

**9. Education****a. Current Conditions**

Brooksville students attend grades K-8 at the Brooksville Elementary School, which has a 2002 school year enrollment of 75. This figure is said to exceed the facility's rated capacity. The town is currently studying the possibility of a school expansion. Brooksville is a member of School Union 93, whose other members are Blue Hill and Penobscot.

The Brooksville school has 6 classrooms with an average size of 600 square-feet. Other facilities include a gymnasium (about 3000 square-feet). There is also a kitchen and a library. The main building is more than forty-years-old and the wing is twenty-years-old. Both sections are in serviceable condition, but are in need of improvements as described below. The current staff of nine full-time faculty provides an adequate student/teacher ratio of about 8.1. Enrollment trends since 1989 are shown on Table E.3 below. The total number of Brooksville students, including those in grades 9-12, increased 25% from 113 in 1989 to 142 in 2003.

**b. Current and Future Adequacy**

Renovating the elementary school is a major issue that has been extensively studied by an appointed committee. Solutions to the school issues were agreed to concurrent with the writing of this plan and implementation has begun.

Data from the Brooksville School indicate several more years of fairly static enrollment, but population trends show that declining enrollment is a possibility in the future (see table A.2). Another significant issue is the unpredictable aspect of home schooling and Bay School enrollment.

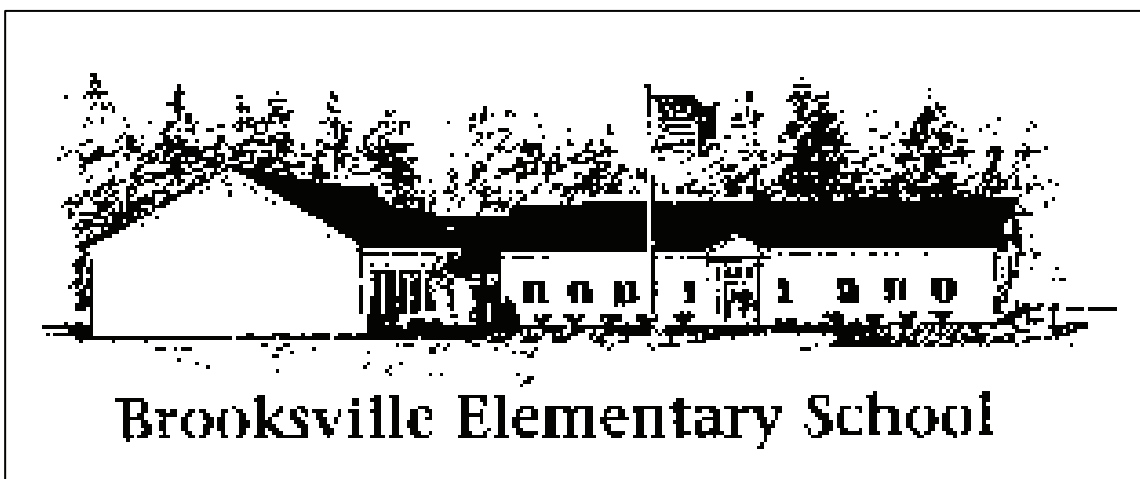


Table E.3 School Enrollment Trends, Brooksville, 1994-2004						
Numbers of students						
Year	School Name	K-6	7-8	9-12	Subtotals	Town totals
1989	Public	64	14	35	113	113
1990	Public	52	17	33	102	102
1991	Public	77	19	31	127	127
1992	Public	80	12	46	138	138
1993	Public	90	16	41	147	147
1994	Public	71	11	39	121	121
1995	Public	78	19	40	137	137
1996	Public	70	14	36	120	120
1997	Bay School	4	4		8	140
1997	Home Schooled	9	1	1	11	
1997	Public	63	16	42	121	
1998	Bay School	4	2		6	141
1998	Home Schooled	8	3	1	12	
1998	Public	64	16	43	123	
1999	Bay School	2	2		4	130
1999	Home Schooled	7	2	1	10	
1999	Public	55	19	42	116	
2000	Bay School		3		3	130
2000	Home Schooled	5	5	2	12	
2000	Public	62	13	40	115	
2001	Bay School	3	3		6	137
2001	Home Schooled	5	5	1	11	
2001	Public	60	15	45	120	
2002	Bay School	3	1		4	140
2002	Home Schooled	4	1		5	
2002	Other	1			1	
2002	Public	64	20	46	130	
2003	Bay School	5	2		7	142
2003	Home Schooled	5	2		7	
2003	Other	1			1	
2003	Public	61	14	52	127	

<sup>1</sup>NOTE: Enrollments are as of October 1 of the school year.  
Source: Brooksville School

More information can be found at the Brooksville Elementary School homepage at: <http://www.brooksville.u93.k12.me.us>

## 10. Public Works

Road maintenance and other public works tasks are overseen by the road commissioner. Most regular maintenance, such as repairs and plowing are done on an hourly basis as needed by the four-member staff. Paving is contracted out. No change in current arrangements is foreseen.

The town owns several pieces of road maintenance equipment including 3 plows, 2 sanders and a grader. It leases a backhoe/loader. The town would like to replace the sanders and plows within the next five years while possibly purchasing a backhoe/loader and adding a truck. Funding for these needs is included in annual town budget considerations and in the Transportation Reserve Account of the Capital Investment Plan. The town has a salt/sand pile near the Town Office. A possible salt/sand shed is discussed in the water resources section. Public comments about road conditions are to be found in the transportation section of this document.

## 11. Town Office

### a. Current Conditions

The primary town building, apart from those mentioned under the descriptions of other facilities, is the 2000 square-foot town house. This facility was built in 1994. Major rooms include 560 square-feet of offices for the selectmen and secretary, a 730 square-foot meeting room & voting area and 300 square-feet of offices for the town clerk and treasurer's. Other rooms include the vault, storage room, lavatories, kitchen, halls and entryways.

### b. Current and Future Adequacy

According to the selectmen, these rooms are adequate for their purpose both in terms of their size and condition. No additional rooms or space are needed at this time or in the foreseeable future. No repairs are needed beyond regular maintenance and upkeep. The townspeople are also quite satisfied with the facility with about half giving it the highest rating of "excellent" in the survey.



Town office, library and fire house

## 12. Library

### a. Current Conditions and Usage

The Brooksville Free Public Library was originally built in 1993 as part of the Brooksville Townhouse (see description above). The present facility has about 1985 square-feet of floor space plus attic storage space. Major rooms include a main room and circulation area, a 323 square-foot children's area and a large outside deck. There is also a meeting room and office.

The Brooksville Free Public Library is open every Monday and Wednesday from 9 - 5; Thursday evening, 6 - 8; and Saturdays, 9 - 12, all year-round. According to the librarian, these hours are sufficient. As of 2003, the library had a total of 11,000 volumes and an annual circulation of 8151 volumes. According to the staff, the library is one of the top circulating libraries in the state based on its service population. More information can be found at the library's website at <http://www.brooksvillelibrary.org>

The library has special collections of Maine books and genealogical materials. It also has video and audio collections and a large print book collection. It provides interlibrary loan services to its users and also provides books to other libraries. It has two public access computers with Internet services and one computer for staff use. Staff consists of a part-time head librarian and a part-time assistant librarian. There is an approximately 80 member Friends of the Library group and about 15 working volunteers who regularly assist in library operations.

### b. Current and Future Adequacy

According to the librarian, the library meets most current Maine State Library Association guidelines for a facility serving a town of Brooksville's size. No expansions of staff, services or facilities are presently planned.

## 13. Community Center

The Community Center is an older 48' x 70' structure in South Brooksville. The wood-framed building has been well maintained and seems adequate for current demand. More parking has been added recently, but when nearby businesses are open, demand still exceeds supply. Town related activities such as Historical Society events, craft fairs, public fund raising activities, informal basketball games and exercise groups use the facility at no charge. The facility may be rented for private functions.



Brooksville Community Center

## F. HEALTH and RECREATION

### 1. Introduction

A comprehensive plan should contain an inventory of current health and recreational facilities and needs in a community and determine what may be needed in the future. Specifically, this section will:

- a. describe current health and recreational resources in Brooksville;
- b. assess the current and future adequacy of these resources; and
- c. predict whether the availability of open space areas for public recreation and access will be threatened by future growth and development.

### 2. Key Findings and Issues

Brooksville has limited recreation facilities and programs. It is unlikely that there could be a major upgrade of facilities due to the town's low year-round population and the many demands already placed on its tax base. Particular needs that the town might want to address are safe neighborhood walks and creation of a town health and recreation committee.

### 3. Public Opinion Survey and Community Workshop Results

Sixty-two percent of respondents felt that recreational facilities and programs were at least adequate with half of those rating them good to excellent. Survey results on public access to salt water are discussed in the Marine Resources chapter. Survey and Workshop comments suggested the need for a recreation committee to guide the enhancement of opportunities for tourism, recreation, biking, music, arts and theater.

### 4. Current Health and Recreation Resources

#### a. Health Resources

Major area health facilities are summarized on Table F.1. For reports on health programs and assets in surrounding areas by the Hancock County Coalition for Community Health, see <http://www.hcpcme.org/pubadmin.html>. One of the documents found there, the *Healthy Peninsula Project Community Assessment* points out the major health concerns of the Blue Hill Peninsula. Significant points include the aging of the local population, incidence of chronic diseases, obesity and drug, tobacco and alcohol-related problems. The report discusses the importance of regular physical activity and healthy eating as well as the health effects of the physical and social environments.

For emergency response services, see Section E of this Plan.

<b>Table F.1 Health and Recreation Resources: Brooksville, 2004</b>			
<b>Major Area Health Facilities</b>		<b>Location</b>	<b>Miles from Brooksville</b>
Blue Hill Memorial Hospital		Blue Hill	11
Maine Coast Memorial Hospital		Ellsworth	27
Eastern Maine Medical Center		Bangor	50
St. Joseph Hospital		Bangor	50
<b>Sport, Game and Exercise Facilities</b>			
<b>Name</b>	<b>Owner</b>	<b>Facilities</b>	<b>Activities, Comments</b>
Community Center	Town	Large activity room	Exercise, yoga, arts, crafts and presentations.
Elementary School	Town	Playground, ball fields, courts, gym.	Soccer, Baseball, Softball and indoor sports.
Townhouse	Town	Activity rooms, adjacent ball fields	Outdoor sports, exercise, yoga, arts, crafts and presentations.
<b>Outdoor Activity Centers</b>			
<b>Name</b>	<b>Land Owner</b>	<b>Water Body</b>	<b>Location, Facilities, Activities, Comments</b>
Ames Cove	Private	Penobscot Bay	Access to sand/gravel beach via trail.
Bakeman Beach	Private	Bakeman Cove	Access to beach and views from public road.
Blake's Beach	Private	Penobscot Bay	Access to shore via Harborside public road.
Ferry Landing Natural Area	Conserv trust	Bagaduce River	Public access to shore via foot trails. Small parking area 23 acres
Forest Farm Good Life Ctr.	Private	Near Orr's Cove	100 acres of fields and woods. Homestead, gardening and other programs
Hay Landing Road	Private	Eggemoggin Reach	Access to shore via public road off Weir Cove Road.
Holbrook I. Sanctuary	State Park	Penobscot Bay	9 hiking trails (8.8 mi.) on 1343 acres, 30 pkg spaces, picnic area, carry-in boating.
John B Mountain Trail	Private		Off Breezemere Farm Road. Public easement for trails.
Native Trail (canoe trail)	Public/private	Various	Circles town via various fresh and saltwater courses.
Snow Natural Area	Conserv. trust	Bagaduce River	Natural Area - trails, foot access to water. Small parking area. 47 acres
Walkers Pd Beach	Private	Walkers Pond	20' of beach in private, 1 acre camping area
<b>Source:</b> Brooksville Comprehensive Planning Committee and state information			

**Note:** See the Marine and Water Resource Sections for more information on water access points used for boating.

**b. Health and Recreational Facilities, Programs and Activities**

Brooksville's recreation facilities are summarized on Table F.1. Recreational programs include Little League Baseball, Boy Scouts, Girl Scouts and the Explorers Club at Elementary School. Local churches have become more active in providing programs. These include camping trips and roller skating. The Healthy Peninsula group & Blue Hill Hospital are sponsoring "Get Strong Get Healthy" workout sessions three times a week at the Community Center. There are two qualified yoga teachers in Brooksville who offer classes twice a week in the Community Services Building. Often there are walks and talks sponsored by the Friends of Holbrook Island Sanctuary. Other recreation organizations in Brooksville include the Steel Band, Friends of the Library and The Conservation Trust of Brooksville, Castine & Penobscot. Special events include a public Christmas Tree lighting and the annual 4th of July Parade in Harborside.

**5. Adequacy of Brooksville's Recreational Resources**

The adequacy of Brooksville's recreational resources can be evaluated in two ways. First, the town's current facilities and programs can be compared to recommended state standards for communities of comparable size. The town's projected population can be used to determine future adequacy. Second, the subjective impressions of residents and information gathered through the public opinion survey and public meetings may be used. Since every town is different, the state standards should be considered as general guidelines. Table F.2 shows the recommended state standards for towns under 1,000 population as well as those between 1,000 and 1,500.

Since Brooksville does not have some of these facilities, it may want to explore options for sharing additional facilities with adjoining towns. The town may also want to develop a long-range recreation plan so that facilities could be upgraded gradually in a manner that reflects the limited tax dollars available. Suggestions for improving Brooksville's health and recreation opportunities can be found in the Goals section.

<b>Table F.2 Guidelines for Recreation and Park Services (recommended state standards)</b>	<b>Population Criteria</b>		Does Brooks -ville have?
	under 1000	1000 to 1500	
<b>I. Administration</b>			
A. Recreation & Park Board or Committee	X	X	<b>no</b>
<b>II. Leadership</b>			
1. Summer Swim Instructor	X	X	<b>no</b>
2. Summer Recreation Director		X	<b>no</b>
<b>III. Public Programs</b>			
A. Swim Instruction Program	X	X	<b>no</b>
B. Supervised Playground Program	X	X	<b>no</b>
C. Senior Citizen Club		X	<b>no</b>
D. Skiing Instruction Program		X	<b>no</b>
E. Ice Skating	X	X	<b>no</b>

F. Community-wide Special Events	X	X	yes
G. Arts and Crafts Program		X	yes
H. Evening Adult Education.		X	yes
IV. Public Facilities (to include School Area)			
A. Outdoor Facilities			
1. Community Recreation Area: 12-25 acres	X	X	yes
2. Special Facilities			no
a. Softball &/or Little League Diamond (.75 per 1,000)	X	X	yes
b. Basketball Court (.50 per 1,000 pop.)	X	X	yes
c. Tennis Court (.67 per 1,000 pop.)	X	X	no
d. Multi-purpose Field: football, soccer... (.5 per 1,000)		X	yes
e. Ice Skating (5,000 s. f. per 1,000 pop.)	X	X	no
f. Playgrounds (.50 per 1,000 pop.)	X	X	yes
g. Horseshoe Courts		X	no
h. Shuffleboard Courts		X	no
i. Picnic Areas w/ tables & grills (2 tables per 1,000)	X	X	yes
B. Indoor Facilities			
1. School Facilities Available for Public Use	X	X	no
2. Gym or Large Multi-purpose Room (.20 per 1,000)	X	X	yes
3. Auditorium or Assembly Hall	X	X	yes
4. Public Library	X	X	yes
V. Finance (funds for operation and maintenance - not capital)			
A. Minimum \$6 per capita for part-time program	X	X	no
Source: Recreation and Open Space Planning Workbook, Office of Comprehensive Planning, Dept. of Economic and Community Development; May 1991.			

6. Open Space

a. Inventory

Publicly owned open space parcels and easements are shown on Map #2 and described in the Natural Resources Recreation, Marine and Water Resources Sections where applicable.

**Look for the signs...**





**b. Assessment of Threats to Open Space**

Brooksville has many unprotected open space areas which may presently be taken for granted and could be developed in the future. Another possible threat concerns land that is presently open for fishing and hunting. Such areas may be posted against these activities as land ownership changes. Even if the outright acquisition of conservation easements isn't possible, some open space areas could be preserved from development through the use of cluster subdivisions should the town decide to pursue this option in the future. Clusters allow for lot layouts that preserve areas of open space by concentrating individual building lots in one portion of a development.



View of the Bagaduce River from the Ferry Landing Natural Area

**7. Regional Issues**

Given Brooksville's relatively low year-round population and limited infrastructure, it is important that it approach some recreational issues regionally. For example, after-school recreational programs can be developed in concert with other towns on the Blue Hill Peninsula. The town may also want to become involved in efforts to develop a regional recreational center that would serve all age groups.

Private recreation groups in the Brooksville area such as the Hancock County Trailblazers (snowmobile club) and the Acadia Area ATVers (ATV rider club) are expected to continue to fill a need in this area.

## G. MARINE RESOURCES

### 1. Introduction

It is important that a Comprehensive Plan provide a thorough analysis of marine resources. Specifically, this section:

- a. describes Brooksville's marine resource areas, facilities, and water-dependent uses;
- b. assesses the adequacy of existing facilities, and public access points to handle current and projected use demands; and
- c. assesses the effectiveness of existing measures to protect and preserve marine resource areas and important water-dependent uses.

### 2. Key Findings and Issues

While marine resources still contribute in important ways to Brooksville's economy, the local fishing community faces serious challenges that confront the industry in the entire region. The Shore Access Committee initially addressed the needs regarding public access to the water and completed the Town Landing at Betsy's Cove. The addition of floats planned for the Dodge's Point Town Landing in Smith Cove will further contribute to fulfilling the Town's need for public boat access.



Northwest on the Bagaduce River from East of Bagaduce Falls

### 3. Public Opinion Survey and Community Workshop Results

There were many comments in the survey about the need for good access to the shore. When asked for an opinion on public access to salt water, the most common answer given was "poor", followed closely by "adequate". Only 30% of respondents felt that these facilities were good to excellent. Workshop attendees suggested that the Shore Access Committee be revived and that Shoreland Zoning be strengthened.

4. Marine Resource Areas

a. Shellfish

While some shellfishing continues in Brooksville, harvesting license information from the Maine Department of Marine Resources seems to indicate that it is on the decline. Some areas are closed to shellfish due to polluted water. These closed areas include Buck's Harbor, Penobscot Bay and parts of the Bagaduce River. The closed areas can change periodically. Contamination of shellfish areas is a concern of the town's fishermen.

Table G.1 BROOKSVILLE RESIDENTS: MARINE LICENSES, BOATS AND TAGS						
License Type	Amount of Licenses per Year					
	1999	2000	2001	2002	2003	2004
Commercial Fishing (crew/single)	3	4	3	4	3	3
Commercial Shellfish	9	5	5	4	2	1
Lobster/crab all classes	35	36	37	33	33	31
Marine Worm Digging	1	0	0	0	0	0
Scallops Diver	0	2	0	0	0	0
Scallops Dragger	6	6	4	3	3	2
Sea Urchin Diver	1	1	0	0	0	0
Sea Urchin Dragger	4	4	2	2	2	2
Seaweed Harvester	1	0	0	0	0	0
<b>Total of Licenses</b>	<b>60</b>	<b>58</b>	<b>51</b>	<b>46</b>	<b>43</b>	<b>39</b>
YEAR	1998	1999	2000	2001	2002	
Lobster Tags Issued	10,689	10,847	12,134	13,244	12,510	
Fishing Boats Registered	62	64	62	65	63	
Retail Seafood licenses	10	8	8	8	6	
Wholesale Seafood licenses	2	2	2	2	2	
<b>SOURCE:</b> Maine Department of Marine Resources						

**b. Marine Fishing Licenses**

The licenses listed here are those sold by the Maine Department of Marine Resources (DMR) to Brooksville residents. These include Brooksville residents who may fish out of town but do **not** include non-residents who may fish in Brooksville. The numbers shown may thus understate the full use of Brooksville’s harbors.

Lobster and commercial fishing are a source of employment. Clam, scallop and urchin harvesting have declined. While not significant lately, there has also been some harvesting of shrimp, eel, marine worm and seaweed in past years. Lobster tags (which are issued by the state to register the fisherman and boat on each lobster trap) have generally been on the increase.

**5. Public Access to the Shore**

<b>Table G.2 Brooksville Marine Boating Facilities</b>	
<b>Name and Location</b>	<b>Facilities</b>
Bagaduce Canoe Landing off The Bagaduce Road	Canoe launch site owned by the Blue Hill Heritage Trust to the Bagaduce River. Roadside parking only.
Bagaduce Falls Pullout in North Brooksville	Canoe launch at the reversing falls bridge. Small roadside parking area.
Betsy’s Cove Town Landing in Betsy's Cove (Buck's Harbor)	Town owned paved boat ramp and floats in Betsy's Cove. 25 dock sites. Some onsite parking with more by the Community Center.
Buck's Harbor Yacht Club in Buck's Harbor	Private pier, floats, playground, tennis courts, boat ramp, 28 parking spaces, 5 mooring permits and 50 dinghy tie-up spaces. Membership required for use of facilities.
Buck's Harbor Marine in Buck's Harbor	Private pier, marine services and supply store. Parking and rental moorings. Membership required for use of facilities.
Dodge's Point Town Landing In Smith Cove	Town-owned paved boat ramp and parking spaces. The town has received a State matching grant to improve the site. Floats are planned with 20 dinghy spaces.
Holbrook I. Sanctuary on Cape Rosier	State Park-- 2 piers and 2 carry in boat sites, 30 total parking spaces, 3 mooring sites and 7 dock sites.
Orr’s Cove (Cape Rosier)	Access to shore via public road
South Wharf Road Landing in West Brooksville	Bagaduce R. boat access via public easement. No parking area. Minimal parking in road right-of-way.
Frank Fowler Road In North Brooksville	Undeveloped possible access to Bagaduce River
Source: State of Maine Comp Plan Resource Packet and Comprehensive Planning Committee	

*See the Recreation and Water Resource sections for more information on these and other sites with water related activities.*

**a. Publicly Owned Points**

As seen in Table G.2 above, there are several public access points to salt water in Brooksville. These include a fully developed town landing in Betsy's Cove, a partially developed town landing in Smith Cove and Right of Way to the shore in West Brooksville. Following the 1980 Comprehensive Plan, the town commissioned a study to determine the town's legal status regarding twelve possible public access points. The report summarizes findings and recommends the best course of action for each site. Some access sites have been developed since the report. More work is seen to be needed on others. For example, the town has completed Betsy's Cove and is to adding floats to the town landing at Dodge's Point.

<b>Table G.3 Brooksville Marine Boat Moorings</b>	
Area	Total moorings and floats 2003
Bagaduce River	27
Buck's Harbor	396
Cape Rosier	190
Eggemoggin Reach	34
Harborside	44
Smith Cove	142
<b>TOTAL</b>	<b>833</b>
Source: Brooksville Harbormaster	

**b. Privately Owned Access Points**

As seen in Table G.2, there are several privately owned access points to salt water in Brooksville. These include a marina and a yacht club.

**c. Adequacy of Access**

With the planned improvements to the town landing at Dodge's Point in Smith Cove, Brooksville will have taken a large step in fulfilling its goal of providing good public access to the shore for its citizens. The town may continue to look into the potential development of its other access points.



View of Castine from Wasson's Wharf Road

## **6. Water-Dependent Uses**

Water-dependent uses are defined as those uses that would require direct access to coastal waters and cannot be located away from these waters. These would include fishing operations, piers, and the like. Boat building is a contributor to Brooksville's economy. Since boatyards require at least some access to coastal waters, their needs should be considered in evaluating water-dependent uses. Brooksville's current water-dependent uses are shown on Map #1.

## **7. Harbors & Marinas**

Tables G.2 and G.3 list the harbor and Marina facilities for the town of Brooksville. The town has made some major investments in its harbor facilities in recent years including a new area for parking and better access to Betsy's Cove in Buck's Harbor and to Smith Cove.

## **8. Effectiveness of Existing Measures to Preserve Marine Resources**

The primary way that marine resources are protected in Brooksville is through the Shoreland Zoning ordinance. This is the basic ordinance that all Maine towns are required to have. When Brooksville is revising its land use ordinances, it may also want to review its current treatment of water quality concerns such as storm water runoff from development. The ordinance revisions could call for stricter attention to erosion and sedimentation prevention in new subdivisions. Site plan review procedures could stress standards for the extent of impervious surface and drainage. Such measures could build on those already in place. Enforcement is an important part of any land use ordinance. The view of the shorefront from the water has been altered by vegetative clearing and the construction of large homes. The impact of such development could be mitigated by more thorough enforcement of existing (and any future) shoreland zoning standards.

Overall, it is becoming more difficult for Brooksville to retain its fishing heritage. The higher price of land, competition for public access and federal fishing restrictions are making fishing less attractive. One specific measure that could be considered is more shoreland zoning restrictions to protect water-dependent uses from being converted to other uses (such as a fish pier being converted to shorefront condominiums). There is presently no such protection in town beyond the small Commercial Fisheries and Maritime Activity Districts. Brooksville adopted a Harbor Ordinance in 2002 to regulate marine activities in Brooksville. It established a Harbor Committee and a Harbormaster position which is filled annually by the Selectmen. The Ordinance also sets forth controls for moorings in Buck's Harbor, Smith Cove and other waters in town.

## **9. Regional Marine Resource Issues**

Brooksville shares its marine resources with other communities adjoining Penobscot Bay and Eggemoggin Reach. It thus may want to address issues such as water quality and public access cooperatively with these towns.

## H. WATER RESOURCES

### 1. Purpose

This section will present an overview of Brooksville's water resources. An understanding of water resources is important since all residents must have a reliable source of drinking water. Specifically, this question will:

- a. describe the characteristics, uses, and quality of Brooksville's significant water resources;
- b. predict whether the quantity or quality of significant water resources will be threatened by the impacts of future growth and development; and
- c. assess the effectiveness of existing measures to protect and preserve significant water resources.

### 2. Key Findings and Issues

Brooksville residents depend primarily upon bedrock wells for their drinking water. Recent changes to water testing standards have detected naturally high arsenic levels in some private wells. Two sites, the Callahan Mine and the municipal salt/sand pile are considered possible threats to groundwater. No other serious threats to the town's ground water resources have been identified.

There are four freshwater great ponds in town in addition to its largest surface water resources which are marine and estuarine. The Callahan Mine Site is a known source of pollution in Goose Pond. There are eight licensed overboard discharges in town, two of which are currently slated for removal by the DEP. No other major threats to surface water resources have been identified.

### 3. Public Opinion Survey and Community Workshop Results

In 3 separate questions, over 90% percent of respondents favored ordinances to protect aquifers, streams and ponds. Wetlands were favored for protection by 85 percent. Ten percent said that potable water was a major problem with an additional 26 percent indicating it is a minor problem. Slightly fewer felt that air and water quality were problems. In the comments section, residents expressed anxiety about the future of Brooksville's water and air quality if the environment is not sufficiently protected.

Another area touched on in the survey and Workshop is access to fresh water bodies. Only 22 percent of survey respondents felt that residents have adequate access to Brooksville's ponds. Sixty-one percent indicated that access is "poor" while the remaining 17 percent checked "don't know/not sure".

Ideas put forth at the Workshop include creating special areas to protect water quality around the Callahan Mine and in the Walker's Pond watershed.

4. Surface Water Resources

a. Fresh Water Bodies and Watersheds

There are four great ponds (naturally made fresh water ponds greater than 10 acres) in Brooksville. There are about a dozen small ponds, some of which are man-made. These small ponds are not subject to state laws such as the Natural Resources Protection Act.

<b>Table H.1 Characteristics of Brooksville Ponds</b>				
<b>GREAT PONDS</b>				
<b>Name</b>	<b>acres</b>	<b>elevation</b>	<b>direct drainage area in acres*</b>	<b>Access to pond</b>
Goose Pond	107	semi-tidal	1209 (100%)	Public access at state park
Parker Pond	69	62	2023 (100%)	No formal public access
Snake Pond	25	65	254 (100%)	No formal public access
Walkers Pond	685	19	1283 (45%)	See Section I.4.C for more information" on access to Walker's Pond.
<i>Walkers Pond (in Sedgwick)</i>	0	19	1539 (55%)	
<b>OTHER NAMED FRESHWATER PONDS</b>				
<b>Name</b>	<b>acres</b>	<b>elevation</b>	<b>direct drainage area in acres*</b>	<b>Access to pond</b>
Breezemere Dam Pond	4	5+/-	150 (100%)	Just off Breezemere Road. Sometimes used for skating.
Fresh Pond	8	110	55 (100%)	State park-- access via trail
Lily Pond	2	170	63 (100%)	No formal public access
Round Pond	3	170	15 (100%)	No formal public access

*\*Direct drainage area does not include the area of the pond itself or other ponds with associated drainage areas that may feed into the pond*

The only Pond that the DEP keeps significant water quality data on is Walkers Pond. Water quality monitoring data has been collected at Walkers Pond since 1980. In summary, the water quality has been found to be above average. It has very clear waters averaging about 20 feet to a maximum depth of 47 feet. Walkers Pond has a limited ability to sustain cold water fish species due to dissolved oxygen depletion in deep areas. The potential for nuisance blooms is low to moderate.

Susceptibility to phosphorus loading and other contaminants has been identified by the DEP as an important factor in waterbody quality. Phosphorus is a naturally occurring element that clings to soil particles and organic matter. Increasing amounts of phosphorus runoff into a lake will cause algae to become a nuisance and negatively affect cold water fish and may increase the chances of infestations of invasive plants such as milfoil. An abundance of algae turns the lake green and blocks sunlight to deeper levels. This process can destroy the water quality of the lake.



The DEP has identified Walkers Pond as "moderate/sensitive" in its vulnerability to phosphorous levels. This rating is derived from many variables such as flushing, growth and development rates. The moderate/sensitive rating indicates that Walkers Pond has a relatively high potential for recycling phosphorous from bottom sediments. The DEP estimates that the pond can handle 20 pounds of phosphorous from Brooksville's share of the watershed each year. That means that only 0.16 pounds of phosphorous per acre should be exported to Walkers Pond from Brooksville. This same number per acre applies to the Sedgwick portion as well.

DEP standards for the level of protection are advisory only, but can be used as a planning guide for allocating or limiting development in the watershed. Many communities have taken measures to regulate phosphorus runoff resulting from residential development and related activities in their watersheds. If interested, Brooksville could pursue the potential of an in-depth study of phosphorus control measures with the DEP. A simple and less expensive option would be to collect regular data on phosphorus content as part of the ongoing Maine Volunteer Lake Monitoring Program.

A state-stocked brown trout fishery and recognized as an important resource for other recreational uses, Walkers Pond is also one of the few potential surface water sources of drinking water in Brooksville. As such, it should be carefully protected. The Friends of Walkers Pond is a local group that was formed to study and make recommendations related to the best interest of the pond, its wildlife and its users.

With its peninsular geography, Brooksville has many small, relatively short brooks from its interior to the shore. Its one "river", the Bagaduce, is actually a saltwater body. The Route 175/176 bridge culvert creates a reversing falls with the changing of the tides. The upper Bagaduce (south of the bridge) has a lower salt content due to freshwater input and the restricted tidal influence. In addition to recreation, these waters are currently used for raising oysters under an aquaculture lease. Billings Brook, Shepardson's Brook, and Mill Stream (Parker Pond Outlet) are considered significant fisheries habitat that are worthy of increased local protection by the Maine Department of Inland Fisheries and Wildlife.

<b>Table H.2 -- Brooksville Freshwater Streams</b> (named on USGS 7 minute quad sheets)			
<b>Name</b>	<b>Length (mi.)</b>	<b>Terminus</b>	<b>Comments</b>
Benson Brook	0.5	Smith Cove	
Billings Brook	0.8	Walkers Pond	<b><i>Significant fisheries habitat</i></b>
Jerrys Brook	0.6	Meadow Brook	
Lily Pond outlet	0.6	Walkers Pond	Begins at Lily Pond
Marsh Creek	1.2	Goose Pond	Begins at Fresh Pond
Meadow Brook	2.9	Parker Pond	Begins at Snake Pond
Mill Stream	1.3	Bagaduce River	<b><i>Significant fisheries habitat</i></b> Begins at Parker Pond
Round Pond outlet	0.3	Buck Harbor	Begins at Round Pond
Shepardson Bk.	4.2	Wasson Cove	<b><i>Significant fisheries habitat</i></b>
Walkers Pd. outlet	0.7	Bagaduce River	Begins at Walkers Pond

**b. Marine Water Quality**

The DEP classifies all surface water in Maine. These classifications set the standards allowed for discharges of pollutants. The majority of waters in the state, including those adjacent to Brooksville, are classified "SB," which is the second highest classification. Per DEP standards, habitats in these waters "shall be characterized as unimpaired." No discharges that would cause closure of open shellfish areas are permitted. Dissolved oxygen contents are set at 85 percent.

**c. Threats to Surface Water Resources**

There are two types of pollution that threaten surface water: point and non-point. Point pollution is attributable to a specific source such as a pipe discharging into a stream. Non-point pollution comes from a general source such as stormwater runoff that carries oil spilled on a road into a stream. The U.S. Environmental Protection Agency (USEPA) placed the Callahan Mine site in Harborside on its Superfund list for clean-up because it is considered a threat to nearby water resources. The Callahan Mine Site is a former zinc-copper open pit mine adjacent to and beneath Goose Pond, a semi-tidal estuary. Operations at the mine ceased in 1972, leaving several piles of tailings and other waste. The tailings piles leach acidic and metal-containing water onto the site and into Goose Pond, which samples show is contaminated with zinc and copper. Under Superfund law, former owners or operators of the property can be held liable for the cleanup. Local groups continue to monitor progress by the federal government on this important project. The USEPA recently selected the Marine Environmental Research Institute (MERI) to administer a one-year, \$50,000 Technical Assistance Grant through the Superfund process, to provide a way for the local community to remain informed and to comment on the cleanup process.

The only other known point sources of pollution in Brooksville are eight licensed overboard discharges, two of which are currently slated for removal by the DEP. These are private residences or businesses that discharge treated wastewater into the water. When properly functioning, these systems do not inordinately pollute the receiving waterbodies. DEP licensing standards and annual inspections are used to assure that they remain in reliable condition. There has been no inventory of non-point sources in Brooksville. These are likely to occur where there are large areas of impervious surfaces. Other possible sources include roads that are subject to erosion or areas where there has been major clearing of vegetation.



Canoe passage to Walker's Pond under Rt. 176



Entry to Walker's Pond from the passage through reeds

d. Access to Surface Water Resources

As stated in the public opinion section of this chapter, access to freshwater bodies in Brooksville is a notable concern. The Public Access Study conducted by the town, and more fully described in the Marine Resources chapter, investigated the possible existence of a public right of way to Walkers Pond. Based on the lack of positive findings, the study recommended that no action be taken. As time goes on, access to these important resources by the general public will likely become more difficult. Traditional, informal access for ice fishing, canoeing and other activities may be lost as properties change hands and areas around these waterbodies are developed further. It is therefore recommended that the town actively pursue and develop public access to its great ponds where possible. See Section I.4.C for more information on access to Walker's Pond.

**5. Ground Water Resources**

As mentioned in the Housing chapter, Brooksville residents and businesses depend on individual wells for their water supply. Seven wells in town have been listed by the Maine Drinking Water Program due to the fresh water demand placed on them. These small systems serve the school, restaurants and inns and other places that cater to the public. The wells are listed below. Areas that normally yield large quantities of water to wells are called sand and gravel aquifers. There are, however, no sand and gravel aquifers in Brooksville. Rather, most wells in Brooksville are drilled in bedrock. Bedrock wells generally yield from about 10 to 50 gallons per minute (gpm). Normally, a well yielding about 1 gpm is considered sufficient for domestic use.

<b>Maine Drinking Water Program Wells in Brooksville</b> (see map # 4)					
ID No.	Owner	Location	Risk Type and Rating		
			Geology	Area	Control
11802101	Breezemere Farm Inn	71 Breezemere Rd.	mod.	high	low
23427101	Buck's Harbor Market	6 Cornfield Hill Rd.	mod.	high	mod.
2140101	Hiram Blake Camp	220 Weir Cove Rd.	mod.	low	low
123101	Elementary School	Route 176	mod.	mod.	high
2136104	Oakland House Inn	435 Herrick Road	mod.	mod.	mod.
2136105	Oakland House Inn	435 Herrick Road	mod.	low	mod.
2136106	Oakland House Inn	435 Herrick Road	mod.	low	mod.

Overall, there are no major problems in Brooksville with ground water supply. There have been some complaints of hard water. Also, there have been isolated cases of inadequate wells. It is not known if these are due to poorly drilled wells or other problems.

**a. Ground Water Quality**

The DEP has rated Brooksville's ground water as GW-A. This is the highest DEP classification and it applies to all ground water in the state unless specifically noted otherwise. DEP standards mandate that these waters be of such quality that they can be used for public water supplies. They shall, per DEP standards, be free of radioactive matter or any matter that affects their taste or odor. Brooksville's 1980 *Comprehensive Plan* noted that some of the wells in West Brooksville had a high iron content while some in the Goose Pond area are high in sulfur. Recent changes to water testing standards have caused the detection of naturally high arsenic levels in some private wells. Well owners should take advantage of more accurate available testing methods to assure that the water is safe to drink.

**b. Threats to Ground Water**

Given the low incidence of non-point pollution in Brooksville and the overall low density of the population, the ground water supply is generally considered safe. Two sites, the Callahan Mine and the municipal salt/sand pile are considered possible threats to groundwater. As mentioned before, the Callahan Mine is on the US EPA Superfund list for clean-up. The salt/sand pile on Route 176 below the town house was deemed safe by the Maine DEP. The town may still want to construct a shed to store the winter salt and sand for other practical benefits and long-term protection of the underlying bedrock aquifer.

The Agency for Toxic Substances and Disease Registry (ATSDR), an agency of the U.S. Department of Health and Human Services studied groundwater near the Callahan Mine site in Harborside for potential exposure to toxins via various pathways including drinking water. ATSDR determined that contaminants from the waste piles or other source areas could infiltrate into the groundwater beneath the site. If people used this groundwater for drinking, they could be exposed to contaminants. A few private drinking water wells are near the site. All samples of these wells to date show that no contaminants are present above drinking water comparison values. Therefore, this pathway is not expected to lead to any adverse health effects and has been dropped from further consideration by the agency. More information can be found on the Internet at [http://www.atsdr.cdc.gov/HAC/PHA/callahan/cmc\\_p1.html](http://www.atsdr.cdc.gov/HAC/PHA/callahan/cmc_p1.html) .

**6. Future Adequacy of Brooksville's Water Resources**

Given the moderate rate of growth projected for Brooksville, current drinking water supplies should be adequate for the foreseeable future. The only possible problem would be threats to individual wells from contamination. Walker's Pond watershed will be studied for special protection should the town ever choose to develop it as a source to augment groundwater in areas that develop a need.

**7. Adequacy of Existing Measures to Preserve Significant Water Resources**

Brooksville's current measures to protect water resources consist of the Shoreland Zoning ordinance and the subdivision review standards. Its current site plan review ordinance has standards to protect against water pollution, assure adequate sewage disposal and storm water drainage. If the town decides to enact a town-wide land use ordinance, it could develop additional measures to protect water quality. These could include standards for maximum impervious surface, drainage provisions and storage of pollution-causing materials.

**8. Regional Issues**

There are no immediate regional ground water resource issues facing Brooksville. The town does not share any sand and gravel aquifers with a surrounding town. Given the moderate rates of growth projected for the town, there is no foreseeable likelihood of the town needing to tap into a public water system from a surrounding town. Although Walkers Pond is entirely in Brooksville, much of its watershed is in Sedgwick. To adequately protect the resource in the long term, the two towns will need to work together

## I. NATURAL RESOURCES

### 1. Introduction

A comprehensive plan should provide an overview of a town's natural resources. These resources are important to the town in several ways. First, they provide important wildlife and fisheries habitats. Second, inappropriate development in environmentally fragile areas could be costly to the entire town. For example, disruption of natural drainage patterns could increase the chances of flooding. Thirdly, these resources are an essential part of the Brooksville's rural character.

Specifically, this chapter will:

- a. describe Brooksville's critical natural and scenic resources;
- b. predict whether these resources will be threatened by the impacts of future growth and development; and
- c. assess the effectiveness of existing efforts to protect and preserve these resources.

### 2. Key Findings and Issues

As a coastal community, Brooksville has a diversity of animal and plant life. (See Table I.1) Its coastline is an important habitat for waterfowl. The town contains the essential habitat and nesting areas of the threatened bald eagle. Brooksville is also home to three Rare or Exemplary Natural Communities identified by the Maine Natural Areas Program. A Spruce-Pine Woodland is located in the Holbrook Island Sanctuary on Cape Rosier. A Pitch Pine Woodland can be found between Buck's Harbor and Walkers Pond. And a Pitch Pine Bog is in the midst of the Pitch Pine Woodland

### 3. Public Opinion Survey and Community Workshop Results

There were many positive comments in the survey and during the workshop about Brooksville's natural resources and beauty. Eighty-seven percent of the survey respondents supported measures to protect wildlife habitats. There was also strong support for protecting scenic views (86 percent) and wetlands (85 percent).

### 4. A Summary of Critical Natural Resources

Brooksville's major natural resources are discussed below. There is also further discussion of marine-related resources in the *Marine Resources* chapter and of farm and forest land in the *Agricultural and Forest Resources* chapter.

Table I.1 <b>Wildlife Commonly Found in Brooksville</b>
<b>Wildlife Commonly Found in Brooksville</b>
MAMMALS: beaver, coyote, eastern gray squirrel, hare, harbor seals, muskrat, raccoon, red fox, red squirrel, white tailed deer,
BIRDS: American goldfinches, alder flycatchers, broad winged and other hawks, bald eagles, common crows, common ravens, great crested flycatchers, hermit thrushes, eastern phoebes, rock doves, blue jays, red-winged blackbirds, black-capped chickadees, robins, slate colored juncos, turkeys, ruffed grouse, spruce grouse, swamp sparrows, tree swallows, white-throated sparrows, woodcock, owls, ospreys, purple finches, downy woodpeckers, pileated woodpeckers, yellow shafted flickers, kingfishers, turkey buzzards
SEA BIRDS and WATER FOWL: Black backed gulls, black ducks, bufflehead, double-crested cormorants, eiders, golden eyes, great blue herrons, herring gulls, old squaws, mergansers, terns and guillemots (islands only).
<b>Wildlife Occasionally Seen in Brooksville (rare, reclusive, migratory, etc.)</b>
MAMMALS: Moose, black bears, bobcat
BIRDS: Black-throated green, myrtle and yellow warblers, grebes, loons
<b>Wildlife Reported in Brooksville on Rare Occasions</b>
MAMMALS: Mountain lion, wolf
BIRDS: Golden Eagle
Source Brooksville Comprehensive Plan Committee and state sources

a. Wetlands

Wetlands are one of the most critical natural resources. They often serve as aquifer recharge areas, allowing underground water supplies to be recharged. They are also crucial wildlife and bird habitats. Wetlands are an important part of nature's drainage system since they hold storm water. Areas that have experienced extensive filling of wetlands often face increased flooding problems. Wetlands are also important as breeding areas for waterfowl and habitat for other wildlife.

There are several major freshwater wetlands in Brooksville. The largest are found in the vicinity of Parker Pond. Others are scattered on Cape Rosier and in West Brooksville. There is a large forested wetland surrounding Snake Pond. An analysis of National Wetlands Inventory maps indicates that there about 760 acres of non-forested freshwater wetlands, 740 acres of forested wetland and 500 acres of inland open water in town. These wet areas comprise about 9 percent of the town's 21,600 acres above sea-level. Brooksville's wetlands are important habitats for aquatic animals such as beaver and muskrat. These areas are also important breeding areas for waterfowl. The DEP rated 5 Brooksville wetlands as High for wildlife habitat. (see Map 2).

b. Wildlife Habitats

Tidal flats are important wintering areas for waterfowl. Birds found on the flats in winter include Bufflehead, Goldeneye, Black Duck and Scaup. The upland environment, which includes mature forests, pioneer hardwood stands and blueberry barrens supports deer and an occasional black bear or moose. Other animals found in this environment include ruffed grouse, pheasant, woodcock, hare and squirrel. Much of the central section of Brooksville would be considered an upland environment. Two large deer wintering areas are mapped on the peninsulas flanking Orcutt Harbor by the Maine Natural Areas Program. Areas of spruce-pine woodland, pitch pine woodland and pitch pine bog are also shown.

c. Fishery Resources

**Fresh Water:** The Department of Inland Fisheries and Wildlife currently stocks Walker's Pond with brown trout. Fair and equitable public access and parking must continue to be available for the stocking arrangements to continue. An agreement allowing public access of boat trailers over the land of Nona currently fulfills this requirement. A more permanent arrangement shall be sought.

**Salt Water:** Lobsters, scallops and fin fish are found in the open waters of the Bagaduce River, Eggemoggin Reach and Penobscot Bay, while clams and sea worms are found on the tidal flats. Marine resources are discussed further in the Marine Resources chapter.

d. Rare Plants and Natural Areas

The state Department of Conservation's Natural Resources Information and Mapping Center maintains records of rare plants and other natural features of special concern. Brooksville contains the essential habitat and nesting areas of the threatened bald eagle. The town is also home to three Rare or Exemplary Natural Communities identified by the Maine Natural Areas Program. A Spruce-Pine Woodland is located in the Holbrook Island Sanctuary on Cape Rosier. A Pitch Pine Woodland can be found between Buck's Harbor and Walkers Pond and a Pitch Pine Bog is in the midst of the Pitch Pine Woodland. Coastal and Inland Waterfowl and Wading Bird Habitat, migratory Shorebird Habitat, a Seabird Nesting Island, Deer Wintering Areas and a rare plant population have also been identified. (see Natural Resources Map 3).

Land use changes in these areas may threaten these features. It is thus important to protect these areas. It is possible that there are other environmentally valuable areas that have not been identified. An inventory could be conducted by interested citizens under the guidance of the Natural Areas Program. Other wildlife habitat information is shown on Map 3. These data are from the Maine Department of Inland Fisheries and Wildlife (MDIFW). They show that nearby islands are particularly important habitats for shorebirds. Shorebird nesting, wading and feeding all occur in these areas. The various inland wetlands are also important wading bird habitat. The Holbrook Island Sanctuary is also important because it is a large protected area containing a variety of habitats and species representative of the entire town.



## 5. Scenic Resources

Brooksville is a very scenic town with excellent views from public roads and trails. The combination of hills, coves, bogs, blueberry fields and farms assures a rich variety of views. Such views are an integral part of the town's rural character. Areas of particular scenic value accessible by the public are on roads overlooking Castine, the Bagaduce River, Snow's Cove, Smith's Cove, Orcutt Harbor, Buck's Harbor and Walkers Pond. Many scenic hiking trails also crisscross Brooksville. There are also many scenic views from the water. See Transportation Map # 5 for scenic road segments.

## 6. Assessment of Threats to Brooksville's Natural and Scenic Resources

While there are no immediate major threats to Brooksville's natural and scenic resources, there is the risk of longer-term damage through future development. This is particularly the case in those areas not protected by shoreland zoning or by state essential habitat designation. A poorly planned subdivision development could disrupt views from an adjoining property or disrupt an important wildlife area. There is also the risk to damage to views from the water of the shore if current shoreland development patterns continue. This risk could be mitigated through increased enforcement.

## 7. Assessment of Existing Efforts to Protect and Preserve Brooksville's Natural and Scenic Resources

Brooksville's Shoreland Zoning ordinance meets all state requirements. This means that some protection is offered to resources along the shore. There is, however, only incidental protection to resources outside of the Shoreland. The town may want to consider other measures to protect natural resources if it enacts a town-wide land use ordinance or if it expands the current scope of its shoreland zoning. These could include larger minimum lot sizes and stricter setback standards in areas where high-value natural resources are present.

Portions of the Shoreland Zone are presently zoned Resource Protection. These include areas around wetlands, ponds and coves as well as along stretches of the Bagaduce River and Penobscot Bay. The restrictions in this zone offer a fairly high level of protection for natural resources. However, there are other portions of the shoreland adjacent to important habitats that are not zoned Resource Protection.

Greater protection would also be possible through revisions to the subdivision ordinance. These could involve creative lot-layout schemes such as clustering. Often, it is possible to make minor changes in the location of lots in a subdivision to minimize the disruption or views from a neighboring property or public road. Also, the initial subdivision application to the planning board could include a requirement that any important habitats identified by the MDIFW be noted. See Table I.2 for more strategies to help protect Brooksville's natural areas.

8. Regional Issues

As a peninsula, Brooksville only adjoins Sedgwick and Penobscot on the land. It lies directly across the water from Castine, Deer Isle and Islesboro. The town may want to solicit comments from adjacent towns if there were a major subdivision or other land development activity near the town line that could affect a rare natural resource. Similarly, the planning board could ask for an opportunity to comment on large-scale development proposals in either adjoining town. This would allow an opportunity for a more thorough assessment of potentially adverse environmental impacts on natural resources.

Table I.2 Brooksville Natural Areas Conservation -- Partners, Tools and Strategies
<b>Land Trusts in Brooksville:</b>
The Maine Coast Heritage Trust, the Nature Conservancy, the Conservation Trust of Brooksville, Castine and Penobscot, the Blue Hill Heritage Trust
<b>Strategies for Conserving Natural Areas in Brooksville:</b>
Identify and conserve wide corridors linking high value habitats and wetlands.
Work with affected property owners on fee purchase or voluntary measures.
Work with state agencies to garner support for projects and seek necessary funds
Work cooperatively with neighboring towns on regional conservation issues
Educate officials and citizens to support and manage local conservation initiatives
Continually map boundaries of conservation areas, corridors and other features.
<b>Tools for Conserving Natural Areas in Brooksville:</b>
<b>Conservation Easements</b> are voluntary legal agreements that allow landowners to place permanent restrictions on the amount and type of future development and other uses on all or part of the property they own. Some easements reduce the property tax burden of owners.
<b>Concept Plans</b> are land use plans initiated by the landowner and reviewed by the Maine Department of Conservation. They may include permanent commitments to conservation in specific areas in exchange for variances in land-use regulations in other areas.
<b>Corporate Conservation Initiatives</b> are voluntary efforts by landowners such as timber companies to identify and protect areas of unique ecological, scenic, recreational, or historic importance. Since the landowner designs the conservation plan, this is a flexible way to protect the resource while pursuing business objectives and enhancing the corporate image.
<b>Certified Timberlands</b> are evaluated by independent companies and certified as being managed and harvested on an environmentally sensitive and sustainable basis. These techniques are designed to increase long-term profitability of their timberlands.
<b>Resource Plans</b> are negotiated agreements made that define standards for timber harvesting, road building, and development and are customized to protect wildlife habitat and recreational opportunities.
<b>Managed Recreation</b> maintained by the landowner or a service contract, builds upon Maine's tradition of public access to private lands in the Northern Forest. Facing increased recreational use and demands, some Maine landowners charge visitors for access to their lands and roads. The proceeds fund the landowners' costs in providing recreational access to lakes and remote campsites.
<i>From a Maine Audubon Society article entitled "What Conservation Looks Like In Maine – Tools To Build a Future For Our Woods, Waters, and Wildlife" written by Susan Hitchcox in the fall of 2001.</i>