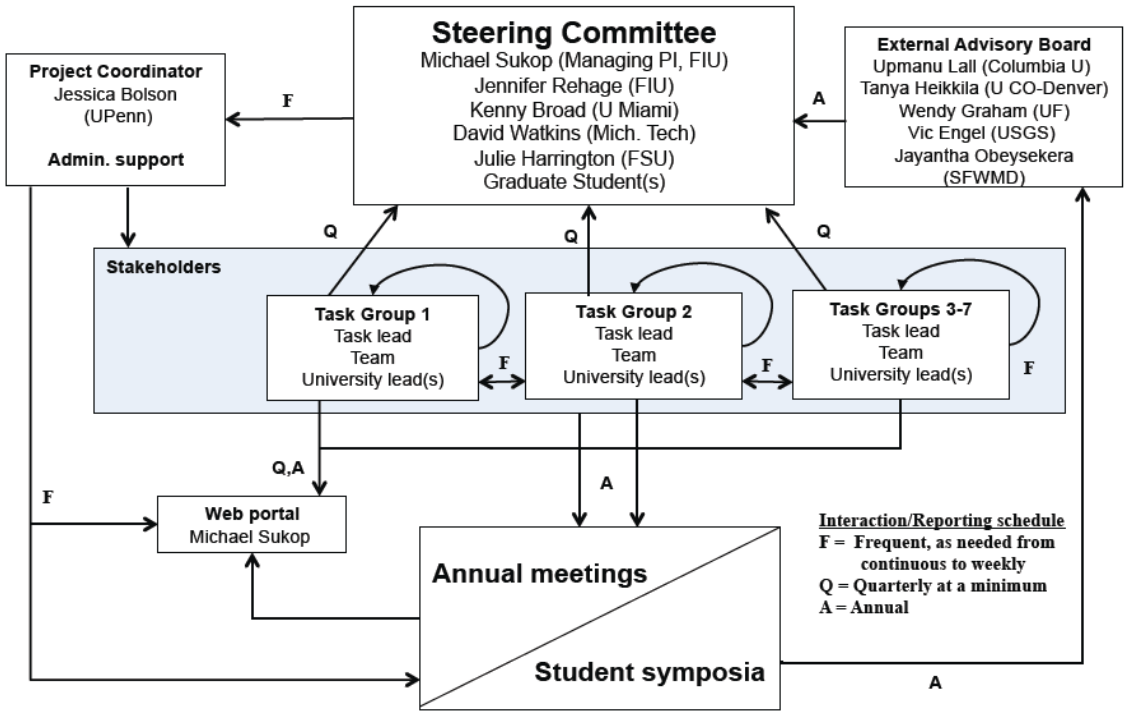
Management Plan: WSC-Category 2 Collaborative: Robust decision-making for South Florida water resources by ecosystem service valuation, hydro-economic optimization, and conflict resolution modeling

Management Structure The management plan described here has hierarchical aspects to enhance efficiency while emphasizing broad, interdisciplinary participation and cross-fertilization.

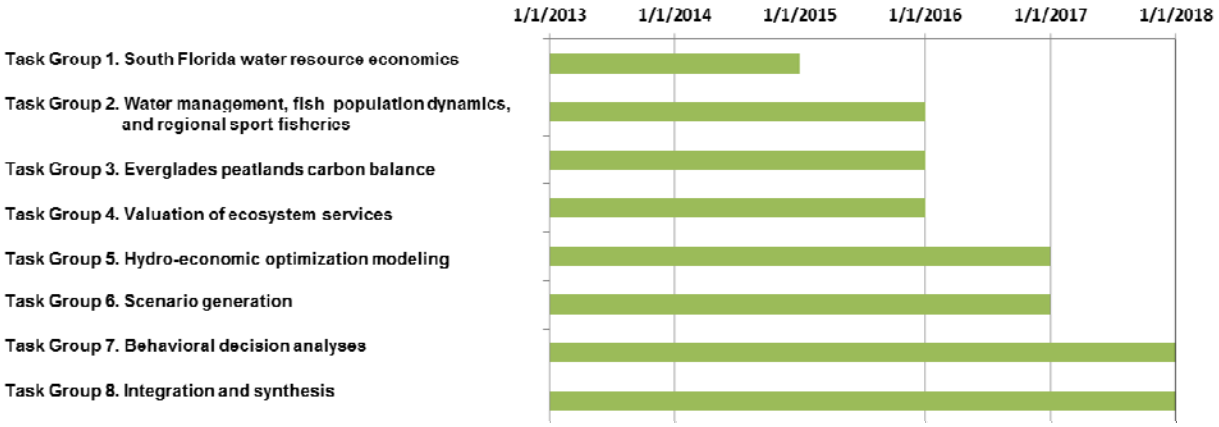


The diagram above illustrates the team's organization and lines of communication. The fundamental research will take place in interdisciplinary Task Groups. Task leads (page 3) will facilitate and encourage frequent (bi-weekly to monthly) interaction within the group and regular (monthly) communication to the larger group. Team members will include students, post-docs and PIs, and will interact with stakeholders as appropriate for the particular Task. University leads (page 3) will ensure that the team members from his/her university are meeting their objectives across tasks, including dissemination and publication of results. Overall project oversight will be conducted by an Internal Steering Committee comprised of junior and senior-level researchers from each discipline, and include at least one rotating graduate student from participating universities. This committee will ensure that interdisciplinary project objectives are being met within the Task Groups, and will be responsible for assimilating feedback from an External Advisory Board (EAB) and reporting to NSF.The EAB will be comprised of 3 university and 2 agency scientists and engineers with expertise in the interdisciplinary and regional dimensions of the project. Board members will provide verbal feedback during the semi-annual meetings in addition to written comments that will be incorporated into Annual Reports to NSF.

Website (http://sfwsc.fiu.edu, currently online) will be a central project management tool. The site will host a private forum (Trello) where Team members can post updates, ask questions, and search archives. Public pages contain our statement of objectives, research questions, links to participating individuals and institutions, and project management and collaboration tools. The site will also contain information on project organization, presentation materials, modeling results, profiles of PIs and students, publications lists, timelines and locations for meetings, and other details needed to facilitate the interactions between people and institutions involved in this

effort. Task Group blogs, forums, cloud storage for data sharing and backups will be hosted on a central server at FIU. PI Sukop manages the site.

Workplan and Timetable The project is divided into 7 primary tasks as listed on the Gantt chart below. Progress will be tracked and managed with the assistance of project management software via more detailed subtasks that cannot be described in this brief plan. Many tasks are slated for completion early in the project, as their results are crucial to subsequent tasks. Regular data and metadata uploads to the website will follow protocols outlined in the proposal.



Regular Meetings The proposal calls for a significant number of Task Group meetings, many of which will include participating stakeholders, decision-makers, and agency technical staff. Annual all-scientists meetings will consist of presentations from Task Group leads, breakout groups, and graduate student presentations and posters.

Type of meeting/activity	Participants	Intervals
Informal telephone/videoconference	Any WSC members, stakeholders, etc.	Daily, as needed
Progress updates	Project Coordinator and Managing PI	Weekly
Student-run webinar/seminar	All students and any interested participants	Monthly
Task Group reporting meetings in person or via videoconference	Task group leaders and steering committee members	Monthly
Management Meetings	Steering Committee members	Monthly
Advisory Meetings	Advisory and Steering Committee members	Semi-annual
Stakeholder meetings and interactions	Stakeholders and respective task groups	Annual and task-dependent
All-scientists meetings/ student symposium	PIs, Advisory Board, affiliated researchers, stakeholders, invited members of community	Annually

Reporting PIs and the Task Groups will report their accomplishments and findings monthly to the Steering Committee and then to the website. The Managing PI and the Steering Committee will be responsible for first developing a draft annual report from all PI and Task Group contributions prior to the Annual Meeting. Feedback during the Annual Meeting will then be used to finalize the report and to set upcoming year objectives. Annual reports will be uploaded to Fastlane and the project website. Manuscripts will be prepared for peer-reviewed publication.

Senior Personnel Links to more detailed personnel information can be found on the project website. Managing PIs Sukop and Bolson will have primary responsibility for coordinating the

team's efforts and managing the project. Sukop served as PI on two previous NSF projects including a WSC Category 1. Bolson led integrated modeling workshops with south Florida water stakeholders for her dissertation (U Miami, 2010).

Name, Discipline, Role(s), and Position	Group Number							Contribution
	1	2	3	4	5	6	7	
Mike Sukop (GEO[1]) Managing PI, FIU Lead Assoc. Prof. Earth and Environment, FIU								Hydrogeology, hydrologic modeling
Jerald Ault (BIO[2]) Prof. Marine Biology and Fisheries, U Miami		O						Fish population dynamics, ecosystem modeling, satellite-acoustic telemetry
Mahadev Bhat (SBE[3]) Prof. Natural Resource Economics & Assoc. Chair, FIU				•				Economic evaluation of fisheries
Jessica Bolson (SBE) Project Coordinator, U Penn Risk Management, Decision Processes Center							O	Participatory modeling, stakeholder interactions, water governance
Kenny Broad (SBE), U Miami Lead Director, Leonard and Jayne Abess Center for Ecosystem Science and Policy, U Miami							•	Decision-analysis, stakeholder interactions
Jeffrey Czajkowski (SBE), U Penn Risk Management, Decision Processes Center							•	Economics of natural hazards and economic decision making
Michael Flaxman (ENG[4]) Asst. Prof. Urban Technologies and Information Systems, MIT						O		Scenario planning, land use change simulation, participatory spatial modeling
Jose D. Fuentes (GEO/BIO), PSU Lead Prof. Meteorology, Penn State			•					Coastal carbon balance and CO_2 eddy covariance measurements
Julie Harrington (SBE), FSU Lead Director, Center for Economic Forecasting, FSU	O					•		Sector-based economic analyses of water use
Charles (Ross) Hinkle (GEO/BIO), UCF Lead Prof. and Chair Biology Department, UCF								Carbon budgets
David Ho (GEO/BIO), U Hawaii Lead Prof. Oceanography, U Hawaii			•					Coastal hydrology and carbon balance measurements
Joseph Hughes (GEO/BIO), USGS Hydrologist					•	•		Numerical simulation modeling, aquifer response to sea level rise
Rudolf Jaffe (GEO/BIO) Former Director, Southeast Environ. Research Center and FCE-LTER PI. Prof. Chemistry Dept., FIU.			•					Estuarine organic chemistry
David Letson (SBE) Prof. Marine Affairs and Policy, U Miami.							•	Economics of climate variations
Michael Mann (GEO) Director, Earth System Science Center at Penn State						•		Climate forecasts and downscaling
Christopher Martinez (ENG) UF Lead Asst. Prof. Agricultural & Biological Engineering, UF					•			Hydro-climatology, unregulated flows, hydrologic models
Robert Meyer (SBE), U Penn Lead Co-Director, Risk Management, Decision Processes Center at the Wharton School of Business							•	Decision-analysis, risk management
Pallab Mozumder (SBE) Asst. Prof. Earth and Environment, Economics, FIU				O			•	Designing stated-choice experiments, household surveys, hydro-economics
Jennifer Rehage (BIO) Asst. Prof. Earth and Environment, FIU		•						Fish population dynamics
Joseph Smoak (GEO), USF Lead Assoc. Prof., Env. Sci., Policy, and Geography, USF			O					Carbon burial, radionuclides as tracers in coastal sediments
David Watkins (ENG), MTU Lead Assoc. Prof. Civil and Environmental Eng., MTU					O			Hydro-economic optimization models, hydrologic scenarios, unregulated flows
Richard Weisskoff (SBE) Prof. International Studies Dept., U Miami Author, *The Economics of Everglades Restoration*	•					•		Water demands, valuation of water use

[1] Geosciences, [2] Biological Sciences, [3] Social, Behavioral, and Economic Sciences, [4] Engineering