

Brian Boman

bjbo@ufl.edu

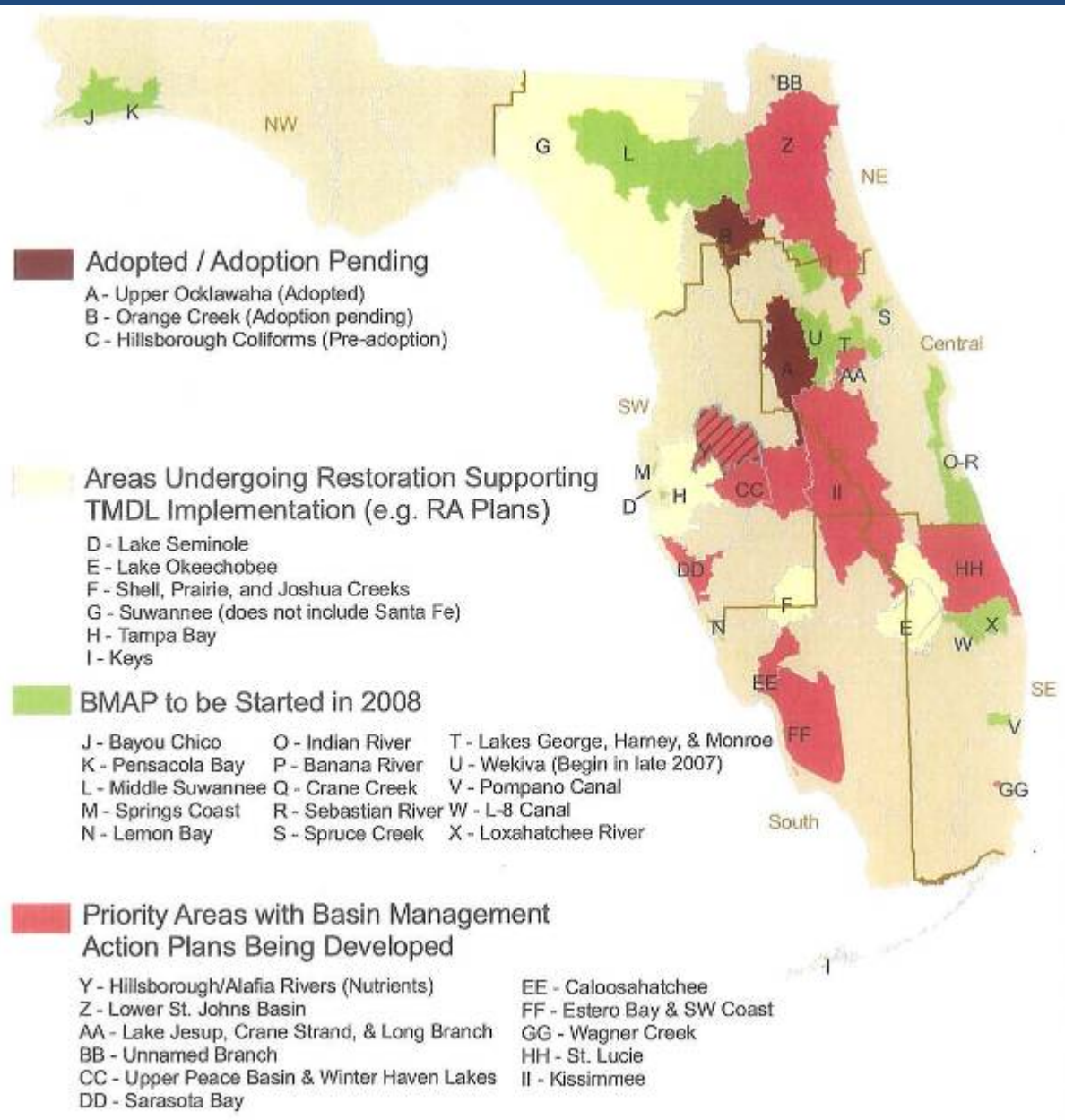
Tom Obreza

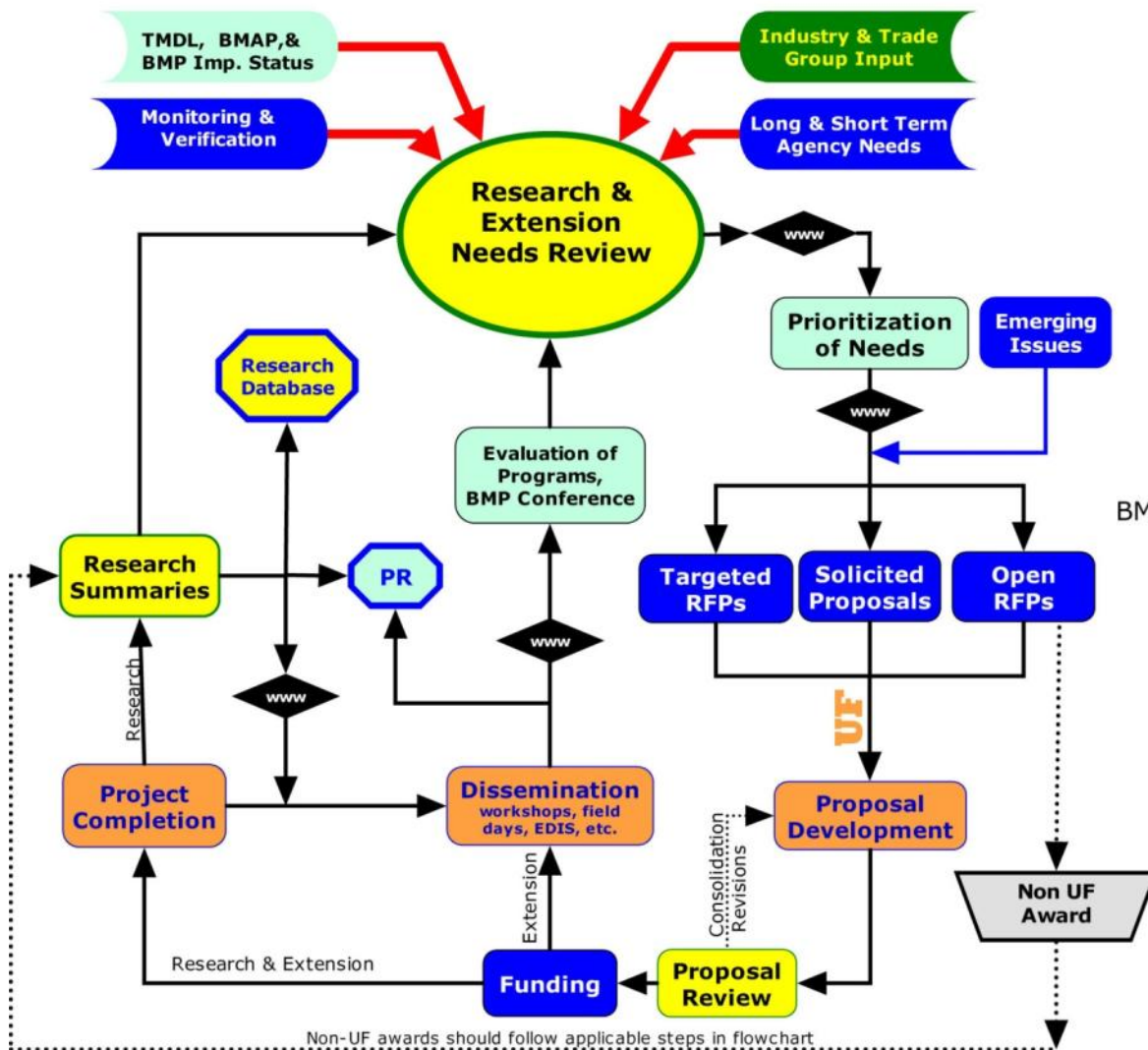
obreza@ufl.edu

Eric Simonne

esimonne@ufl.edu

TMDL and BMAP Status

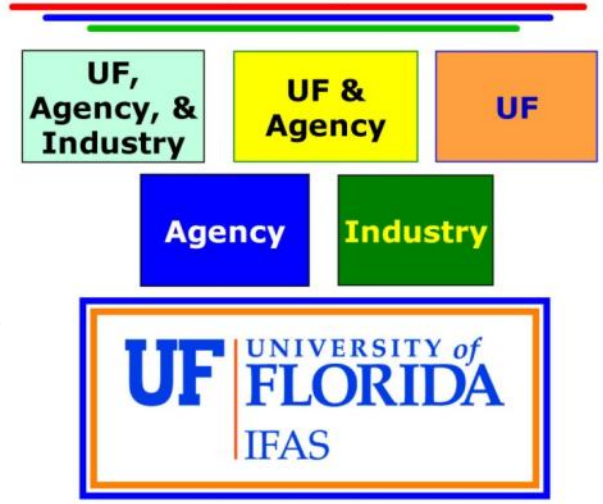




BMP Research & Extension Prioritization Cycle



BMP Research & Extension Coordinating Committee (BRECC)



BMP Website

bmp.ifas.ufl.edu

[BMP Reference Library](#)

Effects of Soil Properties on Water & Nutrient Use Efficiency, Leaching, & Runoff

- Mechanistic and quantitative linkages between soil properties and ***rate of vertical N & P movement in sandhills and karst***
- Site-specific protocol to ***predict safe lifespan of P application sites***
- Better understanding of **Bh-horizon release of P** with water table manipulation in flatwoods
- Better understanding of ***P source effects*** on transport risk & availability
- Better accounting for ***effects of native P***
- Documenting ***long term safety and efficacy of amendments used to improve soil nutrient- and moisture retention***

Irrigation Mgmt Tools

- **Sensor & ET based irrigation control**
- **Assessment of fertilizer application methods**
- **Nutrient distribution uniformity at various fertilizer rates**
- **Development of EC probes**
- **Field scale use of irrigation technologies (drip and mulched systems)**
- **Use of reclaimed water for irrigation**
 - Food safety
 - Nutrient management
 - Water quality (irrigation & groundwater)

Improving Fertilizer Use Efficiency

1. Develop short-term laboratory procedure to verify the nutrient release period claimed on CRF labels.
2. Evaluate plant response and nutrient leaching characteristics of CRF materials.
3. Economic study of CRF use including material cost, plant response, and environmental benefits.
4. Improve irrigation scheduling techniques.
5. Continue to develop precision nutrient application.
6. Variable rate irrigation.

Tissue, Sap, and Soil Testing

- **Complementary soil and tissue analyses for perennial crops and landscape plants and grasses**
- **Tool to assess N uptake efficiency & environmental loss**
- **Integrate recommendations for irrigation management with nutrient recommendations**
- **Expand VNIR techniques and continue field calibration for wider diagnostic applications**
- **Develop newer diagnostic techniques for**

Soil Amendments

- Mineralization rates
- Validation of P-Index
- Standardize analytical methods for solid wastes
- Quick test for compost maturity
- Develop passive composting systems
- Alternatives to transport and apply waste materials

Precision Application

- Improving crop sensors: existing canopy size sensors don't discern healthy from dead plants.
- Accurate data for variable rates in different soil and crop conditions is needed
- More precise data on where crop plants (and planted seeds) are + automatic tractor steering
- Variable rate irrigation
- Research is needed to develop the best VRF systems for accurate fertilizer rates and placement for various crops

Production System Constraints

- Development and evaluation of new technologies
- Continued field validation of BMP recommendations
- Increased effort on impacts of land use changes on water quality
- Improve effectiveness in communicating BMP advantages

Unavoidable Leaching & Runoff

- Tools for drainage management
- Flooding tolerance & viability of plant pathogens
- Effects of summer flooding on water & nutrient discharges, disease, and production
- Water harvesting units
- Watershed-scale flows and water quality
- Treatment eff. & dynamics of impoundments
- Tailwater reuse strategies
- Effectiveness of ditch management practices on nutrient loading

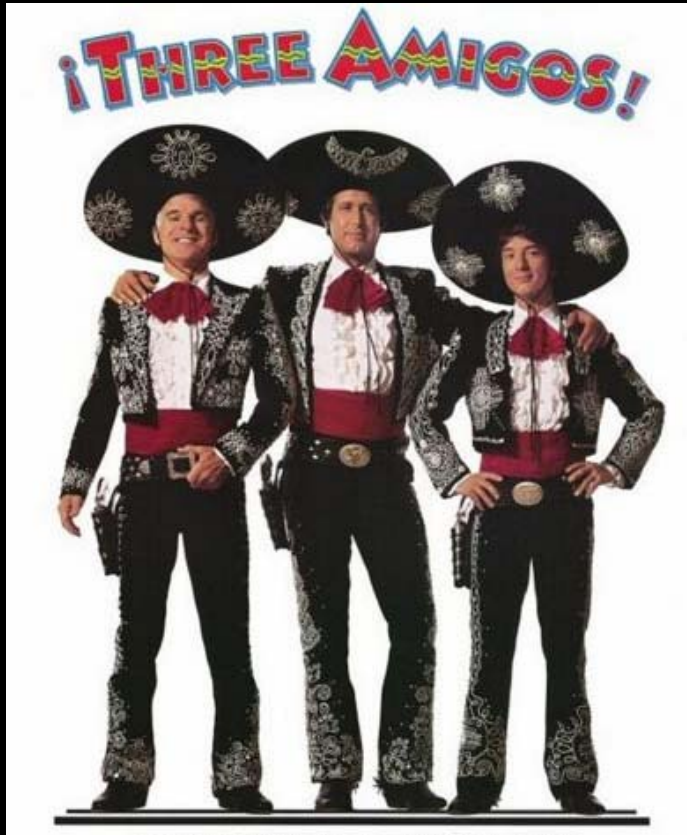
Effect of Climate on Nutrient Loss

- In-depth study of leaching rainfall frequency
- Adjustment of N fertilizer recommendations based on ENSO phase (GCM models)
- ENSO phases should be used as input for assessment of watershed level nutrient loads based on models
- FAWN support and integration with our climate information system
- Standards of on-farm weather data collection for BMP documentation

Turfgrass Topics

- Water use/ drought tolerance of warm-season grasses
- Runoff of N and P (slopes, soils, etc.)
- Impact of summer fertilization bans over long term
- Buffer areas and widths (slopes, etc.)
- Relationship of lawn fertilizer to red tide
- Fertilization programs with reclaimed water
- Fertilization of ribbons during sod grow-in
- Suitability of “long-term release” fertilizers on turf
- Integration of all landscape components in fertilization program
- Research on nutrient leaching and water use variable in some cases – Florida specific research needed!

**Irrigation &
Fertilizer
Must be
Managed
Together**



Brian Boman

bjbo@ufl.edu

Tom Obreza

obreza@ufl.edu

Eric Simonne

esimonne@ufl.edu