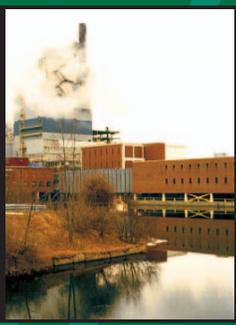
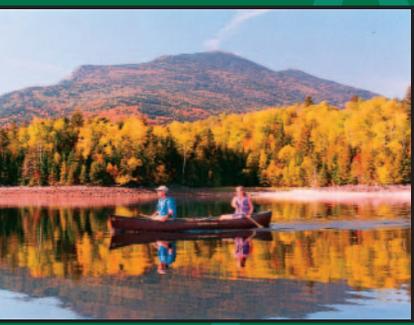


# Maine's Natural Resource-based Industries

2004

## *Indicators of Health*



## Indicators of Maine's Natural Resource-based Industry at a Glance

sector	issue	indicator	trend	page
cross-sector 	our economy	1. Output as a Portion of Gross State Product	-	12
	our natural resource	2. Number of Communities Designated Urban	-	14
	our communities	3. Full- and Part-time Employment	+	16
agriculture 	our economy	4. Net Farm Income	-	20
	our natural resource	5. Acres of Productive Cropland	-	23
	our communities	6. Number of Farmers' Markets	+	25
fisheries & aquaculture 	our economy	7. Value of Fishing Landings	+	30
	our natural resource	8. Biomass of Lobsters	0	35
	our communities	9. Working Waterfront Property Values	-	39
forest products 	our economy	10. Capital Investment in Paper Mills	0	42
	our natural resource	11. Cords of Merchantable Timber	+	46
tourism/ recreation 	our economy	12. Number of Overnight Marketable Trips	+	56

note: plus sign indicates positive trend; minus sign indicates negative trend; zero indicates no discernible trend

# **Maine's Natural Resource-based Industries: Indicators of Health**

## Acknowledgements

This report was prepared on behalf of the Governor's Steering Committee on Natural Resource-based Industries in accordance with Governor's Executive Order 10 FY 04/05, February 9, 2004.

This report is available to download from the Governor's Steering Committee on Natural Resource-based Industries' web site: <http://www.state.me.us/spo/natural/gov/> and the Maine Development Foundation: <http://www.mdf.org>.

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# About This Report

## Vision

Maine’s natural resource-based industries—including agriculture, aquaculture, fisheries, forestry, and tourism and outdoor recreation—will continue to be a cornerstone of Maine community and economic well-being. They will be highly competitive; offer quality products, services, and jobs; operate in a sustainable manner; and strengthen Maine’s rural communities and economy as a whole.

## Objectives of the Report

The primary objectives of this report are to:

- Track the health and well-being of Maine’s natural resource-based industries
- Provide objective data to inform discussion and development of proposals
- Report progress on the indicators to the people of Maine
- Inform a vision for the natural resource-based businesses of Maine’s future

## Report Organization

The report is organized in six chapters. The first chapter provides all of the background information concerning the report—genesis, process, and methodology. Chapter two examines the condition of the natural resource-based industries in aggregate. The other four chapters detail the performance of the individual sectors: 1) agriculture, 2) fisheries and aquaculture, 3) forestry, and 4) tourism and outdoor recreation.

Within each chapter, there are sub-chapters that examine:



1. Our **Economy**: the industry’s contribution to the economy



2. Our **Natural Resources**: the condition of the natural resource on which the industry relies



3. Our **Communities**: the industry’s effect on the communities in which it operates

The chapters also include a discussion of factors that are affecting or may affect the industry and that are, in some cases, beyond our control.

## Summary of Major Findings

**M**aine's natural resource-based industries are under enormous competitive pressures from the globalization of world markets and the evolution of new technologies and processes. Development patterns have fragmented the land base, driven coastal valuations to outrageous levels, and led to the conversion of farmland and working waterfronts to residential and passive commercial uses. Based on the indicators contained in this report, we offer the following major findings:



### Natural Resource-based Industries Cross-Sector

- ◆ Total output from the natural resource-based industries has been increasing, but has not kept pace with the rest of the economy, thus the industries' contribution to gross state product has diminished from 14.2 % in 1995 to 11.3% in 2001.
- ◆ The greatest single threat to Maine's natural resource-based industries is the amount of land consumed by development.
- ◆ Total full- and part-time employment has risen slightly, but virtually all growth has been in tourism while employment in the other sectors has remained flat.



### Agriculture

- ◆ Net farm income has declined 77% since its 1992 peak, driven by highly competitive commodity pricing in potatoes and dairy.
- ◆ The number of farms has increased by 1,420 since 1992 as farmers have diversified their products (into recreational offerings like cross country skiing, hayrides and corn mazes, etc.) and positioned themselves to serve local markets through farmers markets, farm stands, pick-your-own, and community supported agriculture operations.
- ◆ While net farm income per acre has stagnated since 1990, the value per acre of farm real estate has grown 75%, increasing pressures to sell the land base.
- ◆ From 1992-1999, Maine converted 33,500 rural acres per year to development.
- ◆ The *Get Real, Get Maine!* promotion has successfully boosted local agricultural sales.



### Fisheries and Aquaculture

- ◆ The value of fishing landings has stabilized at a historically high level for the past decade, driven by lobster landings (65% of total).
- ◆ Overall groundfish spawning stocks are on the rise, but some important commercial species, such as cod, are in decline.
- ◆ The working waterfront contributes more to our economy than coastal residential construction.

- ◆ Aquaculture cash receipts have been relatively flat for seven years as the primary product, salmon, has experienced enormous environmental pressure.
- ◆ Average wages in the aquaculture industry are above the state and Washington County average wages.
- ◆ Property values in Maine working waterfront communities have risen sharply in the past five years.

## Forestry

- ◆ Capital investment in Maine's paper mills has been mixed with a strong year in 1997 (over \$300 million) and much lower levels of investment from 1998 on (\$75-\$150 million annually). Maine mills' ability to attract investment is the best indicator of long-term competitiveness and viability.
- ◆ Productivity per employee in both paper manufacturing and in wood products has risen since 1997, a key indicator of competitiveness.
- ◆ The volume of merchantable timber has declined over the past 20 years but has now stabilized and is expected to recover in the next 5-10 years.
- ◆ The acres of Maine forest that have been certified as being managed in a "sustainable" manner nearly doubled since 2000, positioning Maine well to serve environmentally conscious markets.
- ◆ Total employment in forest products industries has fallen from 26,000 in 1991 to 18,900 in 2003, creating challenges in the host communities whose residents depend on these high-wage jobs (average wage in the paper industry was \$51,979 in 2000 and \$34,304 in other wood products).



## Tourism and Outdoor Recreation

- ◆ The number of overnight marketable trips has been stagnant for the past four years, a concern because while these trips represent only 20% of total trips they generate over 50% of tourist spending.
- ◆ There is a direct correlation between investment by the Office of Tourism in marketing Maine and overall tourism activity.
- ◆ Visitors come to Maine primarily to enjoy the outdoors. Of those making overnight trips to Maine, 48% come for general touring and 26% come for outdoor activities.
- ◆ The numbers of hunting and fishing licenses issued to both residents and non-residents has been stable for a quarter of a century.
- ◆ Tourism spending supports an estimated 58,160 jobs in Maine, over 9% of all Maine jobs.







## Natural Resource-based Industries Cross-sector—Introduction

Maine’s natural resource-based industries define our culture, heritage, and economy. Those rugged individuals who work the land, forest, and sea possess all the qualities we admire—courage, ingenuity, and an unsurpassed work ethic. Each industry is wonderfully unique, fiercely independent, and distinctly separate. And yet, as you look across the sectors, you discover undeniable commonalities and inextricable links.<sup>1</sup>

Common Traits	Common Challenges	Common Solutions
define Maine’s heritage and culture	access to the natural resource	preserve the resource base
dependent on natural resources	market development & branding	enhance competitiveness
many jobs seasonal	small business support	market Maine
businesses predominantly small	objective data, research, & science	drive demand for local demand
primarily exporters	clear, predictable public policy	build capacity for entrepreneurs
dependent on weather and environmental factors	tax policy and development incentives	
affected by national and world markets	coordination with government agencies	
long history as mainstay industries in Maine	public infrastructure	

The Blaine House Conference on Natural Resource-based Industries held in the fall of 2003 marks the first time that a concerted effort was made to bring these sectors together to both recognize their unique challenges and identify their shared concerns. Conference organizers felt strongly that as individual sectors, these industries were experiencing an erosion of their economic status. However, if they were to work together to operate as a single industry, the synergies that would emerge and the ability to effectively address the shared challenges and to capitalize on growth opportunities would be immense.

It is also the first time that we include tourism as a natural resource-dependent industry. A large portion of the tourism sector is directly tied to Maine’s lakes, rivers, ocean, wildlife, and mountains. Tourism is different from the traditional resource industries in that it is a non-manufacturing (service) sector, is highly labor intensive, and uses the natural resources in a fairly passive manner. Farming, fishing, and forestry, by comparison, have a significant manufacturing component, are highly capital intensive, and are extractive.

Conference organizers recognized, however, that the primary reason that people choose to vacation in Maine is the beautiful natural amenities and the many outdoor recreational activities that this state provides. Fisherman, foresters, and farmers are the primary stewards of this precious natural landscape and provide the picturesque working waterfronts, farms, and forests that tourists like to visit.

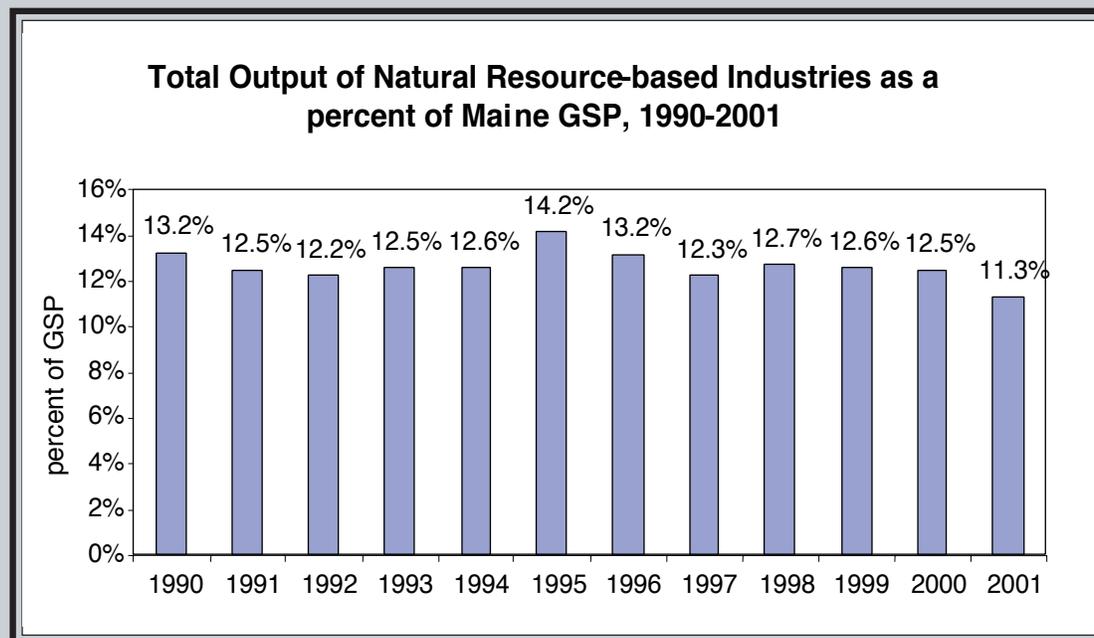
Individually, the sectors represent a relatively small portion’s of Maine’s economy. But together, these industries create a super-sector. Together, they represent a significant portion of Maine’s

economic base. Together, they account for one out of every five jobs in Maine. Together they contribute one out of every five dollars of wealth generated. Together, they have a presence in each of the 16 counties. Together, they can garner financial, political, and market clout.<sup>ii</sup>

## Cross-sector Economic Conditions

### 1. Primary Indicator: Output as a Portion of Gross State Product (GSP)

#### Contribution to Gross State Product Erodes



Source: U.S. Bureau of Economic Analysis. Note: According to the U.S. Bureau of Economic Analysis, Gross State Product (GSP), referred to as “value-added,” is equivalent to industries’ gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus inputs (consumption of goods and services).

Over the past decade, natural resource-based industries have contributed an average of about 13% per year to the Maine economy. The relative contribution of the resource-dependent industries to total GSP has eroded from a peak of 14.2% in 1995 to 11.3% in 2001.

#### Significance

It would benefit the natural resource industries and the rural communities that depend on them if output increased. It would mean increased production value for the industry which, in turn, would generate wealth for the state of Maine.

This indicator illustrates that these industries are a significant contributor to the Maine economy. In aggregate, the resource-based sectors represent over 11% of the total wealth generated in Maine. This indicator also signals, however, erosion in the relative contribution to GSP that has fallen three percentage points in six years. Such erosion is of concern to policymakers and to the rural communities that depend upon the health of this sector to sustain their economic well-being.



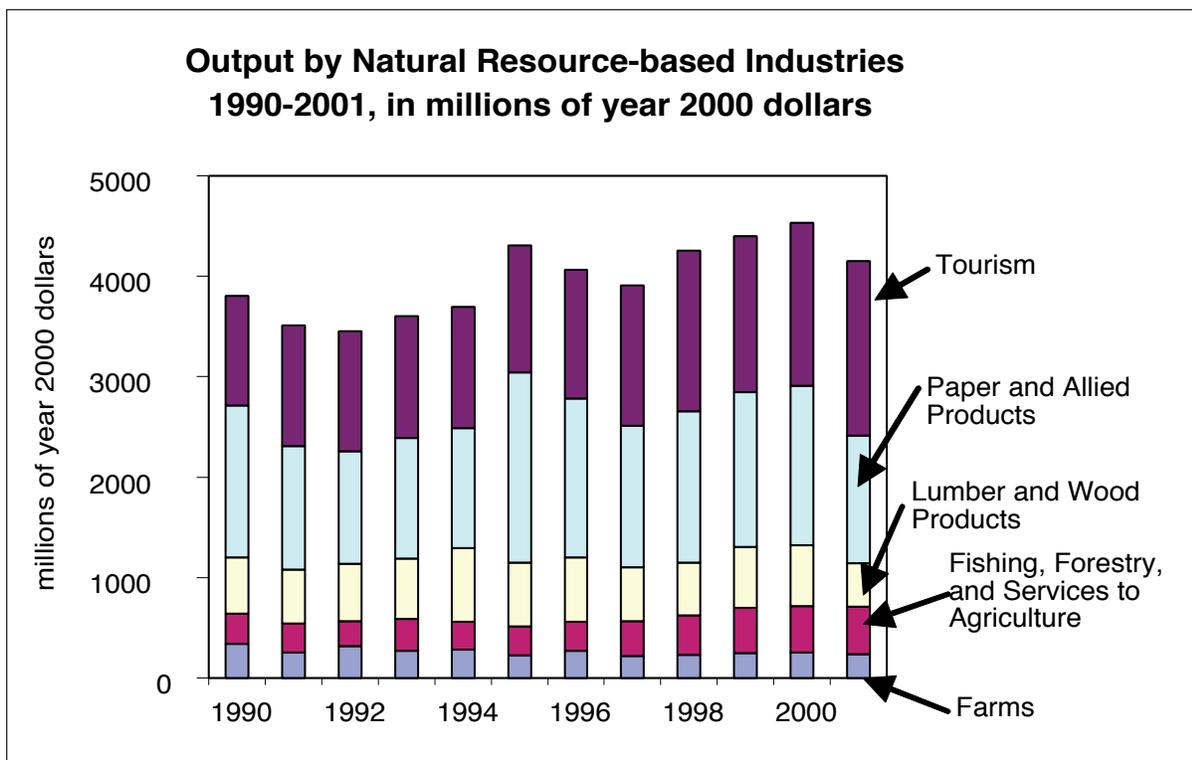
## Related Data

### Output by Natural Resource-based Industries by Sector

Tourism represents 42% of total output from the resource-dependent sectors and has enjoyed the healthiest growth in output over the past decade. The gains in tourism output have been offset, to a certain extent, by the performance of paper and allied products, which represents 31% of total output and which has experienced a decline in recent years.

## Factors that Impact GSP Output

### State Investment and Support



Source for all but tourism: U.S. Bureau of Economic Analysis; Source for tourism: Estimate provided by Maine State Planning Office

State government supports the natural resource-based industries in a myriad of ways. State investment in the marketing of tourism is one area that has shown significant returns to industry. State budget constraints will undoubtedly put pressure on these investments. Over the past 10 years, the Maine Legislature has appropriated an average of \$63.3 million to the state natural resource agencies. This has remained constant in the vicinity of 3% of all state appropriations.

### Cost of Doing Business

According to the Maine Economic Growth Council's *2004 Measures of Growth* report, the cost of doing business in Maine has risen to 10% above the U.S. average. This puts Maine businesses at a competitive disadvantage. Maine's tax burden is about 20% above the U.S. average, industrial energy costs are 28% above average, and healthcare costs far exceed the national average. Progress on any of these fronts would enhance the competitiveness of these industries.



# Cross-sector

## Technology Transfer and Research and Development

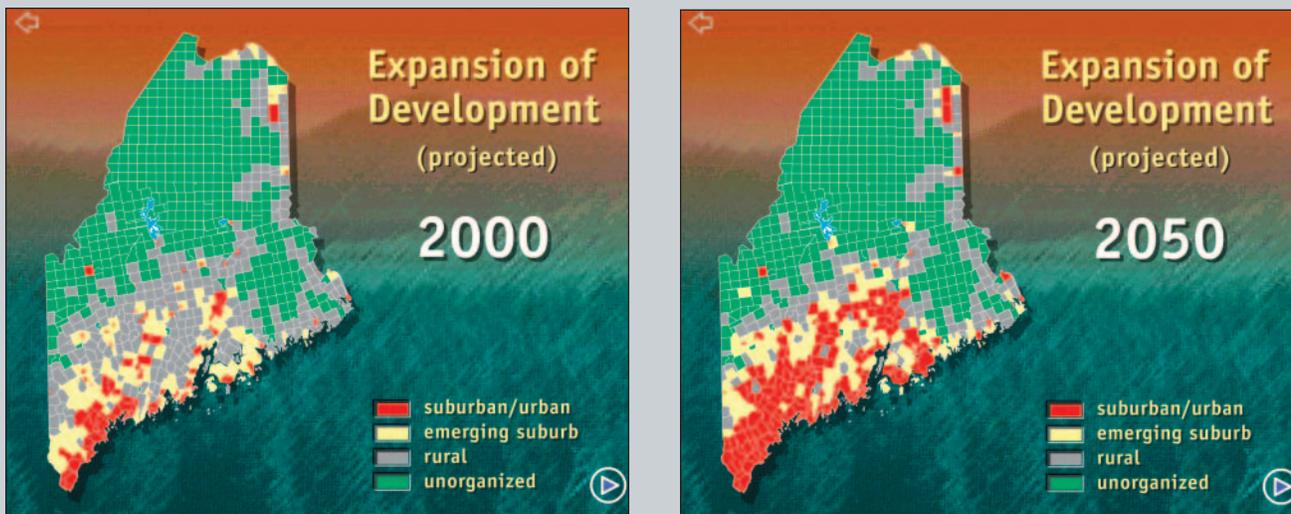
The demonstrated success of the Maine Technology Institute along with an increased commitment in the state’s support of research and development and the newly developed Office of Innovation at the Department of Economic and Community Development, all bode well for enabling Maine’s natural resource-based industries to become more competitive.



## Cross-sector Natural Resource Conditions

### 2. Primary Indicator: Number of Communities Designated Urban

#### Development Sprawl Consumes the Natural Resource Base



Maine State Planning Office

These graphs show Maine municipalities characterized as urban, suburban, and rural. Note the dramatically increased number of urban (red) towns projected in 2050 over 2000.

In the last quarter of a century, the amount of land consumed by development was equal to the amount of land developed in the prior 150 years. Consumption of the land base is expected to double once more in the upcoming decades.

#### Significance

A reverse in sprawling patterns of development would reduce the consumption of the land on which natural resource industries depend (farmland, forests, coastal waterfronts, and recreation and scenic lands) and preserve the resources that sustain these industries.

The greatest single threat to Maine’s natural resource-based industries is the sprawling pattern of development that has taken place over the past few decades. Throughout this report, development pressures are evident. Rising land values along the coast have put tremendous pressures



on the working waterfront, making it difficult for the fishing business to remain on the water. The real estate value of an acre of farmland is many times the level of net income generated per acre, putting great pressure on farmland conversion. Sprawling patterns of development in southern Maine have fragmented the forestlands, making them much more difficult to harvest profitably.

## Factors that Impact Sprawl

### State Smart Growth Efforts

State and local government inadvertently subsidize sprawl. Residents of urban places flee the city for “cheaper” living in rural parts of Maine. State money follows the population, building new roads, schools, and public infrastructure in the once rural lands; not for new population, but for population that has shifted from place to another. Local governments, through land use regulation, require large lot sizes or multiple traffic entrances to roads that push development out further. And many towns have not identified those rural areas or places of special natural resource significance, like scenic views, wildlife habitats, or recreation and farm lands, that it wants to preserve. The state’s smart growth effort is designed to get the state’s house in order and make sure it is not paying for duplicative services and to help strengthen local land use management so that towns direct growth to areas where it wants to grow and away from areas it hopes to protect.

### Land for Maine’s Future

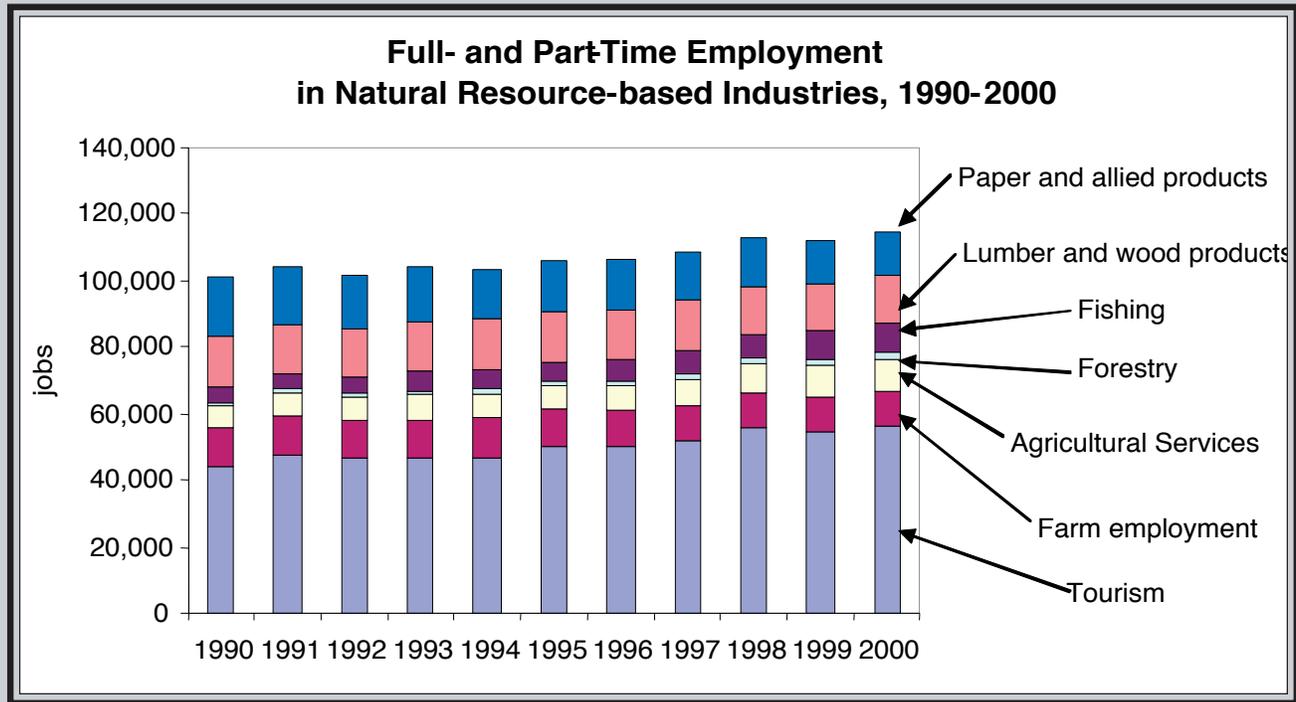
The Maine Legislature created the Land for Maine’s Future Program in 1987 in response to threats to Maine’s natural heritage, prime farmlands and its proud tradition of public access to land and water resources. It is designed to protect the quality and availability of natural resources important to the interests of Maine people. The Land for Maine’s Future program acquires land or easements on land to protect and preserve lands that have exceptional natural or recreational value. The program has currently committed all its funds and efforts are underway to replenish it.



## Cross-sector Community Conditions

### 3. Primary Indicator: Full- and Part-Time Employment

#### Full- and Part-time Employment Up Slightly



Source: U.S. Bureau of Economic Analysis

In 2001, full- and part-time employment in natural resource-based industries totaled 114,667, about 14.5% of all jobs in the Maine economy.

From 1990 to 2000, the total number of jobs grew by 12%. About half of the total jobs and nearly all of the job increases are related to tourism.

#### Significance

Job growth would signify that industries are adding new business, attracting new customers, and improving their economic condition.

The employment growth in the natural resource-based super-sector has been fairly slow and has been driven, in large part, by the tourism sector. The mix of jobs within this larger sector shows that there has been a loss in paper manufacturing jobs, which has provided Maine workers with some of the highest wages and benefits of any industry. And, while it would be misleading to characterize all tourism jobs as “lower wage,” it is true that a large portion of the jobs in tourism are part-time or seasonal in nature and offer comparatively low wages and benefits. Therefore, at the margin, the jobs that Maine is losing in the resource-dependent sector tend to pay more than the jobs that are being added. In addition, the jobs that are being lost are primarily located in Maine’s smaller, rural, in-land communities that are much more

dependent on these jobs for their regional economic health. Much of the tourism activity takes place in the coastal regions leaving a bit of a geographic mismatch in available labor pool and job growth.

## Factors that Impact Employment in Communities

### Education and Training

With the evolution of global markets and the rise of the knowledge-based economy, education and skill-building have become increasingly important in securing a viable future. The need for education and technical assistance to support future growth was identified in each of the sectors under study as being extremely important to the future of these businesses. Because of this, the university and the community college systems have both agreed to work with the Department of Economic and Community Development to create programs and educational offerings that responds directly to the needs of the resource-based industry.



## Agriculture—Introduction

Represented by the farmer on the state seal, Maine agriculture has a long and close association with the Maine way of life. Maine agricultural producers and processors account for about \$1.2 billion flowing through the state's economy. Maine farmers are the stewards of one million acres of cropland, pasture, and woods.

But agriculture contributes much more. It provides fresh food, which because it can be delivered more quickly, is more nutritious and consumes less energy in transport. It preserves open space for wildlife habitat and outdoor recreation. It provides panoramic views that connect us to our past and to the Earth. Farms and farmers play a huge role in Maine's landscape and heritage.

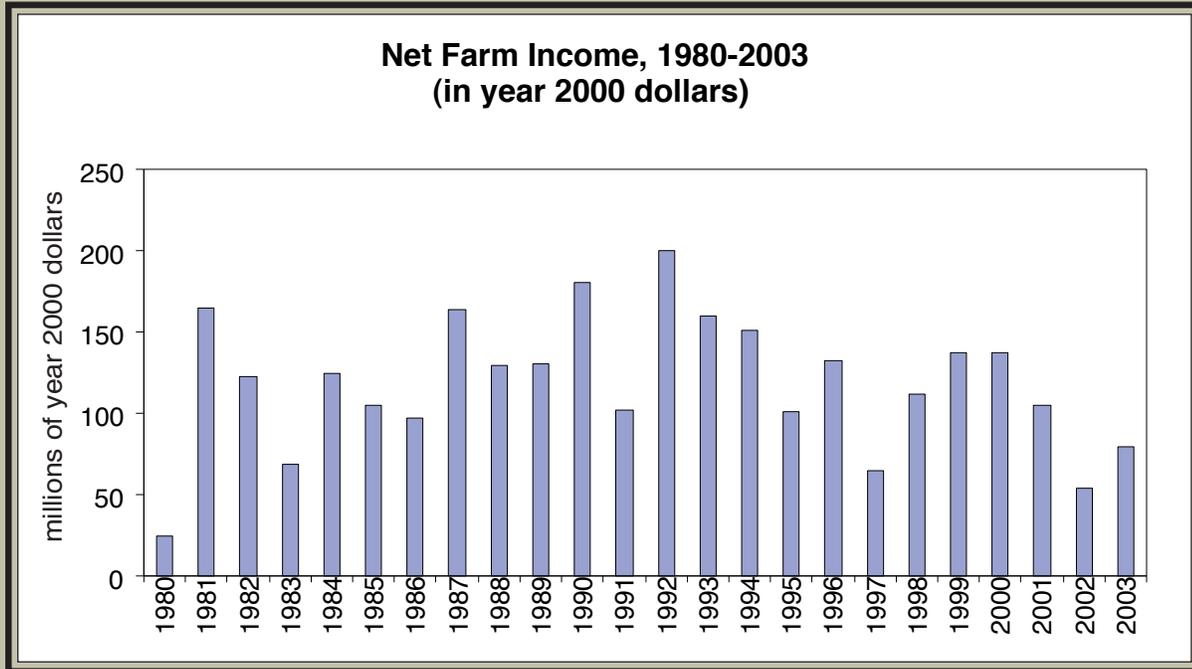
Since the middle of the 20th century, Maine agriculture, like agriculture across the country, has been commodity-based. That is, farms have typically specialized in a limited number of crops or livestock and have developed commercial relationships with processors of their specific commodities. For instance, potato growers have traditionally partnered with large corporate potato processors to bring their product to market. The same has been the case with producers of milk, blueberries, maple syrup, apples, etc. The commodities have typically been shipped to central locations, processed, and shipped out into the global market.

There is an emerging trend that has the potential for farm growth and simultaneously to provide greater benefits to Maine people. There are a growing number of Maine farms connecting with local consumer markets, either by starting new farms or converting all or part of their commodity-based operations to a diversified business driven by local consumer demand. Although they are growing in numbers, operations of this type may not have a large impact on the farm economy for some time, however. These farms are smaller than the commodity farms and produce less product overall. Commodity farms are 15 times larger than local agriculture farms in sales; 12 times larger in cropland acres; and two-fifths rely on farm income for their livelihood, as compared to one-fifth of the local agriculture farms.<sup>iii</sup>



### 4. Primary Indicator: Net Farm Income

#### Net Farm Income Declines



Source: New England Agricultural Statistic, 2003. Note: Net Farm Income as shown here includes aquaculture which we are unable to separate out. Although we know the gross receipts in aquaculture (about 8.5% of all agriculture gross receipts), we don't know how much the aquaculture industry spends on inputs and so we are unable to uncouple it from the agriculture data.

In 2002, net farm income (gross sales minus cost of inputs: the amount of money to farm operators) totaled \$46.8 million. Considering the effects of inflation, this is about four-tenths of what it was in 1999.

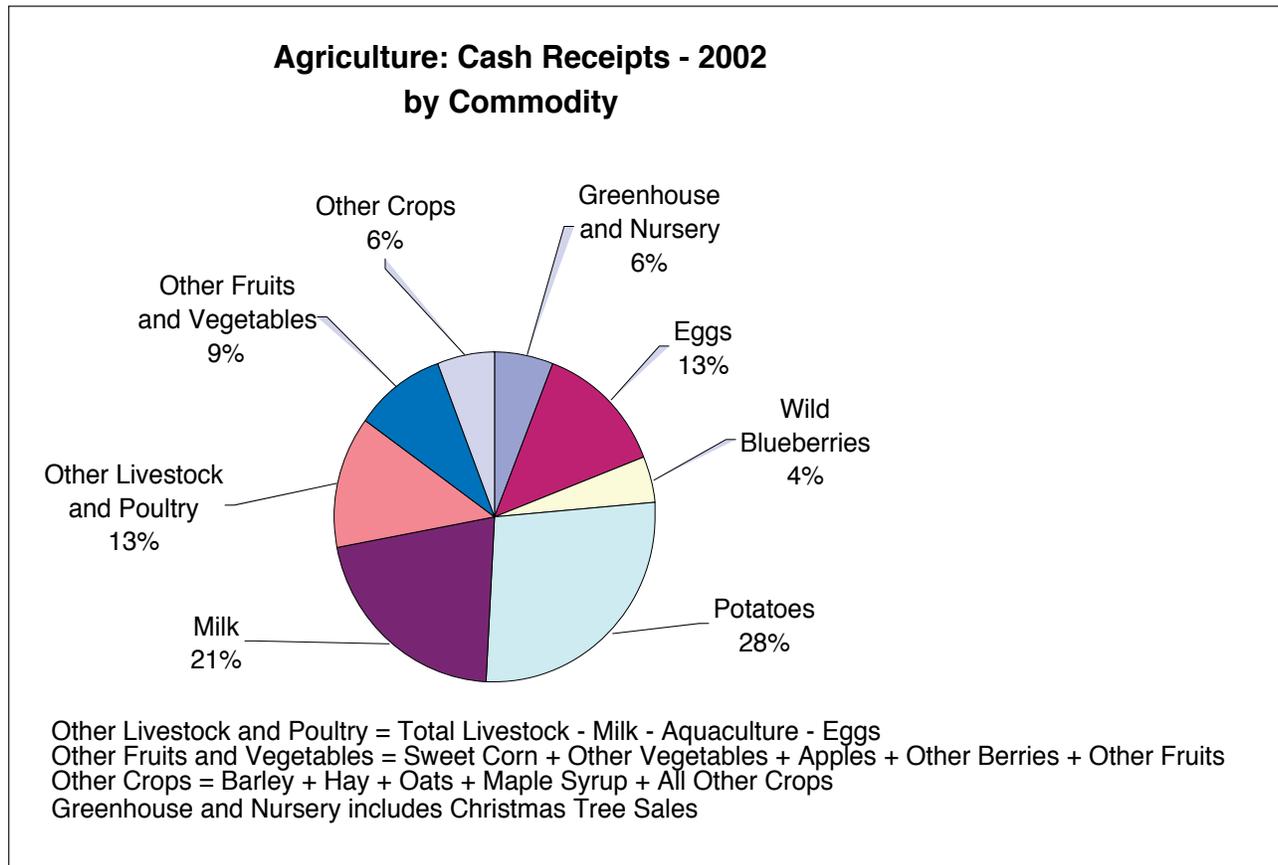
About 40% of net farm income is impacted by commodity prices, particularly potatoes and dairy, which fluctuate dramatically.

#### Significance

If net farm income were to stabilize and rise, that would mean increased profitability for farm operators and would result in new workers and farm operators being attracted to the industry.

## Related Data

### Cash Receipts by Commodity



Source: New England Agricultural Statistics, 2003

Potatoes and dairy products brought in almost half of all agriculture cash receipts in 2002. *Eggs* and *Poultry/Other Livestock* each comprised about 13%.

## Factors that Impact Farm Income

### Agriculture and Tourism

In 2002, in addition to selling their crops and livestock, Maine farms generated \$433,000 from recreational services such as hunting and fishing; an average of \$5,926 per farm.<sup>iv</sup> Many farms are increasingly generating revenue from recreational services such as bed and breakfast establishments, hayrides, and maple sugaring—all tourist attractions.

### Value of Farmland

The value of Maine farmland has risen since 1998 relative to the amount of money that farmers typically make per acre. While the net farm income per acre has stagnated since 1990, the value per acre of farm real estate has grown 75%. In 2003, the value of farmland per acre was \$1,750. At the same time, the value of farm income per acre was just \$60.<sup>v</sup> Rising land values



# Agriculture

make it increasingly difficult for newcomers to get started in farming and they also act as an increasing incentive for farmers to “cash out;” that is, sell their land and get out of farming. Although many farmers fail to see an increase in net farm income year after year, they take stock in the rising value of their land which can be converted to cash.

## Competitiveness

Increased technologies in agriculture, transportation, and food processing have changed the face of agriculture around the globe. Consumers are now accustomed, and expect to be able, to purchase all varieties of fruits and vegetables at all times of year in one shopping location. This global food market impacts not only the competitiveness of Maine’s farms, but also the habits and expectations of the Maine consumer.

Remaining competitive in commodity markets demands increased efficiency that, in turn, drives the industry toward fewer farms with larger acreages. Commodities are also vulnerable to fluctuations in the global marketplace. Additionally, milk prices are under a federal order system which also responds to swings in the marketplace.

Maine has natural resource limitations, including limited agricultural soils and water for irrigation, and a short growing season, as compared to other agricultural areas in the country. As a result, Maine farmers are at a competitive disadvantage.<sup>vi</sup>

## Federal Food Policy

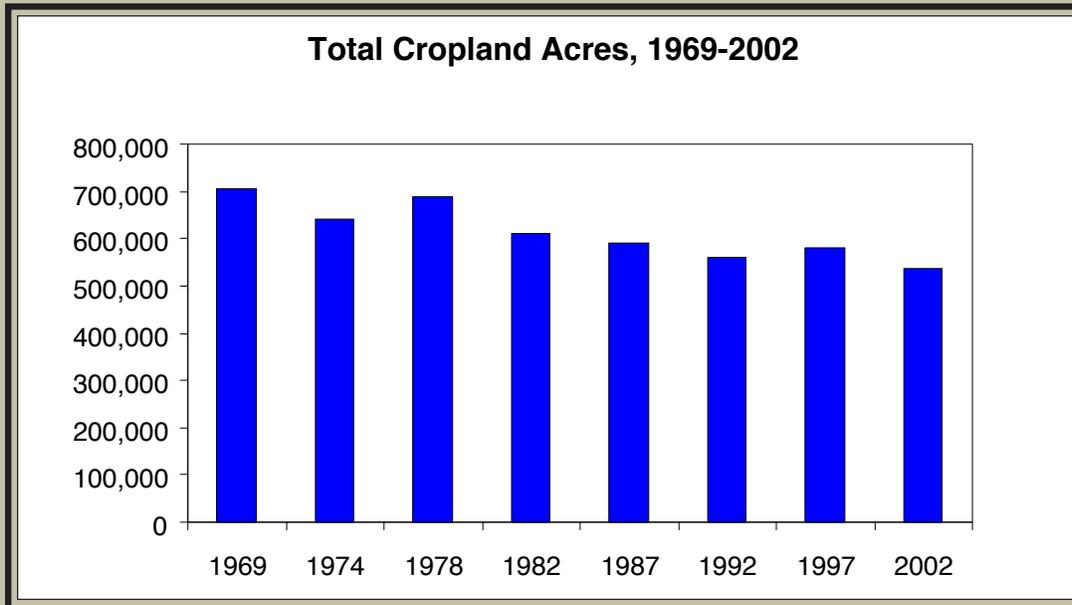
Federal agricultural policy is set principally by the Farm Bill, a huge piece of legislation that touches nearly all aspects of farm and food policy in the country. Most federal programs are designed for a scale of farming that is different than what is practiced here. They tend to focus on the needs of large-scale production agriculture as practiced in the South and Midwest. The needs of the Northeast and Maine are almost an after thought.



**Agriculture—Natural Resource Conditions**

**5. Primary Indicator: Acres of Productive Cropland**

**Amount of Productive Cropland Declines**



Source: 2002 Census of Agriculture. Note: Total cropland includes: harvested cropland; cropland used only for grazing or pasture; idle cropland used for cover crops or soil-improvements, but not grazed or pastured; cropland on which all crops failed; cropland in cultivated summer fallow. Total Cropland does not include woodland, and other pastureland. Christmas trees and tapped maple trees are reported as woodland, but land in orchards is considered cropland.

This graph represents land that is actively farmed or grazed and shows us how much of Maine’s land base is actually in agricultural production. The amount of land in production has been declining for several years, although it appears to start leveling out in the 1990s.

**Significance**

If the decline in amount of cropland leveled off and stabilized, that would signify movement toward a sustainable future for Maine agriculture and would bode well for agriculture in general and for Maine people. Changes in the amount of cropland reflect Maine’s changing capacity to support the farming industry.

Productive farmland benefits not only the farmers and their families economically, but also Maine’s natural resource base as a whole. Land in farms provides wildlife habitat, including open fields and edge habitat. Well-managed fields also maintain permeable soils that allow rainwater to be absorbed into the ground, unlike pavement and structures which cause water to runoff the surface quickly and carry sediments and pollutants into water bodies and contribute to erosion. Also, food-producing land contributes to Maine’s food security.

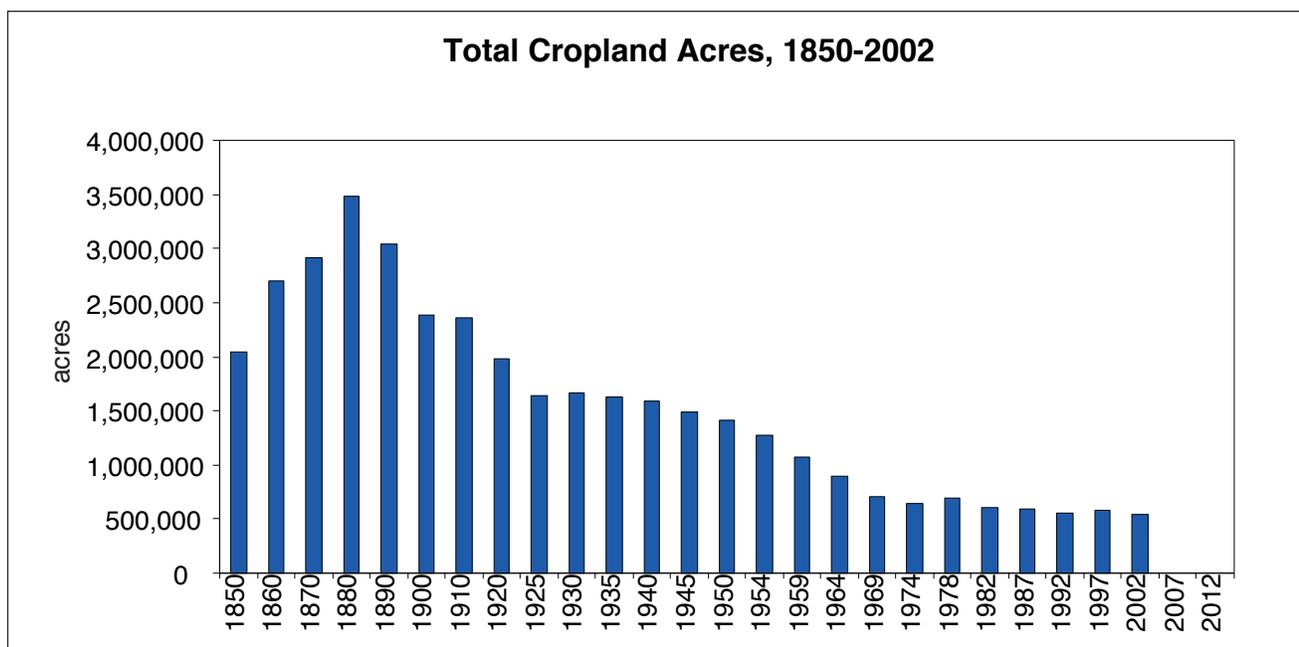


The amount of total cropland is in decline for several reasons. Some farms go out of business because they simply cannot make it in today’s globally competitive economic climate. Other farmers sell their property because residential and commercial development is driving up the price of land, increasing the tax burden, and making the prospect of selling the family land more profitable than continuing to run the farm. Some dairy farms fold as they are unable to sustain the huge price fluctuations. A decline in acres of cropland reflects an economic environment that tends to favor land use development over farming.

In many cases, these losses indicate a permanent loss for the farming environment. Agricultural soils, which are rare in Maine, cannot be recovered once they have been removed or destroyed. Land that is not developed, but rather returned to woodland may still represent a loss of agricultural soils, but is not a detrimental loss in terms of natural resource conditions.

## Related Data

### Historic View of Cropland



Source: Census of Agriculture

Since 1880, Maine’s “heyday” as an agriculture state, the amount of land in cropland has decreased dramatically. The amount of cropland today is about one-quarter of what it was in 1880.

## Factors that Affect Total Cropland

### Sprawl

Sprawl and related development issues are taking a lot of agricultural lands out of production, leaving farmers with fewer options and more incentive to sell their agricultural land for its development value. According to the State Planning Office, between 1992 and 1997, Maine converted 33,500 rural acres per year to development, a rate four times that of the previous decade, and greater than the cropland in nine Maine counties.<sup>vii</sup> Further, the pace of land use development is expected to continue.



## Best Management Practices

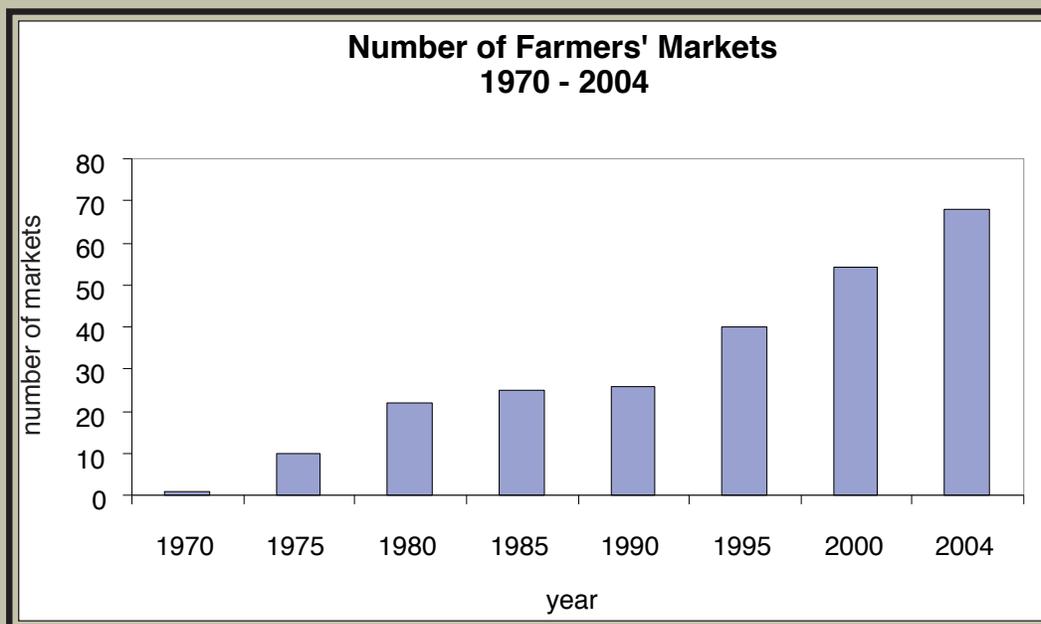
Maine farmers use Best Management Practices (BMPs) on their farms; practices that assure the preservation of the high quality land base that we need to create wealth from this resource. BMPs include the development of conservation plans (land management plans which outline ways to improve soil and forests), use of integrated pest management (spraying pesticides only when absolutely necessary), and water management plans (to minimize water use during droughts).



## Agriculture—Community Conditions

### 6. Primary Indicator: Number of Farmers' Markets

#### Farmers' Markets Dramatically Increase



Source: Maine Department of Agriculture. Note: These data are based on voluntary enrollment in the Department of Agriculture's promotional programs and does not include all farmers' markets.

The number of farmers' markets has grown steadily from one market in Portland in 1970 to 67 markets in 2004 spanning the entire state.

#### Significance

If the number of direct farm-to-market sales opportunities were to increase, that would indicate movement toward more profitability for farmers and more local produce choices for consumers. It may keep some farms from having to close down and may encourage new farms to open.

The number of farmers' markets is an indicator of the amount of food being grown and sold locally. When farm produce passes directly from producer to consumer, both generally win. The



producer gets a higher share of the value and the consumer gets a fresh, local product. The consumer might also get cultural value from doing business directly with the farm, or at the farm, and the community wins because 100% of the dollars transacted stays in the community.

As it becomes more difficult for farms to compete in the increasingly regional and global food market system, such direct marketing is a viable option for Maine farmers. Fortunately, consumers surveyed have indicated a strong desire to support local producers whenever possible.<sup>viii</sup> The increase in the numbers of direct marketing opportunities shows that Maine consumers not only want to support local producers, but they are actually shopping at farmers' markets and stands.

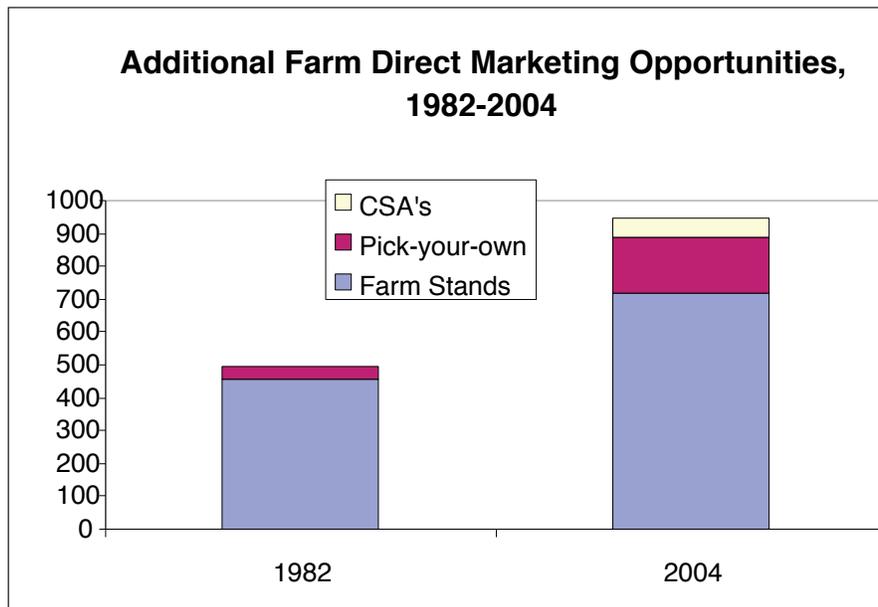
Farms are community assets. Many farms allow public access on their property for all types of outdoor recreation, including walking, cross-country skiing, snowmobiling, hunting, and fishing. In addition, farms with produce stands and pick your own operations invite the public in to enjoy their farms. Some farms even offer additional family activities such as wagon rides, sleigh rides, cornfield mazes, and flower gardens. These experiences are unique to working farms and benefit the surrounding communities.

## Related Data

### Farm Stands, Pick-your-own, and Community Supported Agriculture

The increase in the number of farm stands (456 in 1982 increasing to 720 in 2004) and pick-your-own farms (41 in 1982 increasing to 169 in 2004) is partly due to improved tracking systems, but is undoubtedly also due to increased activity in these areas. The next few years' data will better tell the story, as most direct marketers are currently choosing to be included in the department's listings.

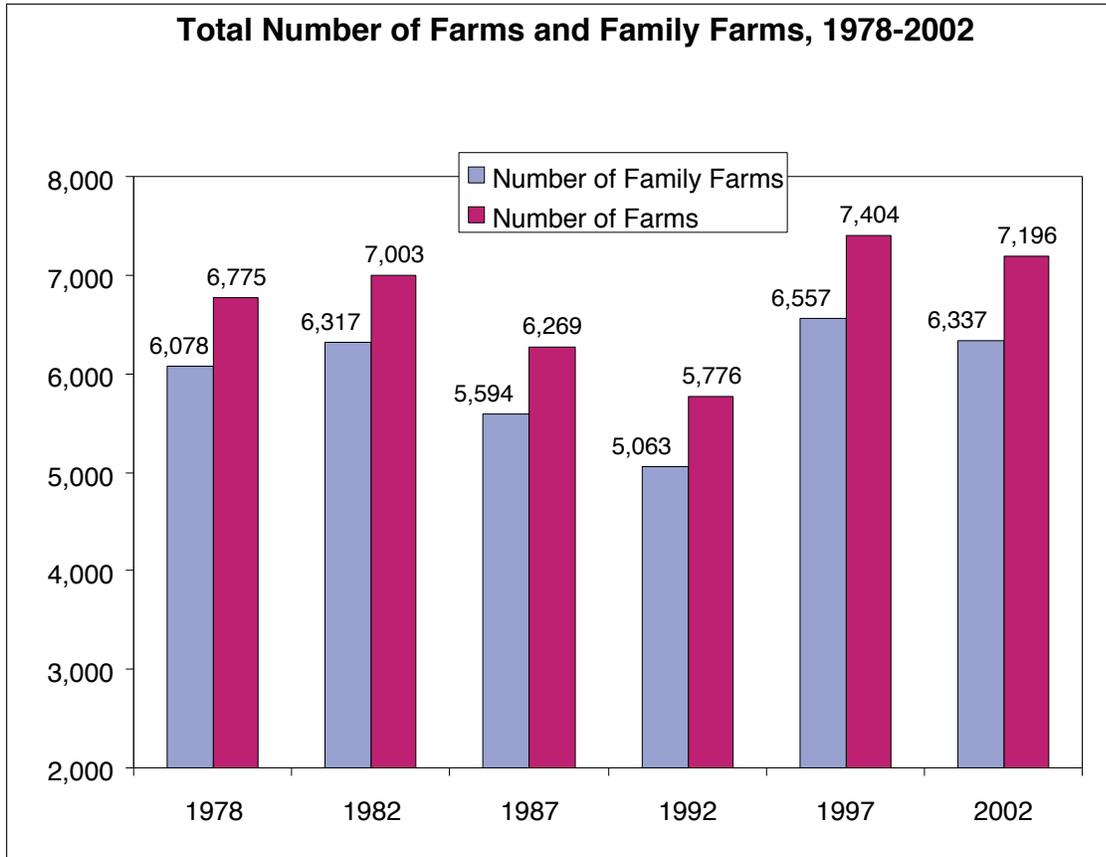
Community supported agriculture farms have come about only in the last 20 years, but there has been a recent increase from 24 in 2000 to 59 in 2004. Community supported agriculture is a relationship of mutual support and commitment between local farmers and community members who pay the farmer an annual membership fee to cover the production costs of the farm. In turn, members receive a weekly share of the harvest during the local growing season.<sup>ix</sup>



Source: Maine Department of Agriculture. Note: These data are based on voluntary enrollment in the Department of Agriculture's promotional programs.



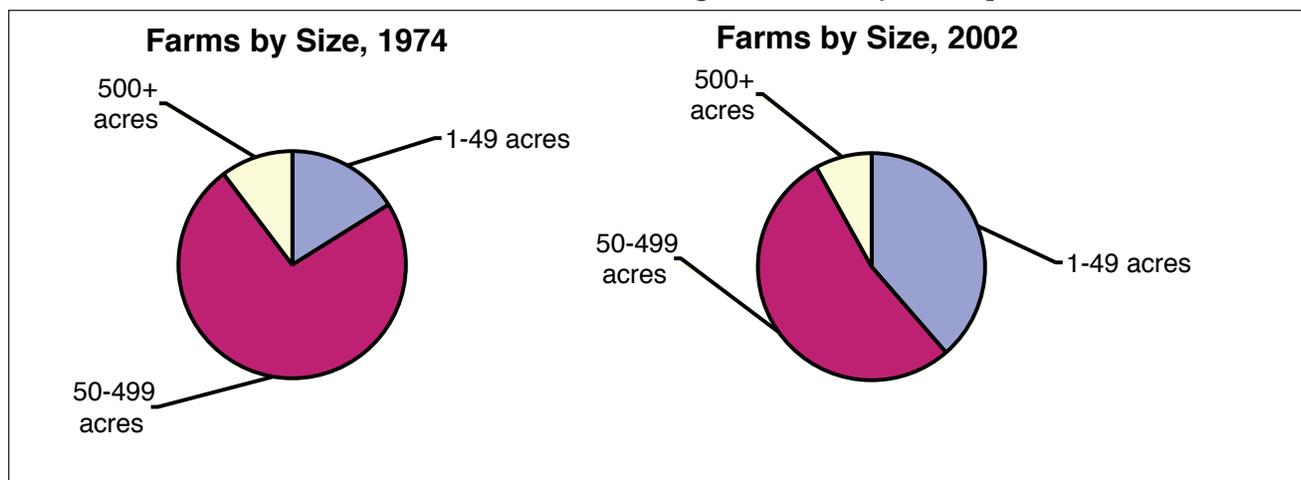
## Number and Size of Farms



Source: New England Agricultural Statistics, 2003. The definition of farm is "any establishment from which a \$1000 or more of the agricultural products were sold or would normally be sold during the year." The Census of Agriculture classifies farms by type of organization. "Family Farms" include those under sole proprietorship, either by a family or individual. Family Partnerships and Family Corporations are not included under Family Farms.

The number of farms in Maine has fluctuated considerably since 1978, but the number of family farms as a percentage of total farms in Maine has remained constant at about 90% since 1978. These family farms contribute a great deal to rural community life.

While the number of farms in Maine has gone up and down somewhat in 25 years, the ups and downs in net farm income (see primary indicator of agriculture economic conditions) have not coincided with number of farms further demonstrating the variability in the price of commodities.



Source: Census of Agriculture



From 1974 to 2002, there has been a substantial increase in the number of farms that are 49 acres or less. This reflects the trend of an increasing number of local agriculture farms throughout the state. Farms engaged in direct marketing activities tend to be smaller and more diversified than those selling commodity items.

## Factors that Impact Community Supported Agriculture

### Consolidation of Retail Food Outlets

The major trend in food distribution over the last ten years has been the development of mega outlet national chains (such as Walmart) as well as consolidation of regional food market chains (such as Hannaford and Shaws). These market outlets typically require farmers to have year round supplies at volume discount prices. Many Maine farmers cannot meet those requirements and are left out of the market that sells the most food to Maine consumers.

### Farm and Open Space Tax Program

The farm and open space tax program allows farms to have their agricultural and wooded acres assessed at agricultural value rather than development value. Current-use assessment for tax purposes is one way to reduce the tax burden on farmers and to help create protection from development pressure.

In 2003, 68,038 agricultural acres, 107,055 woodland acres, and 60,366 open space acres were enrolled in the farm and open space tax program. The number of farmland acres increased by over 79,000 acres between 1990 and 2003, while open space acres increased by over 38,000 acres during that same period. Enrollment in this program is experiencing an upward trend that is likely to continue into the future.

## Fisheries/Aquaculture—Introduction

Fishing has been a part of Maine’s culture since the first exploration and settlement of the coast in the 1600s. The settlements of Pemaquid and Monhegan began as stations for the British cod-fishing fleet. In O’Leary’s *Maine Sea Fisheries: the Rise and Fall of a Native Industry*, the author states that in the sixty years between 1830 and 1890, “No fewer than seventy separate Maine communities sent men and vessels to the deep sea fisheries of the North Atlantic. In addition, virtually every coastal village was involved to some degree in the ‘shore fisheries.’ From the city of Portland eastward along the coast, fishing was an economic commonplace, if not a way of life.”<sup>x</sup>

Today, Maine’s fishing industry is under threat—from disease, from over fishing, from environmental degradation, and from global competition. It is further stressed by the implementation of the updated Northeast Multispecies Management Plan, known as Amendment 13, which reduces fishing opportunities for Maine’s groundfish fleet. Yet, while the fisheries’ stocks are in a state of flux, current trends in groundfish biomass are signaling hope that groundfish stocks can be significantly rebuilt.

The fishing industry is also undergoing a transformation from “hunting” to “farming.” Many fishers go after wild stock, such as groundfish and herring, but today many fishers grow and harvest their stock, like a farmer or forester. Even lobstermen, via their methods of baiting and selective harvesting, feed and grow the stock for harvest at a ripe age. Increasingly, salmon, shellfish, and other species are being “farm-raised.”

Maine’s fishing industry is comprised of commercial fishing, aquaculture, and recreational fishing. Each of these contributes significantly to local economies, though in the aggregate, they are a small percentage of the state’s economy overall. The economic performance of fishing is mixed; with landing values up, but price per pound fluctuating. Revenues from the groundfishery are growing, but those from aquaculture have dropped.

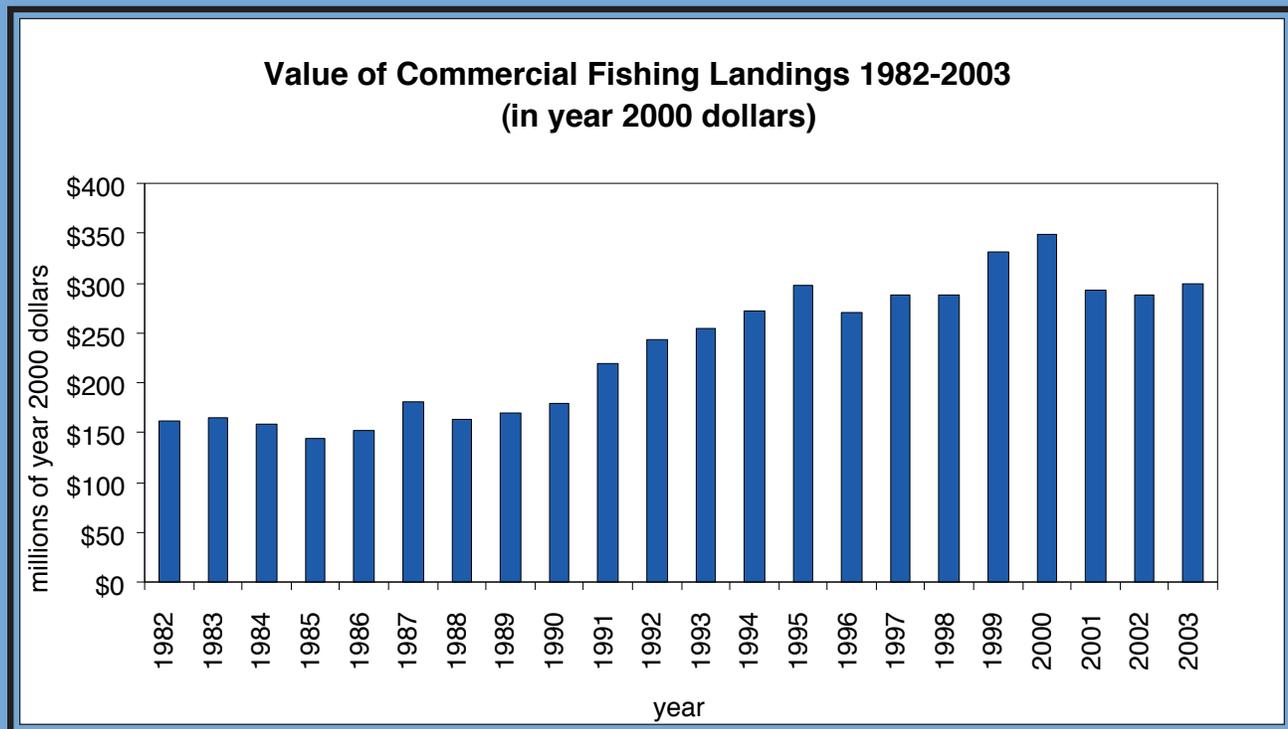
Not only is a healthy fishing industry critical to the economic well-being of many Maine businesses and families, it is also a draw for tourists and an integral part of the Maine landscape loved and appreciated by so many. Lobsters alone depict visions of the Maine coast in the minds of millions of tourists around the country. A recent survey found that eating a Maine lobster is the top tourist activity for visitors to our state. Fishing heritage contributes to Maine’s cultural identity.



## Fisheries/Aquaculture—Economic Conditions

### 7. Primary Indicator: Value of Fishing Landings

#### Value of Landings Rises



Source: Maine Department of Marine Resources. Note: Commercial fish landings include lobsters, herring, groundfish, Atlantic Salmon, sea urchin, and a variety of other species.

In spite of a recent dip, the value of commercial fish landings has been steadily increasing for the past twenty years. Although, accounting for inflation, the overall value of commercial fish landings has declined more than 10% in the past four years.<sup>xi</sup>

In 2003 Maine fishers landed \$316 million worth of commercial fish product, about 65% of that from lobsters.

#### Significance

It would benefit the economic viability of the commercial fishing industry, working waterfront communities, and Maine people if the value of landings increased each year.

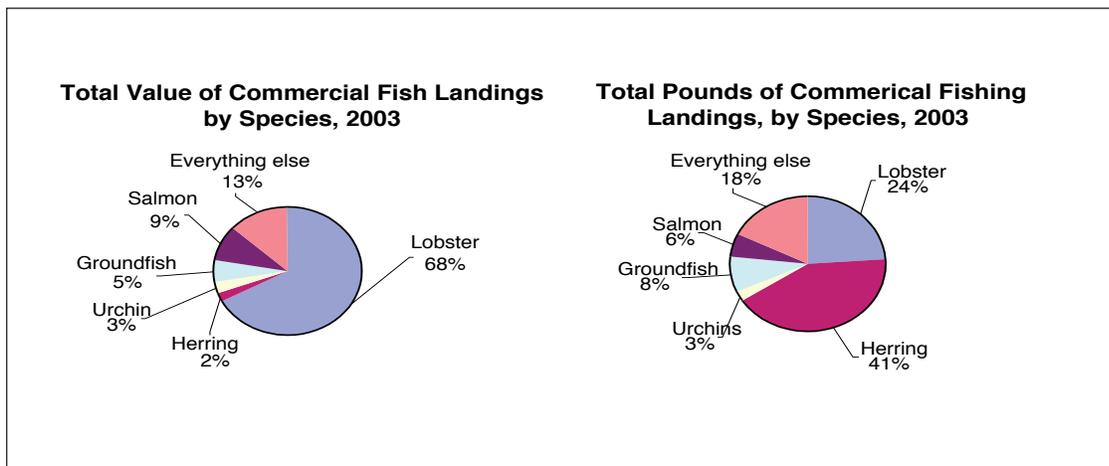
The value of landings is a good indicator of how much return the fishing industry gets for the amount of effort put in. Values are affected by stock abundance, global markets, amount of effort, and many other factors.

In addition to profits and wages for fishers, the economic health of the fishing industry impacts waterfront businesses and fishing-related businesses; e.g. boat builders, co-ops, buying sta-

tions, seafood processors, and businesses that supply bait, ice, fuel, and other products and services. These in turn generate income and support jobs. Economist Charles Colgan has found that, “The working waterfront contributes anywhere from \$15 million to \$168 million more per year to gross state product than does coastal residential construction. In other words, our working piers and wharves contribute almost two times more to the state’s economy than would converting 500 coastal properties and building a \$650,000 house on each one.”<sup>xii</sup>

## Related Data

### Value by Species



Source: Maine Department of Marine Resources. Note: Groundfish species include cod, haddock, pollock, white hake, American plaice, winter flounder, yellowtail flounder, redfish, halibut, and witch flounder. Everything else includes: alewives, mahogany quahog, skates, bloodworms, monkfish, softshell clams, blue mussels, periwinkles, spiny dogfish, crabs, cusk, red hake, silver hake, sandworms, wolffish, sea scallop, and shrimp.

In recent history, the value of lobster landings has exceeded the value of all other fisheries combined. Because lobster landings make up such a large percentage of the value of landings, any increase or decrease in the amount of lobster landings has an impact on the overall value of the fishery.

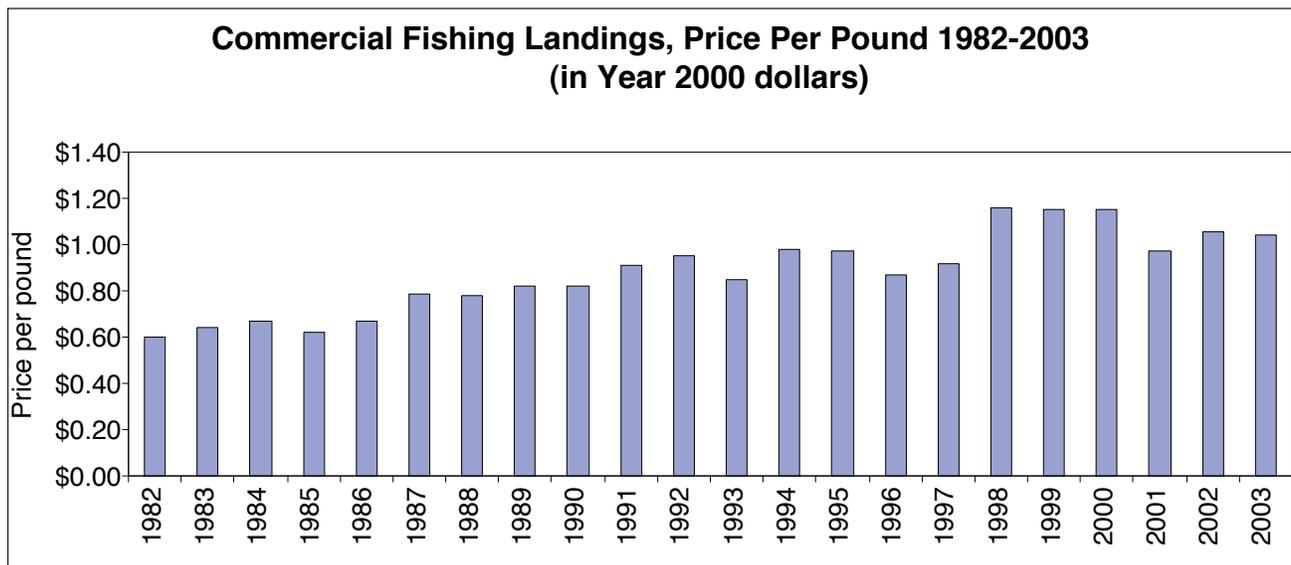
By weight, most commercial fish landings are herring, used largely as bait for a popular lobstering industry. Although herring accounts for most pounds landed, it’s only a fraction of the value landed.



# Fisheries/Aquaculture

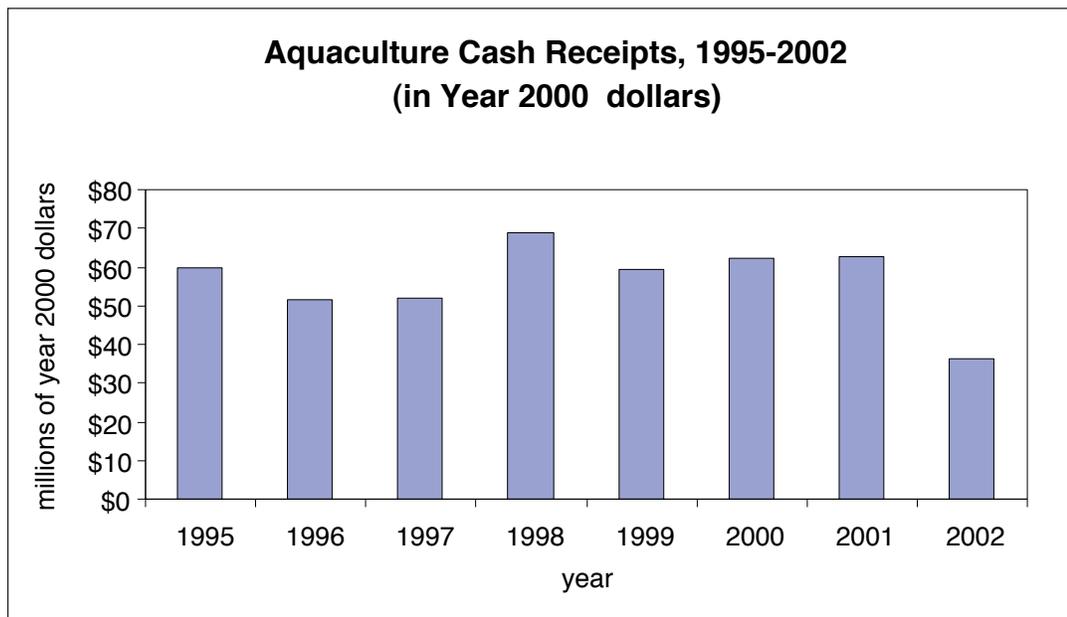
## Commercial Fishing Price per Pound

The price per pound of commercial fish landings peaked in 1998, held steady for the following two years, then dropped in 2001, 2002, and 2003. Seafood imports, pounds landed, species type, market demand, and energy costs are just some of the factors contributing to the average price per pound. It is important to note that seafood is Maine's fourth largest export and therefore pricing of seafood is influenced by regional and global market demand.



Source: Maine Department of Marine Resources

## Aquaculture Cash Receipts



Source: New England Agricultural Statistics, 2003. Note: Cash receipts for the aquaculture industry include the raising and selling of salmon, trout, oysters, mussels and baitfish, as well as fish hatcheries, grow-out operations, fish health companies, and fish processing operations. These data include hatchery operations for salmon, trout, mollusks, and other aquaculture. Fish health companies and processing operations are not included in these data.

Between 1995 and 2002, aquaculture cash receipts did not increase or decrease substantially. Landings data (not shown here) show a similar trend, though landings generally increased from

1991 to 2002. Cash receipts in 2002 were 39% lower than in 1995 and about 42% lower than in 2001, accounting for inflation. Landings also plummeted between 2001 and 2002.

Several factors contributed to this decline. An infectious disease, infectious salmon anemia, hit the U.S. and had a devastating affect on finfish operations. Almost two-thirds of all aquaculture revenues are from finfish farming, mostly Atlantic salmon. Because these operations make up such a large percentage of all aquaculture receipts, any rise or fall in that industry segment alone noticeably impacts overall cash receipts.

Secondly, the industry came under litigation regarding environmental regulations. A court order requires aquaculture operations to obtain permits under the Clean Water Act, and imposes penalties on those operating without proper permitting. This caused several farmers to lose their leases, and others to halt operations to make the changes necessary to be eligible for the permits. A third factor is the global marketplace. Imports, especially from Chile, are making it harder for aquaculture farmers to compete. The market is shifting to a commodity market, and imported products are cheaper than domestic products. The aquaculture industry is hopeful, however, that it will recover in the coming years as the permitting requirements and disease issues get sorted out, and consumers increasingly seek local food products.

Despite the recent downturn, the aquaculture industry continues to contribute significantly to the state economy. The aquaculture industry in 2003 accounted for \$82 million in direct sales and \$130 million in overall economic impact.<sup>xiii</sup> Overall economic impact includes spending on trucking, construction, insurance, feed, and other Maine businesses that also support the traditional fishing industry. It also includes indirect spending through the supply chain for gas, supplies, power, etc.

Shellfish aquaculture, mostly oysters and mussels, is a growing cottage industry in Maine. Maine-grown shellfish is sold in high-end restaurants in New England and in New York.

About 1,400 people work in the aquaculture industry. Industry wages at \$39,000 per year (salary and benefits) are higher than the state average, and nearly double the average for Washington County businesses.

## Recreational Fishing

Recreational fishing contributes significantly to the Maine economy. In 2003, there were over 350,000 saltwater recreational anglers. Most were Maine residents.

Average Daily Personal Expenditures by Fishing Mode, 2003				
	Shore	Private/Rental Boats	Charter Boat	Head Boats (regularly scheduled)
Maine Residents on a Day Trip	\$8	\$13	\$218	\$79
Non-Maine Residents on a Day Trip	\$15	\$13	\$226	\$82
Non-Maine Residents on an Extended Trip	\$8	\$17	\$240	\$85

Source: The data was collected via the Marine Recreational Fisheries Statistics Survey, a partnership of the National Marine Fisheries Services and Maine Department of Marine Resources, designed to estimate the impact of the recreational fishery on marine resources.<sup>xv</sup>  
 Note: Charter boats are typically rented or privately-owned with fewer than six people. Head boat usually host 20-40 people for a half-day or less.



It is estimated that expenditures by recreational fishers in 2003 were in excess of \$11 million. This figure represents the amount of money spent by anglers on items such as boat fees, gas, tolls, parking, bait, and meals.

## Factors that Affect Landings' Values

### Federal Groundfish Regulations

The groundfish fishery has experienced increasing restrictions over the past decade. As fish populations have declined, federal fishing regulations have been imposed that limit the number of days a vessel can fish, close certain areas to fishing, and establish minimum fish sizes, trip limits, and gear restrictions. The most recent change in federal regulations is Amendment 13 to the Northeast Multispecies Management Plan which went into effect on May 1, 2004. Amendment 13 substantially increases restrictions by cutting the number of days-at-sea by up to 40%. Both the groundfish fleet and the shoreside industry (i.e. seafood processors, fuel and ice dealers) are experiencing negative financial impacts from these regulations. From 1982 to 1994, landings declined by 64%, and since 1994, landings have declined by another 28%. They reached their lowest point in 1999, and have begun slowly to recover. Federal and state fisheries experts project that over the course of the next 15 years, fish populations will grow to the point where Maine's landings will again grow.

### International Agreements

Maine shares its wild fishery resources with other states and countries. The Maine coast is part of the Gulf of Maine, one of the most abundant marine ecosystems in the world. The state of Maine governs fishing activities out to three nautical miles from shore and the federal government governs out 200 miles. Beyond 200 miles, fishery management is governed by international agreements. The border between Canada and the U.S. is less than 200 miles apart and the two countries work together to determine what can be caught and where.

### The Competition of Imported Seafood

Without knowing the origin of a seafood product, consumers are apt to choose a lower priced product over a higher priced product. Imported seafood is often less expensive, due to lower costs overseas, putting local seafood products at a disadvantage. New federal regulations require seafood dealers and retailers to label their products by country of origin. While this will not decrease the cost of the domestic products, nor change the global marketplace driving these costs, it may encourage consumers to purchase domestic seafood products. Consumer awareness can have an impact on purchasing habits.

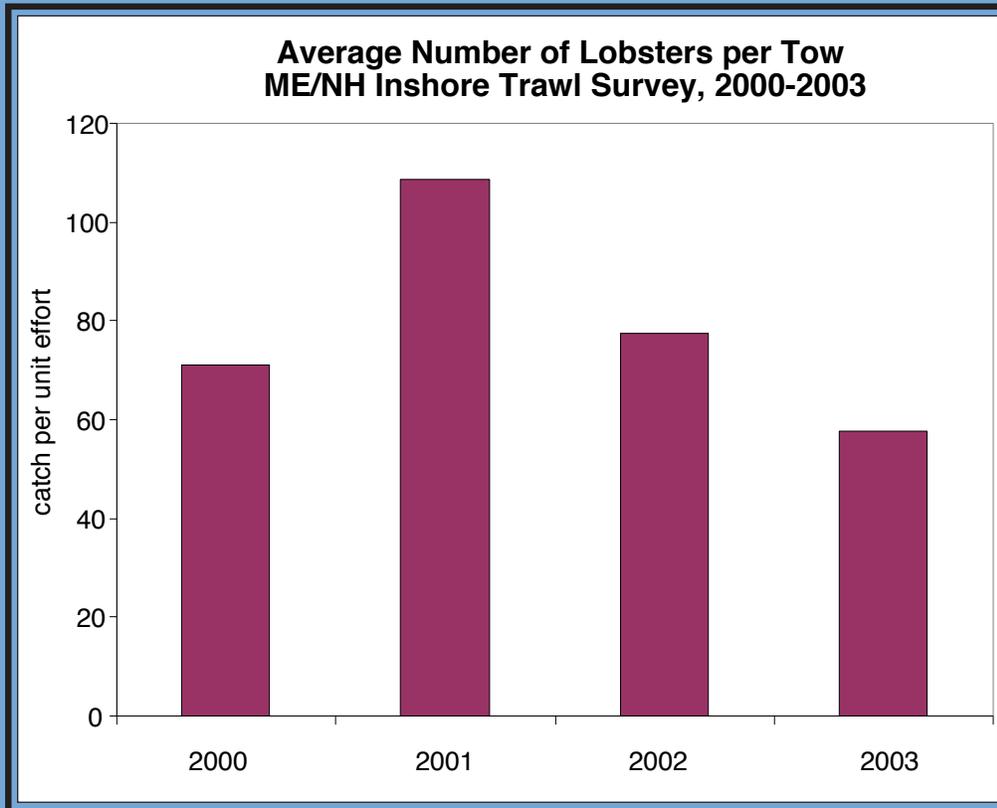
### Threat of Disease

A shell disease in southern New England caused a severe lobster-die off in 1999. While that infestation did not directly impact the Maine lobster industry, if it or another disease did infest the Gulf of Maine, it would have a devastating affect on the lobster industry. Recent research suggests that this particular disease has not spread to Maine; it and other diseases are being studied and closely monitored by university and state scientists.



### 8. Primary Indicator: Biomass of Lobsters

#### Biomass of Lobsters is Uncertain



Source: Maine Department of Marine Resources, 2004. Note: Biomass refers to the total quantity or weight of organisms in a given area or volume.

In the past two years the live stock of Maine lobsters has decreased, although we don't have enough historical data to discern a trend.

This graph represents the results of annual estimates of the number of lobsters living in the inshore waters of Maine and New Hampshire. Lobster stock assessments have been conducted via trawl surveys only since 2000. Since that time there appear to be huge annual fluctuations. This data will become much more meaningful as we develop a longer history with it.

Prior to the above stock assessment data, the industry collected data on lobster landings since the 1800s. This historical landings data (not shown here) show a long history of steady increases in the amount of lobster landed, with more dramatic increases in the past twenty years.<sup>xvi</sup> While the amount of lobster landed is not always a good indicator of live lobster stocks in the ocean, when landings go up year after year it is a good indicator that stocks are healthy.

#### Significance

If the stock of live lobsters were to increase, that would bode well for the future of lobstering, working waterfront communities, and Maine people.

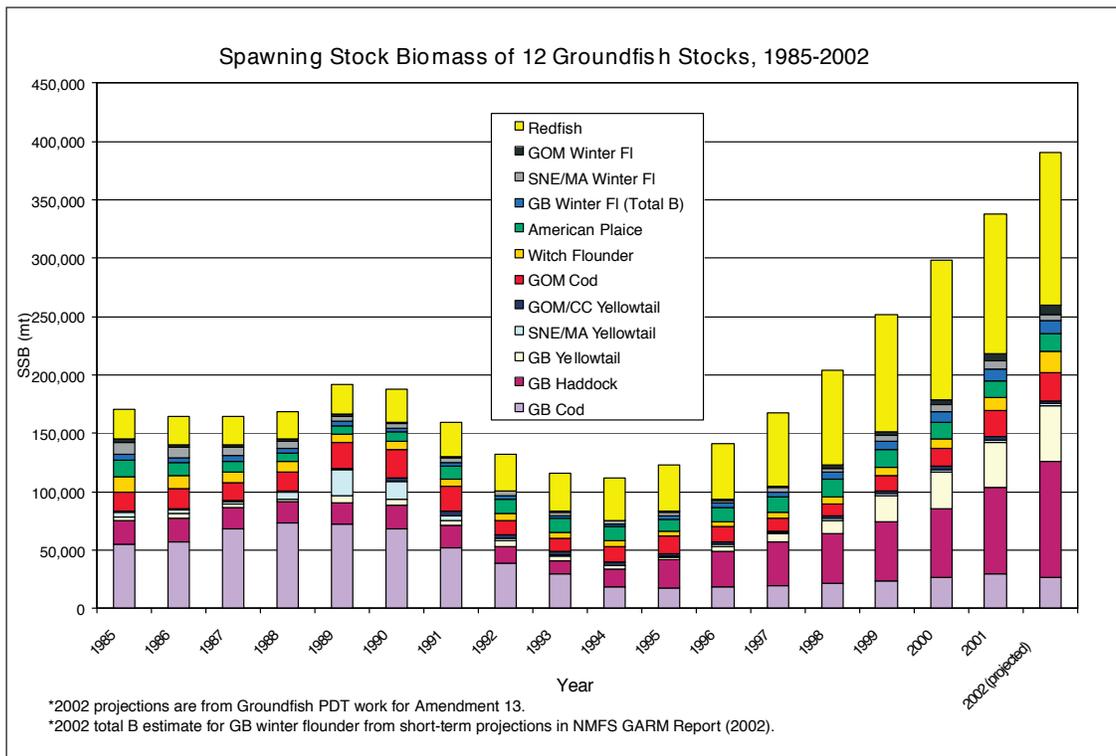
A healthy lobster stock is absolutely critical to the continued sustainability of the fishing industry. Lobsters are currently the number one fishery in value and numbers employed. There were \$185 million of lobster landed in Maine in 1999 and an estimated economic impact of over \$500 million to the state. There are over 8,000 full- and part-time lobstermen and women.<sup>xvii</sup>

Lobstering is becoming increasingly popular among fishers and many have switched from other fisheries in recent years. Near-shore stocks of herring and groundfish are helping to make lobster fishing more attractive.

The lobster fishery has experienced unprecedented levels of landings over the past 15 years. Since 1990, landings have increased from 28 million pounds to 55 million pounds in 2003. The level of landings raises concerns about the fisheries' sustainability and of how the lobster population has impacted the rest of the ecosystem in the Gulf of Maine.

## Related Data

### Groundfish Spawning Stock Biomass

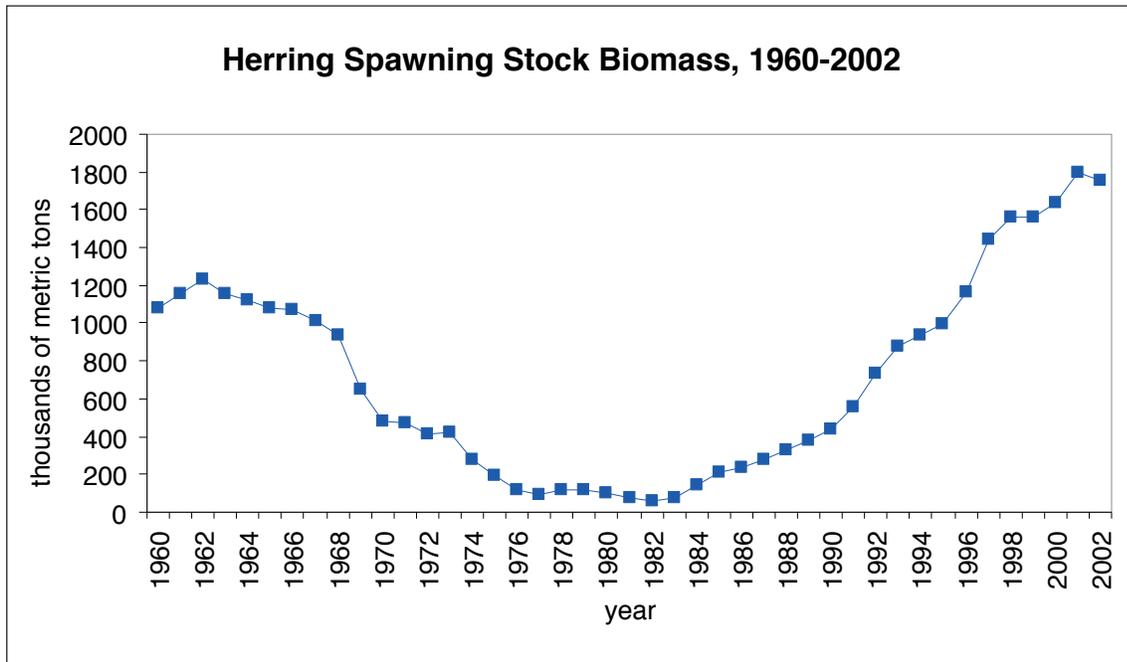


Source: New England Fisheries Management Council, 2001

It is imperative to the health of the fishery that the spawning stocks continue to increase. Overall, groundfish spawning stocks are on the rise. Stocks of some important commercial species such as cod and yellowtail, however, are either in decline or are holding steady.

Today, groundfish make up only a small portion Maine's fishery. However, between 1994 and 2001 the revenues they generated increased as a percentage of total fishing revenues, another indicator that it might be on the rebound toward a more prominent fishery.

## Herring Spawning Stock Biomass



Source: Maine Department of Marine Resources, 2003 and Transboundary Resource Assessment Committee, 2003

There has been a steady increase in herring spawning stocks since about 1983. Landings have been relatively stable over the past 15 years with average annual catches about 104,000 metric tons. Stable catches simultaneous with rising spawning stock suggest that current fishing practices do not have a negative impact on the spawning stock.

About 70% of the herring are sold for bait for the lobster fishery, while the other 30% are sold to canneries for human consumption.

In recent years, large processing companies have developed plants in other states, which have encouraged new entrants into the fishery. While the Georges Bank herring component is underutilized, the Gulf of Maine stock is fully utilized. New effort needs to be directed to the offshore resource to keep an appropriate balance between harvest capacity and a sustainable resource.

The herring fishery is currently an open access fishery, but the New England Fishery Management Council is working on an amendment that would consider restricting access to this fishery in the future.

## Factors that Impact Fish Stocks

### Effects of Regulation

While state and federal fishing regulations are often seen as detrimental to the economic contributions of the fisheries, they are often seen as helpful and necessary to restoring the fish stock. Depleted fish stocks around the country and in Maine have led to increasing government regulation at the state and federal level. To help stocks rebuild to sustainable levels, most fisheries now allow only limited access to the resource. In these limited access fisheries, obtaining the necessary permits can be a significant expense and thus a barrier to getting into the industry.

### **Near Shore Water Quality**

The quality of Maine's near shore waters is critical to all Maine fisheries. Estuaries are the "nurseries of the oceans." Shellfish beds are closed to harvesting due to pollutants including sewage, nonpoint source pollution, and marine biotoxin. Closures negatively impact the shellfish harvesting and the industries that rely on it.

Today, roughly 8% of Maine's shellfish habitat is closed to shellfish harvesting, but the state is opening about 1,000 acres a year, due to upgrades to municipal sewer systems and removal of overboard discharges. As of July, 2004, 154,272 acres of mud flats and waters in Maine were closed to shellfish harvesting, out of a total of nearly two million acres of territorial waters. Since 1993, the number of acres closed to shellfish harvesting has decreased about 75%, with a substantial decline occurring between 1996 and 1999.

### **Overboard Discharges**

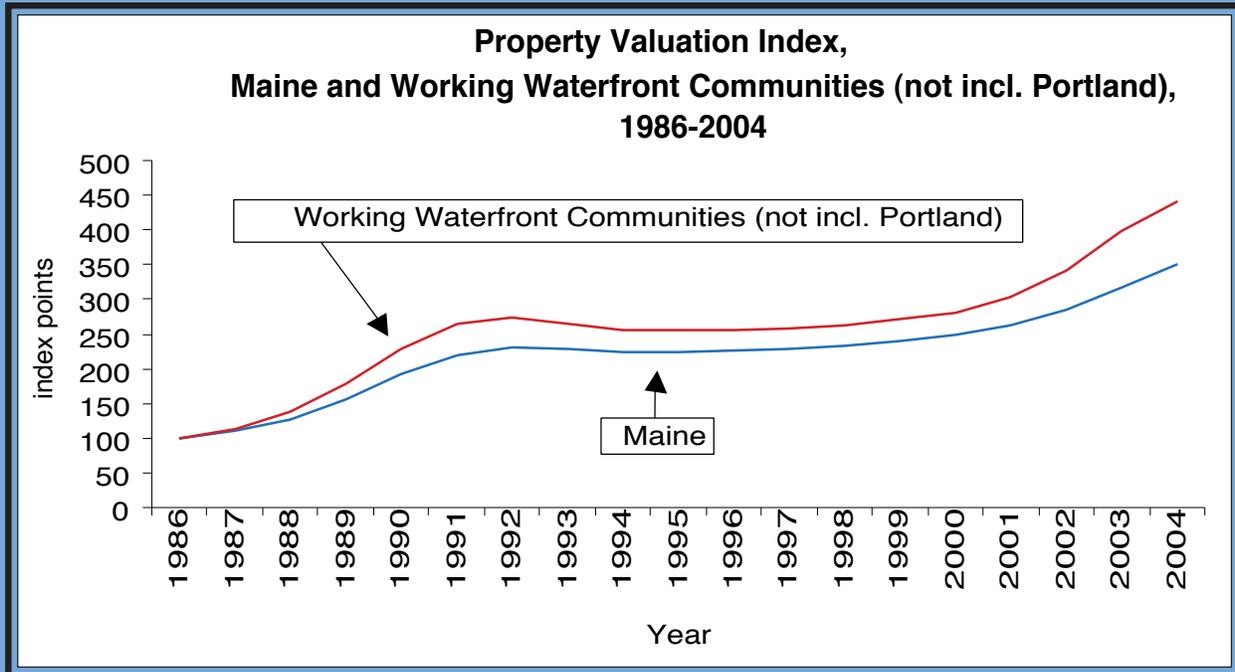
The discharge of wastewater from residential, commercial, and publicly-owned facilities to Maine's streams, rivers, lakes, and the ocean puts harmful bacteria and other pathogens directly into the water. Discharges of sanitary waste have been regulated since the mid-1970s when most direct discharges of untreated waste were banned by the Clean Water Act. Between 1974 and 1987 most of the "straight pipes" were connected to publicly-owned treatment works or replaced with standard septic systems. Treatment systems were installed for those overboard discharge facilities that were unable to connect to publicly-owned treatment works or unable to install a septic system because of poor soil conditions or small lot sizes.<sup>xviii</sup>



## Fisheries/Aquaculture—Community Conditions

### 9. Primary Indicator: Working Waterfront Property Values

#### Working Waterfront Property Values Increase



Source: Maine Revenue Service and statistical analysis by report author. Note: Absent from the above graph of property values of 24 working waterfront communities is Portland, where property values have climbed slightly slower than statewide averages over the past twenty years. Because Portland's total valuation is so large in comparison to the 24 other towns, it would skew the data making it difficult to interpret. In 2003, for example, Portland's valuation made up 32% of the total valuations of all 25 communities.

Since 2001, property values in Maine's working waterfront communities (red line in the graph) have risen sharply in contrast to average property values across the state (blue line in the graph) and continue to rise.

The graph shows equalized assessed value for the state overall, relative to property values in 24 working waterfront communities. These 24 communities, plus Portland, are included in the State Planning Office's efforts to study working waterfront access issues.<sup>xix</sup>

#### Significance

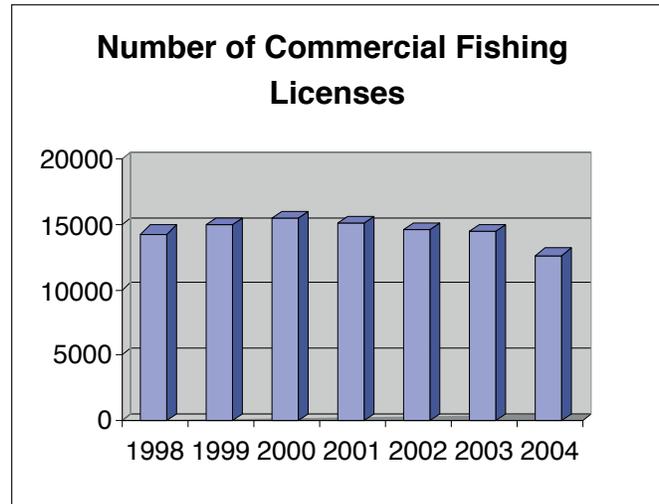
A decrease or at least a leveling off of land valuations in working waterfront communities would be good for the fishing industry, for the waterfront and marine-related industries that support it, and for Maine people. As with all natural resource-based industries, access to the resource is critical. In the case of fishing and aquaculture, access competes with other uses for highly valued waterfront property. Access to the ocean for commercial fishing is a significant issue in many communities.

## Related Data

### Number of Commercial Fishing Licenses

Recent regulatory activity has had an impact on the number of licenses. There has been an overall drop in the number of commercial fishing licenses on the order of 11% since 2000. This indicates less dependence on commercial fishing among Maine workers and their families.

Of our sample of 25 working waterfront towns (including Portland), only seven saw an increase in the number of commercial fishing licenses. The remaining 18 towns saw decreases ranging from 3% to almost 38%. State and federal regulations restrict the number of licenses issued in many fisheries.



Source: Maine Department of Marine Resources

## Factors that Impact Property Values

### Access to the Resource

A 2004 survey of local harbormasters found that 52% of the municipalities surveyed consider commercial fishing access to be a problem. About 68% reported specific commercial fishing access problems, a threat of losing access, conflicts surrounding access, or recently lost access. The report identified increasing property valuations as a primary cause of access concerns.<sup>xx</sup>

About 75% of the commercial fishing access and facilities along the coast of Maine are privately-owned. Rising property valuations make it difficult for fishers to hold onto the property they use and/or own, or to buy waterfront property. Municipalities face the same cost challenges when they want to acquire access points or make improvements to publicly-owned marine infrastructure.

The financial barriers to increase or improve access affect the economic viability of fishers and other waterfront, marine-dependent business people.

### Berths, Slips, and Tie-ups

Recreational fishers and boaters use about 85% of berths, slips, and tie-ups in working waterfront communities. There were more than twice as many recreational moorings than commercial fish moorings in 2003 (7,216 compared to 3,315). Of the 25 sample communities used in earlier graphs, 10 have commercial fishers waiting on a list for a mooring (one list as long as 25) and 14 have recreational boaters on a waiting list for a mooring (one list as long as 350). The imbalance is due in part to the fact that there are restrictions on commercial fishing, while there is no regulatory limitation on the number of recreational boaters.<sup>xxi</sup>

## Forest Products—Introduction

**M**aine's people are historically linked to the woods. They have worked, lived, recreated, hunted, and fished in forestlands in the footsteps of native peoples thousands of years before us. Maine's forestlands not only provide resources for the forest products industry, but also provide environmental and social benefits for us all.

The industry contributes about 5.4% of Maine's total economic activity. It consists of two major product groups. The fiber-based pulp and paper industry accounts for about 4% of the Maine economy and the sawmill sector of the forest products industry accounts for 1.4%.<sup>xxii</sup> They represent vital economic drivers in the communities in which they operate.

Mills are capital intensive. Maine mills remain competitive in today's global marketplace only through continual modernization. Millions of dollars annually are invested in facilities to keep them competitive in an increasingly competitive marketplace. Whether this re-capitalization will be sufficient over the long-term to ensure a strong future for Maine's mills remains to be seen.

Maine is a national leader in forest certification. Nearly seven million acres of Maine woods are certified as being managed in a sustainable manner. Certification involves independent, third-party auditors that assess whether the management practices of a landowner meet specific standards of sustainable forestry. Certification has the potential to change the face of Maine's forest landscape.<sup>xxiii</sup>

With about 90% of its total land area forested, Maine is the most heavily forested state in the nation. Approximately 95% of the forests are privately-owned. Maine has experienced recent changes in the ownership of timberlands, a fact that is raising important questions about the future outlook of the Maine woods as a source of stable pulpwood and sawlog supply, as well as recreational resources.

The many native species and full spectrum of markets (markets are available for the full range of tree species and value categories) sustain the forest products industry in Maine. The presence of markets for low-grade material allows forest management to concentrate long-term growth on higher value trees. The presence of markets for the high-grade material ensures that growing trees for a long period will be of value to landowners.

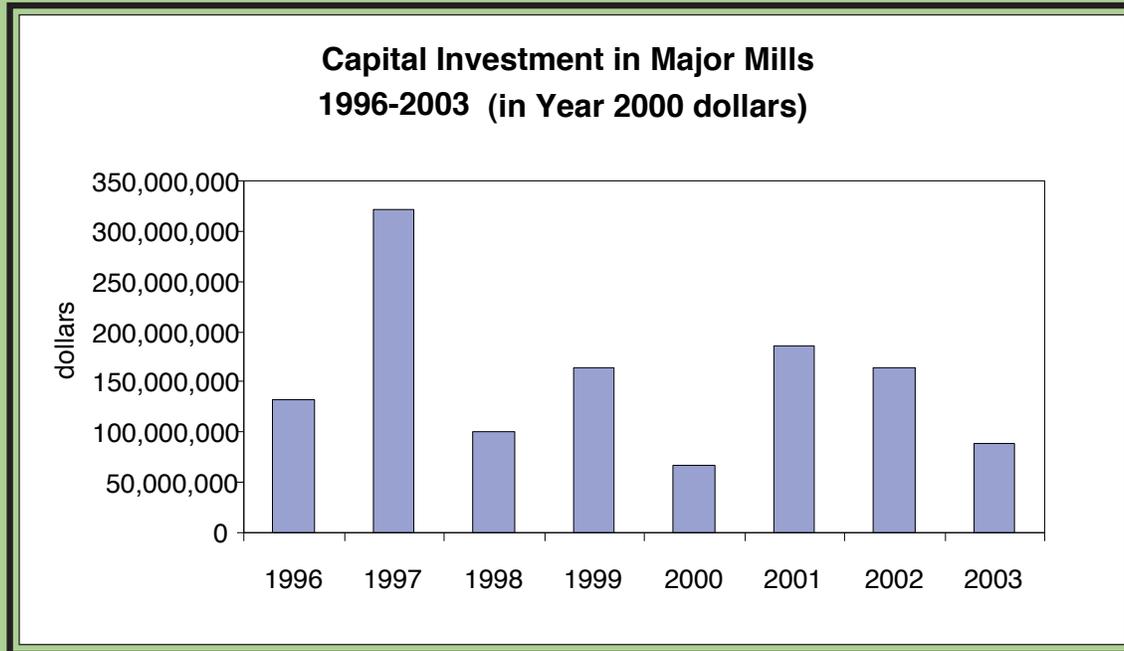
However, this balance has been challenged lately. High-grading, a practice that removes the most valuable wood, provides short-term gains. But once all the high value trees are harvested there remain only supplies of low-grade material with limited value. Strong, diverse markets help to improve forest health, and in turn, a healthy forest will attract diverse markets with long-term strength.

The presence in Maine of diverse forests, low- and high-grade markets, and communities making a sustainable livelihood from both constitute the foundation of Maine's vibrant forest products industry.



### 10. Primary Indicator: Capital Investment in Paper Mills

#### Capital Investment in Paper Mills Mixed



Source: Maine Revenue Services. Note: This graph represents capital investment made in seven of Maine's major paper mills. The dollars represent capital investment in equipment that is eligible for tax reimbursement under Maine's Business Equipment Property Tax Reimbursement Program. The large spike of investment shown in 1997 is likely due to the decision of one or two mills to upgrade facilities in that year. Includes investment in Fraser Paper (Nexfor), George-Pacific Corporation, International Paper, Katahdin Paper (formerly GNP, Inc), Madison Paper Industries, Mead Corporation (Mead/Wesvaco), and S.D. Warren Company (SAPPI)

Capital investment in paper mills from one year to the next is quite volatile. On average over the past seven years, the owners of Maine's seven largest paper mills have invested \$160 million per year into their papermaking facilities.

Decisions to invest capital in Maine mills are based on many different factors: discount rates, paper inventories, orders in the marketplace, foreign exchange rates, expected return on capital, mergers and acquisitions, quality of workforce, distance to markets, regulatory environment, and many other factors.

#### Significance

Increasing or maintaining capital investment in Maine's pulp and paper mills would indicate industry-wide optimism and would reflect commitment to maintain or enhance the future competitiveness of Maine's existing infrastructure.

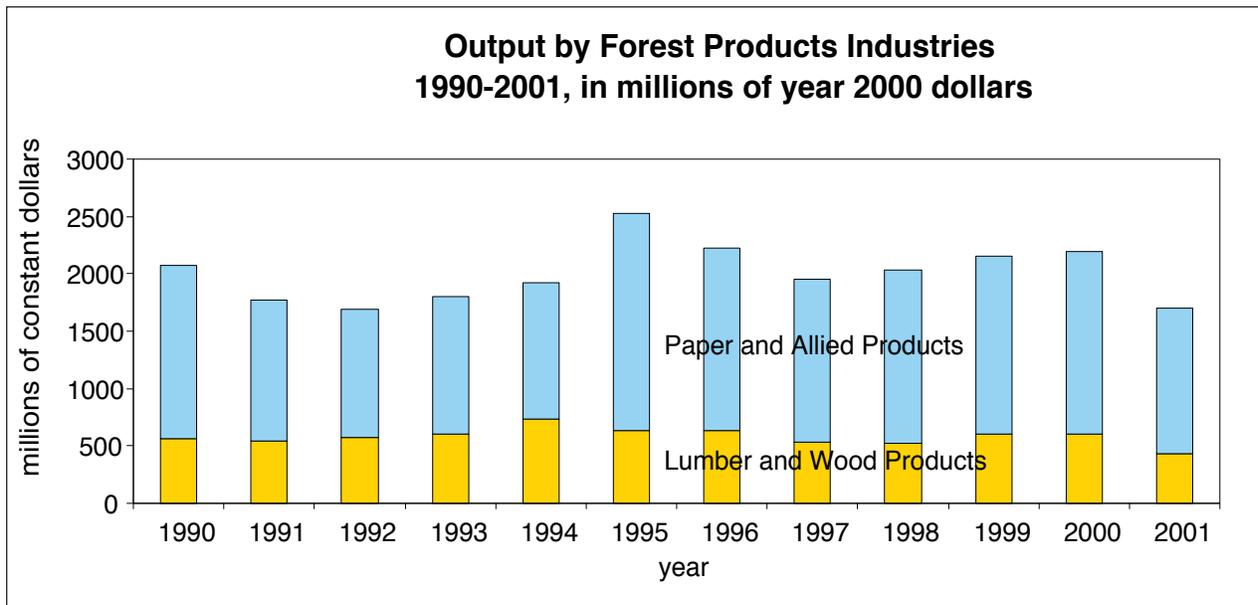
To stay viable in today's global marketplace, mills must increase productivity by investing in technology. Most Maine paper mills compete for investment dollars to improve their facilities with mills in other regions owned by their parent corporations. If a mill cannot attract capital investment, the mill eventually falls behind in competitiveness, and may eventually close.

## Related Data

### Industry Output

The pulp and paper industry makes up a significant portion of Maine’s forest products industry in terms of economic value, employment numbers, and wages. Pulp and paper manufacturing accounts for about 75% of all economic output from forest products. It is the prominent industry in this sector.

As shown in the graph, total output of the forest products industry steadily increased from 1997 to 2000, but dipped in 2001 due to the national economic downturn. These data represent the gross value of goods sold. Increases in output are mostly the result of advanced technology and capital investment.

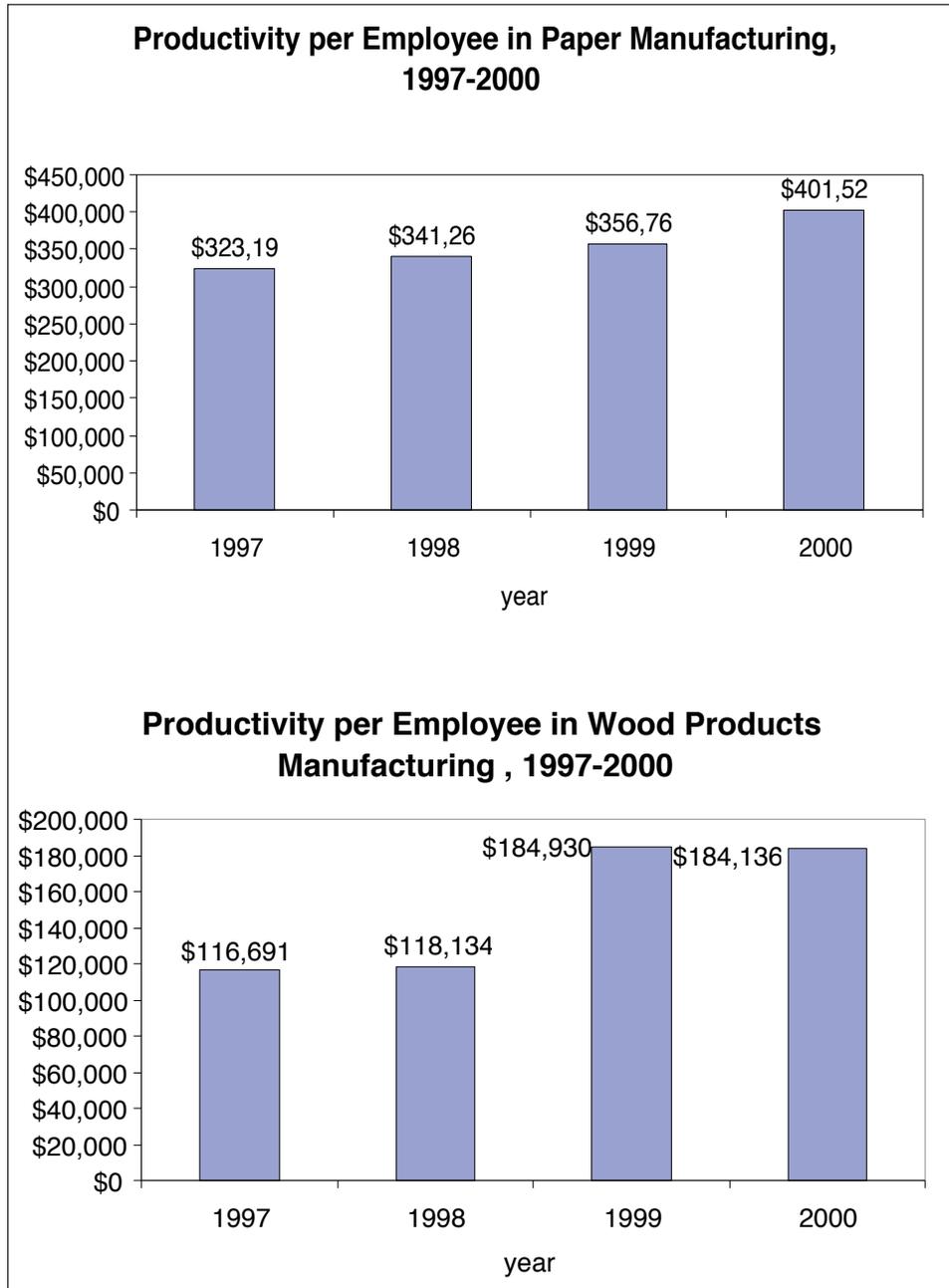


Source: State Planning Office, October, 2004



# Forest Products

## Productivity



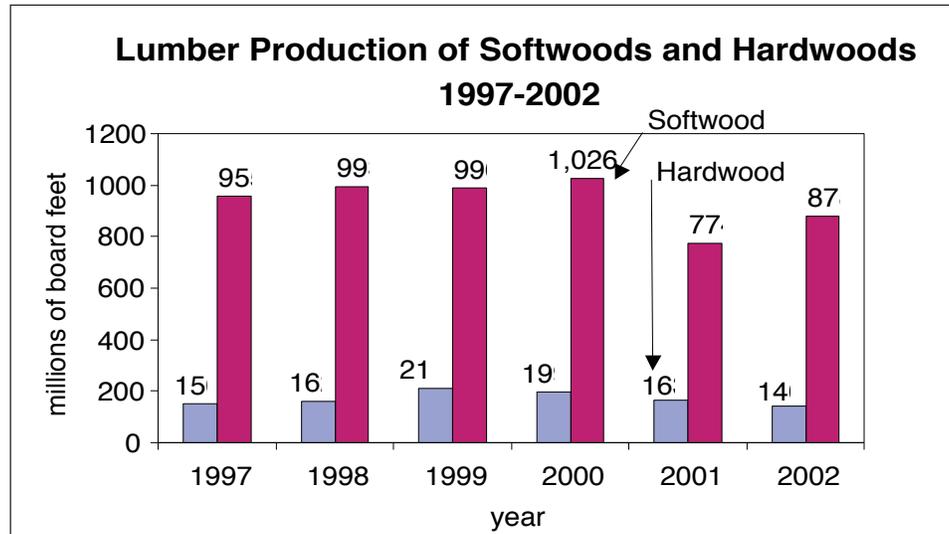
Source: U.S. Census Bureau. Note: These data are based on the Paper Manufacturing (NAICS Code 322) and Wood Product Manufacturing (NAICS Code 321), from the Annual Survey of Manufacturers, and are calculated by dividing the total value of shipments by the total number of employees.

Productivity in paper manufacturing has increased in conjunction with a decline in employment, reflecting technology improvements. This is part of a consistent, decades-old pattern found throughout U.S. manufacturing sectors.

Similarly, productivity in wood product manufacturing has increased in recent years. While the wood products manufacturing sector is smaller in total number of employees, total payroll, and overall economic impact, it is also finding ways to manufacture more product at increased efficiency levels.

## Lumber Production

Over 80% of all lumber produced in Maine is softwood, mostly used for structural lumber such as studs, joists, and rafters. Although the graph shows a recent decline in production (due to a slack in demand resulting from a national economic slowdown), anecdotal evidence suggests that since 2002, production is on the increase.<sup>xxiv</sup>



Source: Maine Forest Service, Future Forest Economy Project. Note: The drop from 2000 to 2001 is due to some market slowdown, but more important, the closure of two large softwood mills in 2001 that could not attract new capital to compete, is the biggest factor for the decline.

Related data (not shown here) show that from 1997 to 2002, employment in lumber production declined although the amount of lumber produced per employee (a measure of productivity) increased by 13% over five years, the result of capital investments in Maine's lumber mills.<sup>xxv</sup>

## Factors that Affect Capital Investment

### Skilled Workforce

Maine has much to improve to attract capital investment in its paper mills, but its workforce is second to none. Maine's workforce is known for its work ethic and high level of skill and training. A voluntary certification program, the Master Logger program, recently launched by the Professional Logging Contractors of Maine, will improve safety and harvesting practices.

### Sprawl

Landowners, loggers, and mills are fundamentally connected to each other in the forest products industry. Each plays a significant role in the success or failure of the other and in the industry as a whole. Landowners hold the resource and are motivated by the need to increase returns on their investments. This places new pressures on timberland. The "highest and best use" for a given property may not be logging, but rather development. This is especially true in Southern Maine where increasing sprawl is well-documented. Every time a forestland parcel turns over in ownership, there is the chance that the new owner may not continue managing it for timber. In some cases, there are opportunities for conservation easements to be used to protect forestland from development while keeping it available for long-term timber management.

### Fewer Loggers

Loggers face an enormous amount of uncertainty due to an aging workforce and the challenges of recruiting new professionals, turnover in ownership, and overall instability in the forest products industry. Recent spikes in fuel costs and in health and workers' compensation and



# Forest Products

insurance also present challenges for a profession exposed to high overhead, low profitability margins, and high risk. Logging businesses have become increasingly more capital intensive and equipment more mechanized, resulting in increased safety, greater productivity, and better silvicultural results. However, the millions of dollars needed to start a new logging business present barriers for new entrepreneurs. Increasingly, fewer people are willing to take on such risks for a dangerous profession with an uncertain future.

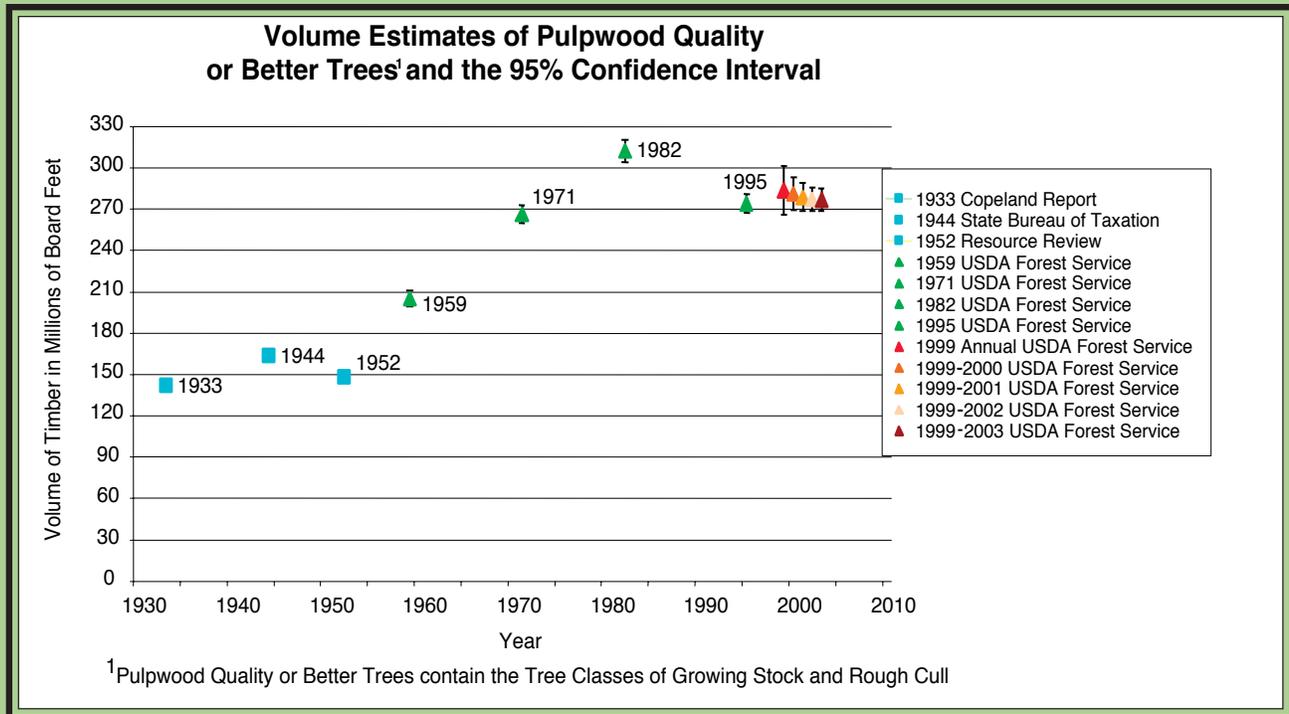
## Global Markets

Mills must work to keep their costs down and returns strong. It is difficult to remain competitive in the global marketplace given that labor and raw materials are significantly less expensive in other parts of the world and that environmental regulations may be nonexistent. The mills cannot pass their true costs to the consumer, when cheaper products are available to those consumers. The global nature of the forest products industry as a whole is putting economic pressure on landowners, loggers, and mills.



## Forest Products—Natural Resource Conditions

### 11. Primary Indicator: Cords of Merchantable Timber



Source: USDA Forest Service; Data from 1999 on represent statistical estimates based on a new five-year sampling design. The estimate of pulpwood quality or better is statistically equivalent for the period of 1995 to 2003. However, since 1999, the number of samples has increased providing a greater degree of confidence in the inventory estimate. Note: Trees classified as pulpwood quality or better represent 97% of all live merchantable size and quality timber in Maine. Pulpwood quality or better is the volume of trees that are used by manufacturing facilities. Growing stock is the highest tree quality classification; rough cull refers to trees that are not sawtimber quality, but are suitable for pulp and paper.

The volume of standing timber in Maine increased steadily from the 1930s through the 1970s. Then, in the 1970s and 80s, Maine forests experienced an extensive spruce budworm epidemic. The dynamics of that epidemic in addition to salvage efforts and other harvesting caused a steady decline in the volume of standing timber of about one percent per year. Maine currently has 277 million cords of pulpwood quality timber.

Information from the Maine Forest Service’s annual forest inventory reports indicates that the forest is in a process of recovering. There is a significant cohort of young trees that will come of age and merchantability over the next 5-10 years. In addition, other analysis indicates that current growth and harvest are approximately balanced. Assuming harvest levels stay constant, the volume of timber is expected to increase in the near future.

## Significance

This indicator provides insight into the long-term sustainability of the forest resource. Increasing supplies of raw material in the forest inventory bodes well for the long-term future of the forest products industry and Maine people.

Timberlands provide the renewable raw material for the forest products industry. Without this locally available raw material, sawmills, paper mills, furniture makers, and other forest products companies would never have developed in this state. If Maine forests are to supply a robust and lasting forest products industry, the forests must be relied upon to produce sustained quantity and quality of both fiber and solid wood.

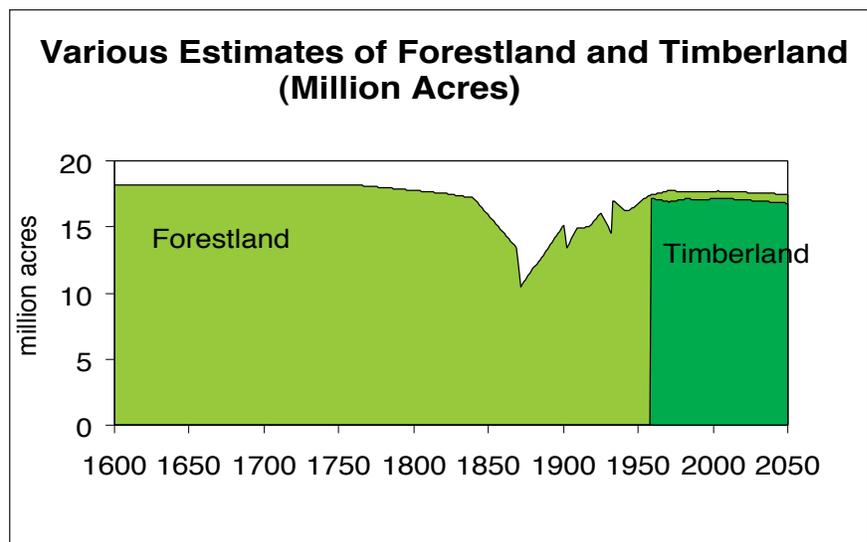
In addition to being the critical element in a healthy forest products industry, forestlands are also important to the environmental fabric of Maine. The environmental benefits of forestlands include: providing biological diversity, supporting a variety of wildlife habitat, maintaining soil stability and stable buffers that reduce sediment runoff to streams and lakes, and providing a carbon sink for carbon dioxide found in the atmosphere resulting from human activities.

We need the forestlands to be productive not only for the industry, but also to provide environmental and social benefits.

## Related Data

### Historical View of Forestland

In the late 19th and early 20th centuries, much of the state was cleared for farming. Also at this time, technological advancements in logging techniques cleared away more trees than previously. Acreage recovered in the mid- to late-20th century, in part because the number of farms declined and land once again returned to forest.



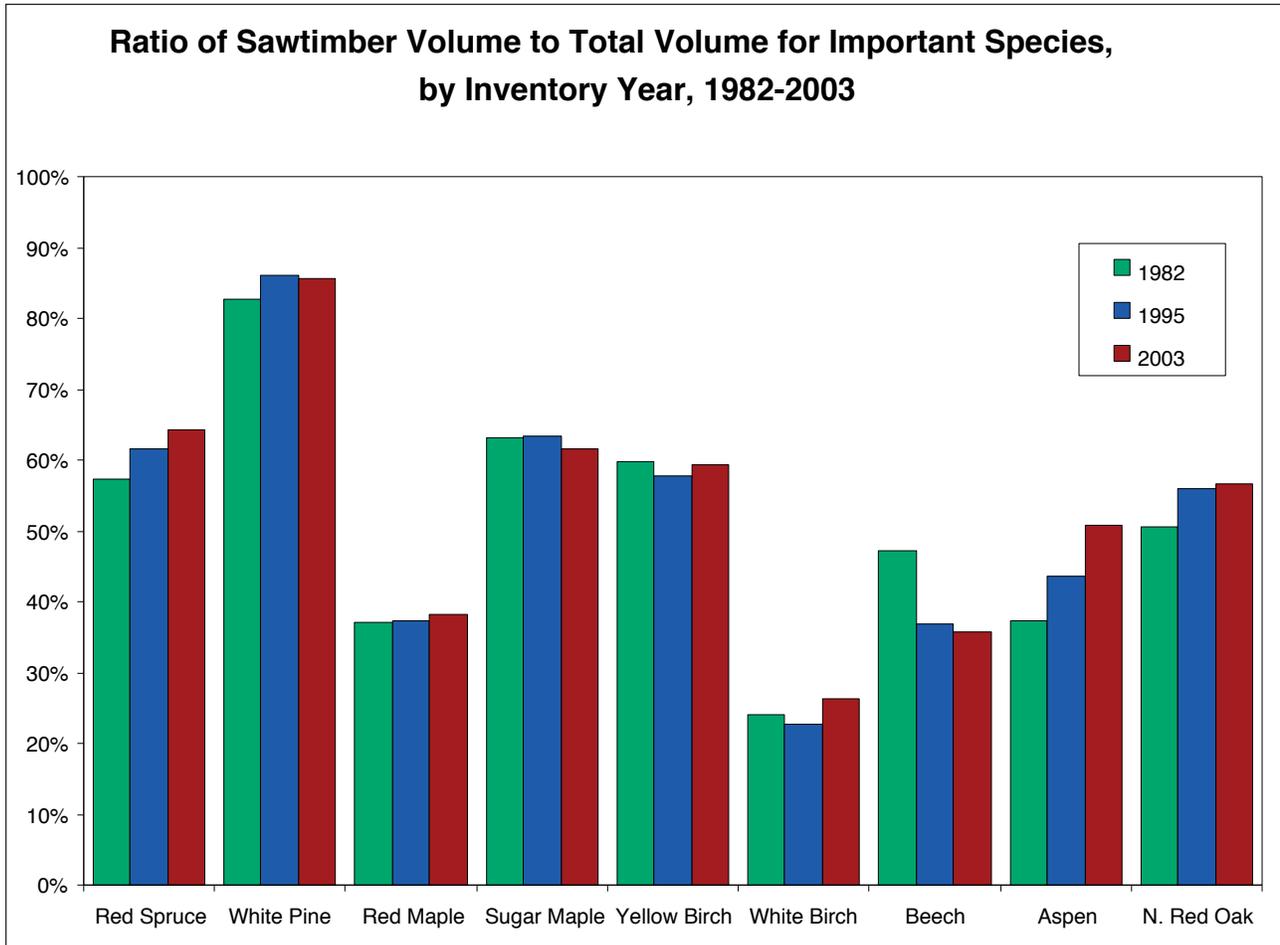
Source: Maine Forest Service



# Forest Products

Over the last 30 years, the amount of acres in forestland has remained fairly stable. Today, a greater percent of Maine is forested than any other state; about 90% of all land-based acres.

Of all forestlands, 97% are classified as being timberland—acreage that is productive, accessible, and where harvesting is permissible by law or regulation.



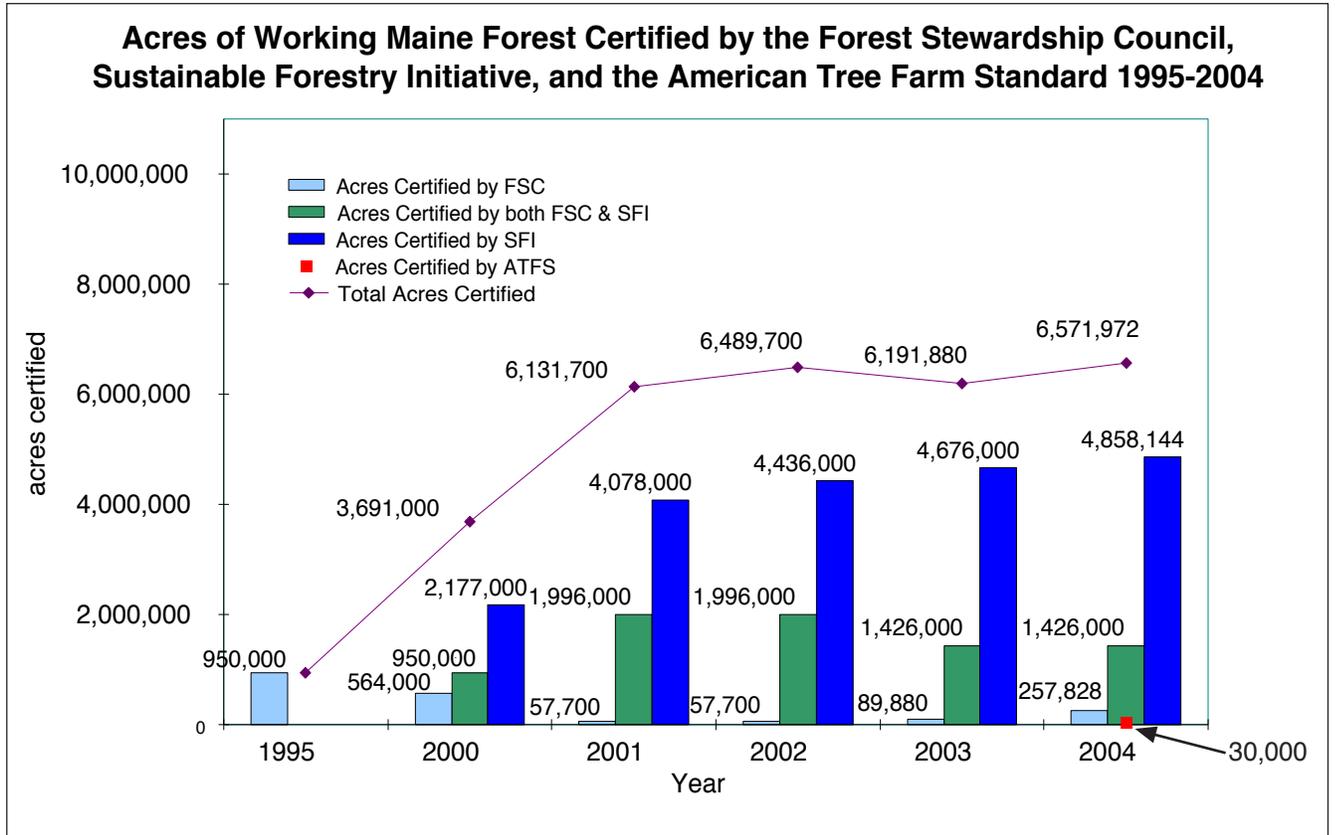
Source: Maine Forest Service

## Sawtimber Inventory for Selected Species

This inventory gives us a more detailed look at the sawtimber volume available in the total forestland acres. White pine has the highest ratio of sawtimber volume than any other species. Sugar maple, red spruce, and yellow birch have the next highest ratios.

Management practices and growing conditions primarily determine these ratios, while disease and insects can also impact these figures. Some species saw noticeable changes between 1982 and 1995, like beech and aspen, while most other species changed very little. Beech has been badly infected by the beech bark disease and has lost much of its former quality. It is sold now as pulpwood, or at best, as a pallet-grade sawlog.

## Acres of Certified Forestland



source: Maine Forest Service

Nearly 6.6 million acres of Maine forestland are certified as being managed in a sustainable manner. Acres of well-managed forest indicate the forest products industry's commitment to manage forests in a way that protects the long-term health and productivity of the forest environment, and consequently the forest's ability to support the industry.

There are three primary forest certification programs: 1) the Forest Stewardship Council (FSC), 2) Sustainable Forestry Initiative (SFI), and 3) the American Tree Farm Standard (ATFS). Acres certified by SFI have steadily increased since 2000, while FSC certification has been more volatile.

Certification programs audit the quality of land management policies and practices for those companies that choose to enroll. It is important to note that acres of forestland not certified through these programs are not necessarily poorly managed. Certification is only one indicator of good management. These are voluntary programs and are still fairly new. Maine can expect to see this number rise in the future.

The market for certified forest products is developing slowly. An important goal is to bring certification to a point where it adds value to forest products markets to provide incentive for the landowners to enroll.

## Factors that Impact Timber Sustainability

### Changing Ownership

In the last ten years, Maine has seen an unprecedented amount of forestland change hands. Investor groups now hold over 15% of Maine's forestlands, up from 2% just ten years ago.<sup>xxvi</sup>

These are typically financial institutions such as bank trust departments, insurance companies, mutual funds, pension funds, and university endowment funds. The acquisition of timberland by institutional investors is a national trend.

Current market conditions are such that land in some parts of the state is more valuable for development purposes than for timber. A resulting phenomenon is liquidation harvesting, whereby a “liquidator” purchases a tract of land at its forestland price, cuts and sells all the timber, subdivides the land, and sells it to a residential or commercial developer for a premium. This practice removes forestlands out of timber production and further contributes to sprawling development patterns and fragmentation of the working forest and the landscape. Rules have recently been adopted by the Maine Forest Service that are designed to eliminate this practice.

## Disease

Occasionally, exotic insects or diseases are introduced to Maine which may cause significant harm to its forests. The Dutch elm disease, beech scale/nectria complex, gypsy moth, and American chestnut blight are examples of insects or disease that have been introduced to the state over the last century. More recently, the balsam woolly adelgid and the pine shoot beetle have had some detrimental impacts on forest management and product marketing. The Maine Forest Service is also concerned with emerging pests such as the hemlock woolly adelgid, emerald ash borer, and sudden oak death syndrome and actively monitors these pests where they occur in neighboring states or regions. The spruce budworm epidemic of the late 1970s and 1980s had a tremendous negative impact on the state’s spruce/fir forest type. Its populations and impact on Maine’s forests are cyclical, tending to recur every 20-30 years.

## Acid Rain

Acid rain, which is largely out of our control, negatively impacts forest growth. It develops when acidic chemicals, released into the atmosphere from industrial processes and the burning of fossil fuels, fall to the ground as acid rain, snow, or fog. Negative impacts include damage to leaf and needle surfaces, inhibition of seed germination, reduced capacity to withstand stress and disease, and severe depletion of soil nutrients; all of which impacts the overall productivity and health of the forests. For now, acid rain appears to be limited geographically and impacts on Maine forests are minimal.



## Forest Products and Community Conditions

### Primary Indicator: Need to Develop

After much discussion and research, the steering committee finds a lack of data necessary to select a single indicator that reflects the impact of the forest products industry on Maine communities and the extent to which our communities support the forest products industry.

In many Maine communities, the historic relationship between the industry and the communities in which they thrive has been intimately intertwined. Oftentimes, a forest products company was the largest single influence in building a community, and a patriarchal relationship between the mill and the community was the result. The industry provided jobs and typically supported a full range of community and civic endeavors. The community supplied workers and suffered through hard times and uncertainty at the mill.



As the pulp and paper and sawmilling industries have become increasingly global, many of the mills have been sold and the historic relationship between the mills and the communities has changed. Maine is in a period of transition from “one employer” towns to a more diverse web of economic activities.

It should not be overlooked, however, that these mills and working forests remain vital parts of the rural community and provide the background and foundation for other types of economic growth. Although total employment may be down, wages in the mills are up, and there are still many secondary businesses that depend on these facilities for survival. Without the mills and the businesses tied to them, other economic growth would be much more difficult to achieve.

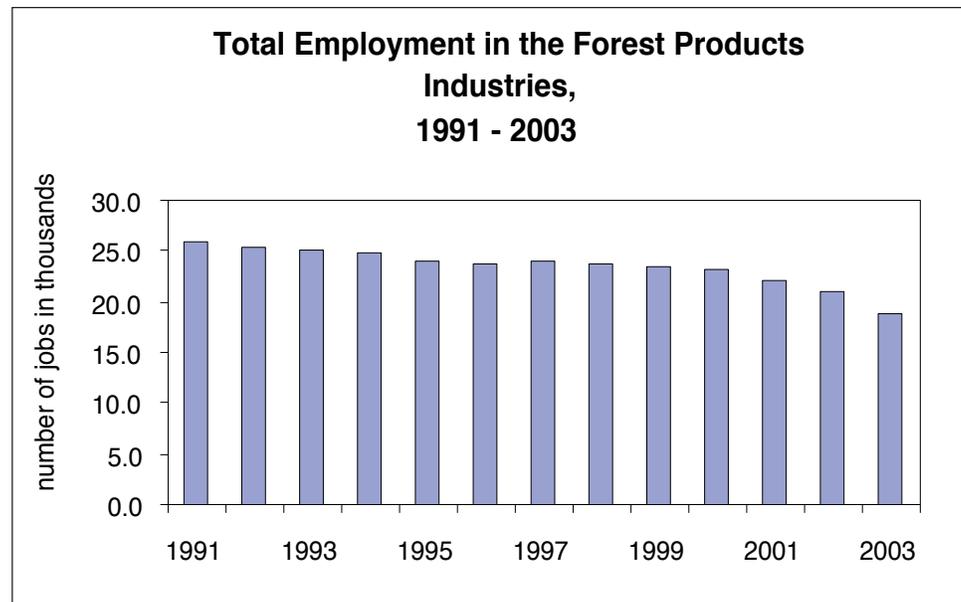
The forest products industry is “placed-based.” Because the forests are here and in good condition, Maine is well positioned to have a significant forest products industry into the future. No matter where the product is sold, the management and harvest of Maine’s forest resources depend on good relationships with host communities and local people.

In any event we encourage state policymakers to develop indicators of the community impacts of the forest products industry.

## Related Data

### Total Employment in Forest Products Industries

The number of forest products industry jobs has been in decline for several years. In 2003, about 18,900 people worked in the forest products industry, compared to 26,000 in 1991. These data include lumber mill workers, paper mill workers, and loggers.<sup>xxvii</sup>



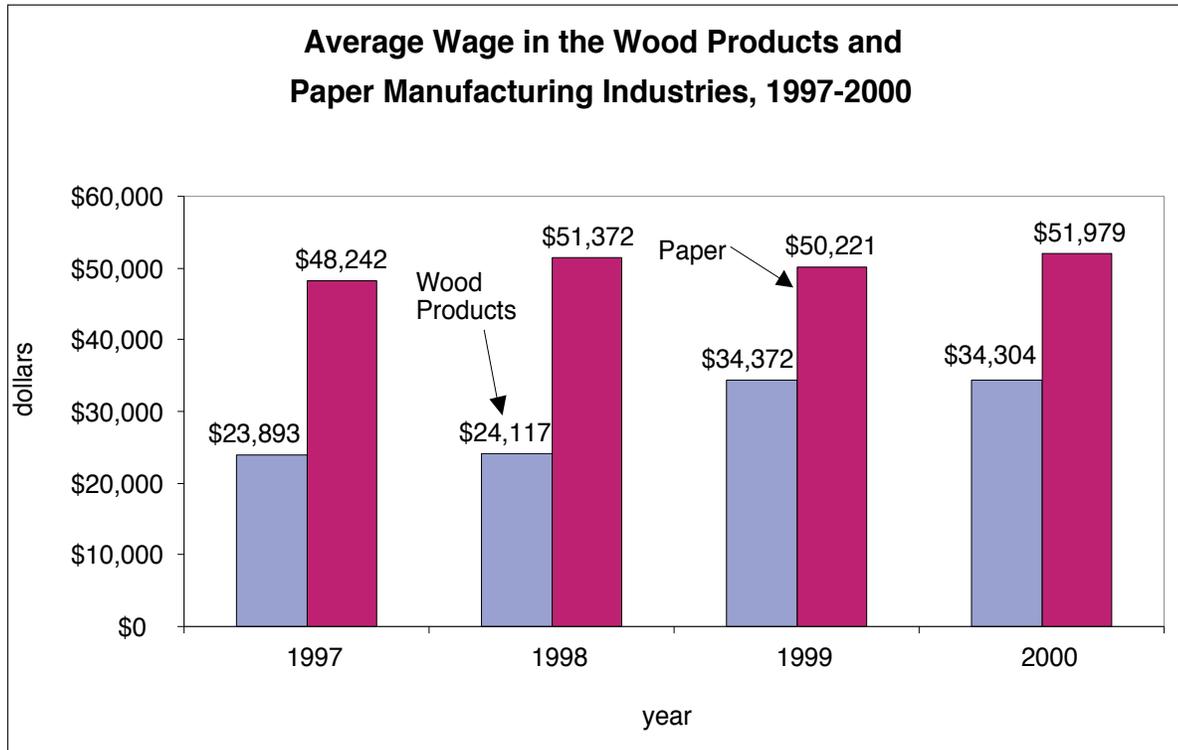
Source: Maine Department of Labor

While employment has decreased however, productivity has increased (see related data of forest products economic conditions). The decline in the number of jobs is due almost entirely to increased efficiencies achieved through mechanization, technological advances, and capital investment in more productive machines which require less human interaction to operate.

While this is a long-term trend in manufacturing throughout the U.S., and, ultimately increasing productivity increases economic growth, nevertheless the declining number of jobs has had a detrimental affect on Maine communities where a large percentage of the population works in the industry.



## Wages



Source: U.S. Census Bureau (These data do not include wages paid to loggers).

Total payroll for workers in both wood product manufacturing and paper manufacturing decreased from \$855,255,000 in 1997 to \$810,259,000 in 2000.<sup>xxviii</sup> However, average wages per worker have gone up indicating that these industries are relying on fewer numbers of more highly paid (and likely more skilled) workers.

## Factors that Impact Forest Communities

### Public Access to Industry-owned Land

Access to the largely undeveloped woods is a huge benefit to Maine's communities. Outdoor recreation is not only a cultural tradition, but is also a growing industry in its own right. Industry's landowners wish to allow the public to use their resource for hunting, canoeing, hiking, snowmobiling, and other traditional recreational activities. North Maine Woods, Inc., a nonprofit organization, manages public access on over 3.5 million acres as well as 175,000 acres of the KI Jo-Mary Multiple Use Forest. The entire Allagash Wilderness Waterway is included in this area, as are the Penobscot River corridors. This is all working forestland that is open to the public for recreational use. In addition, the vast majority of other industry lands that are not part of the North Maine Woods system is also available to the public for recreational use. There is no other state in the U.S. with such large acreage of privately-owned land available for public use.

## Easements

Another link between productive forestlands and the health of the communities around them is the amount of land permanently protected from development (but still available for sustainable forestry production and traditional public access) through working forest conservation easements. Over the last decade, bond funding through the Land for Maine's Future Program and federal funding through the U.S. Department of Agriculture's Forest Legacy Program—plus private matching funds—has permanently protected or will soon protect more than 1.6 million acres using working forest conservation easements.

## Tree Growth Tax Law

Maine's tree growth tax law provides owners of forestland the option to have their forestlands assessed based upon the value of the land for growing trees as distinct from the value of the land for alternative uses such as commercial or residential subdivision and development. Currently, approximately 3.6 million acres of forestland in Maine's organized municipalities and 7.6 million acres in the unorganized territories are enrolled in the tree growth tax program.

The tree growth program helps lower landowners' property taxes and is indicative of landowner commitment to retain and manage forestland for long-term forestry-related uses. This supports the economy, protects the environment, and enhances quality of life in Maine's communities.



## Tourism/Recreation—Introduction

**T**ourism, outdoor recreation in particular, is highly dependent on Maine’s natural resources. Many people visit for Maine’s clean lakes, rivers, and beaches, pristine views, and unspoiled backcountry. What’s more, tourism’s vitality is uniquely dependent upon the other sectors -fishing, farming, and forestry. Active fishing villages, open farm landscapes, and vast forests are all tourism resources.<sup>xxix</sup>

Tourist activity plays a large role in the Maine economy. Indeed, by most measures, tourism is Maine’s largest industry. In 2001, Maine gross state product attributable to tourism was about \$1.8 billion, or nearly 5% of all economic activity in the state. It is estimated that tourist spending of \$5.8 billion in 2001 supported roughly 58,000 jobs, over 9% of all Maine jobs.<sup>xxx</sup>

Virtually all Maine communities are affected by tourism, unlike the other natural resource-based industries that tend to be concentrated near the resource. Not a single Maine town is completely void of the passing tourist and most would like more of them. However, tourist activity tends to be concentrated along our coastal beaches, the Route 1 corridor, and on some of the inland lakes in the summer. Too much tourism or tourism activities in areas that cannot support them can diminish a tourist’s experience, put pressure on infrastructure, and affect the very natural resources that visitors come to enjoy.

Technically, tourism and recreation activities are not grouped in an “industry.” Unlike the wood products industry or the fishing industry, tourist activities are not reported according to the product or service bought, but rather according to who buys them. A fishing pole bought by a Maine native is counted as a contribution to the retail industry but the same item bought by a tourist.....we want to count that as tourism activity.

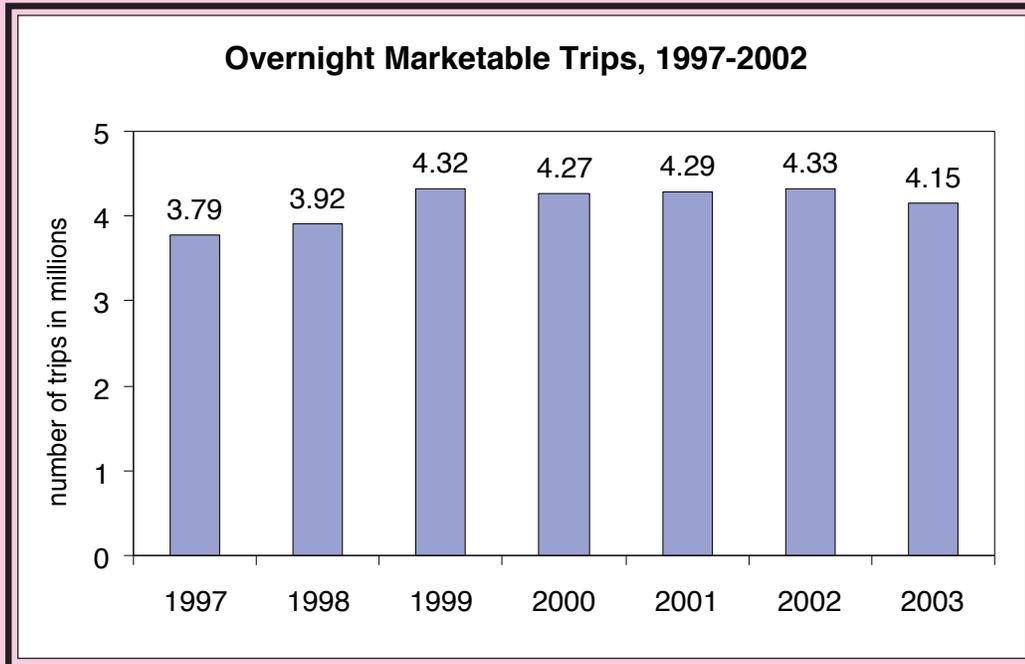
Thus tourism and recreation activities “overlay” other industries; mostly the hotel, retail, and restaurant industries. We can only estimate expenditures by tourists based on what we know average tourists spend and how many we think visit based on lodging sales and turnpike traffic.

Since data on economic activity generated specifically by tourists are not readily available, it is difficult to understand the structure and impact of tourism activities across the state, and thus, to develop effective policies to support the tourism industry. Not only are we lacking the information, but also the capacity to collect it. Participants at the Blaine House Conference called on the state to develop research and education programs to support this industry. As part of this effort, the University of Maine system, in collaboration with the University of Maine and the University of Southern Maine, is proposing to develop a Center for Tourism Research and Outreach, which will provide objective research and high-quality information to assist with tourism development.



### 12. Primary Indicator: Number of Overnight Marketable Trips

#### Overnight Marketable Trips Show Slow, Steady Gain



Source: Longwoods International. Marketable trips include all pleasure trips where the destination is discretionary and open to marketing influence. These include touring, visiting a city, going to a ski resort, etc. Marketable trips do not include business trips or visits to friends and relatives.

Despite a one-year downturn, over the past seven years there has been a slow increase in the number of overnight tourist trips to Maine.

In 2002, Maine experienced about 4.3 million marketable overnight trips, that is, overnight pleasure trips where the visitor has a choice of destinations. Following the increase in overnight marketable trips from 1997 to 1999, the number of trips was largely stagnant from 1999 to 2002.

The number of overnight marketable trips does not reflect the magnitude of all tourist activity because many tourists visit without staying overnight. However, we think it a good general indicator of fluctuations in overall tourist activity.

#### Significance

If the number of overnight marketable trips were to increase, that would be a good indication of growing tourist activity.

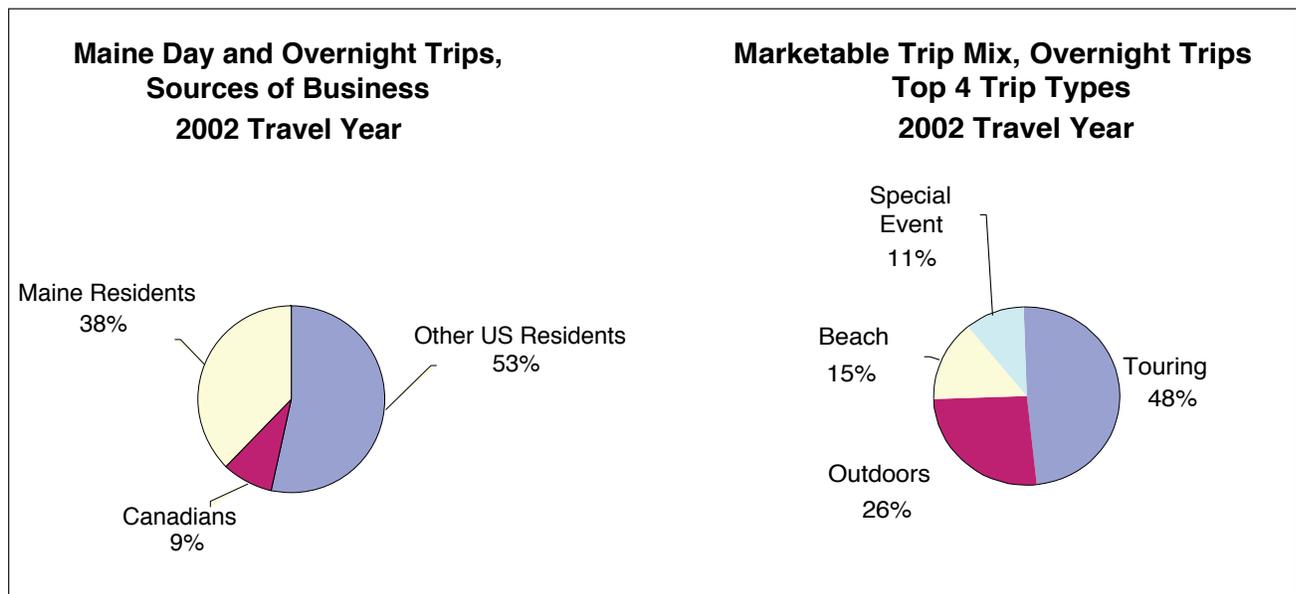
Overnight marketable trips are a strong indicator of the economic health of Maine's tourism industry. While overnight trips accounted for only about 20% of all the trips taken to Maine in 2002, they contributed more than half of all the money spent by those visitors. Overnight visitors spend three times more than day-trippers.

## Related Data

### Breakdown of Maine Tourists

Of the 48 million tourist trips recorded in Maine in 2002, just over half were made by U.S. residents from states other than Maine. Nine percent of the trips were made by Canadians, while 38% were made by Maine residents.

In 2002, people visiting Maine for marketable pleasure trips primarily came to tour areas of scenic, cultural, or general interest (48%), and to enjoy the outdoors (camping, fishing, hunting, etc.) (26%). Marketable pleasure trips comprise the largest segment of all the different types of trips.



Source: Statistics Canada and Longwoods International, 2002. Note: Other trip types and the definition of each trip-type are as follows:

- Touring: travel through areas of scenic, cultural, or general interest.
- Special Event: attend an event such as a fair, sports event, or festival.
- Combined Business/Pleasure: business extended at least one night just for pleasure.
- City Trip: visit a city for sightseeing, culture, shopping, dining, theater, etc.
- Beach: visit to an ocean beach resort for swimming, boating, etc.
- Theme Park: a trip to visit a major theme park.
- Outdoors: visit a natural area for camping, fishing, hunting, etc.
- Casino: visit to casino or casino resort for the purpose of gaming.
- Country Resort: visit to a country resort to relax, enjoy sports, recreation, etc.
- Ski Trip: trip to a ski area or resort for downhill or cross-country skiing and snowboarding.
- Cruise: extended boat trip with on-board activities, stops for sightseeing, etc.

### Maine Compared with New England

Over the past ten years, the portion of visits to Maine by Americans in relation to the rest of New England has remained steady. That is, of all visits by Americans to New England, Maine receives 18% of them and that share has fluctuated only slightly over time.

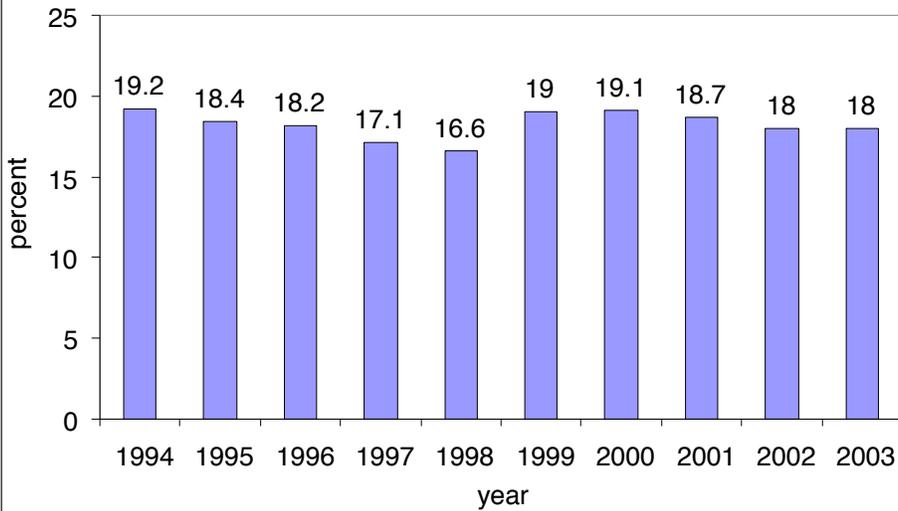
Nationally Maine gets about 1% of overnight trips taken by Americans traveling anywhere and that number has remained relatively steady.

Among just New Englanders taking trips, Maine captures 12% of marketable trips.

Among New Englanders taking trips, the leading reason they visit is for outdoor activities. In 2003, 27% visited Maine and 37% visited New Hampshire for outdoor trips.

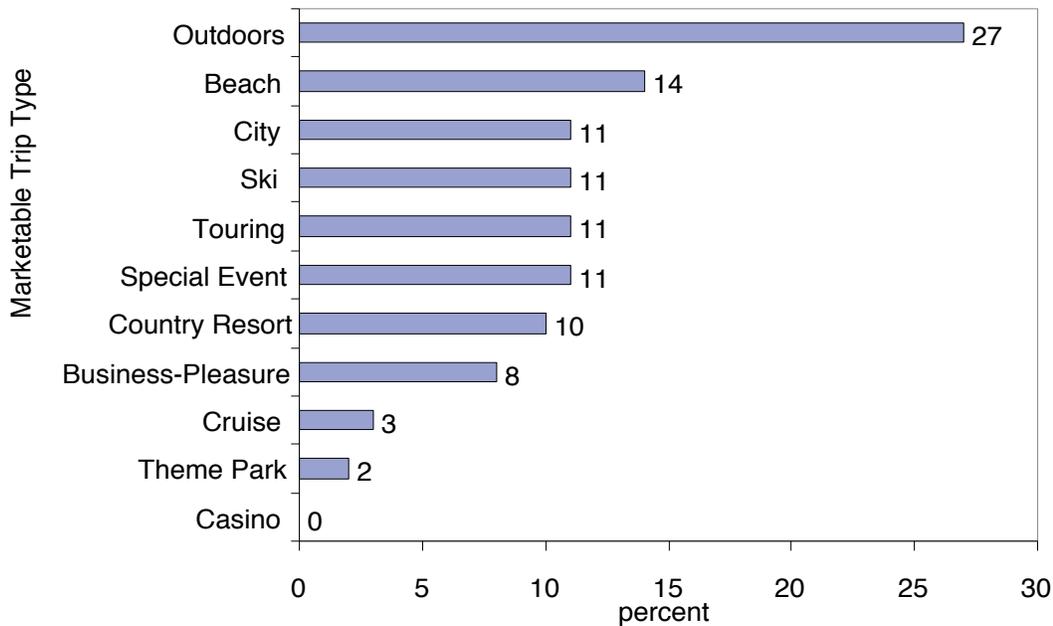


### Maine's Share of Marketable Trips Taken by Americans to New England 1994-2003



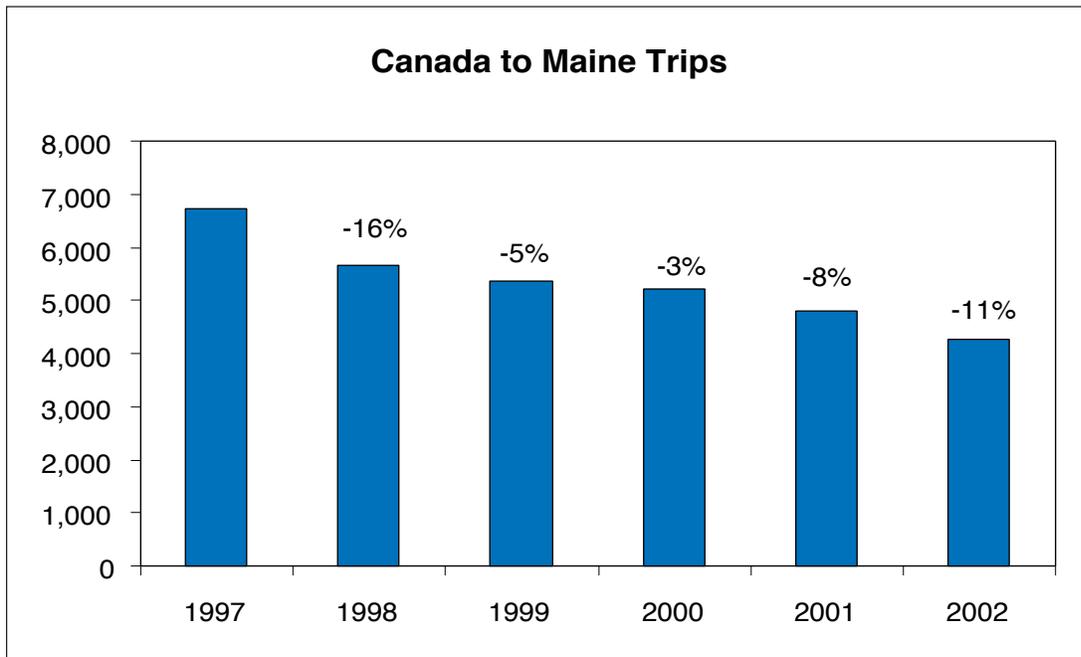
Source: Longwoods International

### Maine's Share of Trips Taken by New England Residents, by Trip Type, 2003 Travel Year



Source: Longwoods International<sup>xxxx</sup>

## Canadian Visitors

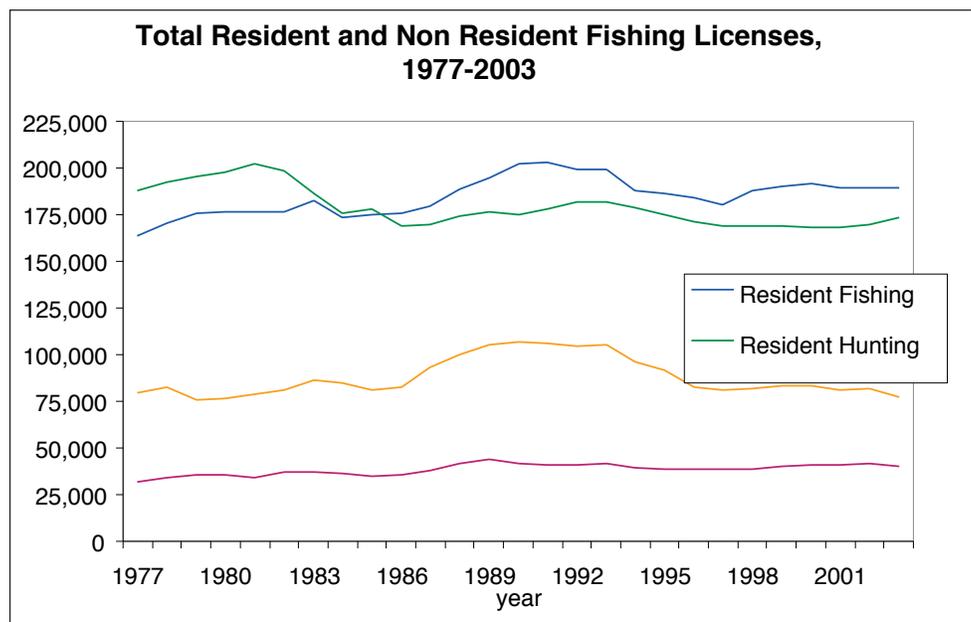


Source: Statistics Canada and Longwoods International

The total number of overnight and day trips taken by Canadians to Maine dropped 37% from 1997 to 2002. This decrease resulted in about a 28% drop in expenditures by Canadians in Maine, from \$229 million in 1997 to \$165 million in 2002. The drop in the number of trips between 1997 and 1998 is largely the result of the decline in the value of the Canadian dollar. This exchange rate has an impact on the level of Canadian tourism seen in Maine. The other factor reducing Canadian visitors was border restrictions instituted following the events of September 11, 2001. While restrictions have since eased, tourist traffic across the borders has not recovered to pre-911 levels.

## Hunting and Fishing Licenses

Maine enjoys a steady stream of hunters and fishers, both residents and nonresidents alike. Until the mid-1980s, the state sold more hunting than fishing licenses to residents. And people purchase more deer hunting licenses than any other type. In the mid-1980s, the Department of Inland Fisheries and Wildlife



Source: Maine Department of Inland Fish and Wildlife



# Tourism/Recreation

instituted a permit system to better manage the deer herd, following a period of over-harvesting and tough winters. As a result, hunting license sales went down. Following the institution of the permit system the health of the deer herd improved. Resident hunting license sales rebounded, though not to the pre-permit levels.

Resident and nonresident fishing licenses saw a sustained increase for a period of about four years between 1988 and 1992 and continue to be steady. Fishing continues to be more popular than hunting among both residents and nonresidents.

These data indicate economic contributions to the state, both in terms of license fees and related expenditures such as guide services, fuel for boats, equipment purchases, bait, gas, and food. The nonresident licenses (and some portion of the resident licenses) also translate into overnight expenditures at hotels and lodges.

## Factors that Impact Tourism Visits

### Influences Outside State Control

The difference between a good tourist season and a bad often has little to do with the value of goods and services sold but more to do with outside influences such as the weather, the price of gasoline, exchange rates, and the threat of terror.

Unlike the extractive natural resource industries, the success of tourism has much more to do with people's perceptions, their image of Maine, and the quality of the imagined experience. A news story about a polluted lake or bad air quality at Acadia National Park can have a negative affect on the number of people who visit and buy goods and services here.

Weather has a huge impact on Maine's tourist-based businesses in all seasons. No matter how well we market the state, if the weather is not favorable, the tourism industry suffers.

### Marketing Dollars

There is a direct correlation between the state's marketing investment and overall tourism activity, with a significant return on marketing dollars invested. Yet, revenue shortfalls in state budgets have put pressure on these investments.



## Tourism/Recreation—Natural Resource Conditions

### Primary Indicator: Need to Develop

After much discussion and research, the steering committee finds a lack of data necessary to select a single indicator that reflects the impact of tourism on Maine’s natural resources and the extent to which our natural resources support tourism.

First not all tourists visit because of Maine’s natural resources. Tourist activities that don’t depend on natural resources include city restaurants and nightlife, art galleries, theatres, auto racing, business conventions, and so forth. Just a portion of tourist activities actually depend on Maine’s natural resources, albeit a large portion.

There are two fundamental challenges to selecting an indicator. First, the natural resources that support tourism are hugely diverse, including ski mountains, lakes, beaches, road side views, abundant wildlife, and more. How can we arrive at a single data set that indicates the health of these diverse resources? A second challenge is that, while use of some of Maine’s natural resources may be at or over capacity, it is difficult to identify a single indicator to reflect the range of adverse environmental impacts which could be attributed exclusively to tourist activities.

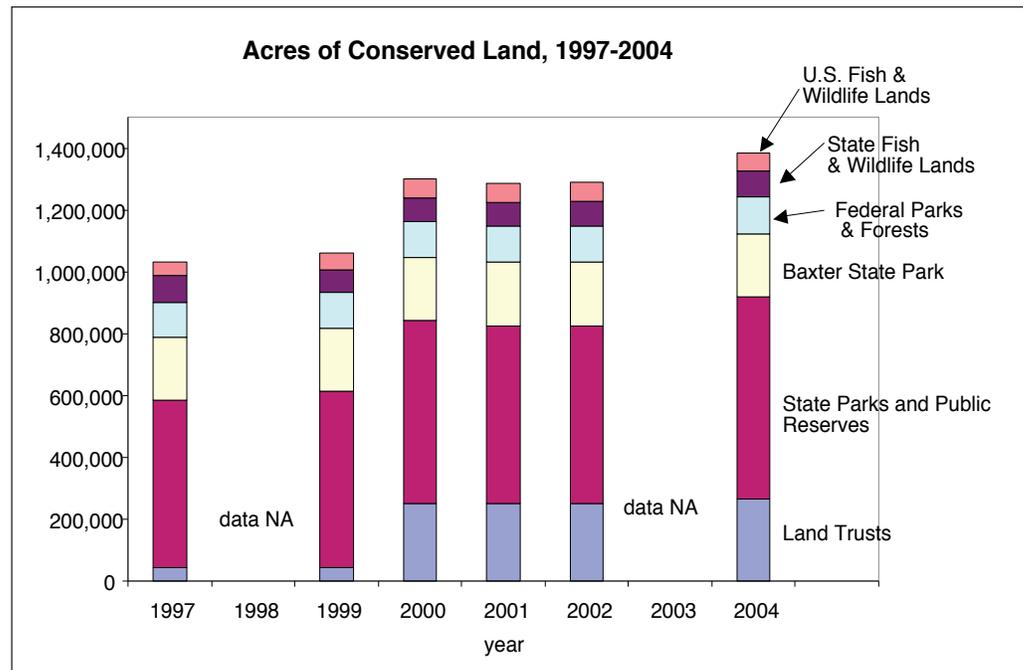
In any event, we encourage state policymakers to develop indicators of the environmental impacts of tourism and of the value of “Maine’s environment” as a draw for tourists to Maine.

### Related Data

#### Publicly Accessible Conservation Lands

There are more acres of land conserved in Maine each year. Land trusts across Maine are increasingly protecting lands, while the amount of U.S. Fish and Wildlife lands has remained about the same since 1997.

Publicly accessible conserved lands held in fee are one piece of the resource base for tourism and outdoor recreation, albeit an important piece.



Source: Maine Land Trust Network, Maine Department of Inland Fish and Wildlife, Bureau of Parks and Lands, Acadia National Park, White Mountain National Forest, and Maine State Planning Office.



# Tourism/Recreation

This is a proxy for access to all outdoor recreation activities such as access to lakes, rivers, and coastal waters. It does not represent the full spectrum of lands available for these activities, nor does it represent the importance of publicly accessible land to the tourism industry as a whole. It does, however, give us an understanding of the recent land conservation trend and reflects the rising effort in Maine to conserve lands, particularly through land trusts most of which are motivated by local development pressure.

## Factors that Impact Tourism's Natural Resources

### Other Access Issues

Maine's rivers, lakes, coastline, and estuaries are just as important to tourism and outdoor recreation as publicly accessible conservation lands. The resource although, in and of itself, is not enough to support recreational activities; access and infrastructure are needed to support the use of those resources. Waterfront, both on the coast and on inland lakes and rivers, is primarily in private ownership that often limits access. Specific infrastructure such as boat ramps, parking areas, signage, and trails are needed to support the use of any particular access point. In coastal areas, moorings, docks, gas, and ice are also needed.

### Quality Natural Resources

One of Maine's competitive advantages, perhaps its leading advantage, is its natural environment. For many tourists, this is the leading reason they visit Maine. It is critical that Maine continues to maintain its reputation in the marketplace as a place of abundant and beautiful natural resources. This is more than maintaining a good image; it is actually protecting, preserving, and enhancing our natural resources and access to them.



## Tourism/Recreation—Community Conditions

### Primary Indicator: Need to Develop

After much discussion and research, the steering committee finds a lack of data necessary to select a single indicator that reflects the impact of tourism on Maine's communities and the extent to which our communities support tourism.

Tourism activities affect Maine communities in a variety of ways; some good, some bad. Certainly the jobs offered and wages paid by the tourism industry contribute a great deal to Maine communities. Yet some argue that tourism jobs tend to be seasonal and with low pay and benefits. Nevertheless, it is estimated that tourism supports the livelihood of one out of every ten Maine people.

Robust tourist activity provides opportunities for locals in many ways. Tourism brings money into communities from outside and helps generate new local wealth. Attractions for tourists benefit residents who partake also.

Tourist activity can also take a toll on communities. Some communities, on some days, have too many tourists as evidenced by long traffic delays. Certain walking trails and specific beaches

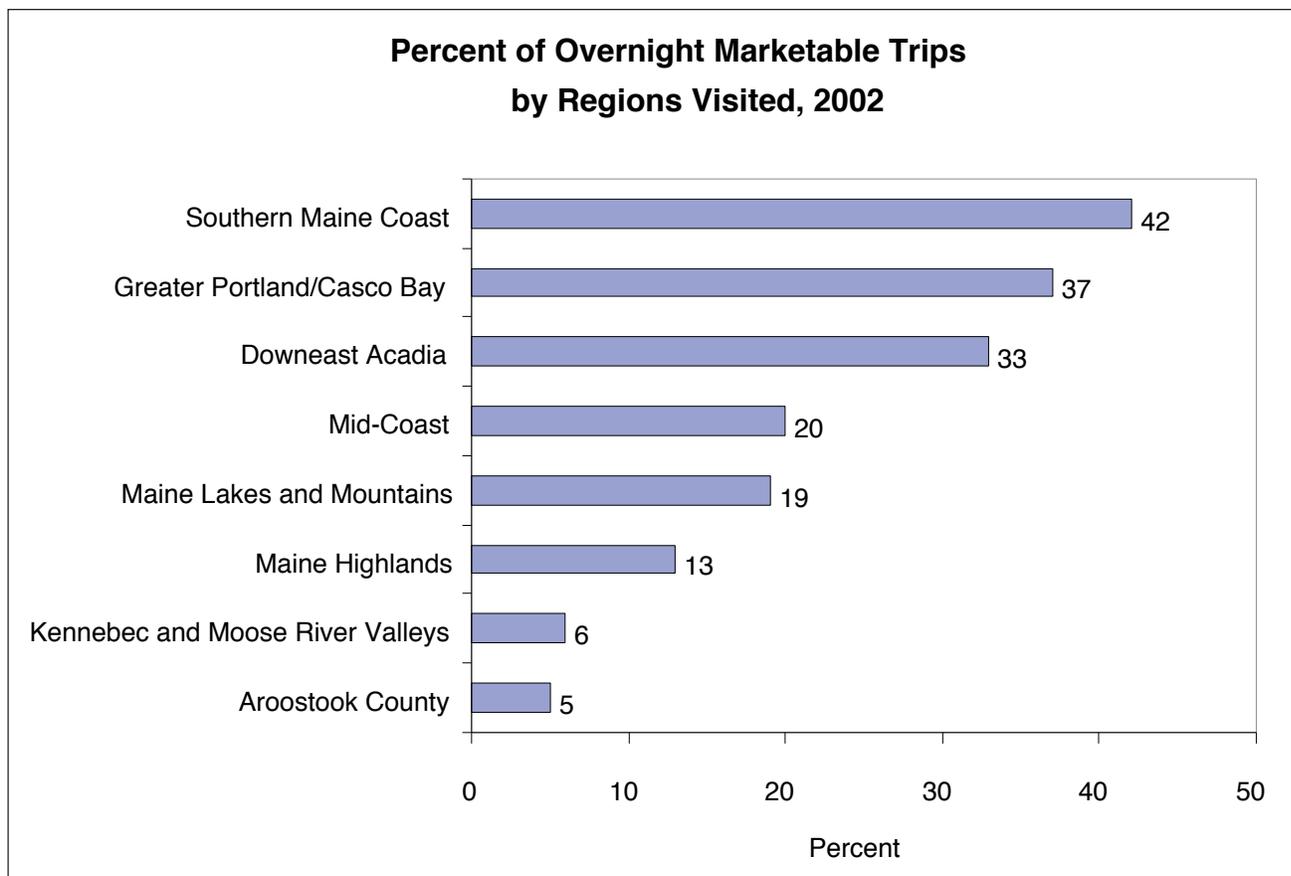
are over-used and at risk of adverse environmental degradation. In some communities, the public infrastructure (roads, parking, lodging) is unable to accommodate the tourist volume. In other communities it's the threat of environmental impact that limits, or should limit, the volume of visits. Yet we lack measurements to distinguish between perceptions of overuse and when a community or tourist attraction is actually being overused. Still there is clearly enough anecdotal information to alert policymakers to potential problems.

In any event, we encourage state policymakers to develop indicators of the community impacts of tourism, both positive and negative.

## Related Data

### Distribution of Visits throughout Maine

The southern Maine coast captured the greatest percentage of overnight marketable trips in 2002 at 42%, followed by the Greater Portland/Casco Bay region at 37%, and the Downeast Acadia region at 33%. The areas seeing the least number of overnight marketable trips were the Kennebec and Moose River valleys and Aroostook County. Clearly, the distribution of tourists around the state is uneven. The northern and central areas of the state have an opportunity to capture a greater percentage of tourist activity.



Source: Longwoods International



## Factors that Impact Tourism in Communities

### Carrying Capacity

Tourists visit certain parts of the state more than others and at certain times of the year more than others. In some cases visitor capacity needs to be improved in the under-visited areas in order to draw more visitors there, and in other cases, tourist activity needs to be better managed. Tourist attractions that are at or near capacity run the risk of reducing the quality experience which is the primary draw for the tourist. Currently it is difficult to determine when a region is at or near capacity, as no standards of measurement have been developed. Further, it is not known what capacity other regions, where increased tourism is desired, can sustain.

### Worker Training and Education

A 2002 study by the Maine Community College System Center found that while numerous programs exist in the state to prepare students for jobs in the hospitality industry, Maine's higher education system produces too few graduates to meet employers' needs.<sup>xxxii</sup> Further, many tourism businesses are owner-operator and require entrepreneurial skills. In response, the Maine Community College System proposes to create a Tourism Education Investment Fund to support changing workforce needs and new opportunities in the tourism industry. It would support: seed money to start or expand academic programs, customized training, industry surveys or other research on workforce education, on-line courses and programs, and entrepreneurial training targeted to tourism-related businesses.

# Background

## Genesis of the Report

In the fall of 2003, Governor John Baldacci hosted the Blaine House Conference on Natural Resource-based Industries, which drew over 700 attendees. One of the recommendations was to develop a set of indicators specifically for the natural resource-based economy. Indicators can be used by policymakers to track the performance of the natural resource-based economy and to inform both program and policy changes to enhance the viability and growth of the industry.

## Value of an Indicators Report

As an “indicators” report, this report has been developed to provide high-level, simplified pieces of information that will, at a glance, tell the reader what is going on in the highly complex system of Maine’s natural resource-based economy.

We use indicators to understand the progress we are making—or failing to make—towards our stated objectives. Indicators are essentially data that show the workings of a larger, more complex system, without trying to categorize each part of the system. Dashboard lights or body temperature, for example, are indicators that give us an idea about the workings of our cars or our bodies, but do not take the place of a mechanical check-up or a physician’s visit.<sup>xxxiii</sup> Similarly, natural resource indicators provide policymakers with a high-level overview of the relative performance of Maine’s natural resource-based industries, areas of strength, and areas that may need attention.

The real value of an indicators report is that, in a relatively quick and efficient manner, decision-makers can evaluate the performance of the industry under study and can see areas of success and areas of concern. One must be careful, however, not to base important decisions or changes on any isolated indicator, as that can, when taken out of the greater context of the other related information, be misleading. The optimal value of an indicators report, then, comes from considering a full set of related information in order to gain as complete a picture as possible.

This report may be used by legislators, state and federal agency managers, business leaders, municipal officials, and others to inform a wide variety of policy and program decisions. Since the natural resource-based industries affect and are affected by environmental policy, tax policy, land use policy, energy policy, and a range of other issues, the findings of this report have broad application.<sup>xxxiv</sup> In addition, this report provides a useful summary of the overall health and well being of the natural resource-based economy for the media and the general public. It is anticipated that future editions of this report will be published periodically, enabling the examination of longer trends and enhancing the report’s value through time.

## Indicator Selection Criteria

The process of collecting, sorting through, and selecting data series to serve as primary indicators was an extremely difficult one. Early on, however, the indicators working group identified the criteria it would use to determine which indicators would best serve the purpose of this report.

The primary indicators selected for this report must be:

1. Limited in number (15 or so)
2. Objective and accurate
3. Relevant for Maine public policy
4. Available in a timely, efficient manner
5. Comparable to history or some other region
6. Easily understandable by an average person

## **A Call For Better Data and Analysis**

Throughout the process of collecting information to be used as indicators, several data gaps were identified. A large number of the jobs in these industries are non-payroll jobs (e.g. independent contractors, sole proprietorships, partnerships, family-owned businesses), which means they are not on any company's payroll and not included in payroll data reported to the state. This lack of wage information makes it more difficult to analyze economic contribution and trends.

Preparing indicators for tourism was particularly challenging, as this "industry" is not formally classified as an industry when reporting wage information and sales and tax revenue. Because of this, data are not readily available and it is hard to isolate the economic contributions that tourists actually make. In addition, much of the data that would be helpful in tracking the tourist base, economic activity, must be collected through surveys, which can be costly and which can require systematic updating to be most useful.

Other areas in which data gaps emerged included educational and training needs for these industries, such as; What higher education credentials are needed and in what quantity to supply natural resource-based industries? What are the future labor needs of the industries? And the lack of market research for identifying potential agricultural and seafood market opportunities (such as direct farm marketing) became apparent.

## **Process**

The Governor's Steering Committee on Natural Resource-based Industries—the official committee charged with guiding the implementation of the Blaine House conference recommendations—appointed an indicators working group to research and write this report. The working group reached out to agency experts and industry stakeholders in collecting and analyzing the data for inclusion in this report. The working group set out a vision, gathered data, identified data gaps, evaluated possible indicators against its pre-set criteria, and selected those indicators that best depict the health of the industry and its relationship to our economy, our natural resources, and our communities.

## For Further Reading

The Maine economy and the natural resource-based industries that support it have been written about in countless publications, many of them available via the websites of state agencies. Here is a short list of leading publications that address all natural resource-based industries:

### *Changing Maine: 1960-2010*

This is a compilation of 2003 essays by 23 Maine experts, the likes of Lloyd Irland, Charles Colgan, David Vail, Stewart Smith, Jim Wilson, Dierdre Mageean, Evan Richert, and other policy analysts. Each essay traces an issue in Maine over the past 50 years and looks ahead. There is a thoughtful introduction by Richard Barringer on the promise of sustainable communities for Maine's future. Edited by Richard Barringer and published by Tilbury House Publishers, 2004.

### *Fishing, Farming, and Forestry: Resources for the Future*

In response to a legislative mandate and guided by an advisory council, this report examines the current condition of Maine's fishing, farming, and forestry industries and offers thoughtful analysis and recommendations. Authored by Laurie Lachance, Maine State Planning Office, 2001.

### *Indicators of Livable Communities*

Full title: A Report on Smart Growth and the Impact of Land Use Decisions on Maine's Communities, Environment, and Countryside. This report was commissioned by the Land and Water Resources Council, a group of cabinet-level state agency officials. The report shows Maine's progress on 23 specific indicators in three categories. Prepared by the Maine Development Foundation, 2002.

### *Measures of Growth*

Now in its tenth year of publication, this report profiles 58 indicators of the health of Maine's economy, environment, and communities. Published by the Maine Economic Growth Council and the Maine Development Foundation, 2004.

### *The Cost of Sprawl*

Published by the State Planning Office in 1997 under the direction of Evan Richert, this report alerts Maine policy makers to the hidden costs of sprawl such as increased state expenditures for schools, greater demand for municipal services and infrastructure, and degradation of natural resources.

### *Northern Forest Wealth Index: Exploring a Deeper Meaning of Wealth*

This report discusses northern portions of Maine, New Hampshire, Vermont, and New York in terms of about 40 indicators in five categories. Many of the indicators address natural resources and it is useful for comparing Maine to our neighboring states. Published by the Northern Forest Center, 2000.

### *Conference Report: Blaine House Conference on Maine's Natural Resource-based Industry*

This 140-page report details conference recommendations to Governor Baldacci and it contains several issue-specific appendices. Prepared by the State Planning Office, November, 2004.

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