STATEMENT OF OBJECTIVES
WET SEASON AQUATIC FAUNA AND PRIMARY PRODUCTION
IN THE FLORIDA EVERGLADES
US ARMY CORPS OF ENGINEERS JACKSONVILLE DISTRICT

Article III, (D) of the following Cooperative Ecosystems Studies Units (CESU):
Gulf Coast, Piedmont – South Atlantic Coast, South Florida-Caribbean
6 June 2021

1.0 PURPOSE

The Comprehensive Everglades Restoration Plan (CERP) 2009 Monitoring and Assessment Plan (MAP) documents the trophic hypothesis cluster that forms the basis of results-oriented monitoring programs to measure restoration success (RECOVER 2009). A key aspect of the trophic hypothesis is that restored hydrology (e.g., water depth, duration, flow, and distribution) in an oligotrophic system will improve primary production (e.g., periphyton) and aquatic fauna (e.g., crayfish, small fish, and grass shrimp) during the wet season that concentrates during the subsequent dry season to support higher trophic organisms (e.g., wading birds, alligators) (RECOVER, 2009). Periphyton is the base of the trophic hypothesis food chain and are important indicators of improved hydrology and oligotrophic conditions in the Everglades. Small aquatic prey production trends during the wet season are indicators of restored hydrologic conditions.

Primary production, more specifically periphyton, is directly affected by hydrologic and nutrient stressors, which change periphyton communities and biomass that supports aquatic fauna production during the wet season. Periphyton total phosphorus (TP) content, diatom species composition, and biomass metrics also indicate oligotrophic nutrient status in the Everglades ecosystem, which is a key defining characteristic of a restored healthy Everglades system (South Florida Ecosystem Restoration Task Force [SFERTF] 2010; Gaiser, et. al., 2009). Multi-metric (TP concentration in periphyton and ratio of periphyton community type [endemic species to weedy species]) increases accuracy of detecting oligotrophic changes in wetlands by 18% compared to just measuring periphyton TP concentrations and biomass (RECOVER, 2014). Periphyton indicator use in stoplight reporting is based on the risk assessment framework adopted by the U.S. Environmental Protection Agency for streams and wetlands (Stevenson, 1998; Stevenson and Smol 2003; Stevenson 2010). The relationship between periphyton attributes and Phosphorus are well understood for the Everglades (McCormick and Stevenson 1998; Gaiser and Ruhland 2010). How periphyton changes in response to CERP implementation overtime in a changing climate is still unknown and requires long-term data sets on trends to improve predictive capabilities in forecasting and verifying CERP performance.

Wet season prey production and trends in aquatic fauna biomass and species composition are key indicators of ecosystem status and hydrologic restoration trends (SFTRF, 2010; Trexler 2009). Primary and secondary consumer (which eat periphyton and are prey for higher consumers) density and diversity change in relationship to periphyton structure, abundance and composition, and explain variances in consumer response to hydrologic

disturbance (Sargeant, et al., 2010, and 2011). Research has shown that long-term trends in aquatic fauna biomass and composition are sensitive to water management (structural and operational changes). These long-term data sets have resulted in predictive tools to support Everglades restoration planning, as well as reporting of Everglades ecosystem status and trends. Additional key questions remain regarding the movement and distribution of aquatic fauna (both primary [small fish and invertebrates] and secondary [large fish including sportfish] consumers) with respect to restoration of hydrologic connectivity, timing, distribution, in addition to overall water depth and durations trends.

2.0 AUTHORITY

In agreement with the above stated purpose, the recipient/cooperator agrees to provide the necessary personnel, equipment, and materials required to implement, in part, the USACE objectives pursuant to the authority 10 U.S.C. § 2358 - Research and Development.

In accordance with section 6305 – Using cooperative agreements of the Federal Grant and Cooperative Agreements Act of 1977 (31 U.S.C. § 6301 et seq.), all CESU projects must carry out a public purpose of support or stimulation, instead of acquiring goods or services for the exclusive direct benefit of the United States Government. Examples of carrying out a public purpose may include, but are not limited to, the following:

- Project results are made available to a wide audience (including nonfederal entities)
- Project results/outputs add to the scientific literature/knowledge base, with applicability and utility beyond the scope of the project footprint/study area
- Academic and other nonfederal partner institutions (and their personnel) gain professional experience, increase knowledge, and develop skills and abilities
- Students benefit from direct interaction with federal scientists, program and technical staff, and field unit managers

In accordance with section 6305 – Using cooperative agreements of the Federal Grant and Cooperative Agreements Act of 1977 (31 U.S.C. § 6301 et seq.), substantial involvement is expected between the Department of Defense and the recipient when carrying out the activity contemplated by the cooperative agreement. The DoD agrees to participate at a national level in support of the CESU program as accepted in the Master MOU for the establishment and continuation of the CESU program Article II 1-4 and Article VI 1-7.

The USACE will participate in study site selections, design, and work plan development. USACE will participate in field data collection efforts as appropriate, will review quarterly status reports, and will provide input to data interpretation for final reports, as well as review quarterly, annual and final reports. USACE will incorporate the data and analysis into a system-wide database that assesses and evaluates ecosystem restoration efforts in central and southern Florida. Scientific and technical information generated from the project will be utilized to evaluate project/restoration performance and system

responses to be used in the development of assessment reports describing and interpreting those responses.

3.0 DESCRIPTION OF OBJECTIVES

I- Establish pre-CERP (Everglades Scale) and CERP project (regional/local scale) reference conditions and variability in primary production (periphyton) and aquatic fauna (prey).

II- Determine the status and trends of periphyton and aquatic fauna populations over short, medium, and long-term temporal and spatial scales.

III- Detect unexpected responses of the ecosystem (periphyton oligotrophic nutrient status and wet season aquatic fauna production) to changes in stressors resulting from CERP activities, climate change, and sea level rise.

IV- Support scientific investigations and tool development designed to increase ecosystem understanding, cause and effect, and interpret unanticipated results in primary producers and wet season aquatic fauna performance.

V- Prepare summary report of data, analysis, and conclusions related to study objectives for each funded period of performance and final synoptic report at the conclusion of this study. These reports will be disseminated by USACE for public education and potential academic use.

PROJECT TASKS

3.1 Task 1 – Kick-off Meeting (**Mandatory**):

The Principal Investigator (PI) shall conduct a Kick-off Meeting with the USACE within ten (10) business days of contract execution. This meeting shall be an informal discussion between the PI and USACE. At this meeting the PI shall introduce the project team and define the project chain of command. The USACE will communicate to the PI any methodological requirements to be used when sampling and reporting tasks as outlined. These methodologies are briefly described in this CA in the activities above. The MAP Assessment Strategy (RECOVER 2006) provides guidance in assessment methodologies. The Kick-off Meeting shall provide the opportunity for the PI and USACE to coordinate the project's tasks that outlined below.

Within ten (10) days following the Kick-off Meeting, the PI shall submit an electronic summary (Draft Work Plan) of the meeting. The RECOVER Project Manager (PM) will respond with comments to the PI within ten (10) business days after the receipt by the USACE of the Draft Work Plan. The PI shall address comments and submit a Final Work Plan, which will be submitted to the USACE ten (10) days of its receipt by the PI. Upon its approval in writing by the USACE RECOVER PM, the Final Work Plan shall become the working document for this

CA. The PI shall proceed with the performance of the work order in accordance with the approved Final Work Plan and the requirements of this CA. In the event of any conflict between this CA and the Final Work Plan, the Final Work Plan shall take precedence. The Final Work Plan will be updated as necessary at the beginning of each new Option Period.

The PI shall also begin preparations to execute field sampling within ten (10) days of CA execution. This includes acquiring and assembling any specialty equipment needed and working with USACE staff to become familiar with sampling protocols and equipment provided to the PI by the USACE.

3.2 Task 2 – Aquatic Fauna Sampling **(Mandatory):**

Sample wet season aquatic fauna using primary sampling units grouped within landscape sampling units (LSUs) following the guidelines from Philippi (2003, 2005) and based on a spatially balanced recursive tessellation design (Stevens and Olsen 2004) as identified in the 2013 Aquatic Fauna and Periphyton Production Report (Trexler and Gaiser 2013). Aquatic fauna must be sampled from LSUs in the Water Conservation Areas and Everglades National Park during the late wet season (September to November). Species counts, weight (g/m^2) must be recorded. Sampling should be conducted using 1x1m throw traps for data consistency with prior sampling years. This is also an option period task.

3.3 Task 3 – Primary Production Sampling **(Mandatory**):

Sample periphyton using primary sampling units (PSUs, 800 m^2 areas) grouped within Landscape Sampling Units (LSUs), choosing three random coordinates within Primary Sampling Units (PSUs) for sampling as explained in (Trexler and Gaiser 2013) using CERP Quality Assurance Systems Requirements protocols (CERP, 2007). Water depth must be between 5cm and 1m with no dense macrophyte cover (e.g., cattail stands, sawgrass ridge, tree island). 120-190 sites should be visited during mid-wet season Jul-Sep with a subset of those sites (50-60) revisited twice during the dry season (December to April). Triplicate samples of periphyton must be taken using mesh sized $1m^3$ trap to enclose marsh. Periphyton aerial cover (%) visually assessed and periphyton removed and measured for biovolume (ml/m^2) using perforated graduate cylinder. Sub samples are taken to lab to estimate dry weight (mass after drying to constant weight at 100°C, ash–free dry mass (difference between dry mass and loss after combustion) and chlorophyll a mass (micro grams/m^2). In addition, the following must be collected at each sampling site to understand site characteristics related to periphyton: water depth using a meter stick; water samples for pH and conductivity; plant cover estimate as proportion of m^2 quadrat covered by plants and stem density; and soil depth measured to bedrock with probe-rod. This is also an option period task.

3.4 Task 4 – Data Analyses **(Mandatory)**:

Collected data in base year and any subsequent option years must be analyzed and report the following:

- Periphyton Data - Chrolophyll a concentration (micro grams/ gram of dry weight), periphyton TP (micro grams/ g dry weight), and mineral content (%, or converse, organic content), compositional analyses to enumerate soft algae (relative biovolume of species) and diatom assemblage (relative abundance of taxa), and non-calcareous diatoms (sum of all non-endemic taxa (see Gaiser et al., 2006) in a multimetric index (stoplight indicator) approach (see Gaiser 2009) and related to hydrologic and other abiotic factors occurring in time and space at local project, regional, and system scales. Base year to include identification of over 1,500 samples collected from 2012 through 2016. Unless otherwise specified, option year tasks would focus only on periphyton biomass, TP, chlorophyll, and mineral content analyses.

- Aquatic Fauna – Species composition and biomass compared to hydrologic conditions and other abiotic and biotic conditions occurring in time and space at local (CERP project), regional, and system scales. Summary of data should be compared to hydrology to identify mean biomass (g/m^2) wet weight for crayfish (*Procambarus fallax* and *P. alleni*), marsh fishes (all species summed), and grass shrimp (*Palaemonetes paludosus*).

- Hypotheses - Analyses should compare primary production and wet season aquatic fauna abundance and density to dry season concentrations of the same assemblage of aquatic fauna. The discussion of results should also consider wading bird and alligator abundance and nesting trends collected by other PIs, which will be coordinated through the RECOVER Greater Everglades Regional Team.

3.5 Task 5 – Participation in Regional Team Support **(Mandatory)**:

The PI shall be required to work with the Greater Everglades Regional Team and the Regional Coordinator(s) to assist in the development of upcoming RECOVER System Status Report (SSR) and Interim Goals and Interim Targets (IGIT) Report.

The RECOVER SSR is developed on a multi-year schedule (starting in 2006) in coordination with the National Academy of Sciences Report to provide an assessment of whether goals of the CERP are being achieved and to document the existing conditions of the ecosystem. An SSR was released in 2019 and their continued development is ongoing.

The PI shall provide up to ten (10) days to work with the RECOVER Regional Coordinator(s) to assist in the development of the SSR as applicable. The majority

of information provided will be drawn from the Annual Report submitted for Task 4. The USACE RECOVER PM will provide clear and concise instructions for the PI to guide efforts for assistance with development of SSR.

The PI shall attend, and participate in, regular Greater Everglades Regional Team meetings and landscape sub-team meetings during the course of the contract.

The PI will attend a Regional Team or other science meeting when scheduled by the Greater Everglades Regional Coordinator(s) after the conclusion of field monitoring executed under this proposed CA.

The PI will also provide a presentation to the Regional Team or other science meetings as directed by the USACE RECOVER PM during the course of the contract. This presentation shall include a MS PowerPoint presentation that summarizes all work that has been done including data analysis and interpretations that highlight all spatial and statistical relationships found. Finally, the PI shall list recommendations for further data analysis and/or collection.

The PI shall provide the USACE an electronic copy via email of the MS PowerPoint presentation made at the scheduled Regional Team meeting. In the event that electronic files are too large to submit via email, the PI may choose to transfer such files through an FTP site or to provide it on a compact disc.

- The PI shall attend and participate in Greater Everglades Regional Team meetings (approximately three [3] in each fiscal year).
    - Time and effort associated with SSR and IGIT
    - Modeling and interpretation of results

3.6 Task 6 – Expand Spatial Scope of Aquatic Fauna and Primary Production Sampling **(Optional)**:

Additional sampling, as outlined in Task 2 and Task 3, at sites in LSUs beyond Water Conservation Areas and Everglades National Park (i.e., Corbette/Pal Mar; Western Basins; Big Cypress; Holeyland and Rottenberger) may be considered if specific RECOVER and/or CERP Project needs align with the objectives outlined in this CA. The ability to conduct such sampling is subject to funding availability. Specific (task-level) objectives will be identified, reviewed, and approved by USACE and the PI prior the initiation of this Task.

3.7 Task 7 – Performance Measure Updates (**Optional**):

RECOVER uses predictive models to evaluate CERP progress and CERP project performance. Data generated from Tasks 2-4 outlined above may be used to produce, update, and inform existing related RECOVER Performance Measures: the Prey-based Fish Density Performance Measure and the Periphyton Total Phosphorus and Edibility Performance Measure.

The initiation of this Task is subject to the availability of funding and must be submitted as part of the annual project work plan. Prior to the initiation of this Task, the PI and USACE PM will identify and agree upon task objectives relating to each Performance Measure.

Please review attached RECOVER Performance Measure Documentation Sheets for more information:

- GE Wetland Trophic Relationships – Periphyton Performance Measure (Attachment 1)
- GE Aquatic Trophic Levels – Prey-based Freshwater Fish Density Performance Measure (Attachment 2)

4.0 CONSIDERATION

The cooperator is not required to perform services on holidays.

New Year's Day	Labor Day
Martin Luther King Jr.'s Birthday	Columbus Day
Washington's Birthday	Veteran's Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

5.0 QUALIFICATIONS

Biographical sketches are required for each of the personnel supporting this project. The NFE will coordinate with USACE before any key personnel changes or hiring.

6.0 GOVERNMENT FURNISHED MATERIALS OR PROPERTY

6.1 Physical Data: Data sets and information associated with this project are the property of DOD and USACE. No release of information or data is allowed without a written approval from the DOD or USACE.

6.2 Equipment, Supplies, and Materials:
Government furnished materials or property is governed by 2 C.F.R. Part 200.312 which states that a) Title to federally-owned property remains vested in the Federal government. The non-Federal entity must submit annually an inventory listing of federally-owned property in its custody to the Federal awarding agency. Upon completion of the Federal award or when the property is no longer needed, the non-Federal entity must return the property to the Federal awarding agency for further Federal agency utilization.

7.0 OPTION PERIODS

Four (4), twelve (12) month option periods are anticipated subject to availability of funds

8.0 PERIOD OF PERFORMANCE

8.1 Base Period (Mandatory Tasks) will be for a 12-month period from the award of cooperative agreement.
8.2 Base Period (Optional Tasks) will be for a 12-month period from the award and shall be exercised prior to expiration of the Base Period (Mandatory Tasks).
8.3 Option Period 1 (Mandatory Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of the Base Period (Mandatory Tasks).
8.4 Option Period 1 (Optional Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 1 (Mandatory Tasks).
8.5 Option Period 2 (Mandatory Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 1 (Mandatory Tasks).
8.6 Option Period 2 (Optional Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 2 (Mandatory Tasks).
8.7 Option Period 3 (Mandatory Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 2 (Mandatory Tasks).
8.8 Option Period 3 (Optional Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 3 (Mandatory Tasks).
8.9 Option Period 4 (Mandatory Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 3 (Mandatory Tasks)..
8.10 Option Period 4 (Optional Tasks) will be for a 12-month period from the award and shall be exercised prior to the expiration of Option Period 4 (Mandatory Tasks)

9.0 COORDINATION

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10.0 DELIVERABLES
Detailed descriptions of any required deliverables required (reports, plans, etc.) and formats. Provide delivery schedules. At a minimum these deliverables should include:

10.1 Work Plan (see Task 1)

10.1.1 One (1) electronic copy (email attachment in MS Word format) of a Draft Work Plan shall be submitted within ten (10) days after the execution of the work order.

10.1.2 One (1) electronic copy (email attachment in MS Word format) of the Final Work Plan shall be submitted within thirty (30) days after the execution of the work order.

10.2 Four (4) Quarterly Status Reports will be submitted every December, March, June, and September of each year of the proposal. These Quarterly Status Reports will summarize progress made on data acquisition and analysis, update budget status, and point out any problems that may have arisen during the previous three months, suggesting how the CA might be modified to address the problems. The September quarterly report will be included in the annual report.

10.2.1 Quarterly Status Reports: Electronic copy (email attachment in Microsoft [MS] Word format) of the Quarterly Status Report every December, March, June, and September.

10.3 Annual Reports will be submitted in September of each year and will present results from the year's data collection and analyze spatial and temporal trends in the parameters. In particular, the Annual Reports will integrate information regarding these patterns and their relationships to hydrological conditions. The Annual Reports will include raw data, summaries of analyses, discussion of results, and conclusions. The Annual Reports will summarize results to date, provide the information needed to develop the next System Status Report (SSR), and include an assessment and/or analysis of the data as it relates to CERP hypotheses from the MAP. The Draft Annual Report will be reviewed by the USACE RECOVER Technical POC and the RECOVER Greater Everglades Regional Coordinators within fifteen (15) days upon submission. Comments will will be provided for the PI to address in the Final Annual Report. A data file of all quality assured raw data will accompany each Annual Report.

10.3.1 Deliverable 2.1: Electronic copy (email attachment in MS Word format) of a Draft Annual Report will be submitted in September of each year.

10.3.2 Deliverable 2.2: Electronic copy (email attachment in MS Word format) of a Final Annual Report will be submitted in September of each year.

10.4 Annual Inventory – Federally owned property - an annual inventory listing Federal property (to include description of the property, a serial number or other identification number) that is in the custody of the recipient; Copies to be sent to USACE POCs.

10.4.1 Annual Inventory Deliverable: Electronic copy (MS Excel or MS Word) documenting Federal property obtained through this CA (to

include description of the property, a serial number or other identification number).

10.5 Annual Inventory – Acquired Property purchased with funding from award - property records must be maintained that includes description of the property, serial number or other identification number, source of funding, who holds title, acquisition date, cost of property, percentage of Federal participation in project costs, location, use and condition of property, and ultimate disposition including date of disposal and sale price. A physical inventory must be taken and results reconciled every two years. Electronic copies of the inventory must be sent annually to USACE POCs.

10.6 PI Contribution to the System Status Report (SSR) – Results of the work performed under this proposed CA will be used to develop the cumulative annual findings outlined in the System Status Report (SSR). The SSR provides a system-wide assessment of results from the MAP and impacts of the CERP implementation. The Principal Investigator(s) (PI) of this proposed CA will be required to work with the GE Module Leads in developing the SSR and their participation will be included as a task in this work breakdown structure.

The Annual Reports and SSRs will be used to develop a RECOVER Technical Report at five-year intervals, as pursuant to the regulations [Section 385.31 (b)(4)]. The Technical Report presents an assessment of whether the goals and purposes of the CERP are being achieved. The Report will also include an assessment of whether the Interim Goals and Interim Targets are being achieved, or likely to be achieved, and an evaluation of whether corrective actions should be considered based on scientific findings of system-wide or regional ecological needs.

10.7 Final Project Report

An electronic copy of a draft final report should be submitted no later than one (1) month before end of the final performance period of the CA. At a minimum, the report shall contain an introduction section, and one section for each Task identified in the Final Work Plan. For each Task, the report shall summarize work accomplished for the Task including a discussion of results and next steps, if applicable. USACE POCs staff will review and provide comments, if any, within fifteen (15) calendar days after receipt.

10.7.1 Draft Annual Report Deliverable: Electronic copy (email attachment in MS Word format) of a Draft Annual Report will be submitted in September of each year.

The PI will submit an electronic copy of the final report, incorporating USACE POC review comments on the draft, if any, shall be submitted no later than fifteen

(15) days after receipt of the USACE POC comments. Additionally, one (1) copy of the final report shall be submitted in a MSWord file(s), on digital media.

10.7.2 Final Project Report Deliverable: Electronic copy (email attachment in MS Word format) of a Final Annual Report will be submitted in September of each year.

10.7.3 Final Project Data Deliverable: Electronic copy (email attachment in MS Excel or CSV format) containing all data produced and assessed for the duration of the CA including, but not limited to, Quarterly Reports, Annual Reports, Performance Measures, System Status Reports, and Interim Goals and Interim Targets Reports.

11.0 This cooperative agreement may be administered through a CESU only upon mutual agreement and official authorization by both parties of the acceptance of the application of the CESU Network IDC rate (17.5%).\

Any resulting cooperative agreement will be subject to and recipient/cooperator shall comply with 2 CFR 200.313 “Equipment”, 200.314 “Supplies”, and 200.315 “Intangible Property” which includes use of research data.

12.0 REFERENCES

Comprehensive Everglades Restoration Program (CERP) 2009. CERP Monitoring and Assessment Plan. Comprehensive Everglades Restoration Plan, Restoration Coordination and Verification (RECOVER).

Comprehensive Everglades Restoration Program (CERP) 2007. Quality Assurance Systems Requirements: Periphyton.

Gaiser, E. 2009. Periphyton as an indicator of restoration in the Everglades. Ecological Indicators. 9: S37-S45.

Gaiser, E. E., J. H. Richards, J. C. Trexler, R. D. Jones & D. L. Childers. 2006. Periphyton responses to eutrophication in the Florida Everglades: Cross-system patterns of structural and compositional change. Limnology and Oceanography 51: 617-630.

Gaiser, E. and K. Rühland. 2010. Diatoms as indicators of environmental change in wetlands and peatlands. In Smol, J. and E. Stoermer (Eds.), The Diatoms: Applications in Environmental and Earth Sciences. Cambridge. pp. 473-496.

McCormick, P.A., & R.J. Stevenson. 1998. Periphyton as a tool for ecological assessment and management in the Florida Everglades. J. Phycol. 4: 726-733.

Philippi, T. 2003. Final Report. CERP Monitoring and Assessment Plan: Stratified Random Sampling Plan. South Florida Water Management District.

Philippi, T. 2005. Final report. CERP MAP Implementation: Transect and Sentinel Site Sampling Design. South Florida Water Management District.

RECOVER. 2006. Monitoring and Assessment Plan (MAP), Part 2 2006 Assessment Strategy for the Monitoring and Assessment Plan. Restoration Coordination and Verification Program c/o US Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL.

RECOVER. 2009. Revised CERP Monitoring and Assessment Plan. Restoration Coordination and Verification Program c/o US Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL. http://141.232.10.32/pm/recover/recover_map_2009.aspx

RECOVER, 2014. 2014 System Status Report – Greater Everglades Chapter. http://141.232.10.32/pm/ssr_2014/Docs/mod_ge_2014.pdf

RECOVER, 2015. CERP Program-Level Adaptive Management Plan. http://www.saj.usace.army.mil/Portals/44/docs/Environmental/RECOVER/20151019_CERPPROGRAMAMPLAN_DCT_APPROVED.pdf

Sargeant, B., E. Gaiser & J. Trexler. 2010. Biotic and abiotic determinants of intermediate-consumer trophic diversity in the Florida Everglades. Marine and Freshwater Research. 61: 11-22. 36

Sargeant, B., E. Gaiser and J. Trexler. 2011. Indirect and direct controls of macroinvertebrates and small fish by abiotic factors and trophic interactions in the Florida Everglades. Freshwater Biology. 56: 2334-2346.

South Florida Ecosystem Restoration Task Force 2010. System-wide Ecological Indicators for Everglades Restoration. 2010 Report. http://www.sfrestore.org/documents/Final_System-wide_Ecological_Indicators.pdf

Stevens D. L. and A. R. Olsen. 2003. Variance estimation for spatially balanced samples of environmental resources. Environmetrics 14:593-610.

Stevenson, R. J. 1998. Diatom indicators of stream and wetland stressors in a risk management framework. Environmental Monitoring and Assessment 51: 107–18.

Stevenson, R. Jan, and John P. Smol. 2003. Use of algae in environmental assessments. In J. D. Wehrand and R. G. Sheath. Freshwater Algae in North America: Classification and Ecology Academic Press, pp. 775-804.

Stevenson, R. J., Y. Pan, and H. Van Dam. 2010. Assessing environmental condition in rivers and streams with diatoms. In J. P. Smol and E. F. Stoermer, Eds. The Diatoms: Applications for the Environmental and Earth Sciences, 2nd Edition. Cambridge.

Trexler, J. C. and C. W. Goss. 2009. Aquatic fauna as indicators for Everglades restoration: Applying dynamic targets in assessments. Ecological Indicators 9:108-11

Trexler, J.C. and E. Gaiser. 2013. Annual Report – Aquatic Fauna and Periphyton Production Data Collection. Miami, Fl: Southeast Research Center, Department of Biological Sciences, Florida International University. http://141.232.10.32/pm/ssr_2014/Docs/wet_season_aquatic_fauna_periphyton_2013.pdf

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