Fertilizer Pollution Reduction Strategies

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Driving Forces to Look at Fertilizers?

- Persistent Red Tide blooms in 2004-5
- Increasing macro algae problems on the beaches
- Community concerns about degrading water quality

Nutrients Affect Water Quality and Marine Life

- Nitrogen is the limiting nutrient for bays
- Fertilizers are only one source of nutrients
- Already addressing other sources such as: septic tanks, waste water treatment plants, atmospheric deposition, pet waste

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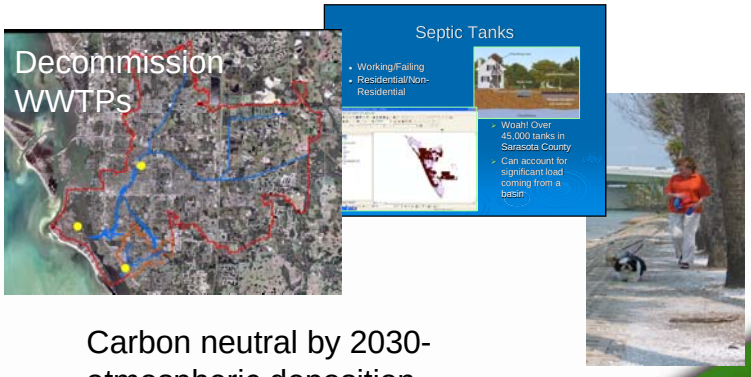
Fertilizer is only one of the sources we are addressing!



Carbon neutral by 2030- atmospheric deposition

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As a result of community concerns Sarasota County:

- Sarasota County BCC wanted to look at St. John's ordinance-decided not to emulate
- Resolution 2006-126: BCC May 24, 2006
  - County to be role model
  - County to *facilitate community conversations, develop comprehensive community-based action plan*

Comprehensive Approach using a professional facilitator

Teams included more than 95 participants representing four stakeholder groups:

1. Homeowner, condominium, civic and property management associations
2. Environmental organizations
3. Fertilization industry representatives
4. Government agencies

Process Overview

- Four groups met separately; two half-day workshops each: completed surveys, identified consensus items
- Four representatives from each stakeholder group then formed joint working group
- Joint group met on items of disagreement – one full day
- Draft report presented to all participants; changes and improvements made by consensus – one half-day
- Presentation to BCC will be on May 8, 2007

Process overview, continued

- First meeting conducted a survey
- Consensus items were put aside and the focus was on areas of disagreement
- Reports on county web site: scgov.net/fertilizer

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Fertilizer Project - Survey Results

1. Seriousness of environmental impact of fertilizer?

• Citizens	3.56
• Governments	3.25
• Environmentalist	4.42
• Fertilizer Industry	3.25
Average	3.62

1 = very low
2 = low
3 = medium
4 = high
5 = very high

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3. Where do you think the responsibility for correcting fertilizer run off concerns should be? Participants were asked to divide 100 points between and among six stakeholder groups. There was a seventh category of "other" as well.

Average		Citizens	Fertilizer Industry	Environmental .	Government
22.99	Citizens (application of fertilizer)	20.5	31.5	14.28	25.7
8.09	Environmentalists (education/advocacy)	9.8	11.6	4.28	6.7
21.56	Government (rules and regulations)	25.3	9.3	42.14	9.5
17.5	Fertilizer industry (products)	25.1	16.0	15.17	13.2
19.5	Landscape maintenance (application)	23.7	20.7	15.0	18.6
12.05	Homebuilders (design and installation)	9.5	9.2	15.0	14.5
3.86	Other	1.2	1.75	—	12.5

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4. Where do you think the emphasis should be in terms of the types of actions necessary? Each group ranked nine different potential actions on a scale of very low to very high (or 1 to 5).

	Citizens	Fertilizer Industry	Environmental	Government	Average
• Education of fertilizer manufacturers	2.42	3.0	3.4	3.0	3.08
• Education of retail sales employees	3.0	3.86	3.5	3.64	3.50
• Education of fertilizer applicators	3.84	4.10	4.0	3.85	3.94
• Education of the general public	4.07	4.5	3.8	4.07	4.11
• Legislation to control application	3.38	2.3	4.4	2.53	3.15
• Changes in landscape design	2.53	2.63	2.8	2.85	2.70
• New product development	3.66	3.15	4.0	3.85	3.65
• Coordination between governments	3.30	3.36	3.1	3.14	3.25
• Other	3.07	3.35	3.8	3.46	3.42

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6. Barriers and concerns related to fertilizers which should be addressed.

Rank		Citizens	Fertilizer Industry	Environmental	Government	Average
5	a. Need more scientific data	3.38	4.0	3.30	3.14	3.45
6	b. More best practice examples	3.58	3.6	3.57	3.0	3.43
11	c. Balanced media coverage*	3.75	3.65	3.61	2.16	3.29
14	d. Language barriers	2.0	2.85	2.92	2.33	2.52
13	e. More cost-benefit info	2.84	2.45	3.21	2.8	2.95
7	f. Better education materials*	3.53	3.9	3.5	2.66	3.39
10	g. Enforceable regulations*	3.23	2.55	2.53	4.85	3.29
9	h. More resources for programs	2.92	2.78	3.66	3.8	3.29
8	i. Better inter-government coop	3.0	2.9	3.57	3.8	3.31
2	j. Reduce lawn size (natural)*	4.2	3.15	3.21	4.57	3.78
4	k. Better pollutant measurement	3.76	3.68	3.57	3.33	3.58
1	l. Better landscape design	3.92	3.63	4.21	4.16	3.98
3	m. More environmental-friendly fertilizers	3.91	3.05	3.38	4.0	3.58
12	n. Better landscape deed restrictions*	2.55	2.63	3.35	4.2	3.18
	o. Other					

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Seven major categories

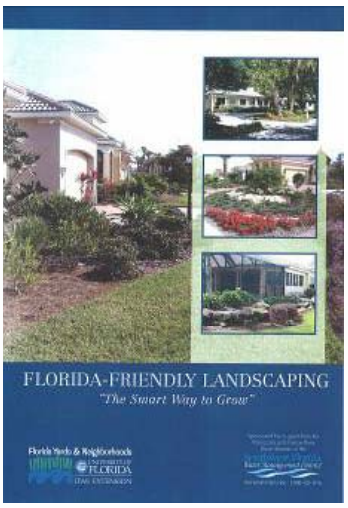
- Public education
- Licensing, certification and training of applicators
- Design and development standards
- Waterway setback zones: fertilizer-free zones
- Application timing
- Fertilizer products
- Accountability

Public education

Strong consensus from all; need to:

- Promote Florida-friendly yards, NEST, estuary programs
- Have county serve as role model
- Develop a model contract for homeowner associations; base on Best Management Practices
- Expand demo sites (Florida House, Twin Lakes Park, Elsie Quirk Library); include neighborhoods and commercial sites

Typical Florida-friendly yards



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Typical Florida-friendly yards

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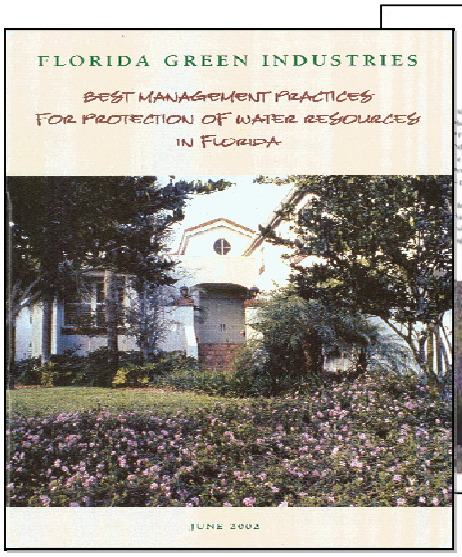
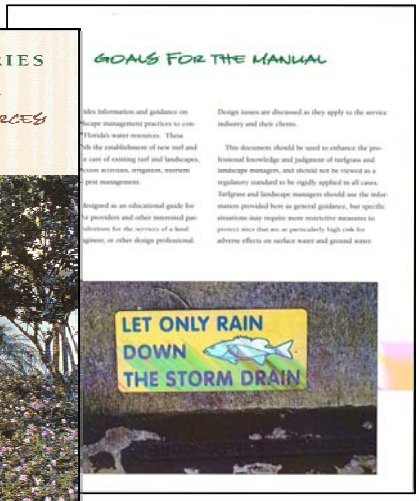
Neighborhood volunteer planting

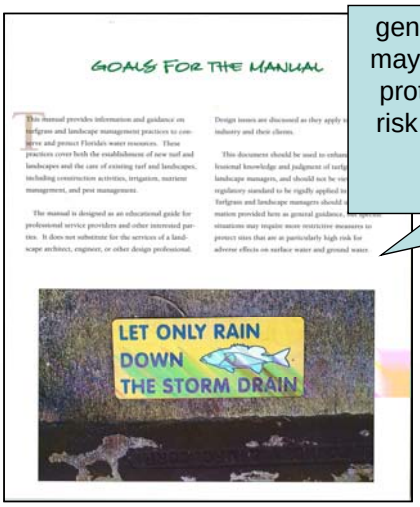
Licensing, Certification and Training

- Mandatory training and certification for occupational license
- Include commercial applicators and property managers overseeing common property
- Required for all fertilization company employees: basic training for office staff, more advanced training for applicators, sales staff and supervisors
- Continuing education required every year
- Preferred company status for no infractions

Florida Green Industries







general guidance ,but specific situations may require more restrictive measures to protect sites that are at particularly high risk for adverse effects on surface water and ground water

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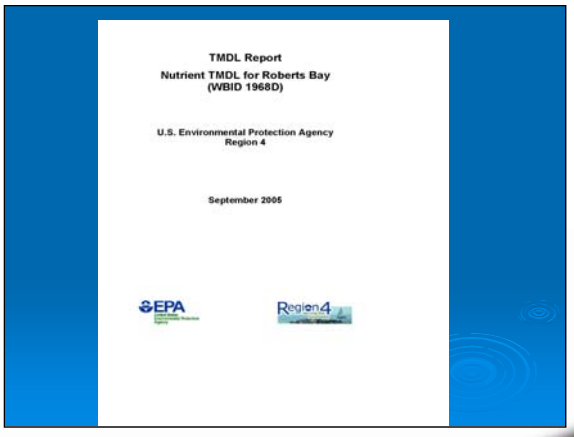
Impaired water bodies are at particularly high risk!


TMDL Report
Nutrient TMDL for Roberts Bay
(WBID 1968D)

U.S. Environmental Protection Agency
Region 4

September 2005

EPA Region4

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Success measures

- % of applicators trained, tests passed
- % of existing contracts containing county BMPs
- Amount of fertilizer sold per household by type
- # of infractions per 1,000 population
- % reduction in algae blooms
- % reduction in nitrogen and phosphorus per actual users (per household)
- % improvement in bay water clarity

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Design and development standards

Implement best fertilizer guidelines for new development

- Design environmentally sensible landscapes
- Use Low Impact Development practices: increase pervious surfaces, compact soil less and save top soil
- Stormwater runoff measured pre and post-construction
- Fertilizer-free zone
- No-mow zone

New development

No buffer along sea wall

Lack of bank stabilization

No-mow zone

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No-mow zone

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Success measures

- Pre- and post-construction runoff
- % reduction in impervious surfaces
- # of home sites in compliance with landscaping ordinance
- % of Florida native and Florida-friendly plants
- % of water quality test improvements

Fertilizer-free zones

- Setback zones from waterways are established to restrict overland runoff of fertilizers and other substances that can affect water quality and clarity

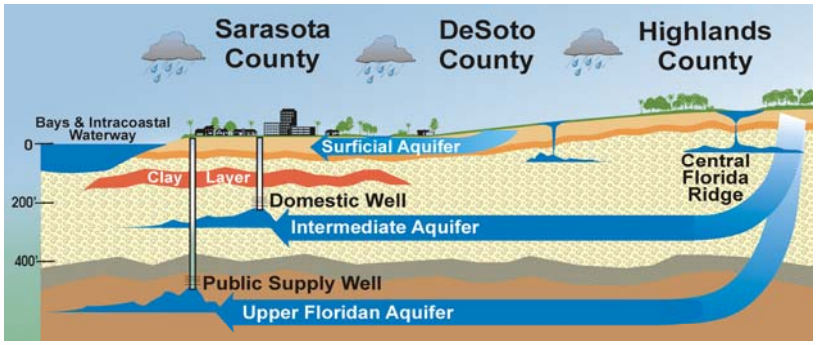
Comparison of different fertilizer-free zones in existing publications

- Green Industries Manual at least 3 feet with deflector; at least 10 feet without
- Florida Yards and Neighborhoods - 10 feet
- SWFWMD FYN 10-30 feet

"Where is the nitrate coming from?.....our own backyards"

- Gregg Jones, et. al. and Sam Upchurch
- Based on samples from 400 wells
- Data showed that source was inorganic fertilizers
- May have recharged 5-10 **miles** from discharge point

And where is it going to?



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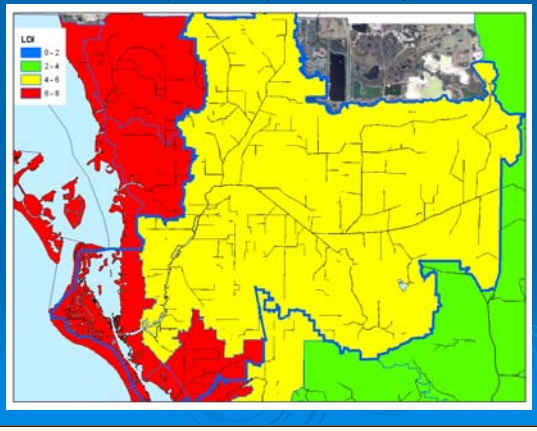
Roberts Bay Watershed
Landscape Development Intensity Index



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Shoreline treatment

Natural buffer

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Different buffer treatments

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Homeowner-planted buffer

Application Timing

Group recommended:

- Suspend nitrogen and phosphorus application from July 1 to October 1; except damaged lawns and high-use athletic fields
- New turf may need fertilizer
- Formulate special blend with no nitrogen and phosphorus

Implementation

- Partner with retailers and neighboring counties
- Enhance public education
- Encourage better labeling
- Request preferential shelf space at retail/ wholesale outlets for summer blends
- Request info signage at point of purchase

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Fertilizer products

- Promote better labeling
- Develop application guidelines
- Formulate new “Summer Blend”
- Educate re quick versus slow release
- Provide point of purchase information at retail/wholesale outlets

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Fertilizer user information

Need clear directions:

1. Use
2. Quantity
3. Frequency
4. Timing
5. Spreader setting
6. Watering
7. Calculating lawn size, application rate
8. Calibrating, maintaining spreader

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Point of purchase information

- Provide English/Spanish labels
- Explain seasonal restrictions
- Explain required fertilizer-free zone
- Explain maximum lbs per sq ft per year
- Remove excess fertilizer from impervious surfaces

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Accountability

- Stakeholders recommended fines for:
  - using nonconforming equipment
  - misapplication of fertilizer
  - violating restricted time periods
  - lack of certification

Industry was strong proponent

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Staff recommendations

1. Develop Resource Implementation Team; investigate funding, partnering options
2. Develop “summer blend” with no N or P; include iron, secondary, micronutrients
3. Revise LDR; protect from soil compaction, stockpiling topsoil, more preservation of native soils and vegetation

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Staff recommendations, more

4. Require certification in BMPs to obtain occupational license
5. Support “Train the Trainer” Program
6. Enhance educational outreach through NEST, FYN, NEPs; include demo projects
7. Pass ordinance requiring setbacks, specify type of fertilizer, timing of application

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State Preemption of Local Governments

- Florida Fertilizer and Agrichemical Association sponsored a bill to preempt local governments from regulating fertilizers. May 1st deadline to be excluded
- Sarasota County BCC passed an emergency ordinance to avoid being preempted.