Watershed Education Program for Florida

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Watershed Education Team

- Multidisciplinary
- Agricultural and Biological Engineering
  - Sanjay Shukla
- Soil and Water Science
  - Tom Obreza
  - Mark Clark
  - Chris Wilson
- Fisheries and Aquatic Science
  - Chuck Jacoby

What is a watershed?

- A watershed is a land area whose runoff drains into any stream, river, lake, and ocean
- only 40 % of Americans understand what a watershed is
- Which watershed do you live in?

Why worry about watersheds?

- Effects of human activities and natural processes are felt on water quantity and quality
- Watersheds reflects our land use and affects our drinking water supply as well as quality
- Affects our quality of life

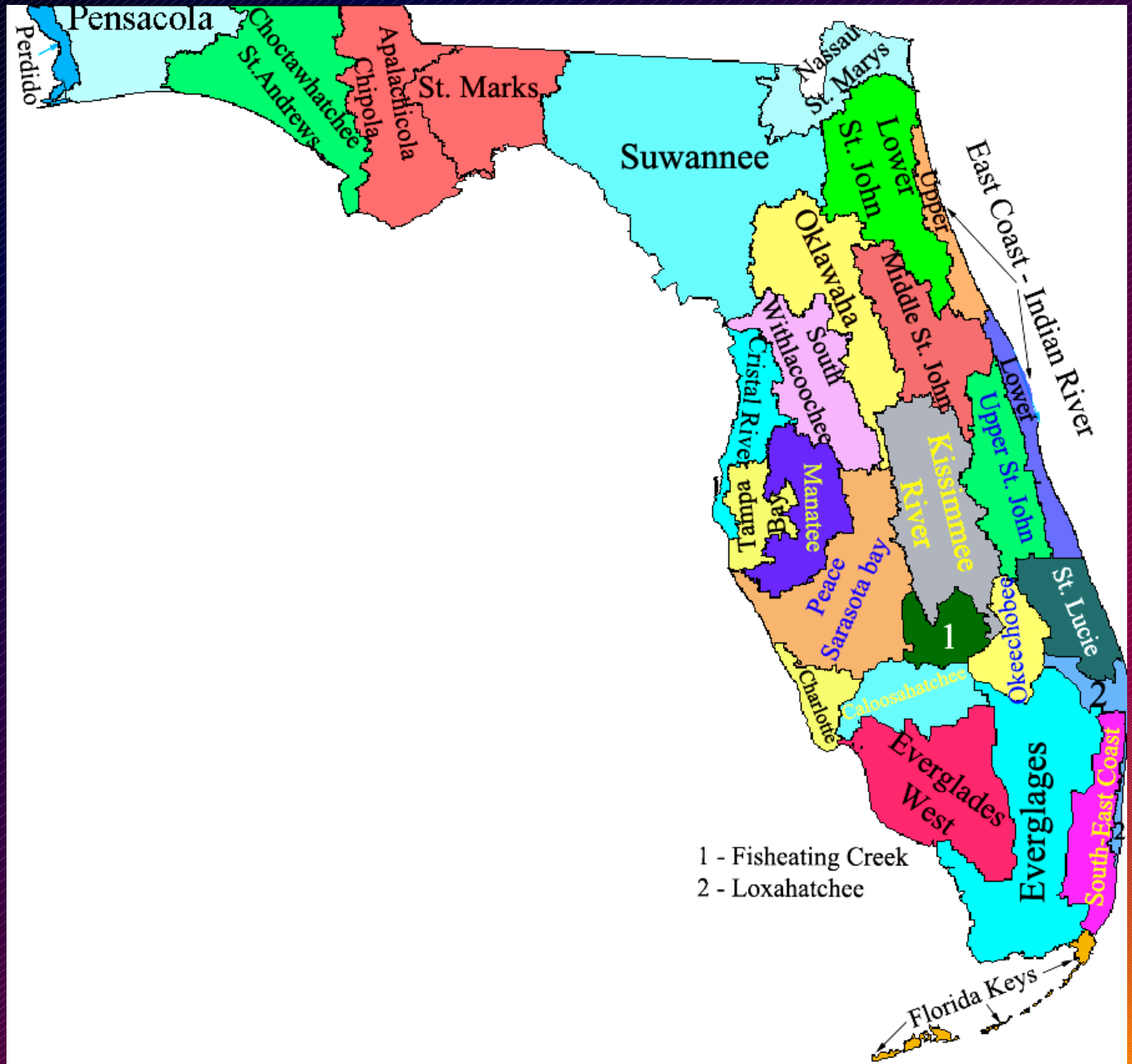
Why worry about watersheds?

- Water quantity
  - surface water and ground water (majority of drinking water)
  - land use impacts
    - urbanization - ↓ground water recharge, ↑ runoff and flooding
- Water quality
  - surface water
    - sediment, pesticides, and nutrients
  - ground water
    - pesticides, nutrients (nitrate), and metals
- Watershed concept is important when planning for growth

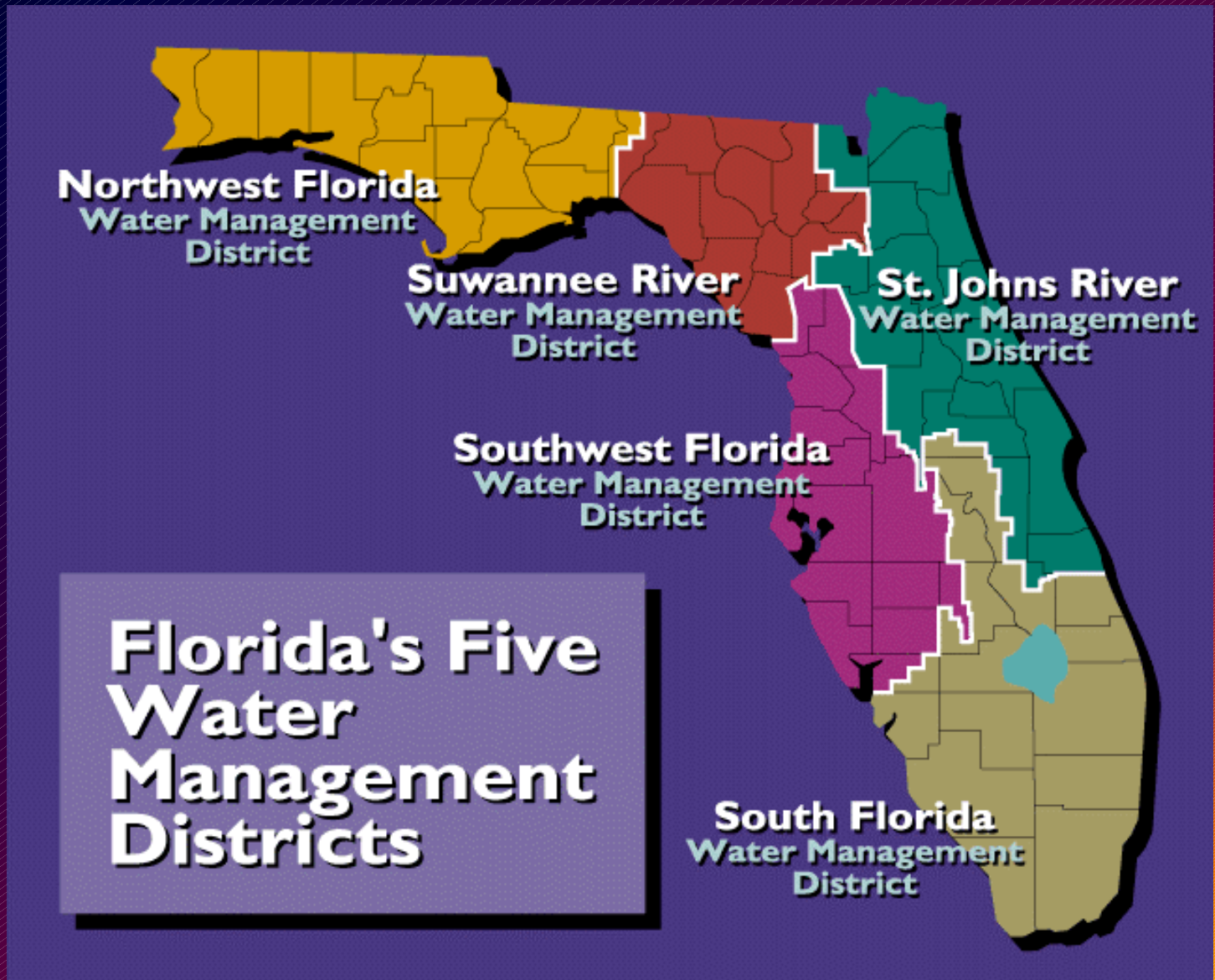
Watershed Issues

- 36% of the U.S. river not meeting their designated use (1.3 million miles)
- In 1998 states reported 7000 days of beach closings (USEPA)
- Gulf of Mexico
  - dead zone (oxygen depleted) the size of New Jersey
- Florida's Everglades
  - World's largest environmental restoration project
  - Regulated incoming concentration 10 ppb P load

Florida's Watershed

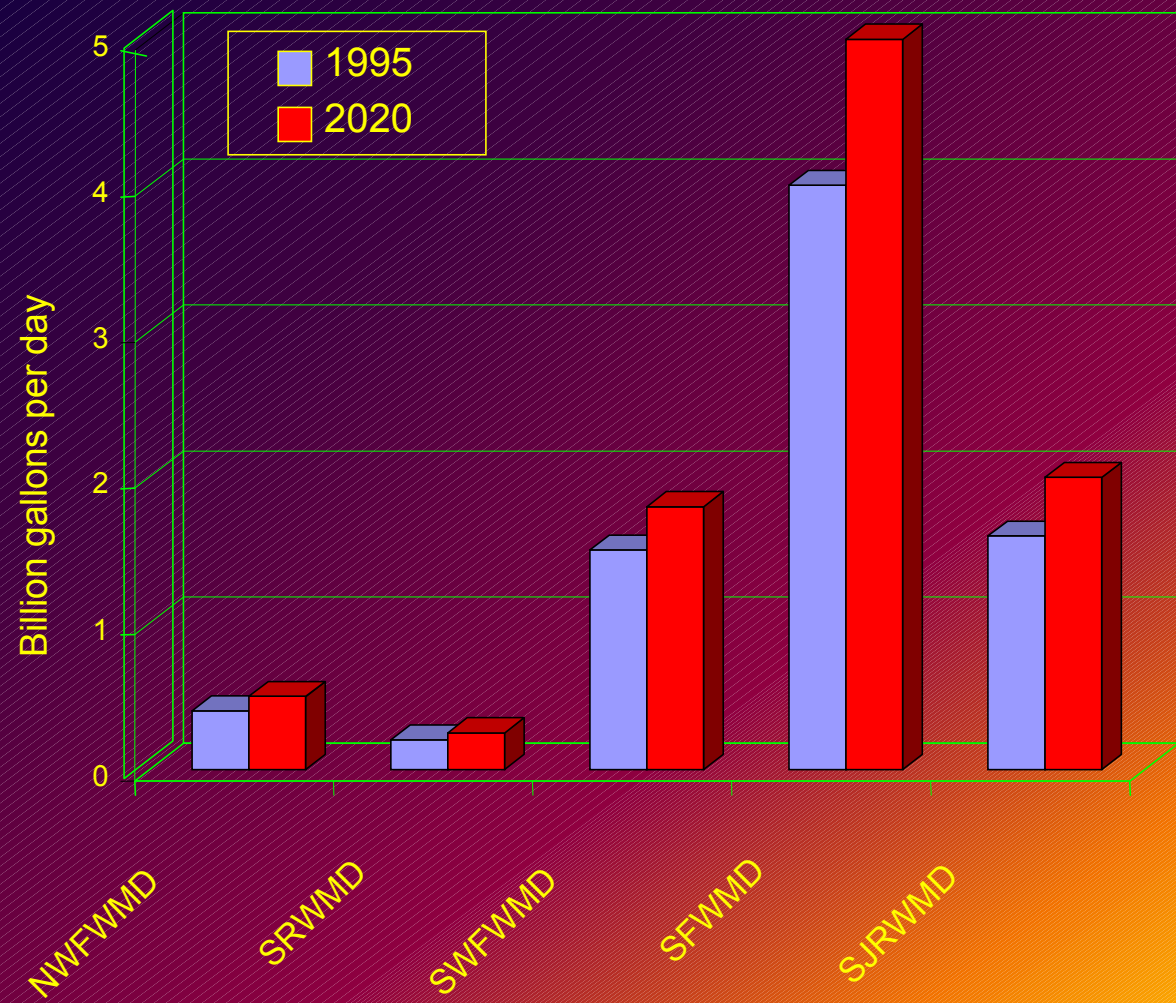


FL Watershed Issues
Water Supply and Management



Watershed Issues in Florida

- Urban
  - >130,000 acres/yr converted to urban
  - 700 new residents/day
  - 16 million people
  - Increased water needs
- Agriculture
  - 2nd largest economy
  - Largest water user
  - Acreage stable or declining
- Environment
  - Wetlands
  - Lakes and rivers
  - Estuary



Florida Water Quality Issues

- Sandy soils, High water table – surface or groundwater?
- Urban and agricultural areas
- Impacts of runoff on lakes, rivers, and estuary
- Water bodies of national importance
  - Everglades (10 ppb P concentration limit)
- TMDL Development and implementation
  - Agriculture – Voluntary, presumption of compliance, BMP Manual
    - Water management district
    - Controversial issues
  - Urban – innovative stormwater treatment solutions

UF-IFAS and Watershed Education

- Extension areas
  - Upland
    - Agriculture (vegetable, citrus, cattle)
    - Urban (Florida Yards and Neighborhood)
    - Natural Resources (Environmental)
  - Coastal Environments
    - Sea Grant

- Although upland activities impacts the coastal environment, the extension programming is not integrated

UF-IFAS and Watershed Education

- March 2001
  - Brainstorming session
    - Deans and district extension directors
    - County agents and state specialist
    - Link between agricultural, urban, and coastal programming
  - Watershed related issues go beyond the specialties
  - Agents needed training in watershed science to better serve clientele
  - Agents Training Proposed for 2002

2002 Watershed Water Quality In-service

- East Coast of Florida
- Train agents in basic watershed hydrology/water quality issues

- One day training
  - Morning – in-class
  - Afternoon – water lab and watershed tour

- In-class
  - Basic terminologies in watershed science
  - Upland – streams – river - estuary
  - Land to river - Watershed hydrology and chemical transport
  - Stream - Impacts of chemicals on aquatic environments

Watershed Water Quality In-service

- Water laboratory
  - Impacts of land use on runoff and basic water chemistry
- Watershed tour
  - Upland (Indian river watershed)
    - Agricultural areas
    - Urban areas
  - Coastal systems (Indian River Estuary)
    - Indian River Lagoon
    - Sampling and characterizing aquatic vegetation
    - Affect of light on see grasses and weeds

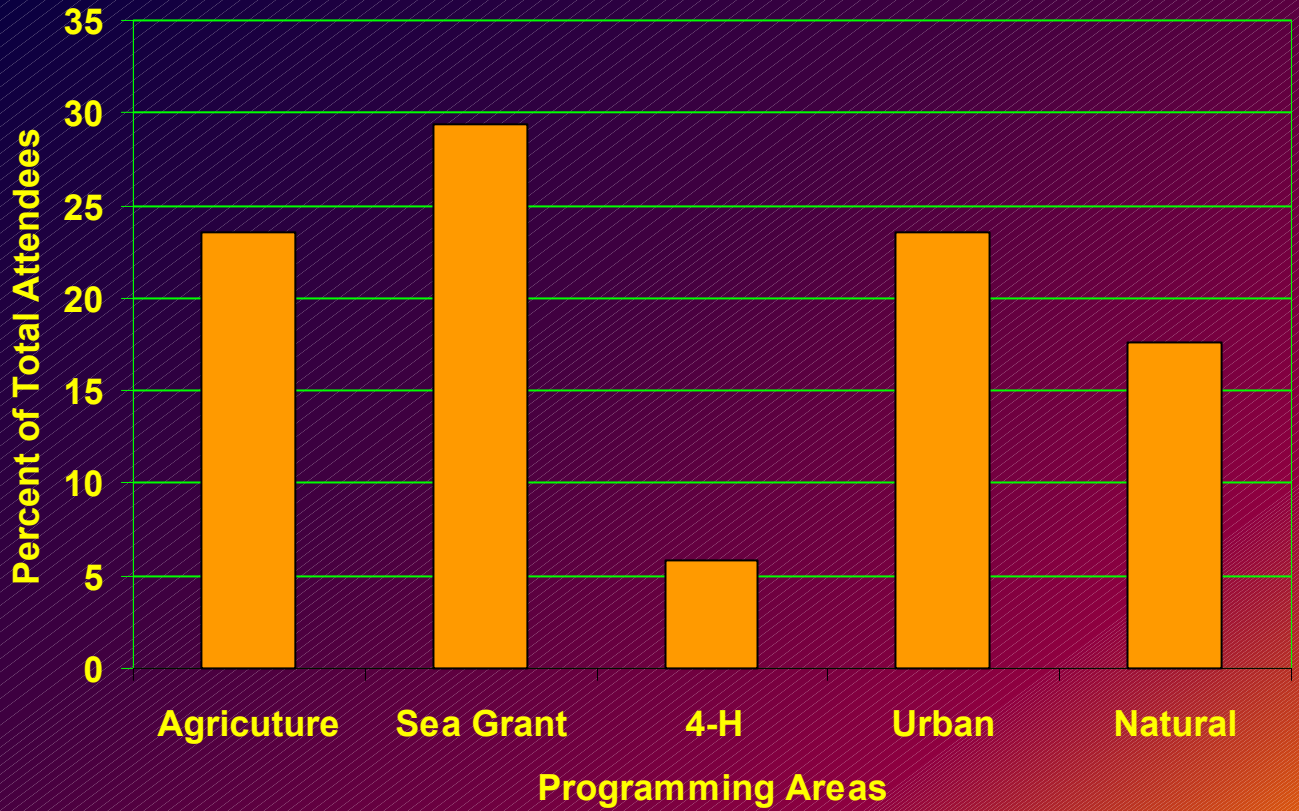
2002 Watershed Training

Field Tour – Indian River Lagoon

Field Tour – Indian River Lagoon

Evaluation

Agents by Programming Areas



Evaluation

- What attracted you to program?
  - Watershed issues in county 59 %
  - Application to their programs 35 %
  - Others 6 %
- Knowledge gained (1-5) 70%
  - Some 35% (2-4)
  - A lot 35% (5)

Evaluation

Use of Training	Percent
Provide educational and training programs	68
Conduct demonstrations	18
Assist clients with decisions	14

Evaluation
What are the 3 important issues

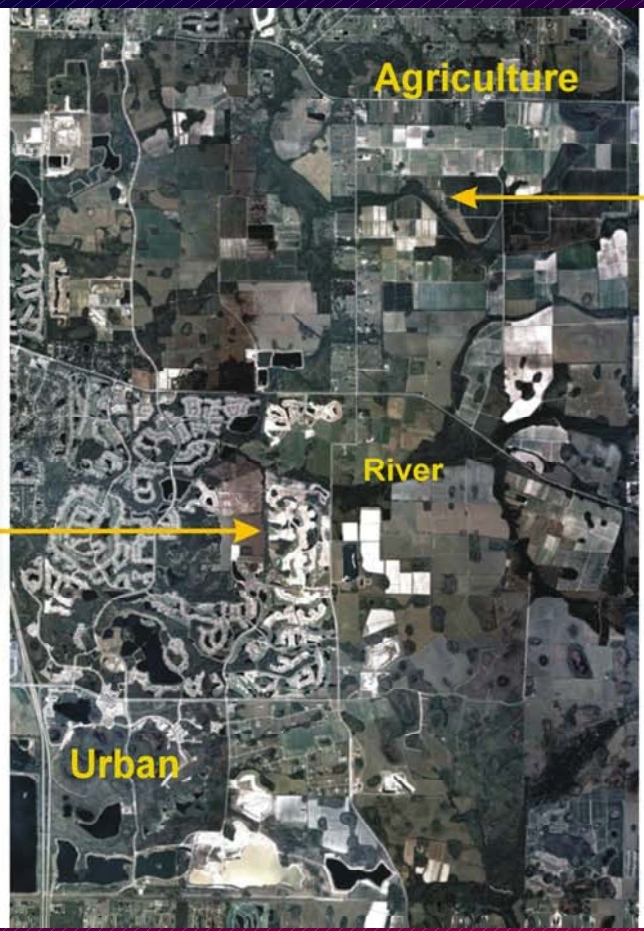
Topic	Number
Non-point source pollution	18
Water quantity and conservation	9
Flooding	3
Boaters	2
Loss of aquatic vegetation	2
Water quality	7
Closure of recreation areas	1
Others	6

2003 Watershed Water Quality In-service

Nonpoint Source Pollution

- 1.5 days (In-class - 1 day; field tour: half day)
- 25 agents
- In-class
  - Nonpoint source (NPS) pollution overview
  - NPS pollution in Florida
  - Impacts on freshwater systems
  - Impacts on estuarine systems
  - Case Study: Tampa Bay Estuary Program
  - Regulations (TMDL)
    - TMDL development and implementation
  - Water lab: Water quality monitoring

2003 Watershed Water Quality In-service Field Tour



2003 Watershed In-service Field Tour - Agriculture

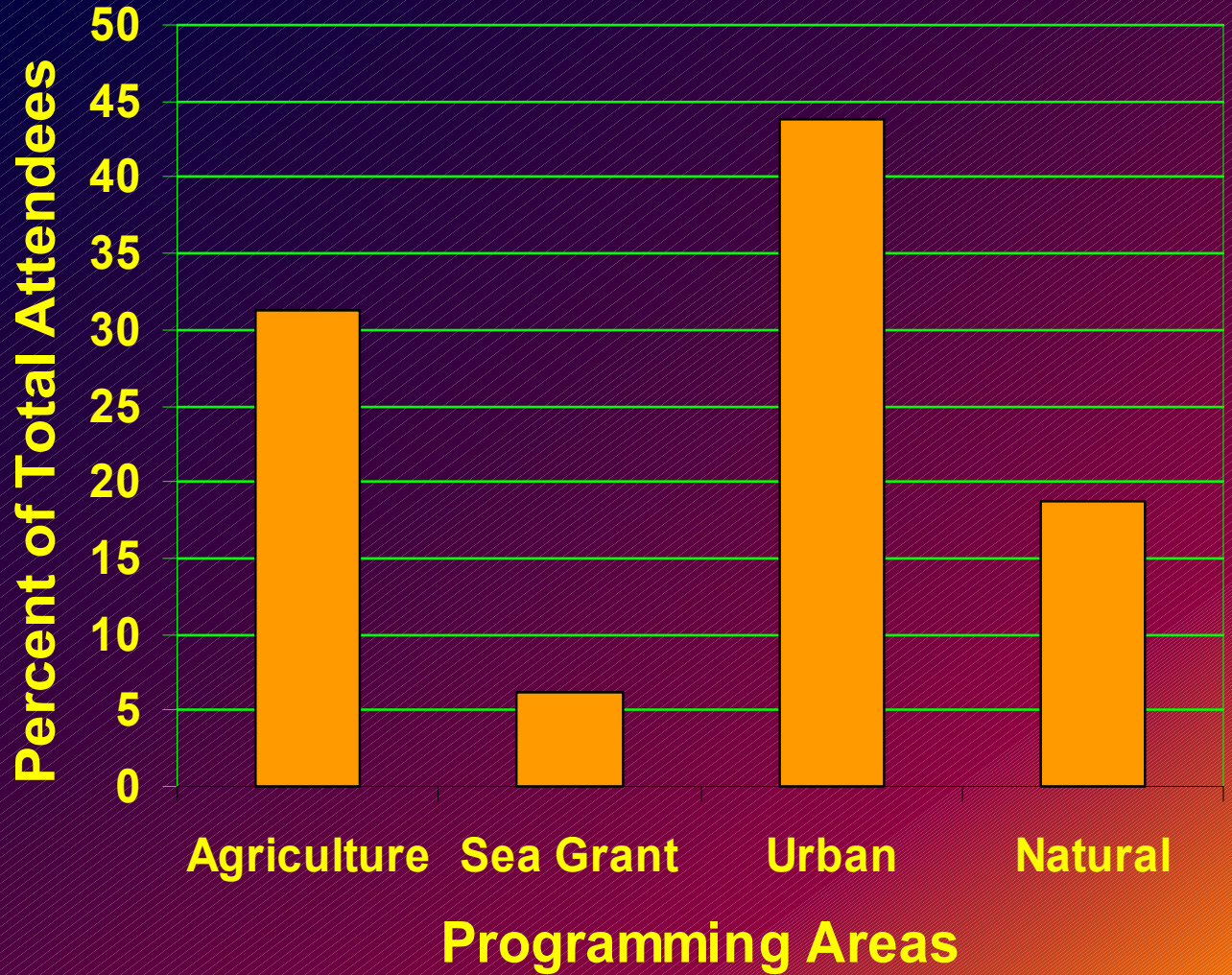
2003 Watershed In-service Field Tour - Agriculture

2003 Watershed In-service Field Tour – Stormwater Impoundments

2003 Watershed In-service Field Tour - Impoundment

2003 Watershed In-service Field Tour - Urban

Evaluation
Attendees by Programming Areas



Evaluation

- What attracted you to program
  - Application to my programs 38%
  - Watershed issues in county 25 %
  - Regulatory (TMDL) issues 19 %
  - Others (last year training, etc) 18 %

Evaluation
Knowledge Gained

- Self Evaluation (1 – 5 scale) 100%
  - Some 75% (2-4)
  - A lot 25% (5)
- Pre- and post tests 30%
  - Max 85%
  - Min 0%

Evaluation

Use of Training	Percent
Provide educational and training programs	63
Increased understanding of nonpoint source pollution	19
Assist clients with decisions	13
Others	6

Training Material

- Presentation CD for agents
- Extension Publications
  - What is a watershed
  - Watershed functions and management
- Demonstration tools
  - Impact of land use and runoff

Future Activities

- In-service training for 2004
- Explore separate training for storm water management
- Water supply and conservation issues
- Watershed training manual
- Partnership with other states