

The Water Recreation Opportunity Spectrum and Water Quality in the Squam Lake Watershed

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NH Lakes Association

Squam Lakes Association

Squam Lakes Conservation Society

Water Quality Information

- Water quality measures:
 - Algae, P, pH, alk., DO, Temp, turbidity, Chlorophyll a, clarity
- CWA – classify lakes based on Water Quality
 - Determines designated uses (e.g., drinking, swim)
- Not easily understood by stakeholders
- Little to protect quality recreation opportunities
 - Major draw, economic contributions, benefits
- Lose interest or fail to garner support for protection
- Idea: **develop comprehensive classification system**
 - Includes water quality & recreational opportunities

Conceptual Foundation: A Recreation Opportunity

Recreation

Activity + **Setting** = **Experience** > **Benefits**

Many activities

*Physical
attributes*

Many
dimensions

Individual
Community

*Managerial
attributes*

Multiple
senses

Economic

*Social
attributes*

Environmental

**Managers
Manage**

**Recreationists
Consume**

**Society
Gains**

Setting Attributes

- **Physical Setting Attributes**

- Permanently fixed, not likely to change soon
- e.g., dams, bridges, buildings, NR modifications, natural ambiance, closeness to community

- **Social Setting Attributes**

- Visitor's activities, behaviors, perceptions
- e.g., visitor presence, impacts, concentration, comforts, safety, recreation diversity, solitude

- **Managerial Setting Attributes**

- Managed or changed by agency
- e.g., management presence, access, regulations, facilities, patrols, services

WROS is a tool

- Recreation inventory tool
 - Map current supply
- Planning tool
 - Proposed changes
- Management tool
 - Guidelines

- Rivers
- Lakes
- Reservoirs
- Bays
- Coastal zones
- Marine Protected areas

Six WROS Classes

Urban

Suburban

Rural
Developed

Rural
Natural

Semi
Primitive

Primitive



HOLDERNESS

GRAFTON CO

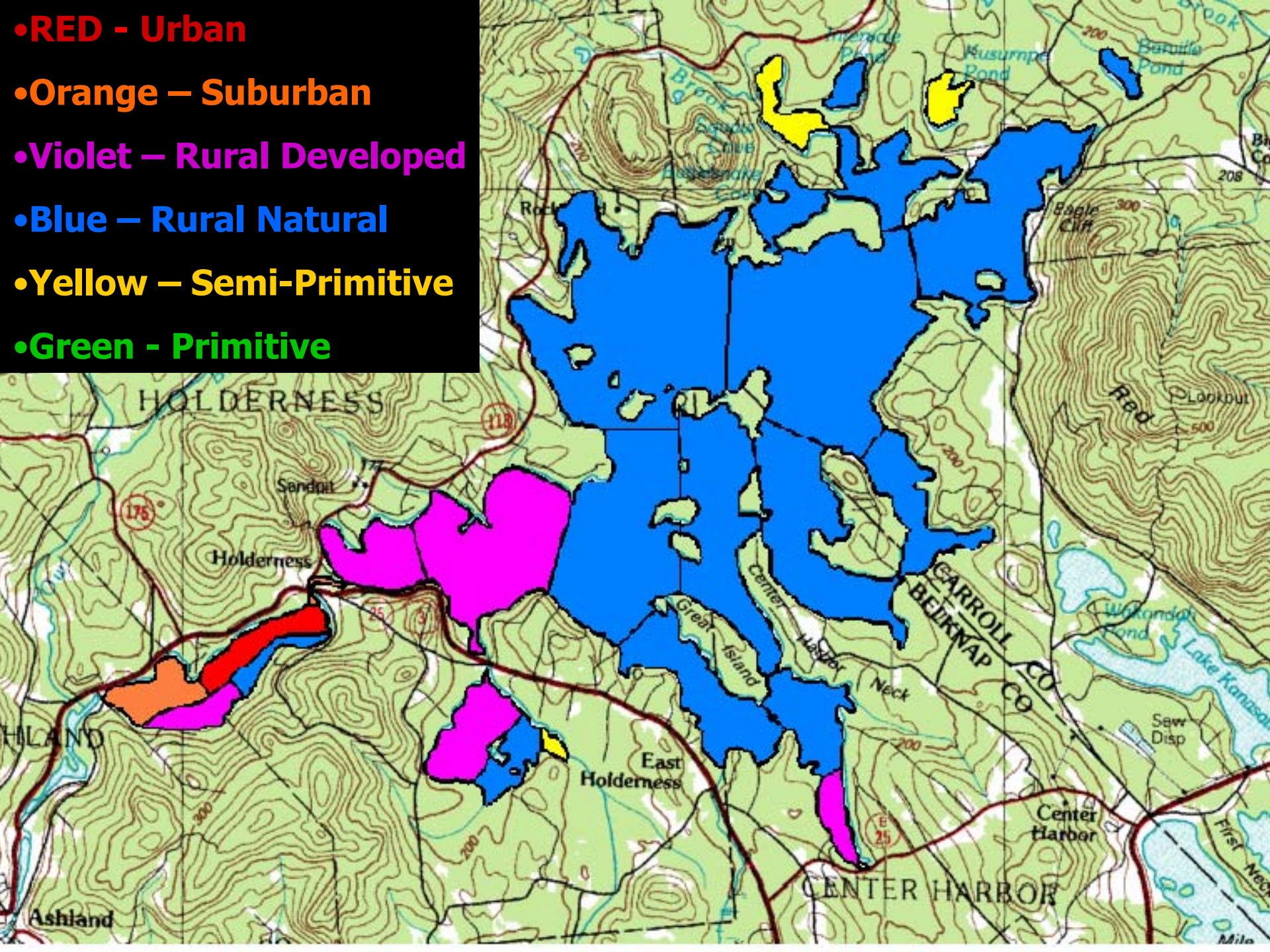
CARROLL CO
BEDFORD CO

CENTER HARBOR

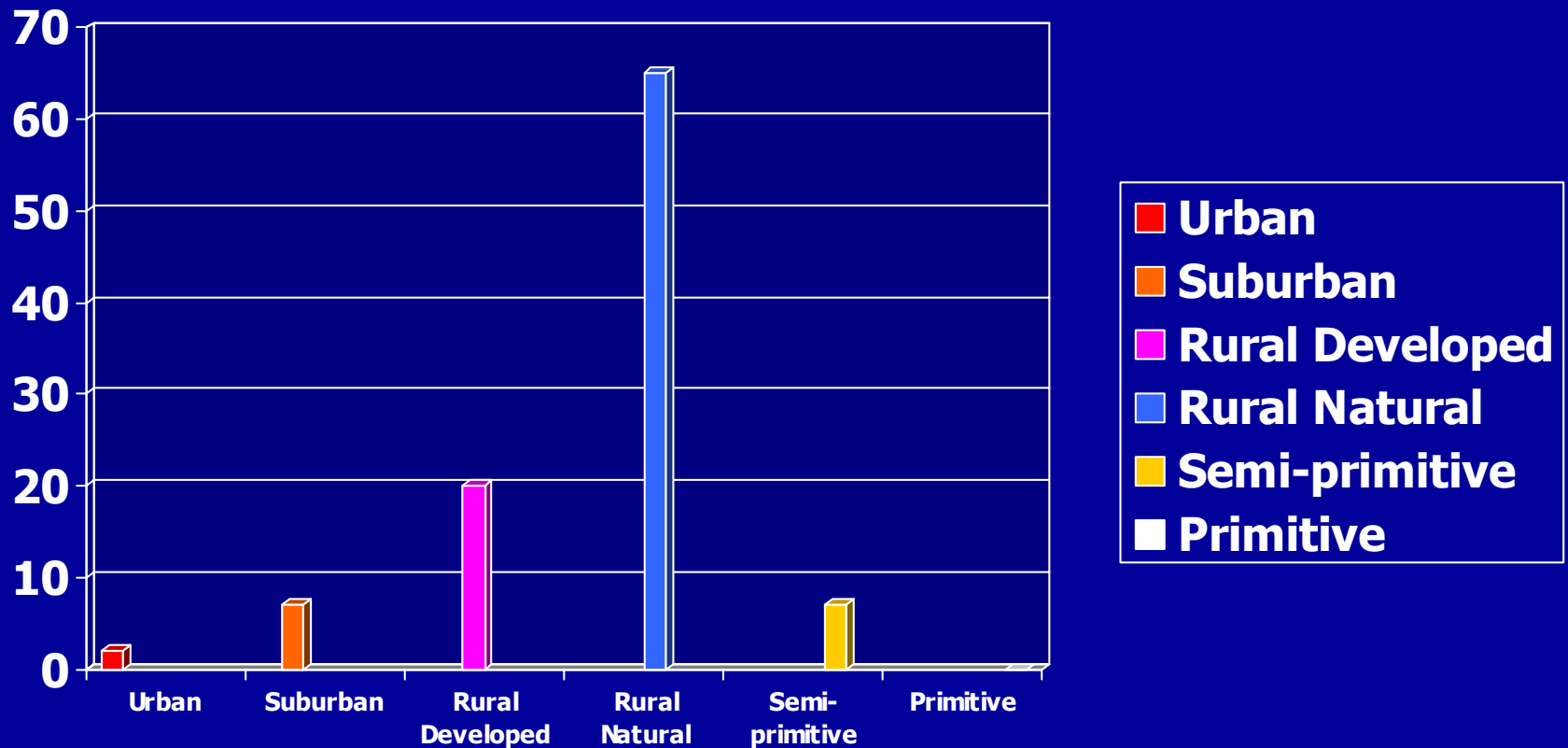
Ashland

GRAFTON CO

- RED - Urban
- Orange – Suburban
- Violet – Rural Developed
- Blue – Rural Natural
- Yellow – Semi-Primitive
- Green - Primitive



Regional View of Recreation Opportunities



White Oak Pond

Lake/Site	WROS Physical	WROS Social	WROS Managerial	WROS Overall
White Oak				
1 NE Side	5	5	7	RD6
2 East Inlet	9	8	8.5	SP8
3 SE Side	7.5	7	7	RN7
4 SW Side	5.5	6	6	RD6

Squam Lake

Site#/Loc	WROS Physical	WROS Social	WROS Managerial	WROS Overall
1 Squaw (N)	8	8.5	8.5	SP8
2 Bear Cove	6.5	6.5	7	RN7
3 Rattlesnake Cove	7.5	5.5	7	RN6
4 Bennett Cove	7	7	8	RN7
5 Yard Islands	8	7.5	8	RN8
6 Bean Cove (north)	6.5	7	7	RN7
7 Sturtevant	7	7	7.5	RN7
8 Great I. E	7.5	8	8	RN8

Squam Lake

Site#/Loc	WROS Physical	WROS Social	WROS Managerial	WROS Overall
9 Heron Cove	6.5	7	7	RN7
10 Dog Cove	6	6.5	6.5	RD6
11 Great I. SW	7.5	7	7	RN7
12 Diamond Ledge	7.5	7.5	8	RN8
13 Piper Cove	5.5	6	6	RD6
14 Cotton Cove	5	5	6	RD5
15 Little Squam Channel	3	3	3.5	S3
16 Sandwich Bay	7	7	8	RN7

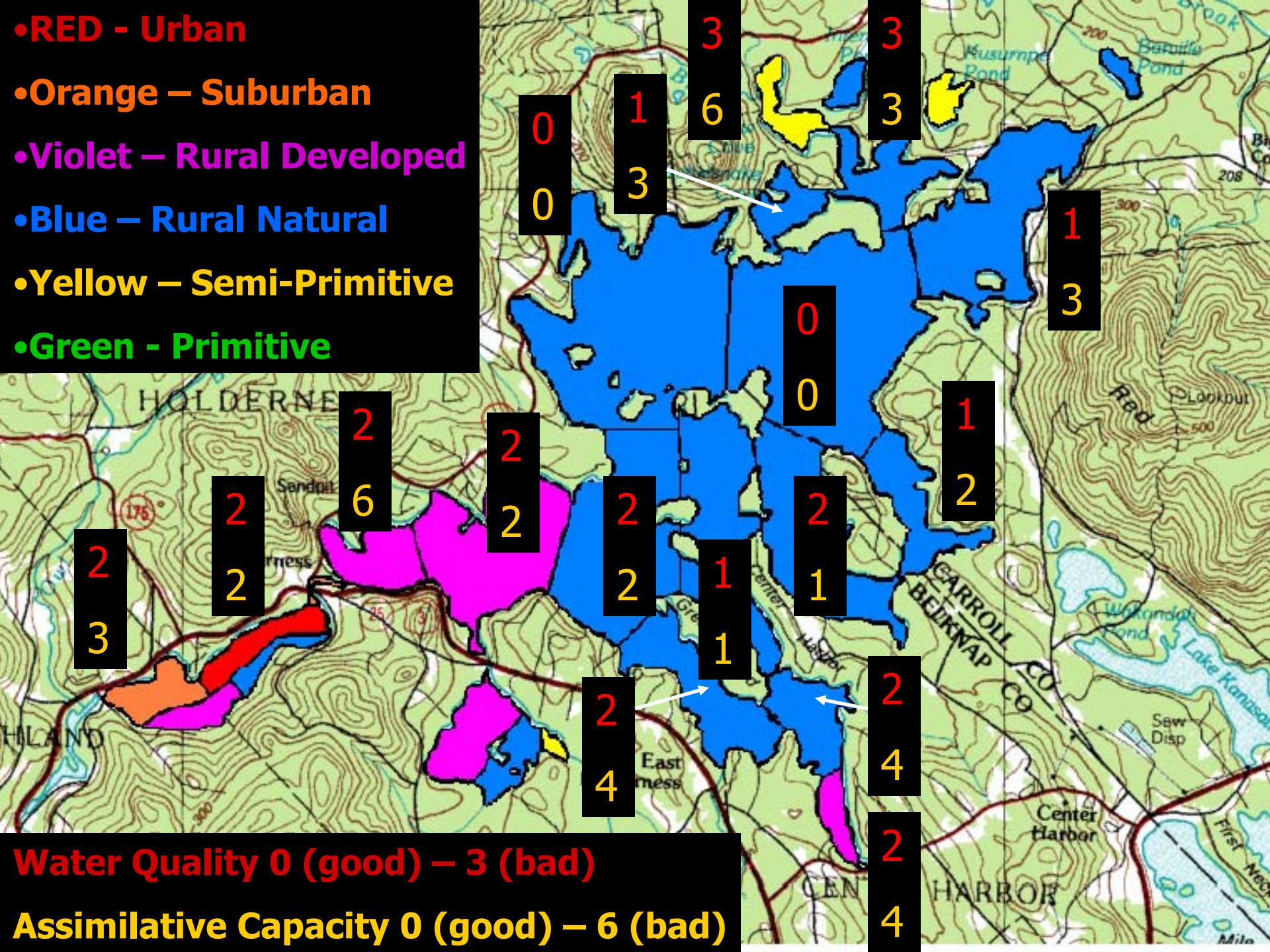
Little Squam Lake

Site#/Loc	WROS Physical	WROS Social	WROS Managerial	WROS Overall
1 Holderness Channel Bridge	2	2	1.5	U2
2 Covered Bridge	2	2	2	S2
3 SW Shore	3	4	6.5	RD5
4 SE Shore	4	4.5	8	RN6

Barville, Intervale, Kusumpe

Site#/Loc	WROS Physical	WROS Social	WROS Managerial	WROS Overall
Barville				
East Shore	7.5	6	8	RN7
Kusumpe				
West Shore	9	9	9.5	SP9
Intervale				
East Shore	7.5	7	9	RN8

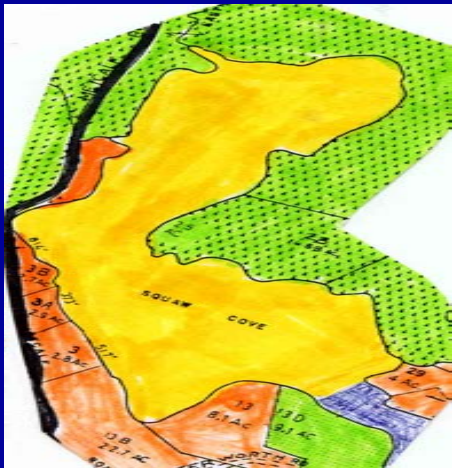
- RED - Urban
- Orange – Suburban
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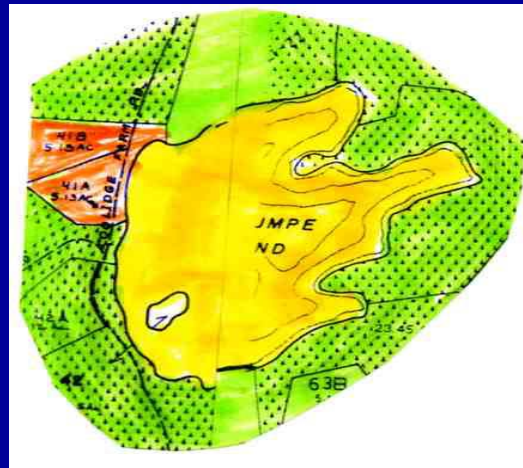
Water Quality 0 (good) – 3 (bad)

Assimilative Capacity 0 (good) – 6 (bad)

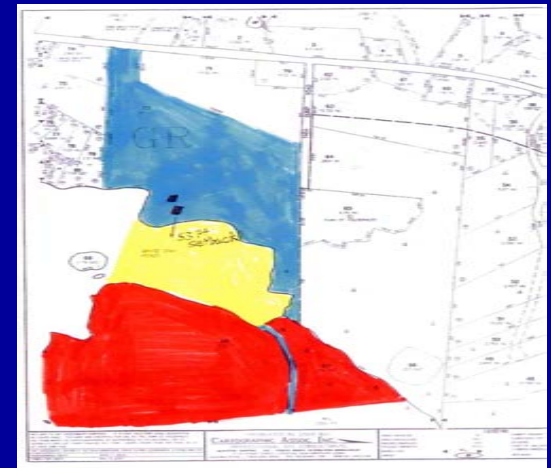
A Look at the Squam "Semi-Primitive" Areas



Squaw Cove



Kusumpe

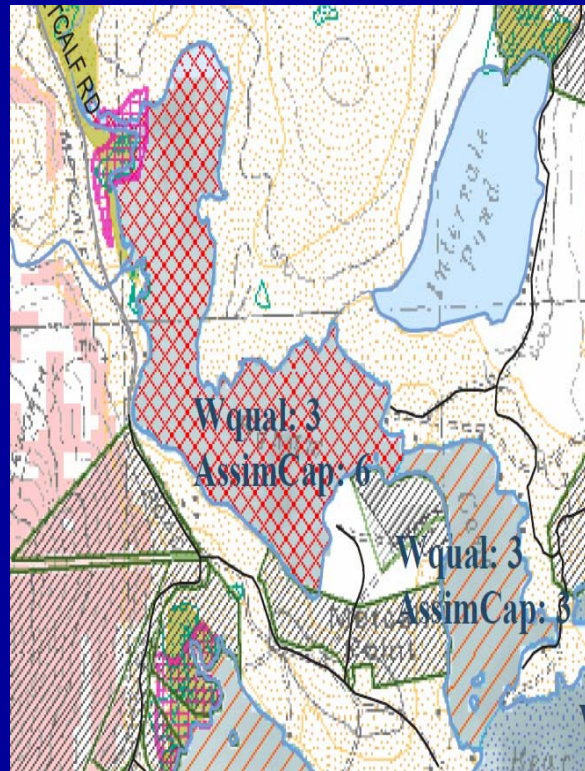


White Oak

<u>Area</u>	<u>Conservation</u>	<u>Zoning</u>	<u>State Regulation</u>
Squaw Cove	50-75% Conserved	Waterfront (Not Delineated)	No Waterskiing No Wake
Kusumpe	75-100% Conserved	Waterfront (Not Delineated)	0.5 Horsepower
White Oak	0% Conserved	General Residential Rural Residential	7.5 Horsepower No Seaplanes

Important Factors in Squaw Cove

- **Bathymetry:** shallow basin with a narrow outlet - Low flush for sediment and nutrients
- **Topography:** steep hillsides up stream – erosion - deposits an abundance of nutrients
- **WROS:** Semi-primitive - unique, valuable rec. opps.



Management Suggestions for Squaw Cove

- >20 yard buffer zone of natural cover in cove
- No motorboat access in the late summer (Hi Temps = algae blooms)
- Shoreline disturbance uses appropriate runoff containment methods

Benefits of WROS

- Visual map/understanding of the diversity recreation opportunities
- Assessment of proposed changes
- Regional view and value of setting characteristics
- Understandable to public for defensible decision making
- Valuable policy leveraging tool

Acknowledgments

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Thank You!