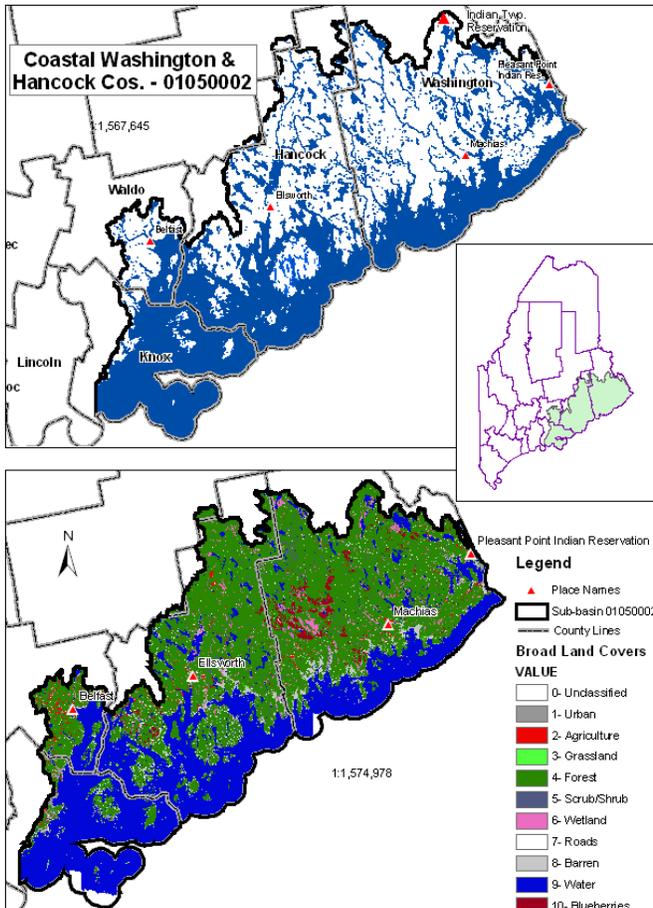


## I. Introduction



The Coastal Hancock/Washington Counties 8-Digit Hydrologic Unit Code (HUC) sub-basin is comprised of 3,391,621 acres. Most of the sub-basin is located in Washington and Hancock Counties with minor portions extending into Waldo and Knox counties.

The Coastal Hancock/Washington Counties sub-basin is predominantly forest/scrub shrub land (57.4%) and water/wetlands/tidal lands (37.1%). Other minor land uses include urban/roads (2.3 %), blueberries (1.7%), Grasslands (including pasture) (1.1%) and cultivated cropland (0.4%).

Forests are primarily spruce, fir, pine and mixed hardwoods such as oak, maple, birch and poplar. Many culverts and bridges along access roads present barriers for Atlantic Salmon, a federally listed threatened specie. Sediments from roads and stream crossings also affect aquatic habitats.

The Maine Department of Marine Resources (DMR) has identified 160,000 acres of shellfish habitat in this sub-basin. These habitats are susceptible to non-point pollution from the land base, which has an adverse effect on the ability

to harvest shellfish for consumption. A survey of shellfish management committees in 2007 showed that the lack of available resource (number of open flats and numbers of clams) and permanently closed areas ranked at the top of the list of concerns. Conclusive data about the actual amount of restricted habitat is not readily available. Informal calculations by industry folks and DMR biologists indicate that about 50% of available habitat is permanently closed. In this watershed that would be about 25,000 acres in the intertidal zones. All of the closures are due to bacterial pollution from human or animal waste. This amount of unavailable habitat increases harvest pressures on the remaining habitats. The DMR and local shellfish committees are working hard to manage the resource but do not have the financial capacity to deal with the larger problem of the restricted areas. 3,659,827 pounds of shellfish were harvested in 2005 from Hancock and Washington Counties. 66975.6 acres of the shellfish beds have been closed due to bacterial contamination from runoff.

73,924 acres have been identified as urban/roads. 4,295 road stream crossings have been identified. Sediments from road crossing and urban development are listed as a major concern. Low quality hayfields are being converted to urban lots for development. Hay and pasture fields that are invaded with weeds such as smooth bedstraw are no longer productive and are sold for housing development, rather than reseeded for forage production.

There are 636 farms in the sub-basin. Blueberries (52,296 acres) are the primary agricultural crop grown on 465 farms. Five large processors grow 60% of the blueberries on 40% of the acres. The larger farms vary from 1,000 to 10,000 acres. 460 farms grow 40% of the blueberries on 60% of the acres. These farms vary from 2 – 600 acres. Most of the blueberries from small and large farms are frozen and processed through one of the local large processors. Blueberry fields are often burned to reduce grassy weed competition. Fields are often cleared to facilitate control using mechanical and chemical methods.

100 livestock growers are listed in the New England Agricultural Census data. 80 beef producers, 19 dairy producers with 66 sheep producers are listed for this region. Of these approximately 50 are required or would benefit from a comprehensive nutrient management plan for the manure generated, stored and spread on crop and pasture fields.

171 farms grow mixed vegetables (broccoli, cucumbers, peas, pumpkins, sweet corn, squash, and tomatoes) on small acreages varying from 1 – 5 acres. These small truck farms provide locally grown produce for markets in the area.

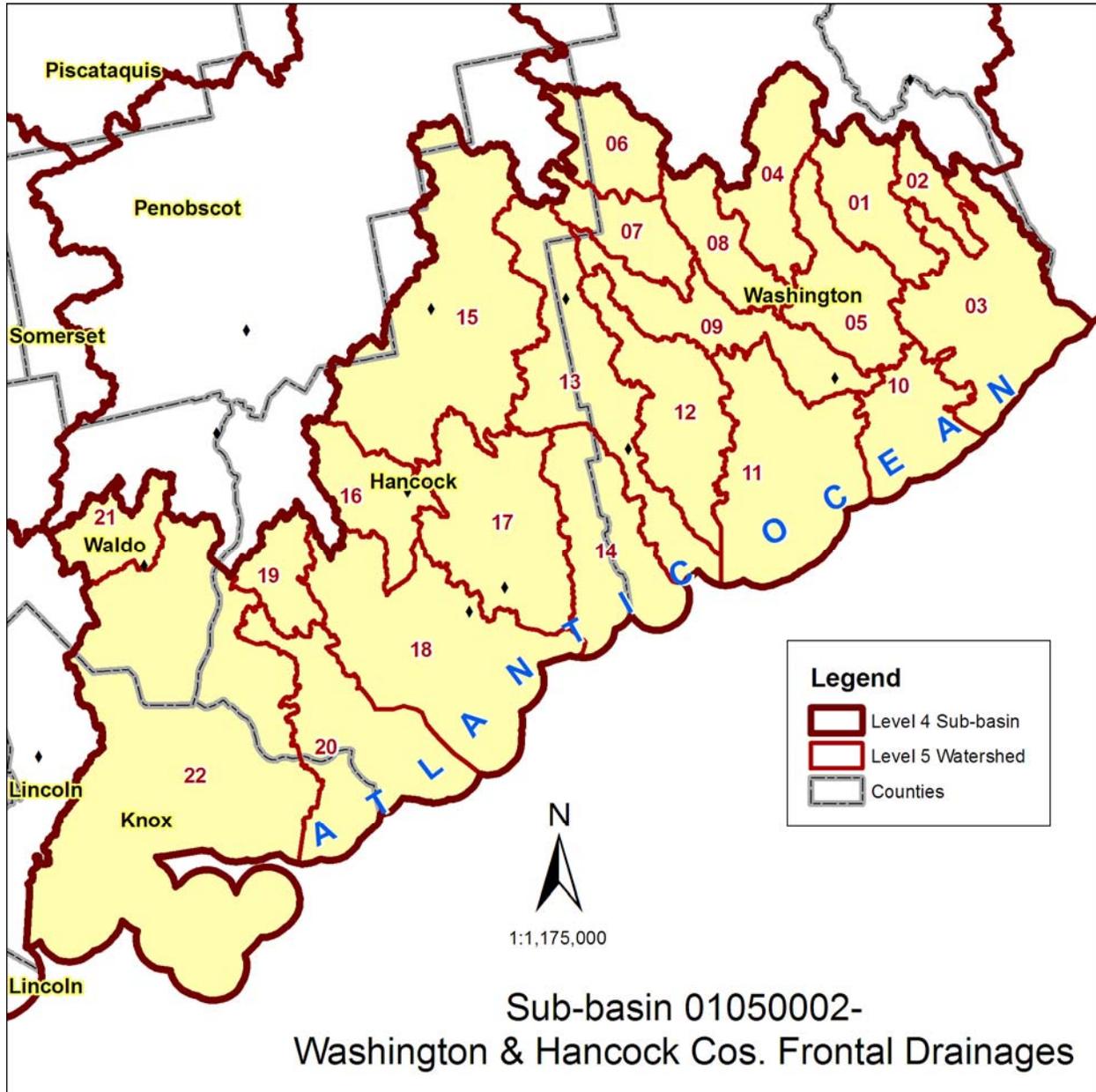
Conservation assistance is provided by four NRCS service centers (Machias, Ellsworth, Belfast and Warren), one Soil Survey office, one Resource Conservation and Development (RC&D) office.

## II. Physical Description

### A. Level 5 Watershed Summary <sup>6</sup>

The area of concern consists of one Level 4 Sub-basin, 22 Level 5 Watersheds, and 125 Level 6 Sub-watersheds. As this document is being prepared, Maine's Watershed Boundary Dataset has been submitted for certification for inclusion into the national map. All HU Codes and Names refer to this version of the WBD (May 8, 2008).

A large scale, detailed orientation map, [Orientation\\_map\\_01050002.pdf](#), accompanies this document.



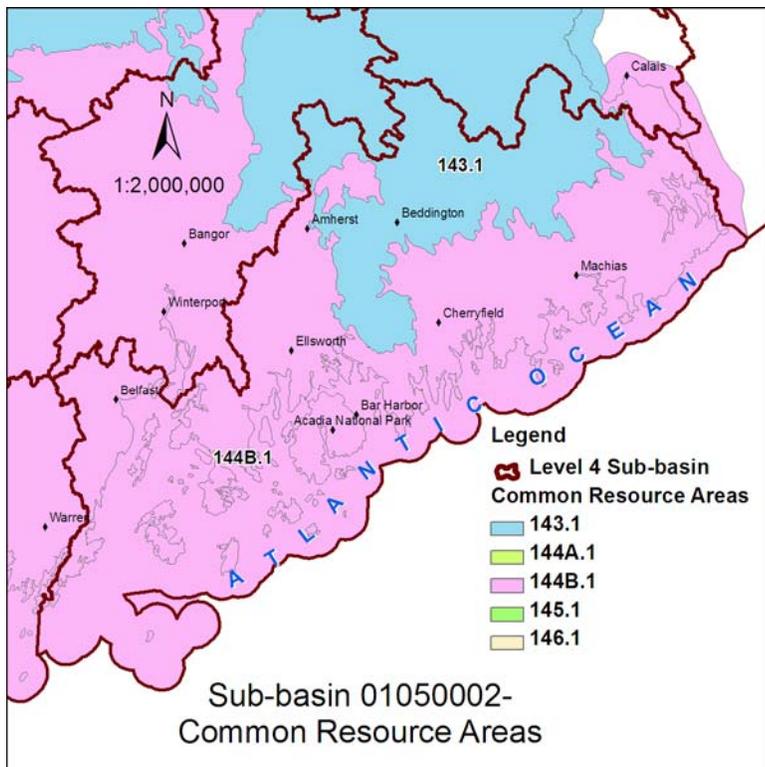
See the following table for the Watershed inventory.

<b>Sub-basin 01050002 - List of Level 5 Watersheds</b>					
<b>HUC_10</b>	<b>WATERSHED NAME</b>	<b>ACRES</b>	<b>DOWNSTREAM HUC_10</b>	<b>HU_10_MOD</b>	<b>HU_10_TYPE</b>
0105000201	Dennys River	83,415	0105000203	NM	Standard
0105000202	Pennamaquan River	34,512	0105000203	NM	Frontal
0105000203	Grand Manan Channel East Machias River-Round Lake	196,732	OCEAN	NM	Frontal
0105000204	Lake	94,293	0105000205	NM	Standard
0105000205	East Machias River	105,013	0105000205	NM	Standard
0105000206	Upper Machias River	71,227	0105000207	NM	Standard
0105000207	Middle Machias River	66,344	0105000209	NM	Standard
0105000208	Old Stream	69,492	0105000209	NM	Standard
0105000209	Lower Machias River	112,879	0105000210	NM	Standard
0105000210	Machias Bay Roque Bluffs Frontal	109,647	OCEAN	NM	Frontal
0105000211	Drainages	211,406	OCEAN	NM	Frontal
0105000212	Pleasant River-Pleasant Bay	133,763	0105000213	NM	Frontal
0105000213	Narraguagus River- Narraguagus Bay	246,741	OCEAN	NM	Frontal
0105000214	Schoodic Point-Petit-Manan Point Frontal Drainages	138,918	OCEAN	NM	Frontal
0105000215	Graham Lake	309,522	0105000216	DM,TF	Standard
0105000216	Union River Bay	80,911	0105000218	NM	Standard
0105000217	Frenchman Bay Blue Hill-Mount Desert Frontal Drainages	416,638	OCEAN	NM	Frontal
0105000218	Frontal Drainages	260,632	OCEAN	NM	Frontal
0105000219	Bagaduce River	52,238	OCEAN	NM	Frontal
0105000220	Stonington Frontal Drainages	193,010	OCEAN	NM	Frontal
0105000221	Belfast Bay	58,702	OCEAN	NM	Frontal
0105000222	Penobscot Bay	693,709	OCEAN	NM	Frontal
<b>Sub-basin Total</b>		<b>3,739,744</b>			

HU\_10\_MOD: modification; NM = No Modification, DM = Dam, TF = Transportation Facility

HU\_10\_TYPE: type; Standard = single pour point, Frontal = watershed adjoins shoreline and has multiple outlets

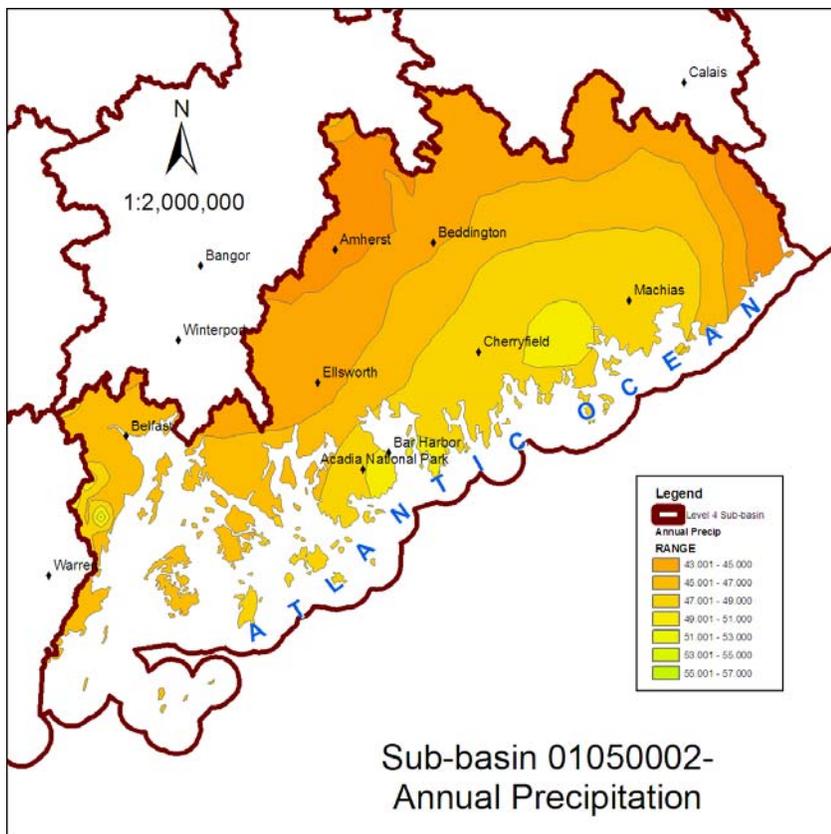
## B. Common Resource Area Descriptions <sup>7</sup>



**CRA - 143.ME1 - Northeastern Mountains** - This area is 90% spruce, fir and northern hardwood forest. The mountains and foothills are commonly rounded; are underlain by granite, phyllite, gneiss, schist and slate; and are thinly mantled by glacial till. The principal products are lumber and pulp for the paper industry. Soils are dominantly moderately well drained and somewhat poorly drained, and formed in glacial till.

**CRA - 144B.ME1 - New England Upland, Northern Part** - Till-mantled rolling to hilly uplands characterize most of this area, with level to gently sloping valleys terminating in coastal lowlands. This area comprises a mix of cropland and pastureland used in the production of forage for dairy and beef, truck crops, small fruits and Christmas tree farms. Soils are dominantly moderately well drained and well drained and formed in glacial till on the uplands and marine sediments and outwash materials on the coastal plain.

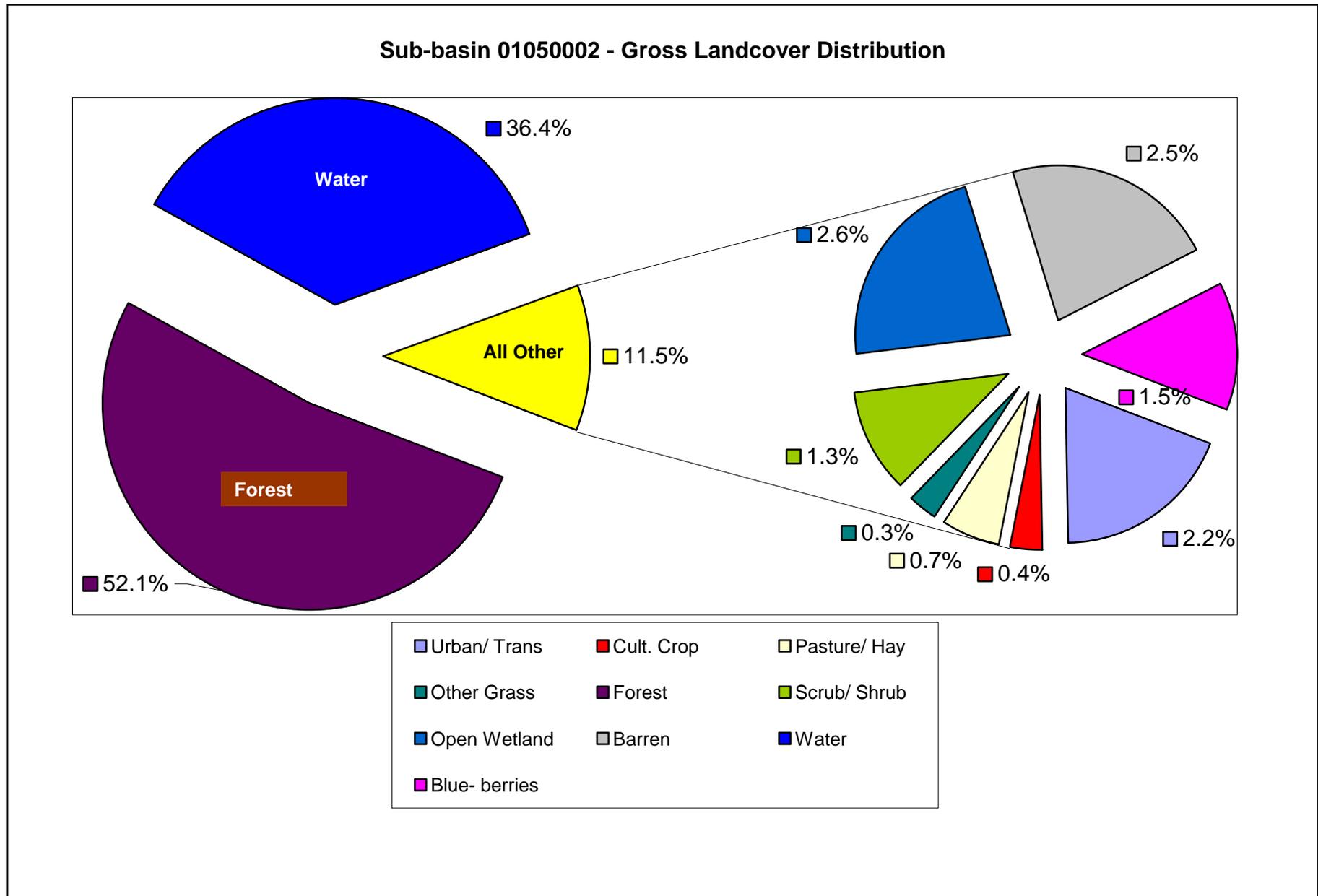
## C. Precipitation <sup>8</sup>



Annual precipitation ranges from 43 inches to 53 inches with the higher amounts along the coast.

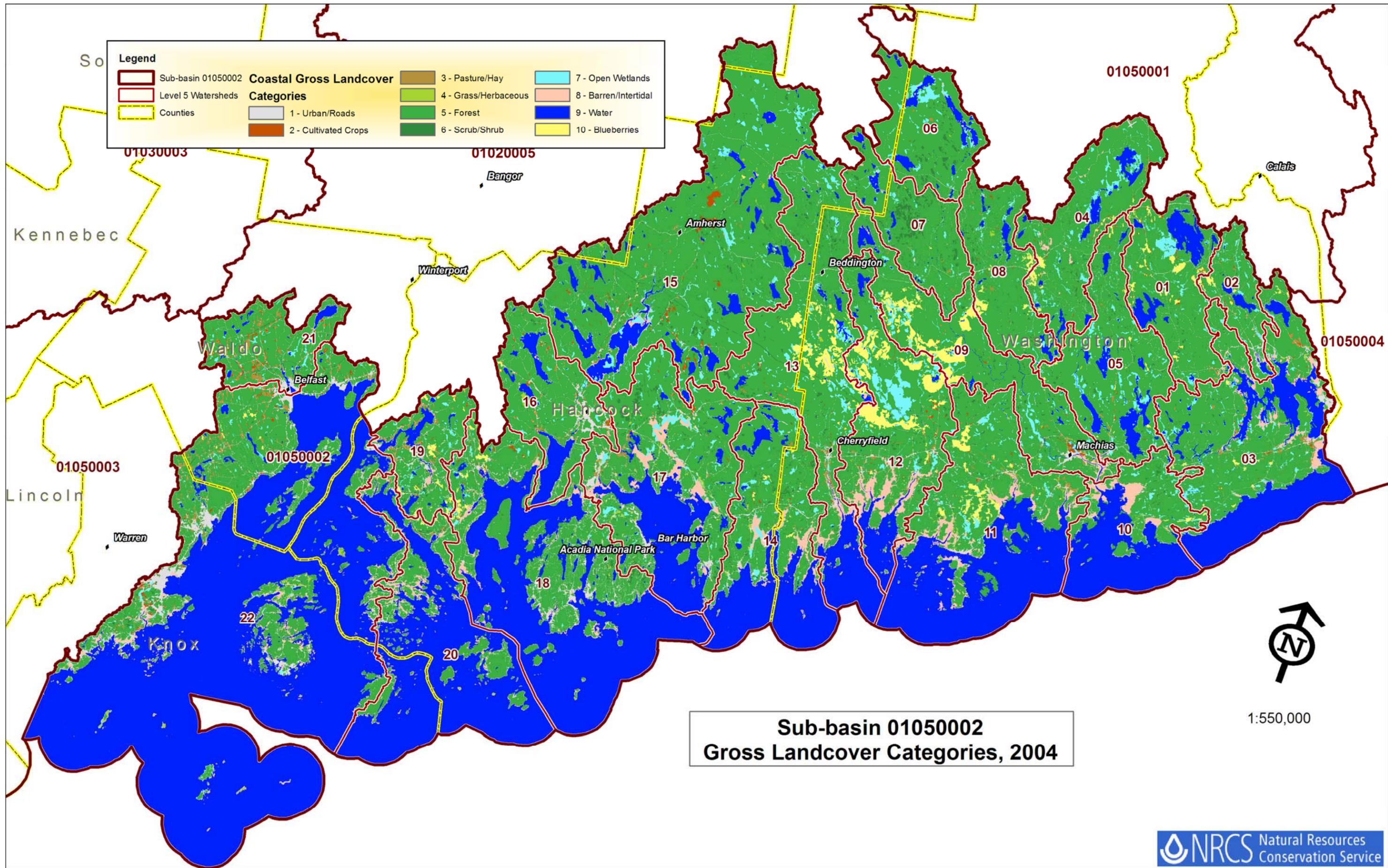
### D. Landcover Categories, in Acres, by Watershed <sup>5</sup>.

Landcover distribution is presented in two forms: Gross Landcover (10 Categories), and Detailed Landcover (22 Categories). The graphic below shows that roughly half (52.1%) of the sub-basin is forested.

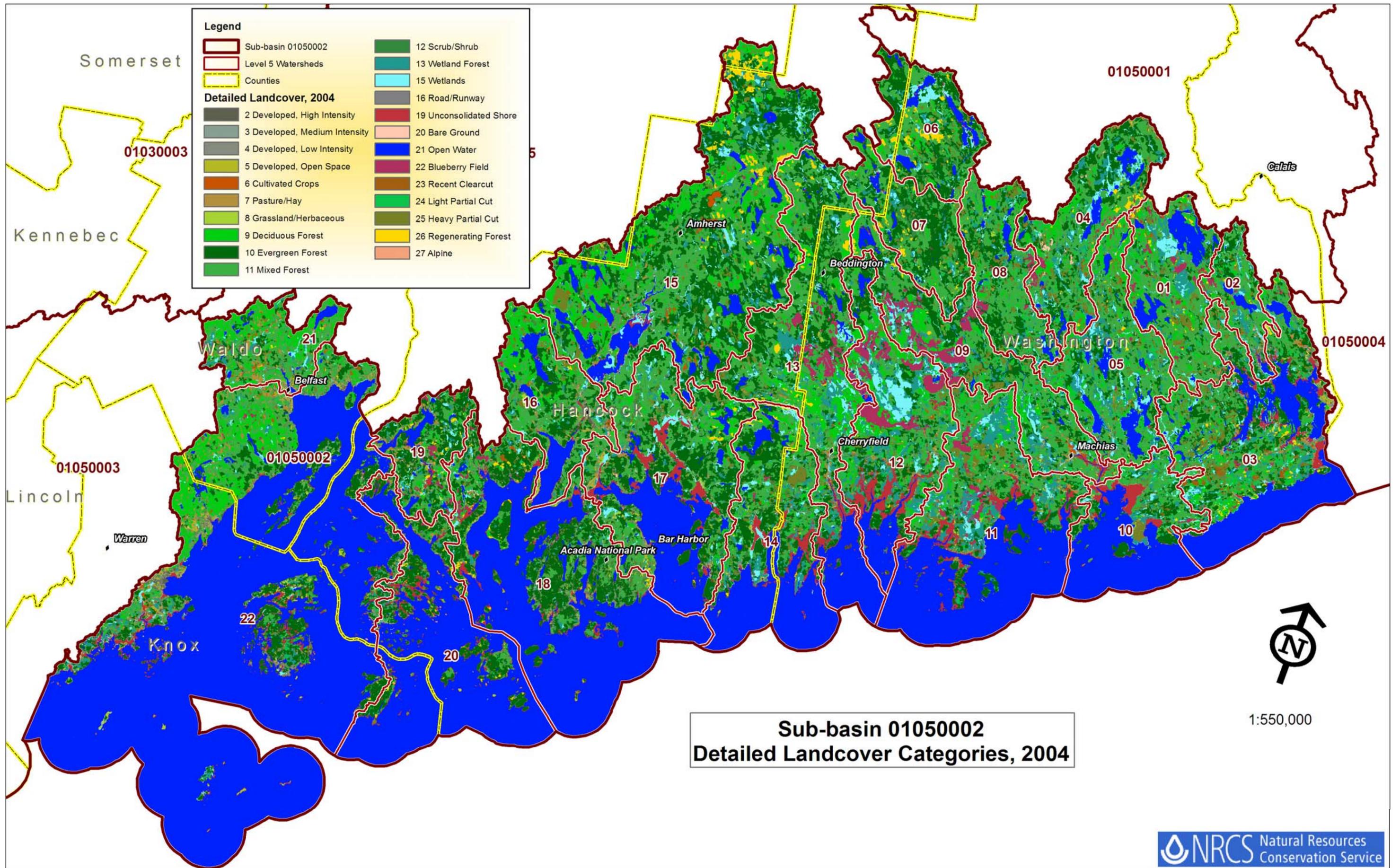


Sub-basin 01050002 - Gross Landcover by Watershed (Acres)													
Level 5 Watersheds		Urban/ Trans	Cult. Crop	Pasture/ Hay	Other Grass	Forest	Scrub/ Shrub	Open Wetland	Barren	Water	Blue- berries	Watershed Total	% of Sub- basin
Name	HUC_10												
Dennys River	01	1,455	699	353	29	62,340	712	3,663	165	10,978	3,014	83,409	2.5
Pennamaquan River	02	1,106	198	198	82	27,278	399	1,728	321	2,436	762	34,508	1.0
Grand Manan Channel	03	4,186	315	2,016	521	111,638	827	6,056	6,821	63,578	762	196,720	5.8
East Machias River- Round Lake	04	1,457	557	410	49	77,275	1,005	4,874	771	6,222	1,657	94,277	2.8
East Machias River	05	1,356	308	518	138	83,967	1,563	5,467	230	10,479	985	105,011	3.1
Upper Machias River	06	413	34	103	26	58,132	2,233	3,928	571	5,773	0	71,213	2.1
Middle Machias River	07	580	31	240	44	56,221	5,313	1,346	405	2,085	76	66,339	2.0
Old Stream	08	949	185	241	133	60,022	1,176	1,600	155	2,886	2,138	69,487	2.0
Lower Machias River	09	1,700	693	626	267	87,523	1,954	5,227	1,508	3,043	10,335	112,878	3.3
Machias Bay	10	743	10	222	389	31,882	602	2,155	5,322	50,865	391	92,582	2.7
Roque Bluffs Frontal Drainages	11	2,338	361	793	1,040	83,059	1,407	3,589	9,787	99,673	4,619	206,667	6.1
Pleasant River-Pleasant Bay	12	2,248	725	1,005	345	82,125	1,742	9,455	8,530	14,355	12,920	133,451	3.9
Narraguagus River- Narraguagus Bay	13	1,933	420	997	452	134,236	3,791	7,343	3,628	27,238	8,605	188,643	5.6
Schoodic Point-Petit- Manan Point Frontal Drainages	14	1,852	308	271	722	65,321	2,900	3,887	6,133	57,024	495	138,913	4.1
Graham Lake	15	2,951	2,808	1,022	680	257,854	4,426	10,657	2,830	26,203	50	309,482	9.1
Union River Bay	16	4,815	812	1,160	417	57,841	1,129	1,305	1,132	11,986	303	80,899	2.4
Frenchman Bay	17	6,796	458	1,325	1,389	104,018	4,385	6,185	10,193	48,217	0	182,966	5.4
Blue Hill-Mount Desert Frontal Drainages	18	9,175	369	713	1,122	85,482	1,862	1,629	6,622	151,897	1,742	260,614	7.7
Bagaduce River	19	2,451	254	2,068	187	35,904	1,056	1,611	1,244	5,211	2,243	52,227	1.5
Stonington Frontal Drainages	20	3,056	35	323	656	34,240	688	98	6,608	135,063	372	181,139	5.3
Belfast Bay	21	3,372	1,578	3,552	17	45,039	585	1,549	290	2,629	71	58,682	1.7
Penobscot Bay	22	19,210	1,890	5,545	2,579	129,028	2,940	3,939	13,198	498,723	663	677,716	19.9
<b>Landcover Total</b>		<b>74,142</b>	<b>13,049</b>	<b>23,702</b>	<b>11,285</b>	<b>1,770,426</b>	<b>42,695</b>	<b>87,293</b>	<b>86,463</b>	<b>1,236,563</b>	<b>52,206</b>	<b>3,397,823</b>	<b>100.0</b>
<b>% of Sub-basin</b>		<b>2.2</b>	<b>0.4</b>	<b>0.7</b>	<b>0.3</b>	<b>52.1</b>	<b>1.3</b>	<b>2.6</b>	<b>2.5</b>	<b>36.4</b>	<b>1.5</b>	<b>100.0</b>	

The table of detailed Landcover categories is available upon request, but it is not presented in this document.



**Sub-basin 01050002  
Gross Landcover Categories, 2004**



**E. Habitat Diversity <sup>10</sup>.**

One of the most significant characteristics of this sub-basin is the diversity of habitats, ranging from terrestrial habitats for upland mammals and birds, and freshwater habitats for anadromous and diadromous fish and wading birds, to intertidal habitats for shorebirds and shellfish, to marine habitats for seabirds, shellfish, and marine animals. A large scale, detailed map, **Habitat\_Diversity\_3x4-ft.pdf**, accompanies this document. This map, for clarity's sake, does not show Inland Waterfowl and Wading Bird habitats.

Six of the eight Endangered Species Act (ESA) Listed Salmon rivers are contained within this sub-basin. As part of the RWA process and in cooperation with the Atlantic Salmon Commission (ASC) an inventory of stream crossings was generated by intersecting the Census Bureau roads dataset with the National Hydrography 1:24000 Flowline dataset. This yielded over 1,000 crossings (culverts and bridges) with the potential for impeding salmon access to spawning areas. A large scale, detailed map in Acrobat Reader format, **Salmon\_Screen\_Crossings.pdf**, accompanies this document. The inventory is contained in a shapefile called stream\_crossings.shp. Each crossing carries the name of the stream and intersecting road where the names exist. Maine NRCS, the ASC, and private landowners in these watersheds have been applying financial and technical assistance through the Wildlife Habitats Incentive Program to restore fish passage.

There are nearly 400 active Bald Eagle nests in the sub-basin.

There are over 160,000 acres of mapped shellfish beds in the sub-basin, but a very large percentage of them are closed to harvest because of bacterial and red tide contamination.

Sub-basin 01050002 - Habitat Diversity by Level 5 Watershed (Acres)																							
Habitat Category	0105000201	0105000202	0105000203	0105000204	0105000205	0105000206	0105000207	0105000208	0105000209	0105000210	0105000211	0105000212	0105000213	0105000214	0105000215	0105000216	0105000217	0105000218	0105000219	0105000220	0105000221	0105000222	TOTALS (Ac.)
Watershed Size (Ac.)	83,409	34,508	196,720	94,277	105,011	71,213	66,339	69,487	112,878	92,582	206,667	133,451	188,643	138,913	309,482	80,899	182,966	260,614	52,227	181,139	58,682	677,716	3,397,823
RTE* Plants	8,200	146	2,212	3,482	1,358	2,365	1,195	31	620	998	1,138	11,921	1,250	2,991	3,111	2,814	10,924	41,100	89	236	11	1,883	98,072
Deer Winter Areas	2,274	0	527	3,972	1,190	451	534	2,155	4,049	0	344	194	2,930	231	5,072	1,008	1,798	3,828	736	580	10,449	9,645	51,966
Roseate Tern	0	0	0	0	0	0	0	0	0	0	0	514	0	364	0	0	408	24	0	134	0	2,266	3,710
Shorebirds- Feeding & Roosting	0	0	2,550	0	0	0	0	0	81	2,206	2,016	4,465	716	2,363	0	0	2,260	1,604	337	728	0	1,173	20,499
Seabird Nesting Islands	0	0	9	0	0	0	0	0	0	209	136	97	27	102	0	0	45	379	0	236	0	175	1,415
Tidal Birds	90	380	7,549	0	101	0	0	0	1,015	4,507	8,235	7,225	2,100	4,487	0	616	8,550	4,217	2,827	4,046	231	9,071	65,247
Eelgrass Beds	20	31	1,171	0	0	0	0	0	37	1,662	3,776	1,764	1,015	2,347	0	0	3,156	479	939	1,061	0	2,219	19,677
Shellfish Beds	69	487	9,863	0	0	0	0	0	437	4,588	10,521	4,661	1,649	4,369	0	3,280	7,825	43,160	1,208	25,046	74	43,649	160,886
**Eagle Nests	4	2	53	1	13	2	0	0	2	12	36	23	14	26	14	6	50	23	6	42	5	57	391
RTE* Animals	2	0	5	4	3	1	11	10	15	4	11	22	24	4	9	2	4	10	0	41	3	25	210
Totals	10,654	1,044	23,895	7,455	2,653	2,816	1,732	2,188	6,243	14,174	26,178	30,852	9,697	17,261	8,189	7,720	34,980	94,798	6,138	32,087	10,767	70,101	421,623
% of Watershed	12.8	3.0	12.1	7.9	2.5	4.0	2.6	3.1	5.5	15.3	12.7	23.1	5.1	12.4	2.6	9.5	19.1	36.4	11.8	17.7	18.3	10.3	12.4
***Designated Conservation Lands	8,395	8,922	21,953	943	9,889	13,728	8,608	6,167	7,652	8,599	3,392	6,319	4,438	13,881	16,519	1,255	18,195	30,897	199	5,495	1,226	13,835	210,507

\* RTE = Rare, Threatened, and Endangered.

\*\* In the body of the table, the figures for Eagle Nests and RTE Animals are occurrence numbers, not acres. An allowance of 1/4-acre per occurrence has been included in the watershed acreage totals.

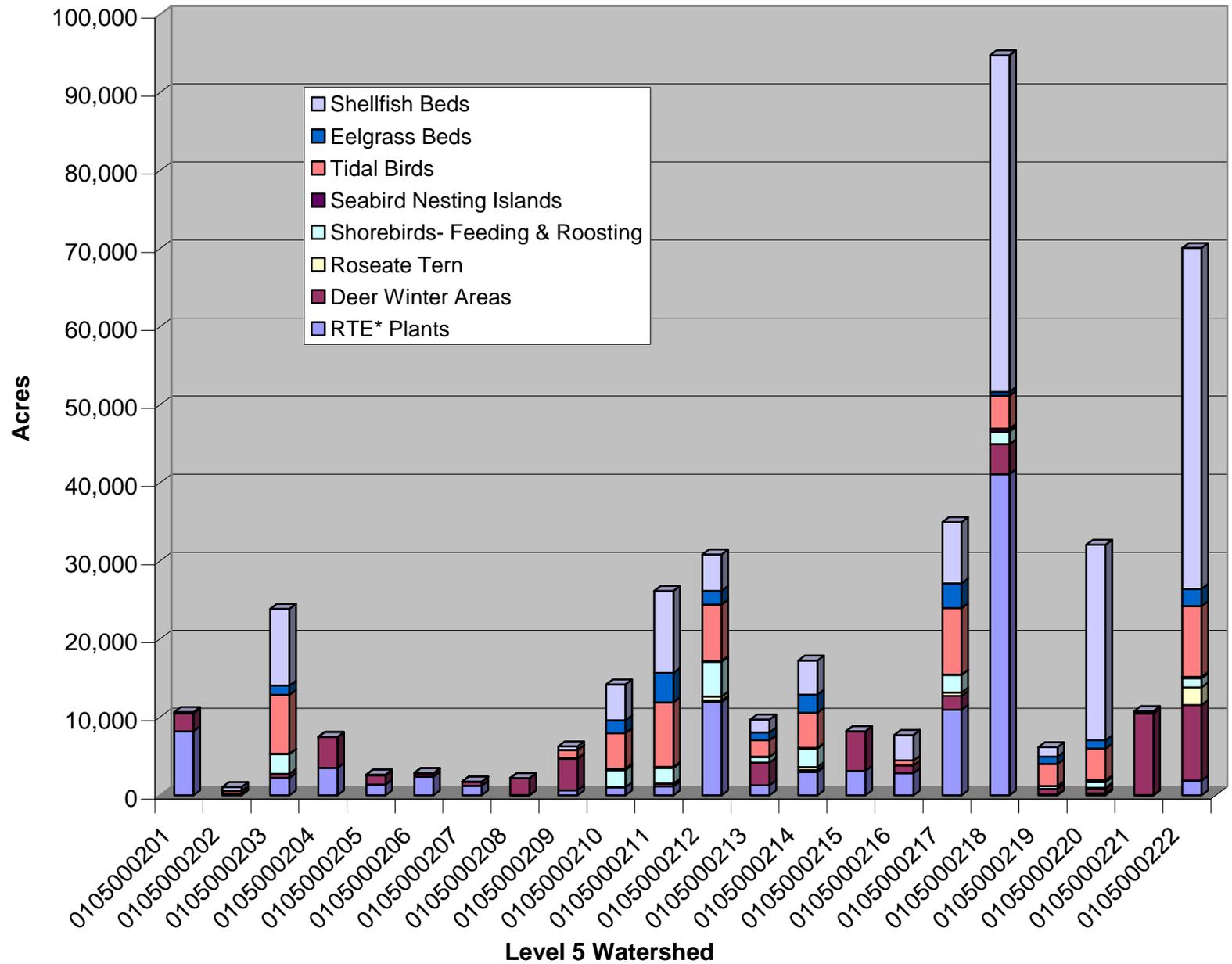
\*\*\* Because of overlap, Conservation Lands acres are not included in the watershed acreage totals.

US Fish & Wildlife Service maintains a National Hatchery at the mouth of Green Lake in the Union River watershed.

Six of the eight Federally listed Atlantic Salmon rivers, their watersheds totalling 807,505 acres, are contained in this sub-basin: Dennys River, East Machias River, Machias River, Pleasant River, Narraguagus River, and Ducktrap River.

<sup>1</sup>Source: Maine Dept. of Inland Fisheries and Wildlife Habitat Datasets through agreement with Maine Natural Areas Program.

### Habitat Diversity by Watershed



### **III. Resource Concerns**

#### **Blueberry Land**

Resource concerns associated with Blueberry land include: air quality impacts due to burning and pesticide use, groundwater impacts from nutrients, pesticides and herbicides, surface waters and fisheries impacts (T&E species) from use of nutrients and pesticides; T&E specie impacts by sedimentation caused from firebreak or access road erosion, hung culverts restricting fish passage, thin or nonexistent buffers, and irrigation occurring during low flow periods.

Conservation Practices that may be used to address these concerns include: land management practices such as brush management, nutrient management, and pest management; and structural practices such as obstruction removal, fish passage, access road, stream crossing, irrigation water source development, well, irrigation water management plan, irrigation system practices and riparian forest buffer, and firebreaks.

#### **Forestry/Wildlife**

Resource concerns associated with forestry include: fish passage barriers with improperly installed culverts, or roads (Atlantic Salmon and other diadromous fish), stream segments with narrow or nonexistent buffers (need for establishment of buffers and conservation of existing buffers, invasives species control within buffers), erosion and associated sedimentation due to improperly constructed roads, ditches and culverts, lack for forest management planning, need for management of relatively young forest stands and protection of older stands, protection of vernal pools, and need for technical assistance to landowners to assess pros and cons of biofuel development, uncontrolled development and associated loss of forest land.

Conservation practices that may be used to address these issues include: Management Practices such as Prescribed Forestry (Forest Management Plan Development), Forest Stand Improvement, Early Successional Habitat Development/Management; and, structural practices such as Fish Passage, Stream Crossing, Access Road, and Riparian Forest Buffer.

#### **Pasture & Hayland**

Resource concerns associated with pasture and hayland include: water quality issues related to livestock access to water, plant productivity and suitability, lack of nutrients, invasive species, and overgrazing,

Conservation Practices to address these concerns include: land management practices such as nutrient management, prescribed grazing (rotation of pastures), reseeding; and, structural practices such as fencing for pasture management, water facility, livestock exclusion with fencing, access roads and stream crossings..

#### **Farm Headquarters**

There are still a number of farms that lack proper animal waste storage and handling systems which are contributing nutrients and organics onto surface waters.

Conservation practices to address these concerns include: land management practices such as nutrient management; and, structural practices such as animal waste storage facilities, heavy use areas, wastewater treatment strip, and roof runoff management.

### **Water Quality –**

Sedimentation from erosion is a primary non-point pollution concern. Erosion from recreational trails, poorly unpaved and paved roads and stream banks are sources of sediment in streams. Improper animal waste management (inappropriate manure stacking sites, livestock concentration areas, excessive use of manure on fields, spreading of manures in close proximity to water) is contributing to polluted runoff in streams and groundwater.

Current USDA Farm Bill Programs that can be utilized to address these resource concerns include: the Environmental Quality Incentives Program, the Wildlife Habitat Incentives Program, the Farm and Ranch Land Protection Program, and the Conservation Reserve Program. The Programs may change with new Farm Bills.

Other State and local programs may be available to assist with these concerns as well. The Maine Forest Service provides funds for the development of forest stewardship plans. The State of Maine, through the Maine Department of Agriculture has periodically provided funding for irrigation water source development or for animal waste storage and handling facilities. The State of Maine Department of Environmental Protection has provided grant funds to local entities to address various environmental concerns through their EPA funded 319 program. The local Soil and Water Conservation Districts raise funds to address various resource concerns within their borders. Many non-profit groups also work within the watershed to address natural resource concerns such as Project SHARE (**Project Salmon Habitat And River Enhancement**) a non-profit focused on opening up miles of stream habitat for Atlantic salmon.

A summary matrix addressing each resource concern can be found in section VII. This matrix identifies the land use, four primary resource concerns associated with each land use, expected levels of treatment with associated conservation practices and costs. It represents a rough estimate based on the knowledge and expertise of natural resource professionals working in the watershed.

### **Impaired Waters**

The following tables list the impaired waters for this sub-basin from the most recent state 305b/303d report <sup>12</sup>. Estuarine and marine waters are included to show linkage to the shellfish closure areas.

Category 4-B: Rivers and Streams Impaired by Pollutants - Pollution Control Requirements Reasonably Expected to Result in Attainment <sup>12</sup>						
ADB ASSESSMENT UNIT ID	SEGMENT NAME	CAUSE	SEGMENT SIZE	SEGMENT CLASS	COMMENTS	EXPECT TO ATTAIN DATE
ME0105000201_507R01	Dennys River	Polychlorinated biphenyls	4.5	AA	Haz waste remediation project (Superfund)--expected to attain standards by 2010	2010

Category 5-A: Rivers and Streams Impaired by Pollutants Other Than Those Listed in 5-B Through 5-D (TMDL Required)						
ADB ASSESSMENT UNIT ID	SEGMENT NAME	CAUSE	SEGMENT SIZE	SEGMENT CLASS	COMMENTS	TMDL PRIORITY
ME0105000209_512R_03	Great Falls Branch, Schoodic Stream (Deblois)	Benthic-Macroinvertebrate Bioassessments (Streams)	1.33	A	Formerly listed as segment 512R_02 - Great Falls Branch, Schoodic Stream	2012
ME0105000213_514R_01	Card Brook (Ellsworth)	Escherichia Coli	1.2	B		2012
ME0105000213_514R_01	Card Brook (Ellsworth)	Oxygen, Dissolved	1.2	B		2012
ME0105000213_514R_01	Card Brook (Ellsworth)	Benthic-Macroinvertebrate Bioassessments (Streams)	1.2	B	New cause added based on 2006 biomonitoring non-attainment	2012
ME0105000218_521R_01	Warren Brook (Belfast)	Oxygen, Dissolved	6.04	B		2012

Category 5-B: Rivers and Streams Impaired by Bacteria Contamination (TMDL Required)						
ADB ASSESSMENT UNIT ID	SEGMENT NAME	CAUSE	SEGMENT SIZE	SEGMENT CLASS	COMMENTS	TMDL PRIORITY
ME0105000203_508R02	Pottle Brook (Perry)	Escherichia Coli	0.5	B		
ME0105000220_522R01_01	Megunticook River (Camden)	Escherichia Coli	3.56	B		
ME0105000220_522R02_01	Unnamed Brook (Camden)	Escherichia Coli	0.7	B		
ME0105000220_522R03	Unnamed Brook (Rockport)	Escherichia Coli	0.5	B		
ME0105000220_522R04	Unnamed Brook (Rockland)	Escherichia Coli	0.5	B		

Category 5-D: Rivers and Streams Impaired by Legacy Pollutants						
ADB ASSESSMENT UNIT ID	SEGMENT NAME	CAUSE	SEGMENT SIZE	SEGMENT CLASS	COMMENTS	TMDL PRIORITY
ME0105000209_512R_02	McCoy Brook (Deblois)	Benthic-Macroinvertebrate Bioassessments (Streams)	1	B	Legacy peat mining effects	
	McCoy Brook (Deblois)	pH	1	B	Legacy peat mining effects	

Category 4-A: Lake Waters with Impaired Use, TMDL Completed						
HUC_10	LAKE NAME	LAKE ID	LAKE AREA	Date of Last Visit; Year of Next Likely Visit		TMDL Year approved by EPA (Impaired use & notes)
0105000220	Lilly Pond	83	29	2007	2008	2005 (Prim. Contact, stable)

Category 4-C: Lake Waters with Impairment not Caused by a Pollutant

HUC_10	LAKE NAME	LAKE ID	LAKE AREA	Date of Last Visit; Year of Next Likely Visit	TMDL Year approved by EPA (Impaired use & notes)
0105000212	Graham Lake	4350	7865	2004	2009 Non-att. d/t non-poll. (Aquatic Life: draw down)

**Category 5-B-1: Estuarine and Marine Waters Impaired by Bacteria Only**

Waterbody ID	DMR Area	Segment Description	Segment Size(Acres)	Segment Class	Last Year Sampled	Source	Segment Size (Square Miles)	Comments
722-2	28	Tenants Harbor to Mosquito Head, St. George	621.4	SB	Current	OBDs; Elevated fecals; Boats; Nonpoint Source	0.9709375	
722-6	28-H	Marshall Point -Mosquito Head, St. George	193.8	SB	Current	OBD; Septic system problems; Elevated fecals; Nonpoint Source	0.3028125	
722-7	28-I	Weskeag River, So. Thomaston and Owls Head	41.9	SB	Current	Septic system problems; Elevated fecals; Nonpoint Source	0.0654688	
722-8	29	Rockland	2,459.90	SB/SC	Current	STP; OBDs; Stormwater; Boats; Elevated fecals; Nonpoint Source	3.8435938	
722-11	30	Rockport	2,036.30	SB	Current	OBDs; Boats; Elevated fecals; Nonpoint Source	3.1817188	
722-13	30-D	Vinalhaven	1,255.20	SB	Current	OBDs; Boats; Elevated fecals; Nonpoint Source	1.9612500	
722-14	30-H	Kent Cove, North Haven	180.8	SB	Current	Elevated fecals; Nonpoint Source	0.2825000	
722-16	30-J	Vinal Cove -Starboard Rock, Vinalhaven	90.4	SB	Current	OBD; Elevated fecals; Nonpoint Source	0.1412500	
722-17	30-K	Southern Harbor, North Haven	36.4	SB	Current	Elevated fecals; Nonpoint Source	0.0568750	
722-19	30-M	Roberts Harbor, Vinalhaven	175.4	SB	Current	OBD; Elevated fecals; Nonpoint Source	0.2740625	
722-21	31-A	Rockport Harbor to Ducktrap Harbor, Lincolnville	2,139.60	SB	Current	STP; Elevated fecals; Nonpoint Source	3.3431250	
722-22	31-B	Great Spruce Head -Kelleys Cove, Northport	1,237.30	SB	Current	STP; Elevated fecals; Nonpoint Source	1.9332813	
722-23	32	Belfast Bay	4,172	SB	Current	STP; OBDs; Boats; Elevated fecals; Nonpoint Source	6.5187500	
722-24	33	Searsport -Stockton Springs	2789	SB/SC	Current	STP; OBDs; Septic system problems; Elevated fecals; Nonpoint Source	4.3578125	
722-24	34	Stockton Springs	460.60	SB/SC	Current	Elevated fecals, Nonpoint Source	0.7196875	
722-25	35	Penobscot River	12,743.00	SB/SC	Current	STP; OBDs; Boats; Elevated fecals; Nonpoint Source	19.9109375	
722-26A	36-A	Northern Bay, Penobscot	786.30	SB	Current	OBDs, Elevated fecals, Nonpoint Source	1.2285938	new
722-26B	36-B	Upper Bagaduce River	7.00	SA	Current	Agriculture, Nonpoint Source	0.0109375	new
722-29A	37-D	Long Cove, Deer Isle	22.00	SB	Current	Elevated fecals, Nonpoint Source	0.0343750	new
722-34	38	Stonington Harbor & NW Crocket Cove, Deer Isle & Stonington	222	SB	Current	OBDs; Elevated fecals; Nonpoint Source	0.3468750	
722-38	39-A	Center Harbor – Brooklin	32	SB	Current	Elevated fecals; Seasonal marina, Nonpoint Source	0.0500000	
722-38	39-B	Eastern Flye Point, Brooklin	11	SB	Current	Elevated fecals; Nonpoint Source	0.0171875	
722-39	39-F	Benjamin River, Sedgwick	23	SB	Current	Seasonal marina; Elevated fecals; Nonpoint Source	0.0359375	
707-4	39-E	Salt Pond, Sedgwick – Brooklin	80	SB	Current	Elevated fecals; Nonpoint Source	0.1250000	
707-4	39-H	Northwest Herrick Bay,	38	SB	Current	Elevated fecals; Nonpoint Source	0.0593750	new

Brooklin								
Category 5-B-1: Estuarine and Marine Waters Impaired by Bacteria Only								
Waterbody ID	DMR Area	Segment Description	Segment Size(Acres)	Segment Class	Last Year Sampled	Source	Segment Size (Square Miles)	Comments
707-4	39-G	Northern Morgan Bay	114	SB	Current	Elevated fecals; Nonpoint Source	0.1781250	new
707-4	39-I	Bragdon Brook, Blue Hill	25	SB	Current	Elevated fecals; Nonpoint Source	0.0390625	new
707-10	42-E	Mackerel Cove, Swans Island	4	SB	Current	Elevated fecals; Nonpoint Source	0.0062500	
707-5	48-A	Goose Cove, Trenton	121	SB	Current	Elevated fecals; Nonpoint Source	0.1890625	
707-11	48-B	Pretty Marsh Harbor, Mount Desert	180	SB	Current	Elevated fecals; Nonpoint Source	0.2812500	
707-11	48-C	Northwest Cove, Bar Harbor	87	SB	Current	Elevated fecals; Nonpoint Source	0.1359375	
714-9	49-A	Jellison Cove, Hancock	9	SB	Current	Elevated fecals; Nonpoint Source	0.0140625	
714-10	49-B	Carrying Place, Hancock	25	SB	Current	Elevated fecals; Nonpoint Source	0.0390625	
714-11	49-C	Kilkenny Cove, Hancock	43	SB	Current	Elevated fecals; Nonpoint Source	0.0671875	
714-11	49-D	Eagle Point, Sullivan	7	SB	Current	Elevated fecals; Nonpoint Source	0.0109375	new
714-13	50-A	US Rt. 1 Bridge, West Sullivan and Long Cove, Sullivan	30	SB	Current	Elevated fecals; Nonpoint Source	0.0468750	
714-14	50-B	Springer Brook, Mill Brook and West Brook, W. Franklin	93	SB	Current	Elevated fecals; Nonpoint Source	0.1453125	
714-15	50-C	Johnny's Brook and Card Mill Stream, Franklin	2	SB	Current	Elevated fecals; Nonpoint Source	0.0031250	
714-15	50-D	Evergreen Point, Sullivan	34	SB	Current	Elevated fecals; Nonpoint Source	0.0531250	new
714-16	50-E	Egypt Bay, Hancock and Franklin	106	SB	Current	Elevated fecals; Nonpoint Source	0.1656250	
714-16	51-C	Bunker Cove, South Gouldsboro	12	SB	Current	Elevated fecals; Nonpoint Source	0.0187500	new
706-3	52-B	Mill Pond Stream, Gouldsboro	8	SB	Current	Elevated fecals; Nonpoint Source	0.0125000	
706-6	52-E	Dyer Harbor -Pinkham Bay, Steuben	73	SB	Current	Elevated fecals; Nonpoint Source	0.1140625	
706-7	52-F	Birch Harbor, Gouldsboro	19	SB	Current	Seasonal marina; Elevated fecals; Nonpoint Source	0.0296875	
706-7	52-G	Joy Bay, Gouldsboro and Steuben	1024	SB	Current	Elevated fecals; Nonpoint Source	1.6000000	
706-8	52-J	Dyer Harbor, Steuben	162	SB	Current	Elevated fecals; Nonpoint Source	0.2531250	
705-3	52-K	Mitchell Point, Milbridge	32	SB	Current	Septic system problems; Elevated fecals; Nonpoint Source	0.0500000	
705-1	53	Narraguagus River, Milbridge	821	SB	Current	Elevated fecals, OBDs, Nonpoint Source	1.2828125	
704-2	53-D	Curtis Creek, Flat Bay, Harrington	31	SB	Current	Elevated fecals; Nonpoint Source	0.0484375	
704-3	53-	E Upper Harrington River	483	SB	Current	Elevated fecals; Nonpoint Source	0.7546875	
705-3	53-G	Smith Cove, Narraguagus Bay, Milbridge	3	SB	Current	Elevated fecals; Nonpoint Source	0.0046875	

**Category 5-B-1: Estuarine and Marine Waters Impaired by Bacteria Only**

Waterbody ID	DMR Area	Segment Description	Segment Size(Acres)	Segment Class	Last Year Sampled	Source	Segment Size (Square Miles)	Comments
703-2	54	Jonesport and West Jonesport	459	SB	Current	OBDs; Elevated fecals; Nonpoint Source	0.7171875	
703-3	54-A	North End of Beals Island	95	SB	Current	Elevated fecals; Nonpoint Source	0.1484375	
703-4	54-B	Indian River, Addison – Jonesport	68	SB	Current	Elevated fecals; Nonpoint Source	0.1062500	
703-5	54-K	Southeastern Alley Bay & Pig Island Gut, Beals	24	SB	Current	Elevated fecals; Nonpoint Source	0.0375000	
703-6	54-M	Lamesen Brook in West River, Addison	52	SB	Current	Elevated fecals; Nonpoint Source	0.0812500	
713-1	54-D	East & West Branches, Little Kennebec Bay, Machias and Machiasport	68	SB	Current	Elevated fecals; Nonpoint Source	0.1062500	
713-2	54-G	White Creek, Masons Bay, Jonesport – Jonesboro	47	SB	Current	Elevated fecals; Nonpoint Source	0.0734375	
713-3	54-H	Chandler River, Jonesboro	119	SB	Current	Elevated fecals, OBDs, Nonpoint Source	0.1859375	
709-5	55-I	Indian Head, Machiasport	17	SB	Current	Elevated fecals; Nonpoint Source	0.0265625	
708-1	55-A	Little River -Cutler Harbor	37	SB	Current	Elevated fecals; Nonpoint Source	0.0578125	
708-3	55-G	Money Cove, Cutler	32	SB	Current	Elevated fecals; Nonpoint Source	0.0500000	
708-4	56-C	Haycock Harbor, Trescott	16	SA/SB	Current	Elevated fecals; Nonpoint Source	0.0250000	
708-6	58	Lubec and South Lubec	70	SB	Current	OBDs; Elevated fecals; Nonpoint Source	0.1093750	
701-1	56	Denny's River and Northwest Denny's Bay, Edmunds – Pembroke	88	SA/SB	Current	Elevated fecals; Nonpoint Source	0.1375000	
701-2	56-A	Pennamaquan Bay, Pembroke	80	SB	Current	Elevated fecals; Nonpoint Source	0.1250000	
708-4	56-B	East Stream, Trescott	15	SA/SB	Current	Elevated fecals; Nonpoint Source	0.0234375	
708-4	56-D	Crane Mill Brook, Edmunds	94	SA	Current	Elevated fecals; Nonpoint Source	0.1468750	New
708-4	56-H	Ox Cove, Pembroke	653	SA	Current	Elevated fecals; Nonpoint Source	1.0203125	New
701-7	57-B	Deep Cove, Eastport	154	SC	Current	Elevated fecals; Nonpoint Source	0.2406250	
701-7	59	Half Moon Cove, Eastport	46	SB	Current	Elevated fecals; Nonpoint Source	0.0718750	New
701-8	58	Lubec and South Lubec	487	SB	Current	OBDs; Elevated fecals; Nonpoint Source	0.7609375	
701-10	58-F	The Haul-Up, South Bay, West Lubec	40	SB	Current	Elevated fecals; Nonpoint Source	0.0625000	

#### **IV. Financial Assistance and Technical Assistance Resources**

Current USDA Farm Bill Programs that can be utilized to address these resource concerns include: the Environmental Quality Incentives Program, the Wildlife Habitat Incentives Program, the Farm and Ranch Land Protection Program, and the Conservation Reserve Program. The Programs may change with new Farm Bills.

Other State and local programs may be available to assist with these concerns as well. The Maine Forest Service provides funds for the development of forest stewardship plans. The State of Maine, through the Maine Department of Agriculture has periodically provided funding for irrigation water source development or for animal waste storage and handling facilities. The State of Maine Department of Environmental Protection has provided grant funds to local entities to address various environmental concerns through their EPA funded 319 program. The local Soil and Water Conservation Districts raise funds to address various resource concerns within their borders. The Passamaquoddy Tribes obtain grant funds to assist in addressing resource concerns. The University of Maine Cooperative Extension, the Maine Blueberry industry may provide resources to assist producers tackle environmental issues.

Technical assistance may be provided by the USDA Natural Resources Conservation Service, the local Soil and Water Conservation Districts, Maine Forest Service, US Fish and Wildlife Service, Maine Fish and Inland Wildlife, Maine Department of Environmental Protection, the Atlantic Salmon Commission, and the Downeast Resource Conservation and Development Area Council. Numerous other governmental agencies and non-profits are available to provide assistance.

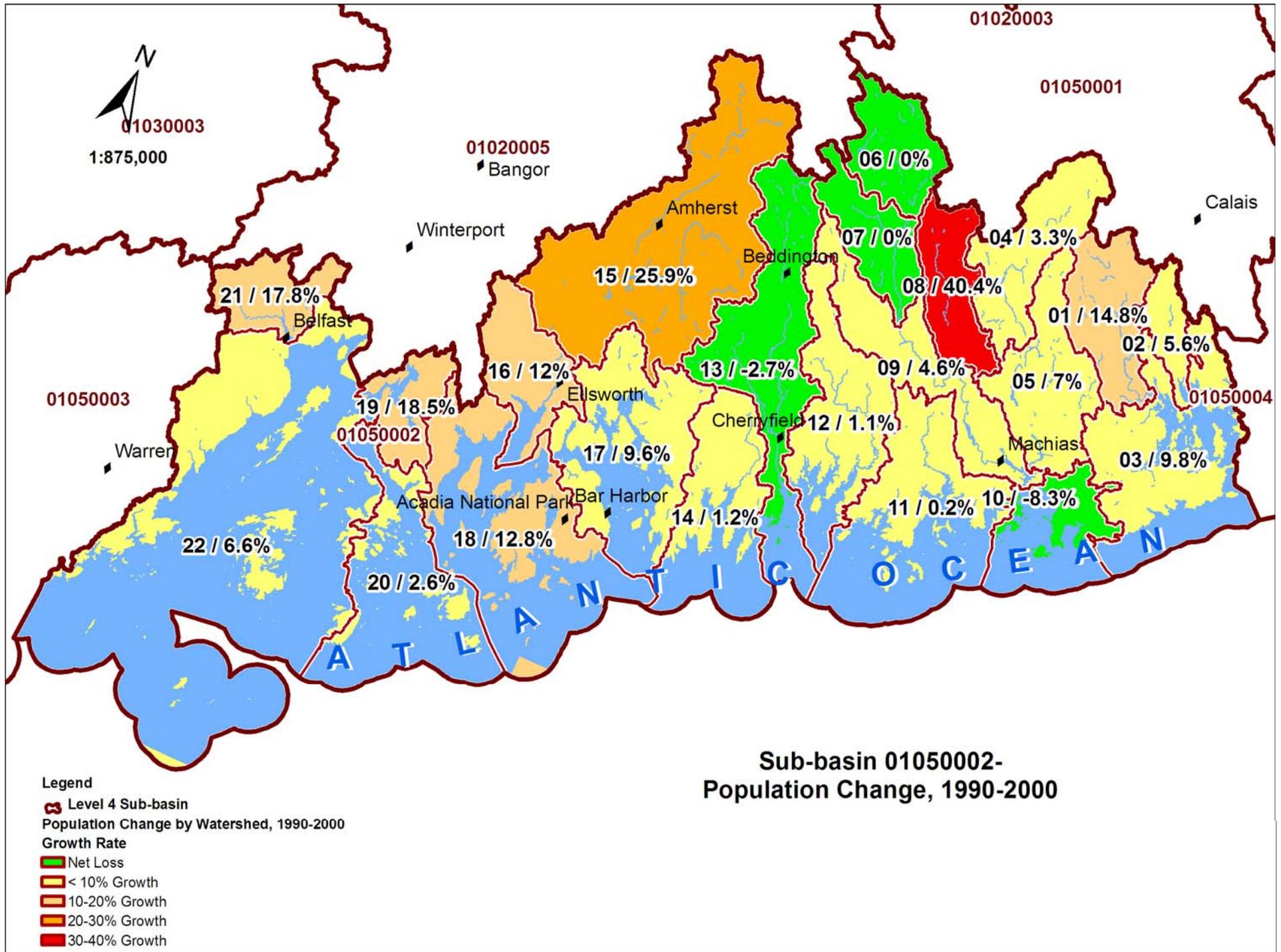
A summary matrix addressing each resource concern can be found in Section VII. This matrix identifies the land use, four primary resource concerns associated with each land use, expected levels of treatment with associated conservation practices and costs. It represents a rough estimate based on the knowledge and expertise of natural resource professionals working in the watershed.

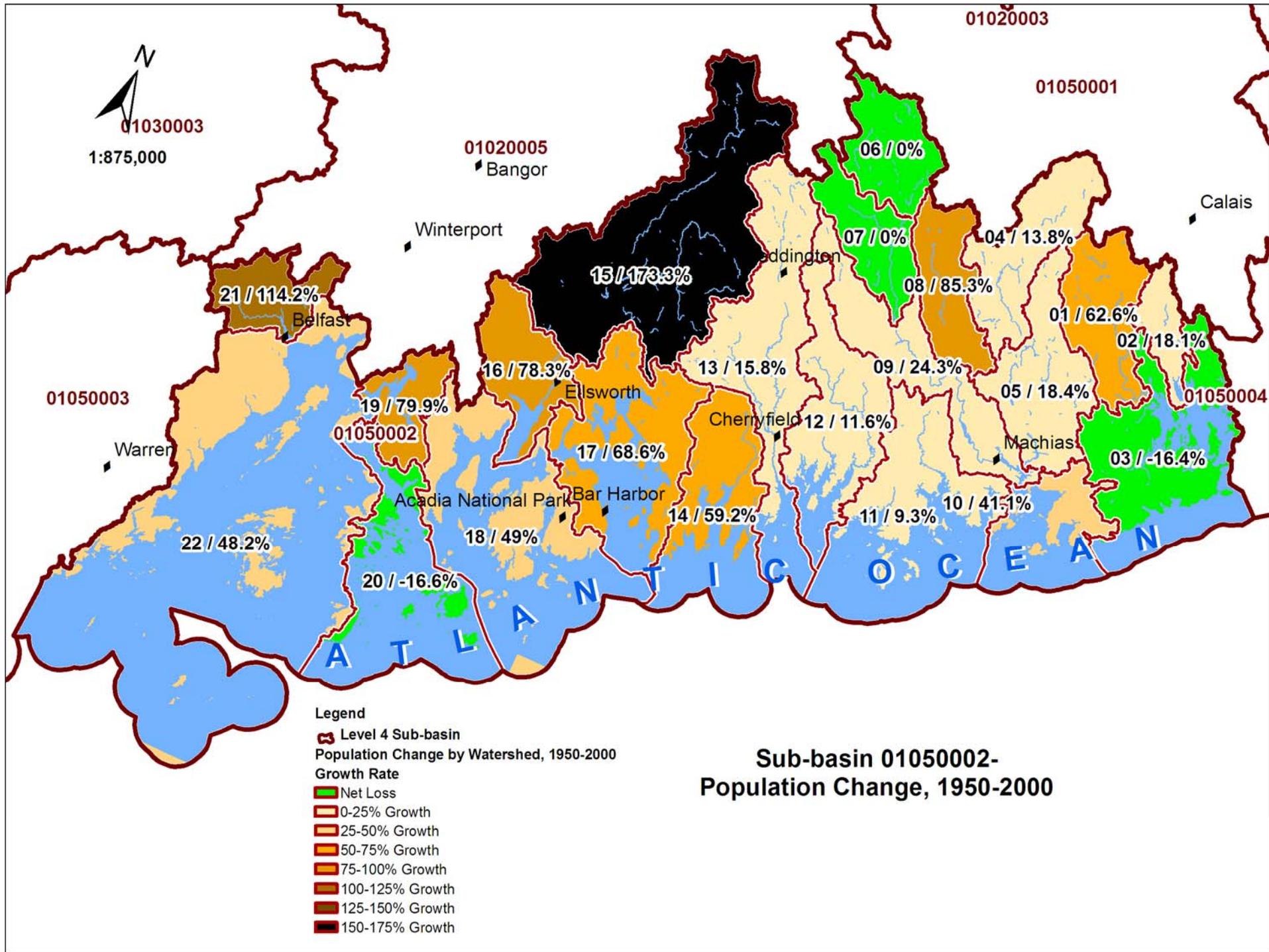
## V. Census and Social Data

The following table shows the population changes by watershed for the 124 towns whose centers fall within the sub-basin. For the period 1990-2000 the changes range from an 8% Net Loss in the Machias Bay watershed to a 40% Net Gain in the Old Stream watershed. The map that follows illustrates the changes on a watershed basis. The map suggests that the watersheds with the most potential for impacts are in the Union River Watershed and Bay. This is consistent with the growth in the Ellsworth-Trenton-Blue Hill-Bar Harbor corridor.

Looking at the 50-year period from 1950 to 2000 (see 2<sup>nd</sup> map following), all but four watersheds have had double to triple digit percentage increases. The Union River system again leads the way, probably because of its high concentration of freshwater lakes.

Sub-basin 01050002 - Population Changes by Watershed, 1990-2000									
HUC_10	NAME	POP00	POP90	POP80	POP70	POP60	POP50	Chg90_00	PCTCHG
01	Dennys River	844	735	600	333	412	519	109	15
02	Pennamaquan River	1,476	1,398	1,528	1,080	1,131	1,250	78	6
03	Grand Manan Channel	6,489	5,910	5,942	5,363	6,757	7,762	579	10
04	East Machias River-Round Lake	1,248	1,208	1,220	1,140	1,057	1,097	40	3
05	East Machias River	1,303	1,218	1,233	1,057	1,198	1,101	85	7
06	Upper Machias River	3	0	0	0	0	0	3	0
07	Middle Machias River	6	0	0	0	0	0	6	0
08	Old Stream	139	99	88	57	79	75	40	40
09	Lower Machias River	3,122	3,271	3,138	2,823	3,110	2,511	-149	-5
10	Machias Bay	1,783	1,945	1,834	1,475	1,634	1,264	-162	-8
11	Roque Bluffs Frontal Drainages	4,718	4,707	4,610	3,749	4,016	4,315	11	0
12	Pleasant River-Pleasant Bay	1,345	1,330	1,134	715	936	1,205	15	1
13	Narraguagus River-Narraguagus Bay	2,533	2,604	2,369	1,977	1,921	2,188	-71	-3
14	Schoodic Point-Petit-Manan Point Frontal Drainages	3,107	3,070	2,544	2,007	1,773	1,952	37	1
15	Graham Lake	3,599	2,858	2,169	1,404	1,339	1,317	741	26
16	Union River Bay	7,817	6,979	6,073	5,226	4,991	4,384	838	12
17	Frenchman Bay	12,435	11,346	9,961	8,270	7,483	7,377	1,089	10
18	Blue Hill-Mount Desert Frontal Drainages	10,371	9,194	8,362	6,918	6,595	6,962	1,177	13
19	Bagaduce River	3,789	3,197	3,203	2,444	2,104	2,106	592	19
20	Stonington Frontal Drainages	2,469	2,406	2,420	2,332	2,481	2,961	63	3
21	Belfast Bay	3,886	3,300	2,678	2,079	2,022	1,814	586	18
22	Penobscot Bay	31,422	29,485	27,095	23,145	22,341	21,200	1,937	7
<b>TOTALS</b>		<b>103,904</b>	<b>96,260</b>	<b>88,201</b>	<b>73,594</b>	<b>73,380</b>	<b>73,360</b>	<b>7,644</b>	<b>8</b>





## VI. Status of Resources

PRMS/PRS Data	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Avg/Year	Total
Total Conservation Systems Planned (acres)	9821	2653	3,933	1557	2342	6050**	5438	9063	1643	2863	20043
Total Conservation Systems Applied (acres)	7761	5272	5,236	3653	1944	1235**	1974	3376	5918	2409	16865

Conservation Treatment	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Avg/Year	Total
Buffers (Acres)	0	55	22	59	0	2	0	0	259	49	342
Erosion Control (Acres)	22	4	56	113	58	*	*	*	*	32	227
Irrigation Water Management (Acres)	0	0	0	600	225	0	0	0	823	235	1648
Nutrient Management (Acres)	6302	6819	4284	3121	1384	57	297	122	338	1372	9603
Pest Management (Acres)	6557	6485	4158	2951	836	405	229	805	103	1355	9487
Prescribed Grazing (Acres)	56	32	69	110	133	0	45	4	133	71	494
Trees & Shrubs (Acres)	1082	5	16	40	0	1121	302	99	54	233	1632
Conservation Tillage (Acres)	0	0	0	0	0	0	0	0	0	0	0
Waste Management (Number)	3	4	5	2	0	3	3	1	1	2	15
Wetlands (Acres)	2	0	0	1	0	0	0	0	259	37	260
Wildlife Habitat (Acres)	8	0	96	180	0	22	97	104	418	131	917

\* data no longer recorded

\*\* HUC data not available, used total acres for Washington, Hancock Counties

Progress over the last seven years has been focused on:

- Nutrient and pest management on blueberry fields
- Forest stand improvement in forests
- Wetland wildlife habitat management in wildlife areas

## VII. Summary Matrix – Forest/Wildlife

WATERSHED NAME & CODE		COASTAL WASHINGTON/HANCOCK COUNTIES - 01010002			LANDUSE ACRES		1,770,145	
LANDUSE TYPE		FOREST/WILDLIFE			TYPICAL UNIT SIZE ACRES		100	
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		52%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS			
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Soil Erosion: Roads, Road Sides and Construction Sites	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	Plant Condition: Productivity, Health and Vigor	Fish and Wildlife – T & E Fish/Wildlife Species: Listed or Proposed under ESA
<b>Baseline System</b>	<b>System Rating -&gt;</b>				<b>1</b>	<b>3</b>	<b>3</b>	<b>-1</b>
<b>Total Acreage at Baseline Level</b>	<b>1,593,130</b>	<b>716,909</b>	<b>0</b>	<b>716,909</b>				
Access Road (ft) 560	23,896,953	10,753,629	0	10,753,629	2	0	2	-2
Stream Crossing (no) 578	796,565	358,454	0	358,454	0	5	5	-1
<b>Progressive System</b>	<b>System Rating -&gt;</b>				<b>1</b>	<b>3</b>	<b>4</b>	<b>2</b>
<b>Total Acreage at Progressive Level</b>	<b>88,507</b>	<b>84,390</b>	<b>796,565</b>	<b>880,955</b>				
Access Road (ft) 560	1,332,034	13,218,549	39,828	13,258,377	2	0	2	-2
Early Successional Habitat Development/Mgt. (ac) 647	2,655	2,532	23,897	26,429	2	0	2	5
Forest Stand Improvement (ac) 666	4,425	4,220	39,828	44,048	0	1	4	0
Stream Crossing (no) 578	44,254	440,478	250	440,788	0	5	5	-1
<b>Resource Management System (RMS)</b>	<b>System Rating -&gt;</b>				<b>2</b>	<b>3</b>	<b>5</b>	<b>3</b>
<b>Total Acreage at RMS Level</b>	<b>88,507</b>	<b>88,507</b>	<b>83,774</b>	<b>172,281</b>				
Access Road (ft) 560	1,371,862	2,628,671	41,681	2,670,352	2	0	2	-2
Early Successional Habitat Development/Mgt. (ac) 647	2,655	2,779	2,390	5,168	2	0	2	5
Fish Passage (no) 396	170	150	20	190	2	1	0	2
Forest Stand Improvement (ac) 666	1,770	1,852	1,593	3,446	0	1	4	0
Prescribed Forestry (ac) 409	1,770	1,850	1,600	3,440	0	0	0	0
Riparian Forest Buffer (ac) 391	4,425	4,425	4,189	8,614	0	0	5	5
Stream Crossing (no) 578	44,254	86,140	150	86,290	0	5	5	-1

## VII. Summary Matrix – Forest/Wildlife

CONSERVATION INVESTMENT INFORMATION								
CONSERVATION SYSTEMS BY TREATMENT LEVELS	FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
	New Treatment Units	Installation Cost	Management Cost - 3 yrs	Technical Assistance	Total Present Value Cost	Installation Cost	Annual O & M + Mgt Costs	Total Present Value Cost
		75%	100%	20%		25%	100%	
<b>Progressive System Acres Treated</b>	<b>796565.115</b>							
Access Road (ft) 560	81,509	\$328,583	\$0	\$65,717	\$394,300	\$109,528	\$65,717	\$397,220
Early Successional Habitat Development/Mgt. (ac) 647	26,287	\$4,480,679	\$0	\$896,136	\$5,376,815	\$1,493,560	\$59,742	\$1,755,098
Forest Stand Improvement (ac) 666	39,828	\$8,961,358	\$0	\$1,792,272	\$10,753,629	\$2,987,119	\$0	\$2,987,119
Stream Crossing (no) 578	400	\$3,000,000	\$0	\$600,000	\$3,600,000	\$1,000,000	\$400,000	\$2,751,108
	<b>Subtotal</b>	<b>\$16,770,619</b>	<b>\$0</b>	<b>\$3,354,124</b>	<b>\$20,124,743</b>	<b>\$5,590,206</b>	<b>\$525,459</b>	<b>\$7,890,545</b>
<b>Resource Management System (RMS) Acres Treated</b>	<b>83773.55033</b>							
Access Road (ft) 560	41,681	\$343,868	\$0	\$68,774	\$412,641	\$114,623	\$68,774	\$415,697
Early Successional Habitat Development/Mgt. (ac) 647	2,390	\$448,068	\$0	\$89,614	\$537,681	\$149,356	\$5,974	\$175,510
Fish Passage (no) 396	8	\$188,490	\$0	\$37,698	\$226,189	\$62,830	\$7,540	\$95,837
Forest Stand Improvement (ac) 666	1,593	\$358,454	\$0	\$71,691	\$430,145	\$119,485	\$0	\$119,485
Prescribed Forestry (ac) 409	1,593	\$23,895	\$0	\$4,779	\$28,674	\$7,965	\$319	\$9,360
Riparian Forest Buffer (ac) 391	4,189	\$5,497,639	\$0	\$1,099,528	\$6,597,167	\$1,832,546	\$73,302	\$2,153,445
Stream Crossing (no) 578	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Subtotal</b>	<b>\$6,860,415</b>	<b>\$0</b>	<b>\$1,372,083</b>	<b>\$8,232,497</b>	<b>\$2,286,805</b>	<b>\$155,908</b>	<b>\$2,969,334</b>
<b>TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS</b>	<b>880338.6653</b>	<b>\$23,631,034</b>	<b>\$0</b>	<b>\$4,726,207</b>	<b>\$28,357,241</b>	<b>\$7,877,011</b>	<b>\$681,367</b>	<b>\$10,859,879</b>

## VII. Summary Matrix –Cropland-Blueberries

WATERSHED NAME & CODE		COASTAL HANCOCK/WASHINGTON COUNTIES - 01050002			LANDUSE ACRES		56,922	
LANDUSE TYPE		Crop-Blueberries			TYPICAL UNIT SIZE ACRES		30	
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		52%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS			
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Soil Erosion: Roads, Road Sides and Construction Sites	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	Air Quality: Reduced Visibility	Fish and Wildlife – T & E Fish/Wildlife Species: Listed or Proposed under ESA
<b>Baseline System</b>	<b>System Rating -&gt;</b>				<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>
<b>Total Acreage at Baseline Level</b>	<b>2,846</b>	<b>712</b>	<b>0</b>	<b>712</b>				
Access Road (ft) 560	47,435	11,859	0	11,859	2	1	0	1
Brush Management (ac) 314	882	221	0	221	0	0	4	2
Firebreak (ft) 394	94,870	23,718	0	23,718	0	0	0	1
Stream Crossing (no) 578	4,744	1,186	0	1,186	0	2	0	2
<b>Progressive System</b>	<b>System Rating -&gt;</b>				<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>
<b>Total Acreage at Progressive Level</b>	<b>28,461</b>	<b>14,231</b>	<b>1,067</b>	<b>15,298</b>				
Access Road (ft) 560	474,350	254,963	0	254,963	2	1	0	1
Brush Management (ac) 314	9,961	5,312	43	5,354	0	0	4	2
Firebreak (ft) 394	948,700	509,926	0	509,926	0	0	0	1
Fish Passage (no) 396	9	5	0	5	0	0	0	5
Irrigation System, Sprinkler (ac) 442	28,461	14,231	1,067	15,298	0	1	0	0
Obstruction Removal (ac) 500	9,677	4,838	363	5,201	0	0	0	0
Pest Management (ac.) 595	28,461	14,231	1,067	15,298	0	0	0	4
Stream Crossing (no) 578	47,435	25,496	0	25,496	0	2	0	2
Water Well (no) 642	949	474	36	510	0	0	0	2

## VII. Summary Matrix –Cropland-Blueberries

WATERSHED NAME & CODE		COASTAL HANCOCK/WASHINGTON COUNTIES - 01050002			LANDUSE ACRES		56,922			
LANDUSE TYPE		Crop-Blueberries			TYPICAL UNIT SIZE ACRES		30			
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		52%			
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS					
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Soil Erosion: Roads, Road Sides and Construction Sites	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	Air Quality: Reduced Visibility	Fish and Wildlife – T & E Fish/Wildlife Species: Listed or Proposed under ESA		
					System Rating ->		2	4	2	5
Resource Management System (RMS)	28,461	28,461	15,298	43,759						
Total Acreage at RMS Level	5,692	8,752	0	8,752	2	1	0	1		
Access Road (ft) 560	28,461	33,773	9,986	43,759	0	0	4	2		
Brush Management (ac) 314	948,700	1,458,626	0	1,458,626	0	0	0	1		
Firebreak (ft) 394	9	14	0	15	0	0	0	5		
Fish Passage (no) 396	28,461	42,692	1,067	43,759	0	1	0	0		
Irrigation System, Sprinkler (ac) 442	28,461	28,461	15,298	43,759	0	1	0	0		
Irrigation Water Management (ac) 449	28,461	28,461	15,298	43,759	4	2	0	0		
Nutrient Management 590	21,346	26,184	6,635	32,819	0	0	0	0		
Obstruction Removal (ac) 500	28,461	42,692	1,067	43,759	0	0	0	4		
Pest Management (ac.) 595	949	949	510	1,459	0	0	1	0		
Pumping Plant (no) 533	1,423	1,423	765	2,188	0	5	0	5		
Riparian Forest Buffer (ac) 391	949	1,459	0	1,459	0	2	0	2		
Stream Crossing (no) 578	949	1,423	36	1,459	0	0	0	2		
Water Well (no) 642										

## VII. Summary Matrix –Cropland-Blueberries

WATERSHED NAME & CODE		COASTAL HANCOCK/WASHINGTON COUNTIES - 01050002				LANDUSE ACRES		56,922	
LANDUSE TYPE		CROP - BLUEBERRIES				TYPICAL UNIT SIZE ACRES		30	
CONSERVATION INVESTMENT INFORMATION						ESTIMATED PARTICIPATION		52%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS		FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
		New Treatment Units	Installation Cost 75%	Management Cost - 3 yrs 100%	Technical Assistance 20%	Total Present Value Cost	Installation Cost 25%	Annual O & M + Mgt Costs 100%	Total Present Value Cost
<b>Progressive System Acres Treated</b>		<b>1,067</b>							
Access Road (ft) 560		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Brush Management (ac) 314		43	\$4,360	\$0	\$872	\$5,232	\$1,453	\$58	\$1,708
Firebreak (ft) 394		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fish Passage (no) 396		0	\$8,005	\$0	\$1,601	\$9,606	\$2,668	\$320	\$4,070
Irrigation System, Sprinkler (ac) 442		1,067	\$381,822	\$0	\$76,364	\$458,187	\$127,274	\$10,182	\$171,848
Obstruction Removal (ac) 500		363	\$573,710	\$0	\$114,742	\$688,452	\$191,237	\$38,247	\$358,675
Pest Management (ac.) 595		1,067	\$0	\$192,112	\$38,422	\$214,127	\$0	\$64,037	\$104,636
Stream Crossing (no) 578		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Well (no) 642		36	\$80,047	\$0	\$16,009	\$96,056	\$26,682	\$1,067	\$31,355
		<b>Subtotal</b>	<b>\$1,047,943</b>	<b>\$192,112</b>	<b>\$248,011</b>	<b>\$1,471,658</b>	<b>\$349,314</b>	<b>\$113,912</b>	<b>\$672,291</b>
<b>Resource Management System (RMS) Acres Treated</b>		<b>15,298</b>							
Access Road (ft) 560		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Brush Management (ac) 314		9,986	\$1,019,796	\$0	\$203,959	\$1,223,755	\$339,932	\$13,597	\$399,458
Firebreak (ft) 394		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fish Passage (no) 396		0	\$8,005	\$0	\$1,601	\$9,606	\$2,668	\$320	\$4,070
Irrigation System, Sprinkler (ac) 442		1,067	\$381,822	\$0	\$76,364	\$458,187	\$127,274	\$10,182	\$171,848
Irrigation Water Management (ac) 449		15,298	\$0	\$1,606,268	\$321,254	\$1,790,340	\$0	\$535,423	\$874,871
Nutrient Management 590		15,298	\$0	\$1,147,334	\$229,467	\$1,278,814	\$0	\$382,445	\$624,908
Obstruction Removal (ac) 500		6,635	\$10,489,889	\$0	\$2,097,978	\$12,587,866	\$3,496,630	\$699,326	\$6,558,118
Pest Management (ac.) 595		1,067	\$0	\$192,112	\$38,422	\$214,127	\$0	\$64,037	\$104,636
Pumping Plant (no) 533		510	\$6,884,004	\$0	\$1,376,801	\$8,260,805	\$2,294,668	\$183,573	\$3,098,311
Riparian Forest Buffer (ac) 391		765	\$1,003,917	\$0	\$200,783	\$1,204,701	\$334,639	\$13,386	\$393,238
Stream Crossing (no) 578		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Well (no) 642		36	\$80,047	\$0	\$16,009	\$96,056	\$26,682	\$1,067	\$31,355
		<b>Subtotal</b>	<b>\$19,867,480</b>	<b>\$2,945,714</b>	<b>\$4,562,639</b>	<b>\$27,124,257</b>	<b>\$6,622,493</b>	<b>\$1,903,356</b>	<b>\$12,260,811</b>

TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS	0	\$20,915,422	\$3,137,825	\$4,810,650	\$28,595,915	\$6,971,807	\$2,017,268	\$12,933,101
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## VII. Summary Matrix –Pasture/Hay

WATERSHED NAME & CODE		COASTAL WASHINGTON/HANCOCK COUNTIES - 01050002			LANDUSE ACRES		23,700	
LANDUSE TYPE		PASTURE/HAY			TYPICAL UNIT SIZE ACRES		15	
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		43%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS			
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	Plant Condition: Forage Quality and Palatability	Plant Condition: Productivity, Health and Vigor	Fish and Wildlife – T & E Fish/Wildlife Species: Listed or Proposed under ESA
<b>Baseline System</b>	<b>System Rating -&gt;</b>				<b>3</b>	<b>4</b>	<b>4</b>	<b>2</b>
<b>Total Acreage at Baseline Level</b>	<b>11,850</b>	<b>2,963</b>	<b>0</b>	<b>2,963</b>				
Fence (ft) 382	790,000	197,500	0	197,500	1	2	3	2
Pasture & Hay Planting (ac) 512	593	148	0	148	0	5	5	1
Watering Facility (no) 614	198	49	0	49	5	3	2	2
<b>Progressive System</b>	<b>System Rating -&gt;</b>				<b>4</b>	<b>4</b>	<b>4</b>	<b>3</b>
<b>Total Acreage at Progressive Level</b>	<b>9,480</b>	<b>9,196</b>	<b>4,385</b>	<b>13,580</b>				
Fence (ft) 382	632,000	905,340	0	905,340	1	2	3	2
Pasture & Hay Planting (ac) 512	474	679	0	679	0	5	5	1
Prescribed Grazing (ac) 528	569	552	263	815	3	5	4	4
Watering Facility (no) 614	221	288	29	317	5	3	2	2
<b>Resource Management System (RMS)</b>	<b>System Rating -&gt;</b>				<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>
<b>Total Acreage at RMS Level</b>	<b>2,370</b>	<b>2,370</b>	<b>4,787</b>	<b>7,157</b>				
Fence (ft) 382	158,000	477,160	0	477,160	1	2	3	2
Nutrient Management 590	356	356	718	1,074	3	0	3	4
Pasture & Hay Planting (ac) 512	474	713	718	1,431	0	5	5	1
Prescribed Grazing (ac) 528	142	159	270	429	3	5	4	4
Waste Storage Facility (no) 313	13	13	26	38	0	0	0	1
Watering Facility (no) 614	55	137	30	167	5	3	2	2

## VII. Summary Matrix –Pasture/Hay

CONSERVATION INVESTMENT INFORMATION								
CONSERVATION SYSTEMS BY TREATMENT LEVELS	FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
	New Treatment Units	Installation Cost	Management Cost - 3 yrs	Technical Assistance	Total Present Value Cost	Installation Cost	Annual O & M + Mgt Costs	Total Present Value Cost
		75%	100%	20%		25%	100%	
<b>Progressive System Acres Treated</b>	<b>4384.5</b>							
Fence (ft) 382	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pasture & Hay Planting (ac) 512	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Prescribed Grazing (ac) 528	263	\$0	\$53,729	\$10,746	\$59,887	\$0	\$17,910	\$29,264
Watering Facility (no) 614	29	\$21,923	\$0	\$4,384	\$26,307	\$7,307	\$292	\$8,587
<b>Subtotal</b>		<b>\$21,923</b>	<b>\$53,729</b>	<b>\$15,130</b>	<b>\$86,194</b>	<b>\$7,307</b>	<b>\$18,202</b>	<b>\$37,851</b>
<b>Resource Management System (RMS) Acres Treated</b>	<b>4787.4</b>							
Fence (ft) 382	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nutrient Management 590	718	\$0	\$53,858	\$10,772	\$60,030	\$0	\$17,953	\$29,334
Pasture & Hay Planting (ac) 512	718	\$215,433	\$0	\$43,087	\$258,520	\$71,811	\$2,872	\$84,386
Prescribed Grazing (ac) 528	270	\$0	\$55,182	\$11,036	\$61,505	\$0	\$18,394	\$30,055
Waste Storage Facility (no) 313	26	\$1,148,976	\$0	\$229,795	\$1,378,771	\$382,992	\$30,639	\$517,124
Watering Facility (no) 614	30	\$22,515	\$0	\$4,503	\$27,018	\$7,505	\$300	\$8,819
<b>Subtotal</b>		<b>\$1,386,924</b>	<b>\$109,040</b>	<b>\$299,193</b>	<b>\$1,785,844</b>	<b>\$462,308</b>	<b>\$70,159</b>	<b>\$669,719</b>
<b>TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS</b>	<b>9171.9</b>	<b>\$1,408,847</b>	<b>\$162,769</b>	<b>\$314,323</b>	<b>\$1,872,038</b>	<b>\$469,616</b>	<b>\$88,361</b>	<b>\$707,570</b>

## VII. Summary Matrix –Headquarters

WATERSHED NAME & CODE		COASTAL WASHINGTON/HANCOCK COUNTIES - 01050002			LANDUSE ACRES		100	
LANDUSE TYPE		HEADQUARTERS, LIVESTOCK OPERATIONS			TYPICAL UNIT SIZE ACRES		2	
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		43%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS			
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Water Quality: Excessive Nutrients and Organics in Surface Water	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	Water Quality: Harmful Levels of Pathogens in Surface Water	Air Quality: Objectionable Odors
<b>Baseline System</b>		<b>System Rating -&gt;</b>			<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>
<b>Total Acreage at Baseline Level</b>		<b>50</b>	<b>13</b>	<b>0</b>	<b>13</b>			
Heavy Use Area Protection (ac) 561		5	1	0	1	2	0	2
Roof Runoff Structure (no) 558		25	6	0	6	1	3	1
Wastewater Treatment Strip (ac) 635		13	3	0	3	4	4	2
<b>Progressive System</b>		<b>System Rating -&gt;</b>			<b>3</b>	<b>2</b>	<b>4</b>	<b>3</b>
<b>Total Acreage at Progressive Level</b>		<b>40</b>	<b>39</b>	<b>19</b>	<b>57</b>			
Wastewater Treatment Strip (ac) 635		10	14	0	14	4	4	2
Heavy Use Area Protection (ac) 561		4	6	0	6	1	2	2
Roof Runoff Structure (no) 558		60	67	19	86	0	3	1
Waste Storage Facility (no) 313		20	19	9	29	3	4	4
Waste Utilization (ac) 633		14	14	6	20	4	4	1
<b>Resource Management System (RMS)</b>		<b>System Rating -&gt;</b>			<b>4</b>	<b>3</b>	<b>4</b>	<b>4</b>
<b>Total Acreage at RMS Level</b>		<b>10</b>	<b>10</b>	<b>20</b>	<b>30</b>			
Heavy Use Area Protection (ac) 561		1	3	0	3	1	0	2
Nutrient Management 590		10	10	20	30	3	1	4
Roof Runoff Structure (no) 558		15	26	19	45	0	3	1
Waste Storage Facility (no) 313		5	6	10	15	3	4	4
Waste Utilization (ac) 633		10	10	20	30	4	4	1
Wastewater Treatment Strip (ac) 635		0	0	0	0	4	4	2

## VII. Summary Matrix –Headquarters

CONSERVATION INVESTMENT INFORMATION								
CONSERVATION SYSTEMS BY TREATMENT LEVELS	FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
	New Treatment Units	Installation Cost	Management Cost - 3 yrs	Technical Assistance	Total Present Value Cost	Installation Cost	Annual O & M + Mgt Costs	Total Present Value Cost
		75%	100%	20%		25%	100%	
<b>Progressive System Acres Treated</b>	<b>18.5</b>							
Wastewater Treatment Strip (ac) 635	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Heavy Use Area Protection (ac) 561	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Roof Runoff Structure (no) 558	19	\$41,625	\$0	\$8,325	\$49,950	\$13,875	\$555	\$16,305
Waste Storage Facility (no) 313	9	\$416,250	\$0	\$83,250	\$499,500	\$138,750	\$11,100	\$187,343
Waste Utilization (ac) 633	6	\$0	\$874	\$175	\$974	\$0	\$291	\$476
<b>Subtotal</b>		<b>\$457,875</b>	<b>\$874</b>	<b>\$91,750</b>	<b>\$550,424</b>	<b>\$152,625</b>	<b>\$11,946</b>	<b>\$204,124</b>
<b>Resource Management System (RMS) Acres Treated</b>	<b>20.2</b>							
Heavy Use Area Protection (ac) 561	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nutrient Management 590	20	\$0	\$1,515	\$303	\$1,689	\$0	\$505	\$825
Roof Runoff Structure (no) 558	19	\$42,750	\$0	\$8,550	\$51,300	\$14,250	\$570	\$16,745
Waste Storage Facility (no) 313	10	\$427,500	\$0	\$85,500	\$513,000	\$142,500	\$11,400	\$192,407
Waste Utilization (ac) 633	20	\$0	\$2,670	\$534	\$2,976	\$0	\$890	\$1,454
Wastewater Treatment Strip (ac) 635	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>		<b>\$470,250</b>	<b>\$4,185</b>	<b>\$94,887</b>	<b>\$568,965</b>	<b>\$156,750</b>	<b>\$13,365</b>	<b>\$211,431</b>
<b>TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS</b>	<b>38.7</b>	<b>\$928,125</b>	<b>\$5,059</b>	<b>\$186,637</b>	<b>\$1,119,389</b>	<b>\$309,375</b>	<b>\$25,311</b>	<b>\$415,555</b>

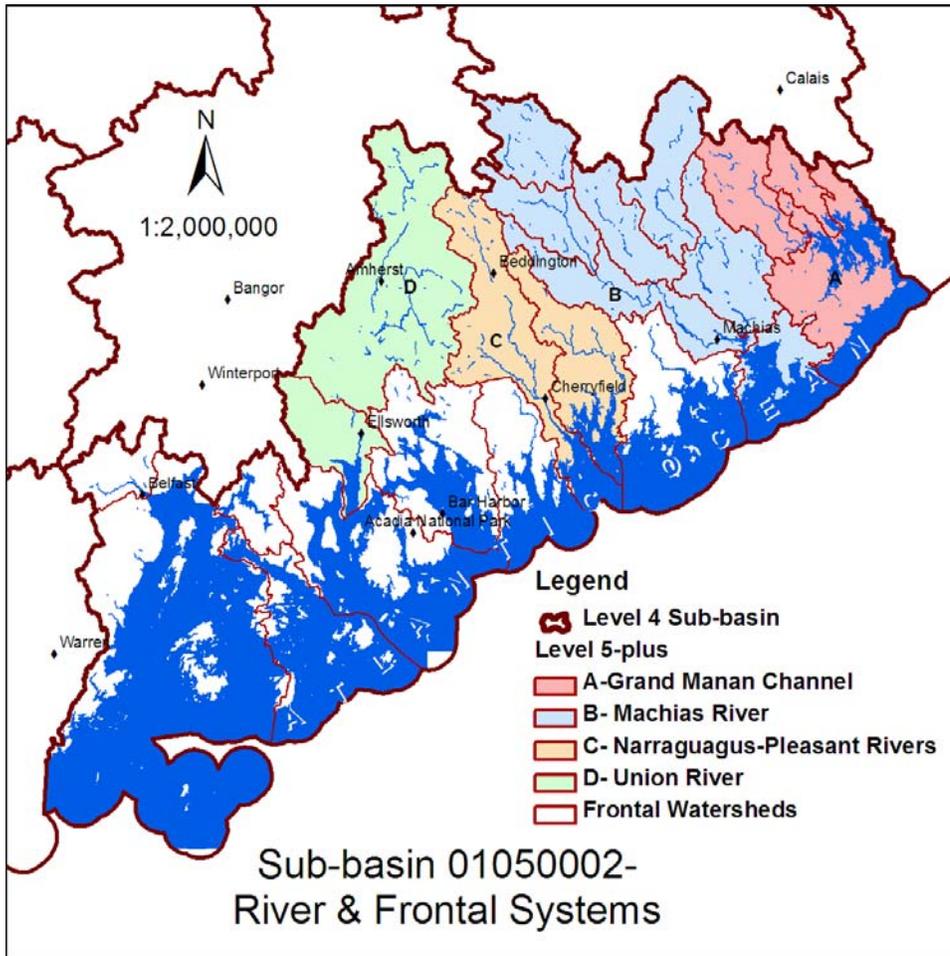
## VIII. References

- 1 New England Agricultural Statistics, 2004, U.S. Department of Agriculture, National Agricultural Statistics Service, March, 2005. (County data was prorated to HUC by the percent of a HUC in a county.)
- 2 USDA NRCS Social Sciences Discipline, Technical Note 1801, Guide for Estimating Participation in Conservation Programs and Projects, July 2004.
- 3 USDA NRCS Social Sciences Discipline, Social Capital, Technical Note 5.1, March 2002.
- 4 USDA NRCS Social Sciences Discipline, Prioritizing Issues or Concerns, Using the Paired Comparison Technique, Issue 11, March 1997.
- 5 Maine Landcover Dataset, 2004. Raster data format, 5-meter resolution. Courtesy of Maine Office of Geographic Information Services, 26 Edison Drive, Augusta, Maine 04333.
- 6 Maine Watershed Boundary Dataset, USDA-NRCS, May 2008, ArcGIS9.2 Personal Geodatabase format. 967 Illinois Avenue, Suite 3, Bangor, ME 04401. Attn: GIS Coordinator.
- 7 Common Resource Areas Dataset, USDA-NRCS, ArcGIS shapefile format, <http://datagateway.nrcs.usda.gov/>. Source is National Coordinated CRA Geographic Database, USDA-NRCS, National Soil Survey Center, July 2004.
- 8 Annual Precipitation Dataset, USDA-NRCS, ArcGIS shapefile format, <http://datagateway.nrcs.usda.gov/>.
- 9 US Census Bureau data tables, joined to Maine Towns spatial dataset. Courtesy of Maine Office of Geographic Information Services, 26 Edison Drive, Augusta, ME 04333. Town polygon label points were exported as a point shapefile with demographics attached. These were aggregated by Level 5 watershed and summarized.
- 10 Maine Inland Fisheries & Wildlife, various spatial datasets made available through the Maine Natural Areas Program, by agreement. 650 State Street, Bangor, ME 04401. Datasets used: Deer Wintering Areas, RTE Plants, RTE Animals, Focus Areas, ME Essential Habitats, ME Significant Habitats, ME Conservation Lands.
- 11 Maine Department of Marine Resources through Maine Office of GIS: shell.shp, eelgrass.shp. 26 Edison Drive, Augusta, ME 04333.
- 12 Maine Department of Environmental Protection, 2008\_303d\_List\_Final\_Draft-3-10-08.pdf, 17 State House Station, Augusta, Maine 04333-0017.

## IX. APPENDIX

The sheer size of this sub-basin precludes addressing the RWA at the sub-watershed level in this document. The colored groupings in the table below represent standard river+estuary systems that make logical groupings for targeted outreach and conservation initiatives. The systems in white represent frontal drainage areas that drain directly to the Atlantic. The map below the table illustrates this approach.

<b>Sub-basin 01050002 Watershed Inventory</b>			
<b>HUC_8</b>	<b>HUC_10</b>	<b>LEVEL 5 WATERSHED NAME</b>	<b>Acres</b>
01050002	01	Dennys River	83,415
01050002	02	Pennamaquan River	34,512
01050002	03	Grand Manan Channel	196,732
01050002	04	East Machias River-Round Lake	94,293
01050002	05	East Machias River	105,013
01050002	06	Upper Machias River	71,227
01050002	07	Middle Machias River	66,344
01050002	08	Old Stream	69,492
01050002	09	Lower Machias River	112,879
01050002	10	Machias Bay	109,647
01050002	11	Roque Bluffs Frontal Drainages	211,406
01050002	12	Pleasant River-Pleasant Bay	133,763
01050002	13	Narraguagus River-Narraguagus Bay	246,741
01050002	14	Schoodic Point-Petit-Manan Point Frontal Drainages	138,918
01050002	15	Graham Lake	309,522
01050002	16	Union River Bay	80,911
01050002	17	Frenchman Bay	416,638
01050002	18	Blue Hill-Mount Desert Frontal Drainages	260,632
01050002	19	Bagaduce River	52,238
01050002	20	Stonington Frontal Drainages	193,010
01050002	21	Belfast Bay	58,702
01050002	22	Penobscot Bay	693,709
			<b>3,739,744</b>



### Watershed Groups

- A- Grand Manan Channel
- B- Machias River
- C- Narraguagus-Pleasant Rivers
- D- Union River

-plus-

Frontal Drainages