improvements then should be made as funds are available.

COUNTY ROADS

The high rainfall, about 90 inches, and soils typical of this coastal area pose very real problems in construction and maintenance of coastal roads. Experience has shown that an asphaltic concrete or an oiled-surface road gives the best service. Even though the cost is more, the annual upkeep and cost per user mile is much less. Asphaltic concrete or oiled-surface highways do require timely maintenance.

Tillamook County has one of the finest county road systems in Oregon. Of the 324 miles of county road 72% is asphaltic concrete or oiled and the rest have a rock surface. In Oregon only 33% of the county roads are paved or oiled and 21% rocked. Of the county roads in Oregon open for travel 46% are not surfaced. Tillamook County has been able to keep the annual budget for roads at an average of about $700,000 from 1957 to 1967. This is almost $35,000 less than the amount spent in 1957-58 on roads. Rising costs have been held in line by sound road construction and a progressive program of road paving.

Recommendations

* An annual road-oiling or paving budget should be set up to insure maintenance of present surfaced roads and to complete surfacing of rocked roads as the need arises. The reasons for this conclusion are as follows: The standard asphaltic concrete top for state highways is 4 to 5 inches thick. This is put on in steps of 2 inches per application. In order to top as many miles of county highway as possible, the 107.39 miles of oiled road received a 2-inch topping, or first coat. Less than 2 miles received the second 2-inch step needed to bring it up to state highway standards. The program was to put down the second 2-inch coat as soon as the 107.39 miles received the first application. Lack of funds delayed the program, and if money is not available to complete the plan, great damage to the paved roads in the county will result.
* The committee recommends that the county complete the present program of resurfacing with asphaltic concrete as needed. Paved highways should be resurfaced with asphaltic concrete on the 126 miles of oiled roads as funds are available, and rocked roads should be oiled as soon as practical.
* The committee recommends that the county follow the present program of resurfacing with asphaltic concrete as needed. Paved highways should be resurfaced with asphaltic concrete on the 126 miles of oiled roads as funds are available, and rocked roads should be oiled as soon as practical.

AIRPORTS AND AERONAUTICAL FACILITIES

Community development without adequate air transportation is slow and difficult. Large companies demand adequate airports to service their businesses for transportation or personnel, emergency repairs, and air freight. The need for adequate airport facilities is as great for recreational areas and forest-industry locations. Most
industrial firms now realize the value of aircraft for their
day-to-day transportation needs. When selecting sites for
plants, management places great importance on the
availability of adequate community airports.

Tillamook County is presently served by three airstrips:
the Nehalem Bay strip, the Pacific City strip, and the
Tillamook airport located on the Naval Air Station at
Tillamook.

The Nehalem Bay airstrip is a 2,400-foot gravelled
strip about 20 miles north of Tillamook and just south of
Manzanita, near Nehalem Bay. There are few or no services
available at this strip, and its location provides very little
room for expansion. Its future undoubtedly will be limited
to small aircraft, and it will be used mostly by sportsmen
and commuters traveling by air between metropolitan areas
and beach homes.

The Pacific City airstrip is located about 20 miles south
of Tillamook. It is a paved strip 1,850 feet long and 30 feet
wide. Like the Nehalem strip, it has no base operator and
few service facilities. It would be difficult to find available
space to lengthen and expand this strip if the need should
ever arise. It is used by several locally based planes and has
become quite a popular strip for sportsmen, since it has the
unique distinction of being perhaps the only strip on the
Oregon coast where a sportsman can land his plane and
walk to good fishing and boating waters.

The Tillamook airport is the former Navy airstrip used
during World War II in conjunction with the Navy
lighter-than-air operation on the Tillamook Naval Air
Station. It is located about 3 miles south of Tillamook. This
airport has two strips, one 5,000 feet long and 150 feet
wide and one 4,000 feet long and 150 feet wide. In
conjunction with the strips, there are very ample taxiways,
aprons, and tie-down areas. An airport operator serves the
airport, and charter service is available. There is a small
hangar for limited plane storage. This airport is presently
recognized by the Federal Aviation Authority and is listed
in their national directory. When fully developed, this
airport will be one of the best on the Oregon coast and will
be of great value to aviation because of its strategic
location. It will serve most aircraft from the smallest planes
to moderately sized multiengine aircraft.

Recommendations
* The committee recommends that the operation of the
Tillamook airport continue under the administration of the
Port of Tillamook Bay subject to the rules and regulations
as prescribed by the Federal Aviation Administration.
(Note: The airport property has been deeded to the Port of
Tillamook Bay subject to rules and regulations.)
* The committee recognizes that the statutory powers and
framework of a port commission enables a port commission
to develop an airport and operate it more effectively than
other agencies.
* The committee recommends that the airport development
program as proposed by the Oregon State Board of
Aeronautics and adopted by the Port of Tillamook Bay be
implemented as expeditiously as possible. Proposed
improvements include:
  * Automatic lighting of the 4,000-foot runway as a
    cooperative project between the Oregon State Board of
    Aeronautics and the Port of Tillamook Bay. (Note: Automatic lighting of the 5,000-foot runway together with the installation of an automatic beacon has been completed as a cooperative project with the Oregon State Board of Aeronautics.)
  * Seal coating of the runways as a cooperative project
    between the Oregon State Board of Aeronautics and the
    Port of Tillamook Bay. (Note: Scheduled for 1968.)
    Construction of 58 hangars in a series of 5 buildings.
    Buildings to be designed for single engine, light twin-engine,
    and an executive twin-engine craft.

* Tillamook airport work is needed to develop an air-freight
flight schedule out of Tillamook. The committee
recommends that this be accomplished by developing
adequate local facilities. Shipment of the usual air-freight
type commodities should be promoted. The possibilities of
shipping wet goods such as fresh crab, fresh oysters, and
fresh shrimp by air-freight, should be investigated, and if
such practice is feasible it should be adopted. (Note: King
crab is served in Southern California at present in
restaurants because of lack of dependable shipment of
Dungeness crab.)

* The State Parks and Recreation Division and the Oregon
State Board of Aeronautics are urged to work together in
the development of the Nehalem Bay strip. The State Parks
and Recreation Board could also work with the State Board
of Aeronautics on improving services at the Pacific City
airport. Improvements might include maintenance of
unobstructed approaches; provision of navigational aids to
meet needs; communication system and weather reports;
and a lighted airport.
* Full support is given to the air-search and rescue
organization of the Oregon State Board of Aeronautics,
with special recognition of the fine work of the Tillamook
Air Posse. This work should be continued and expanded, since their assistance during the tourist season and hunting season can be invaluable.

* Schools are urged to take an increasingly active part in educating their students concerning the air space age. It is desirable, where possible, that aviation courses be included in the curriculum on a high-school, junior-college level.

**TILLAMOOK BAY**

The present north jetty and entrance channel do not provide an adequately protected entrance from the ocean to the bay. The entrance to the bay is not usable for any type of vessel for approximately 8 months out of the year. Only small fishing and sport-fishing boats now use the bay entrance. Barges and coastwise lumber-carrying vessels that formerly served the bay have discontinued operations because of rough water conditions due to the unprotected bay entrance. These conditions caused excessive delays in shipping and consequently, monetary losses.

Erosion that contributed to a breakthrough of the Bayocean peninsula is continuing. The Bayocean dike was constructed in 1956 by the Army engineers to close the breakthrough of the Bayocean peninsula. A study of shore-line changes readily shows past erosion. In about 1900 more than 2,000 beach lots were sold on the Bayocean peninsula. More than a million dollars was invested at that time on the development of this area.

This, of course, has been destroyed by erosion in the intervening period. A forecast of the future, based on what can be seen in the past, points out that destruction of the Bayocean peninsula is inevitable unless corrective measures are taken. It is believed that the north jetty at the entrance to Tillamook Bay constitutes an artificial force that contributed, in a large part, to the destructive erosion of the Bayocean peninsula.

**Port Improvement**

The need for port improvement centers around Tillamook County's industries, which consist of lumbering, dairying, commercial fishing, and recreation. The lumber industry supports the largest segment of the county's economy. It is also the industry requiring low-cost water transportation to survive. Annual log requirements of the four major mills are 175 million board feet annually. The annual allowable cut from the Oregon State Board of Forestry, the Bureau of Land Management, and the National Forest Service was 117 million board feet in 1960. The present pattern of timber sales indicates that about one third of the allowable cut of the government-controlled timberlands in Tillamook County is shipped out of the county for utilization. This reduces the assured available log supply to 78 million board feet and indicates a deficit of 97 million board feet per year.

With this log deficit, the need to bring in logs from sources outside this area is clearly essential. Sources most likely to be available would be British Columbia, Alaska, and South and Central America. Low-cost water transportation is essential to movement of logs from these areas to Tillamook.

Dairying is the major agricultural enterprise in Tillamook County. Ninety percent of the agricultural income is derived from dairying. Tillamook is one of the most highly specialized dairy counties in Oregon. It is the leader in dairy cattle numbers and milk production in Oregon. Tillamook County leads the Pacific Northwest in cheddar cheese production.

Commercial fishing was once an important part of the county's economy and is improving since completion of the north jetty extension. This will increase with construction of the south jetty. Oyster culture is a small but economically important segment of the seafood industry and promises to become increasingly important in the future.

Recreational facilities in the bay area provide a good seasonal industry which has shown tremendous growth and great potential.

**Shipping**

The Tillamook bay shipping potential is enormous if the port could be used on a year-round basis. Commercial water-borne tonnage potential consists of:

4. Peeler logs (inbound). The potential for large-scale annual movement of logs into the bay via water carrier is both realistic and necessary in the future to maintain present production volume.

4. Veneer (inbound). Veneer has been purchased from the Far East and discharged at Longview, Washington, and trucked to Tillamook.

4. Wood chips (outbound). The 100 to 150 thousand units of wood chips produced annually by Tillamook mills move to pulp plants in Oregon and Washington via truck and rail. More than half of these chips move to pulp plants located on tidewater on the Columbia River. These chips could be transported at less cost by barge if entrance conditions were such that safe year-round barge service were available.

4. Lumber (outbound). The annual production capacity of 80 million board feet per year from the mills in the area is a real potential for low-cost water transportation. It could also open new markets and provide economical transportation for heavy green hemlock.

4. Plywood (outbound). The 250 million square feet of plywood finished annually in the area represents a sizable amount of bulk-type tonnage that could use low-cost barge transportation to advantage.

4. Pulp logs (outbound). The present large volume of outbound pulp logs now being trucked or trucked to rail sidings and loaded for rail shipment to pulp plants could use low-cost water transportation to the economic advantage of the area.

4. Agricultural tonnages. Tillamook dairymen import from 10 to 15 thousand tons of hay, 10 to 12 thousand tons of grain, and 2 to 3 thousand tons of agricultural lime annually. The need for agricultural lime will exceed 10,000 tons annually. However, high cost prevents usage equal to needs. Much of this bulk-type tonnage originating in the upper Columbia River areas of eastern Oregon or Portland could be considered potential barge tonnage.

**Commercial Fishing**

The number of commercial fishing boats now using the harbor would be doubled if a safe entrance were available. The short run to fishing grounds is a real advantage for Tillamook Bay-based boats.
3 Recreational Potential The potential for recreational use of the bay areas with an improved entrance is unlimited. Tillamook Bay could be the most outstanding deep-sea sports fishing port. Improved roads put Portland’s 300,000 people within less than 90 minutes from Tillamook Bay. The new housing development in the Somerset West area, as well as other nearby interior Willamette Valley towns, puts additional thousands of people within one hour’s driving time of the port region. The explosive growth of small boat-owners represents another great potential in the development of the area.

Road and Rail Connections

Tillamook Bay has good road and rail connections. U.S. 101 passes through Tillamook, Bay City, and Garibaldi. Highway 6 provides through Tillamook, Bay City, and Garibaldi. Highway 6 provides a direct route inland to connect with the Sunset Highway (26) to Portland. Highway 22 provides access to Tillamook from Salem and other inland valley towns. Tillamook is the end of the 116-mile rail line branch of the Southern Pacific Railroad from Portland. At present most industries depend on rail service for outshipments.

OTHER BAYS

NEHALEM Nehalem Bay is noted for fishing, water sports, and recreation. It has fine facilities for boat launching. It is well supplied with tourist facilities, marinas, boat rentals, docks, etc. The Nehalem Bay jetty requires rehabilitation. The deteriorated condition of this jetty allows seas to wash over the jetty at high tide, causing rough conditions in the entrance channel.

NESTUCCA Nestucca Bay is used entirely by small boats. Sand has filled the channel in certain places, making navigation by small boats difficult at low tide.

NETARTS Netarts Bay is a clean bay with no pollution. It is ideal for recreation, boating, and fishing and has a good potential for shell fish: oysters, clams, and crab. It provides duck and brant hunting in season. Its shores are ideal for homesites and commercial development.

Recommendations

* Immediate construction of a south jetty is essential on Tillamook Bay. A south jetty is required at the bay entrance to provide a safe entrance to the bay.
* It is recognized that the responsibility for the port improvements at Tillamook Bay rests with the federal government, through its Corps of Engineers, and with the port commissions of Bay City and Tillamook Bay and with the Tillamook County Court through their acceptance of joint responsibility. It has been through these governmental agencies that the expenditures of federal and local public funds have been made for the existing tax-supported port facilities in the bay area.
* The present detailed economic feasibility study of the inner bay area being conducted by Thomas J. Murray & Associates at the request of the Tillamook county court, the Port of Bay City, and the Port of Tillamook Bay must be completed with utmost dispatch. This study should include the following:
  An examination of the possibilities of deep-water navigation from the ocean to Garibaldi.
  A barge channel to Bay City and to the head of navigation on the Tillamook River.
  Construction of the new channels found necessary and justifiable on other tributaries to the bay.
  Reestablishment of the current dike system in the bay.
  The need for the location of small boat harbors in the bay area to serve commercial fishing and recreational boating needs for a minimum of the next quarter century.
  Any other appropriate water-oriented development.
* Need for rehabilitation of the Nehalem Bay jetty is recommended for recreational purposes.
* The Nestucca Bay channel should be cleared of sand to allow small boats to use the area from Pacific City to the sea for fishing and recreation and encourage stabilization of sand dunes.

RAILROADS

There are two railroad companies serving portions of Tillamook County: the Southern Pacific Company and the Short Line Railroad Company and the Short Line Railroad, which serves the former Naval Air Base near Tillamook.

The Southern Pacific Railroad has about 55 miles of main-line track and approximately 15 miles of spur track within the county.

The train, which carries all freight and no passengers, leaves Portland and arrives in Tillamook at approximately 7:00 p.m. on Mondays, Wednesdays, and Fridays of each week, serving the following points within Tillamook County: Wheeler, Mohler, Garibaldi, Bay City, Juno, the North Plains Lumber Company, the cheese factory, and Tillamook and connects with the Short Line Railroad, which serves the Naval Air Station. Service could be available to Rockaway.

There is no piggyback service available into Tillamook County because the curvature in certain portions of the track is too great for the 85-foot-length cars used in the piggyback service.
The Port of Tillamook Bay operates a short line railroad. It is a member of the Short Line Railroad Association. The service is daily switching for the industrial firms on the premises between the air station and the south city limits of Tillamook to the Southern Pacific Company interchange.

The line consists of tracks into each of the two hangars: three spur tracks, one where chip cars are loaded, one that is used by two shingle companies for loading cars, and the other for loading log cars. There are three sidings for car storage, and also a spur into a new building where the engines are housed. The total trackage is approximately 10 miles. There are two diesel electric engines; one a forty ton, the other an eighty ton. If there should be a need in the future for other spur tracks, there are areas that can be utilized for that purpose. The commission operates under the Interstate Commerce Commission and the Oregon Public Utility Commission. The tariff lists the switching charge from the short line tracks to the interchange track with the Southern Pacific Company.

**Recommendations**

* The Port of Tillamook Bay Short Line is essential to the industrial development of the airport and industrial Park. The committee recommends that all federal, state, and county and private interests give every assistance and support possible to this short-line railroad.

* It is recommended that steps be taken to insure all rates on inshipments as well as outshipments by rail are competitive with Astoria, Portland, or Coos Bay rates on east-coast and intermediate-point shipments.

* The committee recommends close cooperation with the industrial development section of the Public Relations Department of the Southern Pacific Railroad Company. Tillamook County has a very fine relationship with its mainline railroad, the Southern Pacific Company. The Southern Pacific has, over the past 20 years, aided in the maintenance and repair of tracks, as well as repairing parts on engines in the Southern Pacific shops at Portland and Eugene. This good relationship is mutually beneficial to the Southern Pacific, as the industrial park car loading is vital to their Tillamook County operation. Again, the area in which the greatest benefit can be gained for the community would be for the Southern Pacific Company to gain industries for the industrial park.

* The Port of Tillamook Bay Short Line needs a greater percentage of the tariff for services in delivering and returning cars from the mainline over its stub-end switching operation. An attempt is being made to gain this profit through efforts of the Short Line Railroad Association.

* It is essential that the south jetty construction be completed in the immediate future to permit water-rail transportation within the county as well as throughout other points in the country.

* It should be noted that our Short Line Railroad has hauled 2,860 cars outshipment for the calendar year 1967. This is a vast increase in tonnage in view of the fact that larger cars are now in service.

Tillamook County Economic Planning Council

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Tilamook County is considered to have three major economic areas, specifically: forest products, agriculture, and tourism. Of these three areas, the committee on tourism fully recognizes and agrees that tourism and outdoor recreation will see a vast upswing in the next 10 years. More leisure time in most occupations and greater tensions of urban living will stimulate recreational activities to new, unprecedented levels.

It is the duty of this committee on tourism to attempt to analyze Tillamook County's present position, to assess its advantages and shortcomings, and to project suggestions for orderly economic advancement for the next 10 year period.

In making the recommendations that follow, the committee listened to representatives from Oregon State University, the Oregon Game Commission, the Tillamook County Planning Commission, and reviewed public agency data. Inventories of recreational facilities in public areas were available to the committee. These included parks, camp grounds, boat landings, and moorages operated by the county of Tillamook, the State of Oregon, and several agencies of the federal government.

The committee designated two principal tourist attractions which are presently bringing economic gain. They are the fishery resource, both offshore and on inland waters, and the beaches and related beach activities. The
Pioneer Museum, cheese plants, the Morning Star schooner, and other forms of commercial and natural recreational facilities also draw many visitors. However, the popularity and tradition of these facilities could be expanded.

Not to be overlooked as recreational features are big-game and waterfowl hunting. Big-game hunting is well established under direction of the Oregon State Game Commission. Waterfowl management is presently underdeveloped but could offer future recreational possibilities if pursued.

As preface remarks to the recommendations which follow, the group recognizes and accepts the belief that the dollar volume spent for recreation in years to come will increase rapidly. But to be totally objective, the committee also recognizes trends which must be given serious consideration by both public and private interests. For example, it is inconclusive to say that income from tourism in Tillamook County will double if highway travel counts double. In fact, there is indication that the amount spent per visitor in Oregon may be dropping. Also, does Tillamook County differ from neighboring coastal counties in the type of visitor attracted?

The recommendations fall into six major groupings: beach use and regulation; transportation; fisheries; land-use planning; publicity; and the responsibility of both public and private interests in recreation.

**CONCERNS AND RECOMMENDATIONS**

**BEACH USE AND REGULATION**

The residents of coastal counties have an in-depth familiarity with beach lands. They have a desire to promote the orderly development of upland areas while preserving the heritage of the traditional beach lands in the public interest. The recommendations of the committee follow:

* State agencies and legislative bodies should do all that is possible to speed up their attempts to clarify, define, and establish specific boundaries of Oregon beach lands and estuaries.
* Oregon laws pertaining to the beaches and estuaries must recognize the common-law rights of private property owners so as to protect the tourist economy and tax base of coastal counties.
* Specified beach usage areas should be established and designated only after conference with local government units adjacent to beach lands.
* Travel and use laws on public beaches should be enforced.
* Beach regulation, enforcement, and sanitation are basically the responsibilities of the state at the present time, and the duties must be assumed by the state immediately.
* Additional beach access and parking should be provided, primarily on lands already in public ownership.

**TRANSPORTATION**

Tourists and those seeking recreation must find travel easy and speedy. Therefore, transportation must be considered as a key issue in developing and maintaining tourist and recreational facilities.

Very critical to the development of Tillamook County is the highway system which webs the county. Definite improvements need to be made to provide an easy access to the recreational facilities of the county. In comparison with other neighboring coastal counties, east-west routes into Tillamook County are not adequate to allow easy travel from valley population centers.

Highway 101, most critical to the development of Tillamook County, has many segments which are obsolete and inadequate.

Also of major concern to the residents of the county is the development of Tillamook Bay. This development would provide increased recreational facilities as well as transportation needs. The recommendations follow:

* Highway 101 should be given priority in future improvements with close proximity to beaches and recreational areas (where possible) as the prime consideration.
* Adequate access and egress must be provided in highway developments to allow easy accessibility to recreational areas.
* East-west highway routes must be improved.
* Future construction of bridges and abutments spanning navigable or potentially navigable waters of Tillamook County must have sufficient clearance for heavy shipping vessels.
* The Tillamook Bay jetty project and port facilities development must receive the continued support of all the people of Tillamook County.

Winter fun can be enjoyed by anyone along Tillamook County's beaches. Here, Mrs. Wayne Williams inspects beach treasures.
FISHERIES

The committee is highly optimistic about Tillamook County's fishery resource, particularly the offshore summer coho salmon. But there can be no offshore or inland anadromous fishery without protection of fresh-water spawning and rearing habitat. Negative effects are dominating. Rainfall patterns, irrigation, domestic use, and in some areas timber removal are causing adverse summer flows in Tillamook County streams. The gigantic increase of summer vacationers has been on a collision course with likely decreased summer water supplies. The recommendations of the committee follow:

* Future issuance of water rights on Tillamook County's streams and rivers that would further reduce the summer water flow should be prohibited until such time that summer flows can be sustained to provide adequate water for the fishery resource.
* Future plans in regard to the impoundment of any waters in Tillamook County must consider the fishery resource and must meet the approval and requirements of the Oregon Fish and Game Commission.
* Continued research must be conducted on all species of fish which inhabit the waters of Tillamook County and results applied which will provide a maximum balanced year-round fishery, by stream, both in production and in variety of species.
* Public and private sectors must work together to regain the quality and quantity of stream flow in the county.
* Summer family bank fishing from streams and lakes should be given greater priority; however, panfish species must never be intermingled with anadromous fisheries.

LAND-USE PLANNING

The development of any area must be made in the light of total resources available and prior usage of these resources. Two of the most critical resources to any area are water and land. These resources must be allocated wisely and judiciously. Local people must become involved. The recommendations are that:

* The efforts of the Tillamook County Planning Commission should receive the full support of the people of Tillamook County.
* Area zoning plans, when completed, should be brought to a vote of the people of Tillamook County before final adoption.

PUBLICITY

The trade area for Tillamook County's recreational business is said to reach out 1,500 miles. This area includes an enormously high population of potential customers. Local interests, including the county court and chambers, have provided a number of attractive flyers and other information concerning Tillamook County's attractions. They are to be commended for their work and encouraged to continue, it is hoped, with increased budgets. Only through adequate and extensive advertisement can people be made aware of the available recreational opportunities. The recommendations are that:

* Publicity about Tillamook County's attractions should be established on an organized basis and geared to the Northwest's population centers.
* Organized efforts should be initiated to familiarize local people with the facilities and activities available to the tourists in the county.

PUBLIC AND PRIVATE RESPONSIBILITY

Public agencies, by tradition, have gaps to fill in services to the recreation-minded public. Other demands have been traditionally filled by private concerns. In still other areas, there is an overlap. Sixth-nine percent of Tillamook County's land area is in public ownership, with over 14,000 acres dedicated for recreational usage.

Too often people have relied entirely on natural beauty to fulfill the needs of the vacationer. This situation has created an unawareness of certain very desirable recreational areas. The point to be made is that man-made recreational attractions are very definitely becoming vital to any area.

It has been pointed out a number of times that Oregon boasts a very large number of tourists but lags desperately in the per capita expenditure of these visitors. Tillamook County exemplifies Oregon as a whole. The committee recommends that:

* Public agencies should continue to develop facilities for outdoor recreation WITHOUT further acquisition of private lands.
* Encouragement should be given to all interests, both public and private, to develop more and better facilities and more year-round activities.
* Where public and private agencies overlap in services the public agency must be competitive in fees and quality of service.

In conclusion, the committee agrees that the advantages of Tillamook County are beyond compare. It is paramount that economic advancement be made without the loss of our natural resources. Possibilities such as the steam powered excursion train at Garibaldi are in keeping with historic, traditional, and popular progressive trends in recreation. Preservation of the county in a wilderness state is as unrealistic as frantic commercial development. We must keep pace with the all of Oregon in the next 10 years, but the development must be on an orderly basis, with the emphasis on construction of facilities which will increase the per capita tourist expenditure in Tillamook County as well as its attractiveness.
The entrance to Tillamook bay. This wild, beautiful area depicts the opportunities and challenges present in the development of the County’s water resources.

DRAINAGE AND FLOOD CONTROL

Nearly 75% of our total annual rainfall occurs during the months of November, December, January, and February, causing heavy flooding and sedimentation on nearly 11,000 acres of prime farmland. During the summer growing season, the nearly total lack of rainfall makes irrigation a necessity for the growing of pasture or the newly developed row crops. Low-lying farmlands totaling 10,000 acres are presently protected by bay or river dikes. Additional diking and stream clearance will be necessary to complete protection from river flooding.

Sediment damage varies with the degree of flooding earth slides in the mountain acres, logging procedures, etc. The effects of the multiple burns are being minimized by the reforestation of large acreages by both private and state foresters.

River-bank erosion is a serious problem on the lower
Nehalem, Wilson, Kilchis, and Trask, with some erosion on the Tillamook and smaller streams. Wind erosion, especially in the sand-dune areas, is a problem in several sections of Tillamook County, particularly near the mouth of Nestucca Bay.

Cooperative work on the part of the Soil Conservation Service, the OSU Extension Service, the United States Forest Service, the Bureau of Land Management, Tillamook County, and community and youth groups in planting of beach grass has resulted in excellent progress in combating wind-erosion damage.

The 10 drainage districts covering nearly 9,000 acres are doing an excellent job of solving drainage problems within the areas. The larger drainage problems, however, should be solved by river-basin drainage districts rather than by a large number of small districts.

Nearly 53,000 acres of Tillamook County need some type of water management, either flooding, drainage, or irrigation. According to the 1959 United States census, there were about 32,000 cropland acres in the county. Of this, 7,200 acres or 242 farms are now (1967) being irrigated. The advent of increased row-crop agriculture will put an extreme amount of pressure on our already overappropriated streams. By the year 2000 the irrigated acres in Tillamook County may well total nearly 25,000. Nearly 30% of the farms in Tillamook County are still not covered by water rights.

The Army Corps of Engineers' study indicates no feasible large storage project on any of Tillamook County streams. Any such storage project for flood control, irrigation, domestic and industrial water use, and the enhancement of fish and wildlife will have to be financed by some local agency.

**Recommendations**

* This committee recommends cooperation with the State Water Resource Board by all citizens and agencies for the best use of our water resources for all purposes.
* The organization or reorganization of the drainage districts to meet future needs in relation to flood control and drainage is recommended. These districts should be large enough to implement a well-planned drainage program as developed in cooperation with SCD, the State Water Resource Board, and the Corps of Army Engineers. It is recommended that studies be made of the feasibility of organizing a drainage district for each of the flood plain areas of the Nehalem River, the Nestucca River, and Tillamook Bay and its tributaries.
* In the established or new drainage districts, it is recommended that all needed interior drainage be developed, making full use of financial and technical aid available through the Tillamook ASCS, the Tillamook SCD, the Extension service, and all other federal and state agencies.

* All drainage and flood-control work should be the recreational and industrial values of our water resources.
* Research and Extension service projects should be developed in methods of waste disposal on farms as well as in urban areas to prevent water and air pollution.
* Studies should be made by the Tillamook SCD on the possibility of the development of small watershed projects to help increase irrigation water for agricultural use and contribute towards flood control or improved drainage.
* Bank stabilization, channel clearance, and realignment are needed on the Wilson River from Mills Bridge to Tillamook Bay. The outlet of the Kilchis River, the Trask River from the Herb Kanne farm to Tillamook Bay proper, the Nestucca from Farmer Creek to the ocean, and the Nehalem from Batterson to the ocean. Dikes on all rivers should be brought up to SCS or Army Engineers' specifications. Drainage districts are urged to work with all federal and state agencies in an effort to get federal funds to implement these needed projects.
* A review study covering all major rivers in the county was authorized by Congress in 1956. It was funded in 1964, with $245,000 authorized. The report is scheduled to be completed in 1969. The purpose is to study resource needs and potentials, covering the overall drainage area of rivers under study, and to be part of a framework plan for future development. It is also to determine the various aspects of a broad-scale program for flood control. This would include both potential projects within limits of Section 205 of the 1948 flood control act as amended and those that might require separate congressional authorization.

Verbal reports by representatives of the United States Army Engineers District, the Portland Corps of Engineers, indicate that no flood control, drainage, water storage, or other plan for future development is economically feasible at this time, with the possible exception of the Tillamook area. The committee recommends that a careful review of the report be made by the Tillamook County Court, the Tillamook Soil Conservation District, the Oregon Water Resource Board, and all other interested agencies and individuals to determine to what extent the corps met the objectives of the report and to make every effort to get a program under way that will result in flood control, water conservation for multi-purpose use, including irrigation municipal water supplies, fish and wildlife, water-quality control, power generation, recreation, and the satisfaction of the desires of local interests.

* There is a need for the development of small storage projects to provide for the domestic water needs of the county. The past few years of low rainfall during the summer months and increased use of water by each family have caused water shortage problems on most systems. The committee recommends the rapid completion and implementation of the county-wide comprehensive water and sewer study. It is also recommended that loans or grants be made available to help supply domestic water requirements and that the cooperation of all federal and state agencies be secured to meet this problem.
The need for a sound water resource development program was emphasized in 1964 when high water caused flood damage exceeding $750,000 in Tillamook County.

An increased irrigated acreage is necessary to expand production of hay, silage, and forage for Tillamook County dairy herds. As human populations increase, there may be a market for vegetables and horticulture crops at the fresh or processed outlets. This will require stepped-up irrigation. Increase agriculture production means increased payrolls.

According to the 1964 United States census, there are about 30,000 cropland acres in the county. Of this, 8,000 acres on 350 farms are now being irrigated.

Based on soil characteristics, nearly the entire 30,000 acres of cropland may be classed as irrigable. The location of lands in relation to water supply, irrigation facilities, land preparation, storage costs, and cost-benefit rations will determine the amount irrigated.

By the year 2000, we believe that the irrigated acreage in Tillamook will total 25,000. This more than three-fold increase will require storage facilities. Some streams are overappropriated now. Multiple-purpose storage dams for domestic and industrial supplies, flood control, irrigation, power, and recreation may provide the answer.

The 25,000-acre total would require a supply of 40,000 acre feet over a 100-day period, or 1.5 acre feet per acre. The use per acre by months would total 2 inches each in May and June, 4 inches in July and September, and 6 inches in August.

Slight increases in irrigation and water supplies along specified streams are available now. On the other hand, well water is being used by some operators in the Tillamook River area.

**Recommendations**

- Every farm irrigation system should be covered by a water right adequate to meet the farm needs. Water rights should be adjusted, either upward or downward, to meet present usage.
- Studies must be continued to determine water usage according to crop needs for pastures and potential cultivated crops, adjusted to soil types.
- Irrigation systems must be planned to meet the type and size of enterprise carried out on the farm, engineered for efficient use of power and water.
- Information is needed on economic returns from irrigation in Tillamook County. This data would include the feasibility of irrigation for the various crops, by species of grass, legume, or horticultural crop.
- Positive action is necessary now to plan for multiuse, water-control dams.
- Experimentation with devices designed to determine irrigation timing and amounts should be continued.
- Future plans for disposal of waste water from industrial plants that might contribute to harmful stream pollution include the utilization and purification of such water by secondary use for sprinkler irrigation.

**DOMESTIC WATER**

With an average annual rainfall of approximately 85 inches in the Tillamook County area, a domestic water shortage might seem unlikely. Rainfall distribution charts, however, show that 70% of the precipitation occurs in the five months of November through March. Less than 7% of the rain falls during the summer months of July, August, and September. Of the 34 water systems in the county, most experience some water-shortage difficulties during dry summers.

The primary water source, for most systems in the county, is a small stream. A few reservoirs and a scattering of wells and springs complete the water source.

Through the cooperation of the Tillamook County Court and most water districts and commissions, Tillamook County has under way a comprehensive water and sewage study which should point out the resources and needs of this county for the next 20 years.

Water use, both on a per capita basis and as a result of
increased human population, will place greater demands on Tillamook County water systems each year. County population figures of 8,810 in 1920, 12,263 in 1940, and 18,955 in 1960 indicate that we can reasonably expect at least a 25% increase in population over the next 25 years. We anticipate an estimated 50% increase in water use in the same period. (These figures do not reflect industrial usage, which is covered in the industrial water-use section).

Domestic water-supply problems in Tillamook County include murky water in winter because of rapid surface runoffs during storms, water shortages during the dry months, and inadequate storage and distribution systems for future needs. There are, of course, bright spots in the picture. Several water districts, including Tillamook, Fairview, Rockaway, Pacific City, and others have made studies and improvements in the last few years.

**Recommendations**

* Additional protection must be planned for all watersheds to cut down rapid winter runoff. This could be accomplished by continuing the improvement in logging practices, completing reforestation projects, and considering water control structures.
* The county-wide comprehensive water and sewage study should be completed and implemented as rapidly as possible.
* The comprehensive survey for the county on sewage disposal and water supply approved by FHA in cooperation with the Tillamook County Court and water districts should be completed as soon as possible. The County and State Water Resources Committee should work with local state and federal agencies in planning to reach the goal of adequate and safe water supplies for domestic and municipal use for the entire county now and in the future.
* There is a need for the development of small storage projects to provide for the domestic water needs of the county. The past few years of low rainfall during the summer months and increased use of water by each family have caused water shortage problems on most systems. It is recommended that loans or grants be made available to help supply domestic water requirements and that the cooperation of all federal and state agencies be secured to meet this problem.
* Practically all of the county’s water for domestic and municipal use comes from very small streams and creeks. No domestic and municipal water is being drawn from the major streams. Since possible future water needs in the county for industrial, flood control, power, or irrigation requirements might indicate the need of a dam in a major stream, the committee recommends that municipal and domestic water supplies be considered in planning for major water-control structures. Many of the small streams now being used might not provide adequate water for the requirements of the next 25 years.
* The ground-water resources of Tillamook County should be inventoried as rapidly as possible.
* The committee recommends that 34 water districts in Tillamook County begin to plan for consolidation into 3 or 4 water districts. Consolidation would provide a guaranteed supply and sufficient storage for all uses.

**INDUSTRIAL WATER USE**

Industrial water use requirements in Tillamook County may be considered in two categories: (1) Use of water for transportation (primarily in Tillamook Bay); (2) water use in the manufacturing process, directly or indirectly.

**Water-borne transportation** is centered into and in Tillamook Bay and the Tillamook River areas. Log raft traffic has long used these bay and river channels. Access to Tillamook Bay is limited by the hazardous and shallow bar crossing and a small turning basin at Garibaldi for larger ships. Construction of a south jetty would very probably result in a substantial increase of water-borne industrial traffic.

Traffic within Tillamook Bay is limited by shallow water. Bay siltation has resulted in almost stopping water transportation.

Tillamook County relies, industrially, on the $85 million annual payroll from the lumber industry. To maintain the present lumber payroll, the county must take advantage of low-cost water transportation. With an annual allowable cut of 117 million feet of logs on government land and a mill capacity of about 175 million feet annually, it is necessary to import logs to maintain present industries.

Water requirements for industry currently total about 22,650,000 gallons per month. Although some surplus of water for industrial uses exists in a few municipal systems in Tillamook County, any major industrial use of water would require careful planning and perhaps new facilities.

Major Industrial Water Requirements in Gallons per Months

<table>
<thead>
<tr>
<th>Designation</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tillamook industrial park</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Publishers paper</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Tillamook hospital</td>
<td>500,000</td>
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<tr>
<td>Tillamook city</td>
<td>60,000,000</td>
</tr>
<tr>
<td>Oregon-Washington plywood</td>
<td>2,500,000</td>
</tr>
<tr>
<td>T.C.C.A., cheese factories, and</td>
<td></td>
</tr>
<tr>
<td>water districts</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Tillamook schools</td>
<td>600,000</td>
</tr>
</tbody>
</table>

Industrial water requirements in the Tillamook water system currently total about 15% of total water use. This does not include the smaller stores, restaurants, motels, etc.

**Recommendations**

* Further funds should be appropriated for the Tillamook Bay south jetty and construction should begin as rapidly as possible.
* Plans should be implemented to develop three or four large consolidated water districts in the county. These large districts would provide a guaranteed industrial supply with sufficient storage for the growing domestic need for water.
* Since the Tillamook People’s Utility District has completed a preliminary investigational study of the Trask River sites, we recommend that this power study be coordinated with industrial, domestic, and other water uses.
POLLUTION ABATEMENT

Pollution abatement is a long-term and never-completed job. It requires education of the public and enforcement of the laws regarding the disposal of sewage and industrial wastes and those regarding the uses of land in and near the streams.

As for sewage disposal, Tillamook County in general is making gradual progress. The cities of Tillamook, Garibaldi, and Rockaway are served by sanitary sewers and sewage-treatment plants. These cities contain approximately one third of the people in the county.

The upper reaches of all rivers in the county are fairly free of pollution by human wastes. However, the Nehalem below Mohler, the Wilson below Sollie Smith Bridge, the Big Nestucca below Cloverdale, and the lower Tillamook are receiving considerable amounts of sewage. The Miami, Kilchis, and the Little Nestucca are fairly clean throughout their lengths.

Tillamook Bay receives sewage from the Trask, Wilson, and Tillamook rivers and from dwellings and commercial establishments on its shores. The waters of the bay however, are much less polluted from human wastes since the building of sewage treatment plants in Tillamook, Tillamook Airport, and Industrial Park and Garibaldi. This bay also receives milk wastes from the main cheese factory north of Tillamook. Bay City contributes quite a lot of septic tank effluent to Tillamook Bay, either directly or via small streams that run through the town. Oyster production in the bay is restricted, by the Oregon State Board of Health, to the less polluted sections of the bay.

Netarts Bay receives some septic-tank effluent from the community of Netarts, but probably because of its size in relation to the amount of pollution, it is the cleanest bay in the county. Nehalem Bay receives sewage from the Nehalem River (mostly contributed by Nehalem and Wheeler) and from commercial establishments and dwellings along the lower bay.

Nestucca Bay receives considerable sewage from the Big Nestucca River and a small amount from the Little Nestucca. Miles Lake and other small lakes in the area near Woods are virtually free from pollution by human wastes. The beaches in the county are clean with these exceptions: Manzanita beach receives septic-tank effluent from the lower part of the city; Twin Rocks beach receives the overflow from polluted ponds, and Oceanside and Netarts beaches receive some septic-tank effluent from those communities.

There is some turbidity of all rivers because of present and past logging practices and road construction. Gravel mining and washing have also caused some turbidity. However, all streams are improving in this respect since diminishing logging activity, reforestation of the watersheds, and improved practices.

At the present time, probably no public domestic water supply is seriously menaced by sewage pollution. What this will be in the future as the population increases and demands for water grow is another matter.

Recommendations

* The unincorporated communities of Woods, Pacific City, McCormick Loop, and the areas north of Tillamook on Highway 101 should organize themselves into a sanitary district or take other community action to work towards supplying themselves with sewage facilities.
* The cities of Bay City, Wheeler, and Nehalem, have completed their engineering studies. The committee commends the progress being made in these areas and urges completion of projects as soon as practical.
* Tillamook, Garibaldi and Rockaway are all planning improvements of their present sewage-treatment plants. The Manhattan sanitary district has installed sanitary sewers. Manhattan and Nehalem-Bay high school sewage is treated by the Rockaway treatment plant. The splendid work in pollution abatement is commended by the committee. It is urged that improvements be completed at the earliest possible date.
* Septic-tank sewage disposal is stopgap method at best and should be used only in rural areas where conditions of space, soil, water tables, etc., are favorable.
* The Twin Rocks Community is now ready to let the contract for a sewage system. The committee urges completion of the project and commends the Twin Rocks area for this accomplishment.
* Engineering studies have been completed at Manzanita, Netarts, and Oceanside. The committee urges early completion of these projects.
* The county-wide comprehensive sewer and domestic water plan for the county must be completed and implemented as soon as possible. This study was the result of work done by the Tillamook Water Resources Committee. Funds were made available through cooperation of the Tillamook County Court. Cities and water districts raised $7,800, which qualified the county for a $15,500 grant from FHA. The $23,000 will cover the cost of the survey.

COMMERCIAL AND SPORTS FISHERIES

With an ocean coastline more than 70 miles in length, 5 salt water bays, and 8 major rivers, Tillamook County's fishery populations and habitat constitute a major natural resource for both recreational and commercial uses. Considering increasing human populations and shorter work weeks, the value of this resource to the public and to the county continues to grow. On the other hand, increased pressure on the use of this resource plus a steady erosion of habitat makes it more difficult to sustain the fishery populations.
Fishery management responsibilities are shared by Oregon's Fish and Game commissions. Generally, the fish commission is responsible for management of the commercial resources as well as the sport fishery of crabs, clams, and other shellfish, and sports, surf, and jetty fishing. The game commission handles sports salmon and steelhead and warm-water species. Both commissions are doing an excellent job, within their economic limitations, of managing this resource. The oyster crop, although generally considered with shellfish, is actually more of an agricultural crop grown in a marine habitat.

The anadromous fishery stocks in Tillamook County include chinook, silver, and chum salmon plus steelhead and cutthroat trout. These fishes, in a natural state, hatch in fresh-water, gravel-bed spawning areas and migrate to the sea to mature. The fishery occurs as the migrants return to the coastal offshore waters, the bays, and finally to the natal rivers. Within Tillamook County are a minimum of 223 spawning miles for chinook, 302 for silvers, 46 for chum, 334 for steelhead, and 764 for cutthroat. Spawning, varying by species, occurs from September to June. In addition, resident freshwater stocks of cutthroat occur in small streams throughout the county. The few lakes are stocked, periodically, with cutthroat trout.

Hatcheries for anadromous fishes are maintained by both commissions. The fish commission operates the Nehalem River salmon hatchery on the North Fork of Nehalem and the Trask river salmon hatchery. The game commission operates the Cedar Creek trout hatchery near Hebo and a steelhead egg-taking station on Cedar Creek in the Tillamook burn. At times, steelhead fingerlings from other counties are brought in to supplement Tillamook County stocks.

Oregon State University, through its Marine Science Center, has established a shellfish and chum salmon experiment station on Netarts Bay.

Sports angling pressure for 1964 was estimated at from 80,000 to 120,000 angler days. This effort resulted in a catch of about 36,500 mature fish. Of this total, about 21,000 were steelhead, 11,000 stream and bay caught salmon, and 4,500 ocean-caught salmon. The fishery for silver salmon and steelhead was exceptional. Hatchery production methods, especially feeding and release procedures—time is physiologically for best survival—seem to be of prime importance in the increased catch.

Access facilities to bays and rivers for the sports fisherman are excellent. Boat-launching sites and bank easements contribute to angler convenience. Experienced guides with boats and resort accommodations aid in angling success and enjoyment. The economic value of the sport fishery should continue to grow.

Use of the ocean as a sports-angling area is limited by safe access to the ocean. Salmon fishermen fish out of Tillamook, Nehalem, and Netarts bays and by dory through the surf at Cape Kiwanda. The dory fishing is unique and exciting. A south jetty on Tillamook Bay is essential to the growth of commercial fisheries and sports angling in the ocean fronting Tillamook County. It is also essential to the development of a year-around shell fishery, including shrimp and crab. The Tillamook Bay jetty, when completed, will permit a longer season and increased safety for both commercial and sports fisheries.

**Recommendations**

- The fish and game commissions should continue their fine work and increase research and intensive management to produce the maximum sustained yield of salmon and steelhead.
- In cooperation with the county sanitarian, the Oregon Sanitary Authority should continue to track down and eliminate all sources of pollution.
- State highways, county road departments, private contractors, timber companies, and logging contractors should continue to conduct their road building and other operations in a manner that will not jeopardize stream conditions.
- Stream clearance by the game and fish commissions should be an annual project where necessary.
- The Fish and Game Commission should develop artificial spawning methods where practicable, in suitable areas of Tillamook County.
- A bay commercial salmon fishery should be reestablished, especially for chums, as new information on management becomes available.
- The completion of the south jetty at the mouth of Tillamook is essential to the growth of commercial fisheries and sports angling in the ocean fronting Tillamook County. It is also essential to the development of a year-around shell fishery, including shrimp and crab. The Tillamook Bay jetty, when completed, will permit a longer season and increased safety for both commercial and sports fisheries.
- The committee recommends that the Netarts Bay Experiment Station be greatly expanded and that artificial propagation of all shellfish be undertaken at an early date.

**ESTUARIES**

The small acreage of marine bays in Oregon, less than one tenth of 1% of Oregon, only emphasizes the value of this scarce and valuable asset.

An increasing intensity of use and the overlapping jurisdiction for estuary management in Tillamook County is creating a crisis. Proper planning is needed now to safeguard this natural resource.

The importance of Tillamook estuarine lands may be measured in a way by the following: Nine thousand clam diggers in Tillamook Bay harvested a minimum of 171,000 clams from a 16-acre bed. This is the production of one ton of clams per acre. Dungeness crab is an important crop on Tillamook's bays. Oyster production averages several hundred thousand dollars to the growers and could be much higher if technical production and outdated legislation production problems can be solved. It is presently projected that Tillamook Bay alone will produce three quarters of a million gallons of oysters by 1970. The offshore tidewater and river salmon fishing depends on the saline environment of the estuary for the salmon and steelhead to complete their life cycles.

The committee recommends the following, based on reports by commercial fishermen and the Oregon Chapter of the American Fisheries Society.

**Recommendations**

- An immediate inventory must be made, by all local, state, and federal agencies involved, on all Tillamook County
estuaries relating to their present and potential uses in commerce and industry, as natural resources, and as public domain. From this inventory the objectives of management of the Tillamook County estuaries ought to be identified and agreed upon.

* Jurisdiction for the management of Tillamook County bays and estuaries must be clarified. Areas of overlapping authority must be cleared up by appropriate legislation.

* Dredging and other alterations within our bays must be stopped until an overall plan is adopted for each bay. Plans should be made now to dispose of spoils resulting from the rehabilitation of the bay channel from Garibaldi to Burton Bridge.

* Where a sufficient amount of information is not available to make a policy or management decision, research should be undertaken to provide the necessary information.

* State water-quality standards which are now established for all estuaries should be studied to determine whether separate standards should be set up for each bay.

* The committee recommends that the management of public lands, fisheries, etc., be vested in the state, assuming, of course, that the state will accept the responsibility and manage the bays in the best interest of all. Other areas adapted to management of port commissions should be left in their hands or delegated to the county court.

* The value of Tillamook County bays should be explained to all citizens from kindergarten through retirement years by educational programs set up to develop a better public understanding and appreciation. The committee recommends the out-of-door schools as sponsored by School District No. 9.

* Studies should be implemented on rare or endangered species of shellfish in Tillamook County bays.

**BOTTOM, SURF, AND JETTY FISHERIES**

Sport fishing for bottom fishes, perch, ling cod, halibut, and flounder increases in popularity each year. Flounder fishing is especially good at Sand Lake. Halibut are taken, sparingly, near Cape Lookout and in a few other spots. Perch are caught in Tillamook and Netarts bays and in the surf, especially near Cape Meares. Ling cod and other rockfish are caught near reefs in the ocean.

Otter-trawl fisheries for bottom fish are active, sporadically, with the boats docking at Astoria or Newport. Lack of the south jetty limits trawling from Tillamook County ports. A small bait fishery for herring is active in good herring years. Catches of nonedible fish provide a source of mink food.

A considerable industry based on the harvesting of small cocktail shrimp has developed at Garibaldi.

It is urged that the Oregon Fish Commission and the United States Bureau of Commercial Fisheries continue surveys for bottom-fish stocks.

With the increased catch of surf perch, the committee suggests that the Oregon Fish Commission consider a study of the fishery and perch-breeding stocks so that the population is not over used.

**SHELLFISH**

The shellfish resource in Tillamook County includes the various species of clams, crabs, oysters, piddocks, shrimp, mussels, barnacles, crayfish, scallops, and abalones.

**Oysters**

Tillamook Bay produces about 85% of Oregon’s oysters. The oysters are planted, cultured, and harvested on private oyster claims. Netarts Bay has produced oysters of excellent quality in the past. The Pacific oyster constitutes the bulk of the production, with the Kumamoto, a small cocktail-type oyster, becoming more important. Nearly 50% of North America’s crop of the Kumamoto is grown in Tillamook Bay. Although the market for oysters exceeds the supply, technical problems have limited oyster production. A critical problem involves the digging activities of burrowing shrimp. These shrimp soften the growing ground, causing the oyster to sink into the substrata and die. Research is currently underway to solve this perplexing problem, and a solution seems near.

Nearly 2,000 acres in Tillamook Bay have oyster-growing potential. Currently, less than 500 acres are producing a commercial crop. As technical problems are solved, the oyster industry could double in size.

Netarts Bay has produced good crops of oysters in the past. Netarts contains fragmentary, self-sustaining colonies of the native oyster in noncommercial numbers. Oyster areas in the bay are divided into about 700 two-acre oyster claims. Few of the claims, at present, are farmed. The two-acre limitation seems to be a self-defeating regulation which needs some revision.

Oyster production is a highly productive use of baylands. Oysters are efficient food converters, actually grazers, using the single-celled plants to produce delicious, nutritious human food.

Oyster production in Tillamook County amounted to 60,000 gallons in 1967; 1968 will provide 85,000 to 90,000 gallons. It is expected that by 1970-71 production will be 150,000 gallons, and eventually will exceed 250,000 gallons annually.

The committee submits the following recommendations:

* Oyster culture should be expanded, as cultural techniques are improved, to as large an industry as habitat will permit. We urge that the OSU Agricultural Experiment Station and the federal agencies give a high priority to research on solving any production problems affecting the oyster industry.

* As with other fisheries, sources of pollution must be found and eliminated. At the present time excellent progress is being made.

* Regulations which may be stifling the industry should be reviewed and adjusted to permit maximum production of this important crop.

* The committee advises the citizens of Tillamook County to become familiar with the oyster industry and its economic importance.

* Agricultural field stations for testing the growth of new farm crops and animals have been established for many years. Station results have been outstanding in increasing farm production and economy. We suggest that a shellfish field station be established on the Oregon coast, preferably in Tillamook County, to develop methods and varieties of
shellfish culture (mainly clams and oysters) under intense conditions. Whether called mariculture, aquaculture, or whatever, the committee believes that the estuaries of the Oregon coast are capable of producing tremendous crops of seafood—as illustrated by oyster production on Tillamook Bay.

**Crab Fishery**

Commercial and sports crabbing provide an important fishery in most bays in the county. Tillamook Bay commercial landings consistently total about 10% of the Oregon catch. Two major commercial crabbers operate out of Garibaldi, fishing for ocean crab. A number of bay crabbers fish commercially in Nehalem, Tillamook, and Netarts bays, selling most of their catch locally.

Sports crab fishing in the bays provides excellent sport and good eating for large numbers of people. The Chamber of Commerce has issued a brochure, "Let's Go Crabbing in Tillamook County", which tells where, how, and what to do with the crab catch.

The committee recommends that the Oregon Fish Commission continue its research program on crab production and management to sustain and improve the crab catch.

A south jetty is an urgent need for the commercial crab fishermen. Winter is the prime catching season in the ocean, and the hazardous bar crossing limits the crabbing effort.

**Clam Fishery**

Five species of bay clams are dug by recreational and commercial clam diggers in Tillamook County. The primary commercial clams are the cockle and the introduced eastern soft-shell clam. Commercial digging occurs mainly in Tillamook, Nehalem, and Netarts bays. Three other species—the gaper (blue), butter (quahog), and littleneck (butter) clams—are taken both as recreational species. As many as 1,500 clam diggers have been counted on one good tide on Tillamook County bays. An estimated 30,000 sports clam-digging trips per year are made by sport clam diggers, many from out of the county.

The fish commission determines annual production of the various species and sets daily limits. A limited razor clam population is found on the ocean sand beaches and near the inside entrances to Tillamook and Netarts bays. The Tillamook County Chamber of Commerce has published a brochure "Let's Go Clamming in Tillamook County". More than 120,000 of these bulletins have been distributed.

The clam resource is an important fishery, especially to the sports digger, and contributes substantially to the economy of Tillamook County. Methods to maintain and increase production of these shellfish should be vigorously implemented.

The committee suggests that the fish commission consider the experimental planting of the highly productive Philippine littleneck clams in suitable habitat in Tillamook and Netarts bays.

The shellfish experiment station managed by the Oregon State University Marine Science Center should be expanded as rapidly as possible to develop and demonstrate clam-production methods.

OTHER ATTRACTIONS

**Miscellaneous Shellfish**

A variety of miscellaneous shellfish is found in Tillamook Tillamook County bays and coastal ocean areas. Some of these—piddocks, mussels, barnacles, abalones, and shrimp—may be potentially important as a sports or commercial resource. Mud and ghost shrimp, damaging to the oyster crop, are excellent bait for perch fishing. Several bait dealers dig and sell shrimp for bait. Occasionally, clam diggers take piddocks and mussels to eat. Fish commission surveys indicate that commercial shrimp resources may be available offshore.

We urge that every effort be made to utilize the unused or little-used marine shellfish in the county.

**Invertebrates, Agates, Driftwood**

Agates, driftwood, and invertebrates (starfish, anemones, etc.) attract many residents and visitors to Tillamook County beaches. This healthy use of the area is increasing each year. Watching storms, whales, sea lions, and seabirds is another important form of unusual recreation. Federal refuges at Cape Meares and Three Arch rocks offer protection to the marine bird and mammal forms.

The committee commends all efforts aimed at increasing the appreciation of these fine recreational attractions. Perhaps even greater effort could be made to publicize these resources for hobbyists and to educate residents and tourists regarding their esthetic and scientific value.

Tillamook County Economic Planning Council

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