A Unique History: Long-Term Ecological Data at the FCE LTER Program

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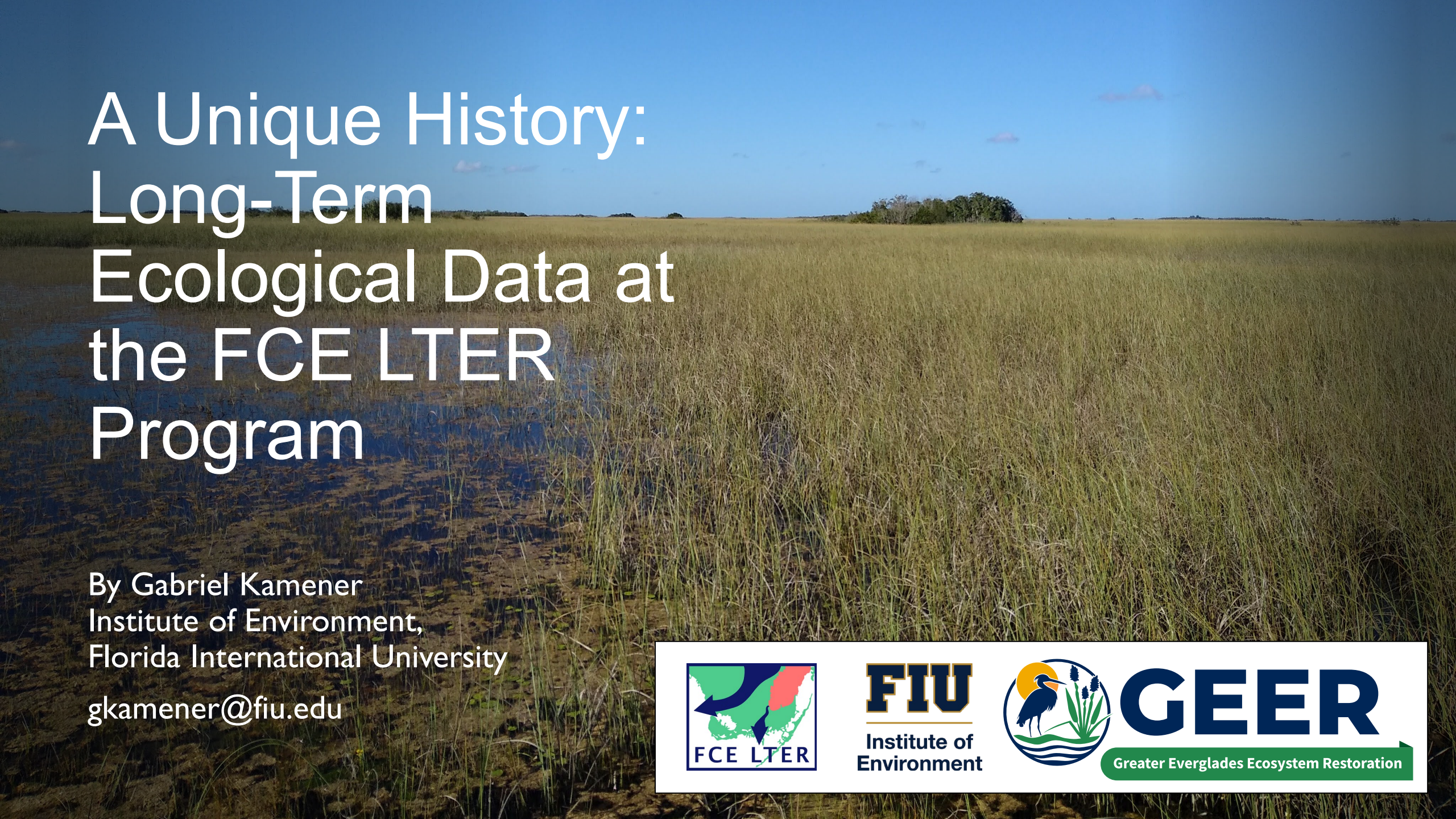


Outline

- Introduction
  - FCE and the LTER Network
  - Where we are with our data
  - How did we get here?
- FCE I (2000-2006)
- FCE II (2007-2012)
- FCE III (2013-2018)
- FCE IV (2019-2025)
- Future improvements

Introduction

- Florida Coastal Everglades Long Term Ecological Research (FCE LTER) Program began in 2000
- Part of the LTER Network

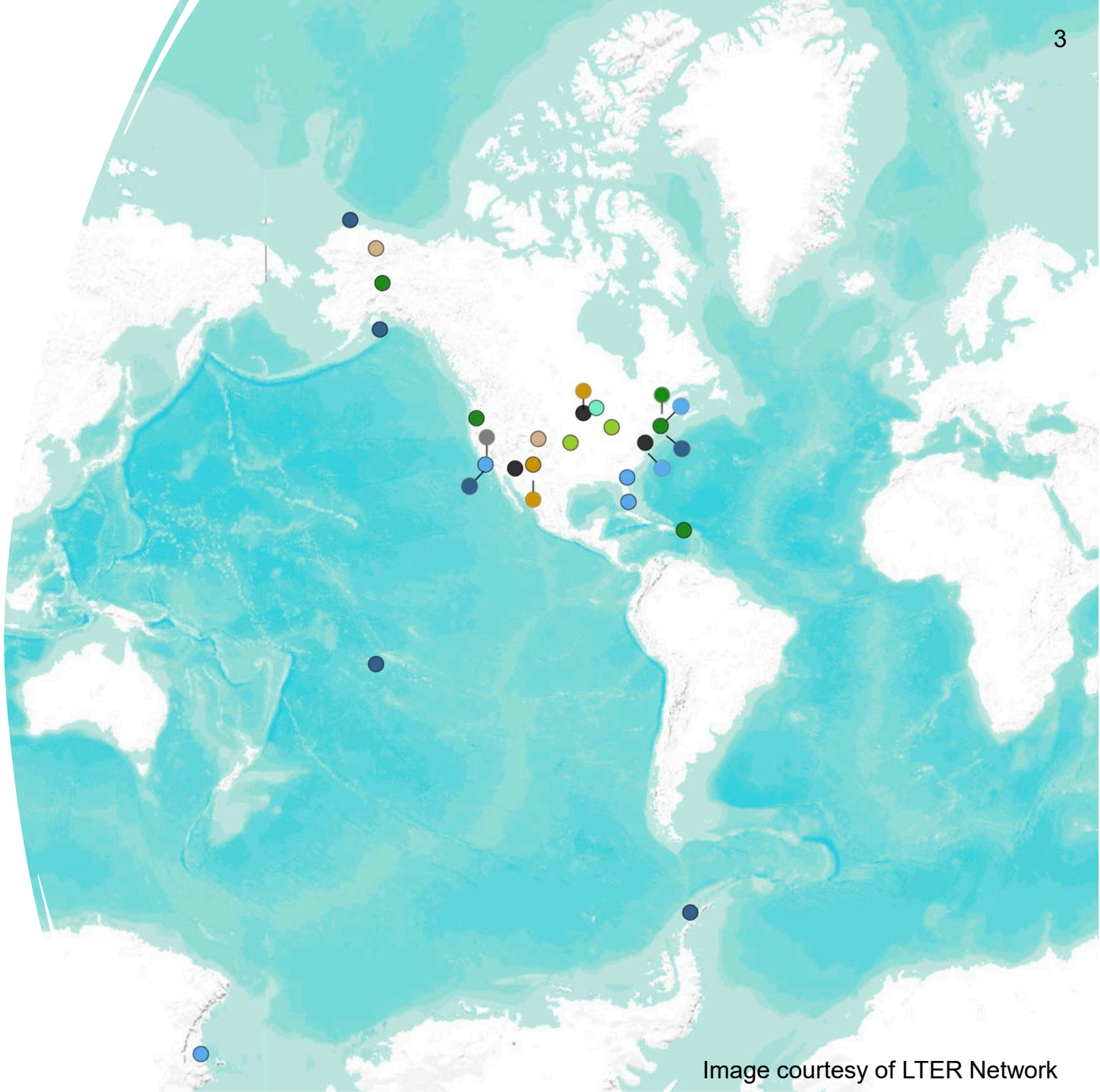


Image courtesy of LTER Network

Introduction

- 14 FCE core sites in Everglades National Park along two major drainages and Florida Bay
- 3 habitat groups

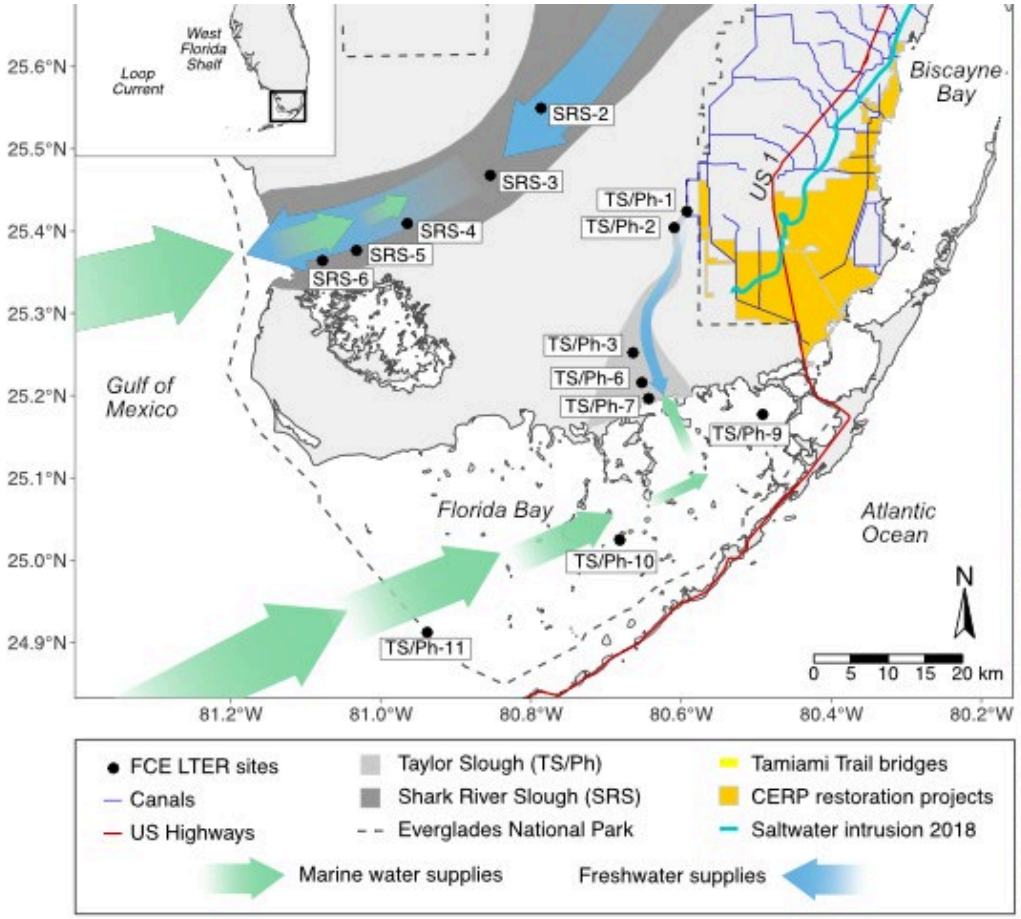
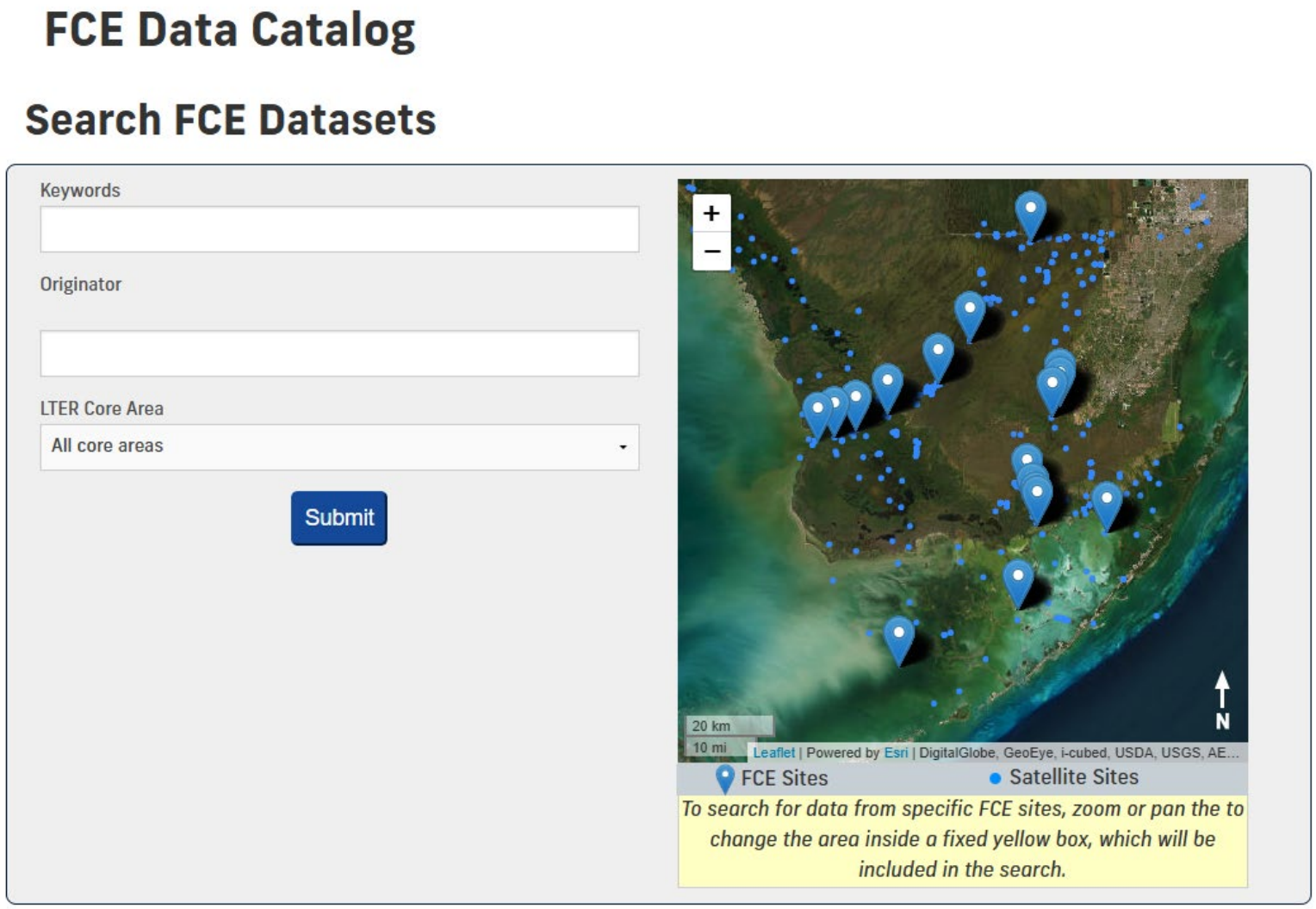


Image by Michael Rugge

Introduction

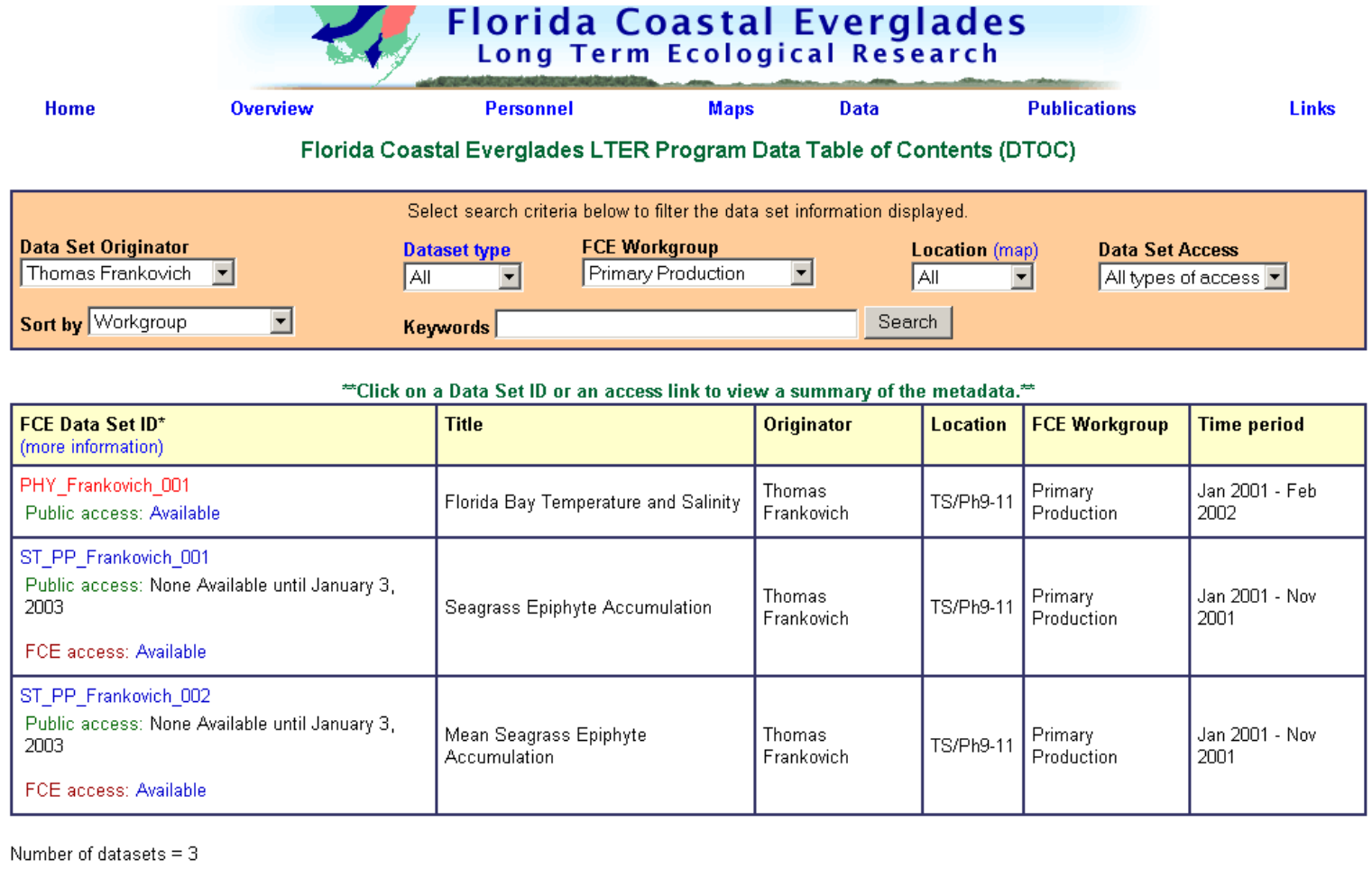
- >25 years of data
  - 221 datasets
  - >50 ongoing
  - 5 core research areas
  - Rich metadata
  - Publicly accessible
  - Contributes to informing Everglades restoration
- How did we get here?



https://fce-lter.fiu.edu/data/core/

FCE I (2000-2006)

- 91 unique datasets
- Metadata submitted in Excel template
- Data and metadata hosted by FCE site



Florida Coastal Everglades
Long Term Ecological Research

Home | Overview | Personnel | Maps | Data | Publications | Links

Florida Coastal Everglades LTER Program Data Table of Contents (DTOC)

Select search criteria below to filter the data set information displayed.

Data Set Originator: Thomas Frankovich | Dataset type: All | FCE Workgroup: Primary Production | Location (map): All | Data Set Access: All types of access

Sort by: Workgroup | Keywords: | Search

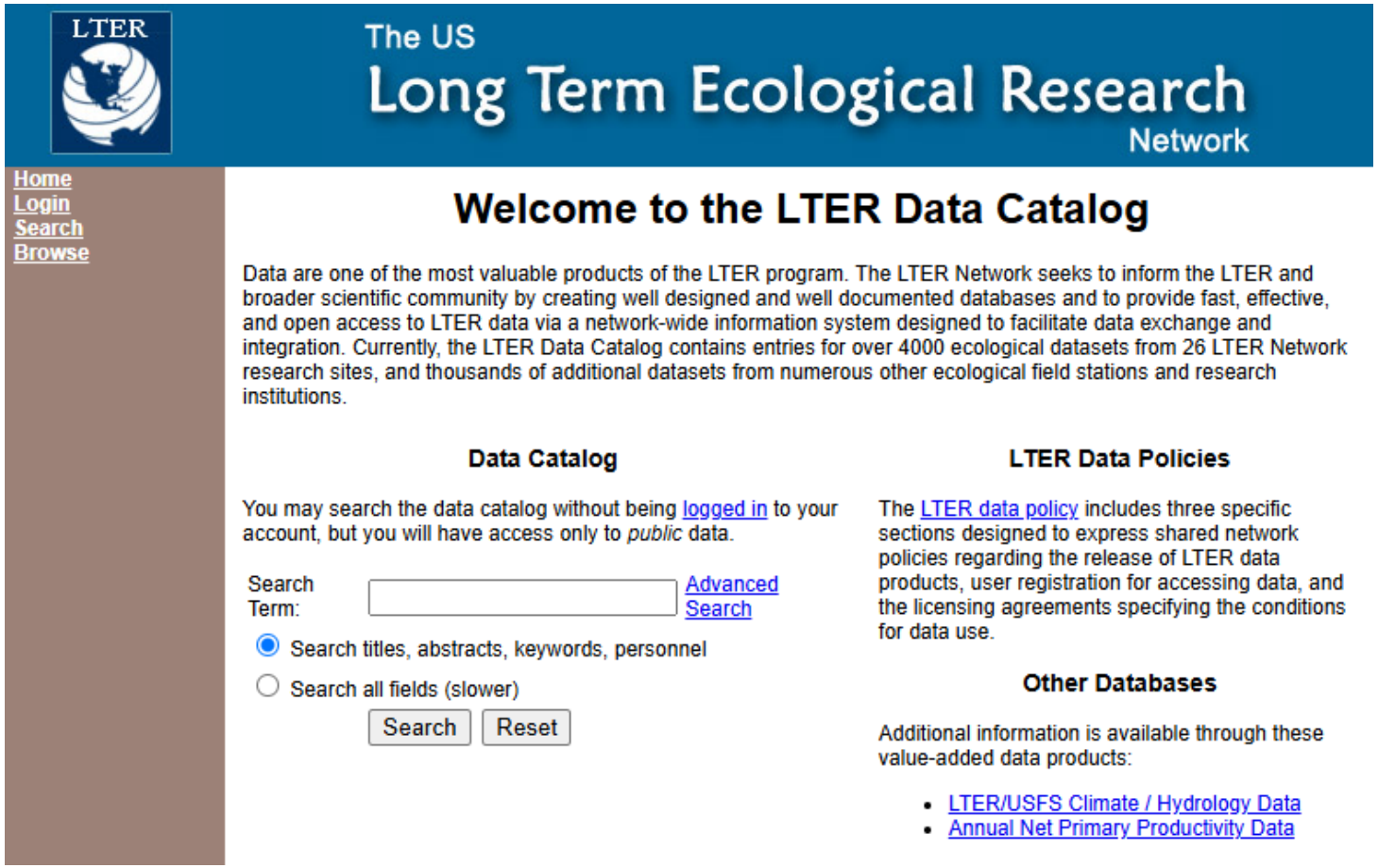
Click on a Data Set ID or an access link to view a summary of the metadata.

FCE Data Set ID* (more information)	Title	Originator	Location	FCE Workgroup	Time period
PHY_Frankovich_001 Public access: Available	Florida Bay Temperature and Salinity	Thomas Frankovich	TS/Ph9-11	Primary Production	Jan 2001 - Feb 2002
ST_PP_Frankovich_001 Public access: None Available until January 3, 2003 FCE access: Available	Seagrass Epiphyte Accumulation	Thomas Frankovich	TS/Ph9-11	Primary Production	Jan 2001 - Nov 2001
ST_PP_Frankovich_002 Public access: None Available until January 3, 2003 FCE access: Available	Mean Seagrass Epiphyte Accumulation	Thomas Frankovich	TS/Ph9-11	Primary Production	Jan 2001 - Nov 2001

Number of datasets = 3

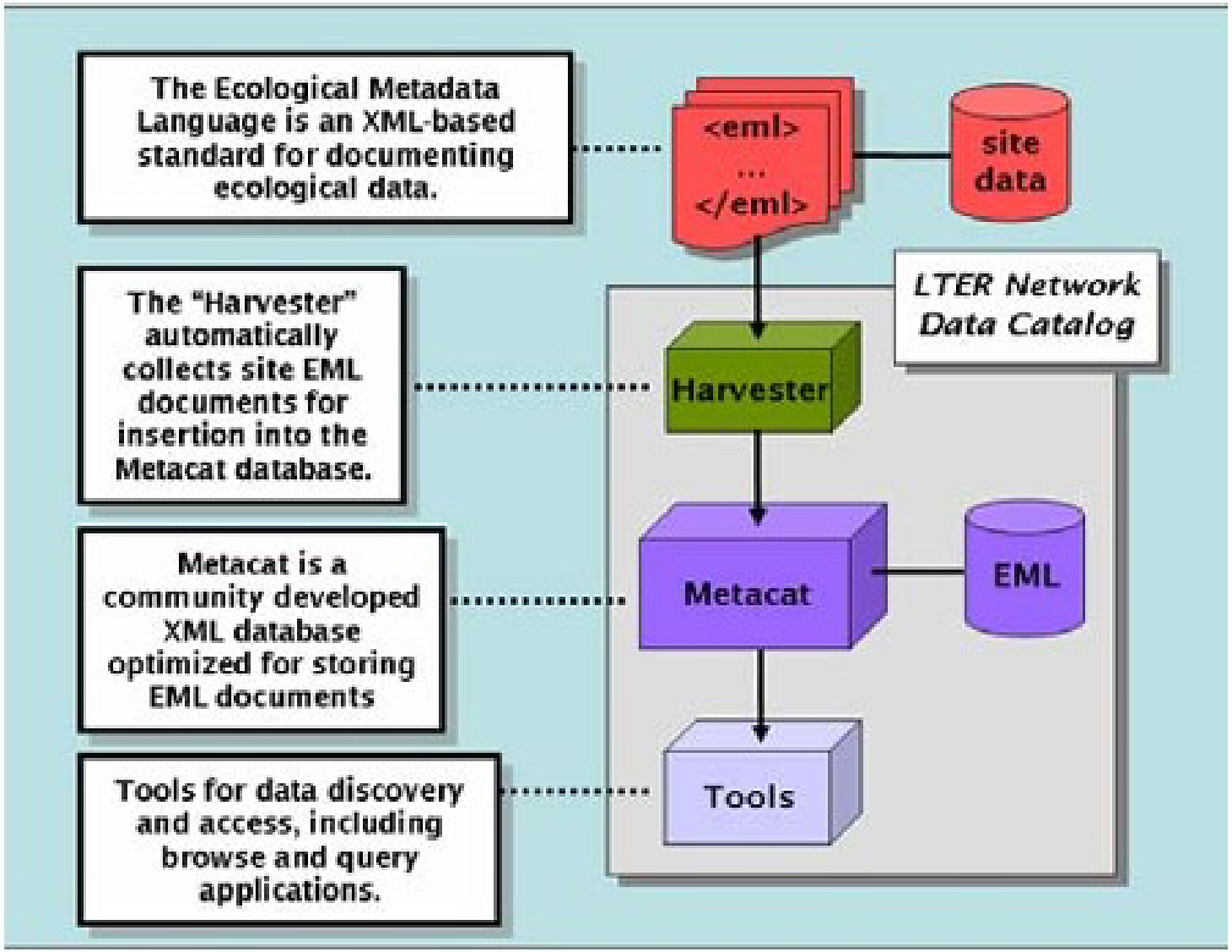
FCE I (2000-2006)

- FCE metadata harvested by LTER Network Data Catalog



FCE I (2000-2006)

- LTER Network adopts Ecological Metadata Language (EML) 2.0.0 as network exchange standard in 2003



U.S. Long Term Ecological Research Network (LTER). 2007.

FCE I Data Highlight

- FCE water quality data contribute to findings of Childers et al. 2006

Article | Free Access

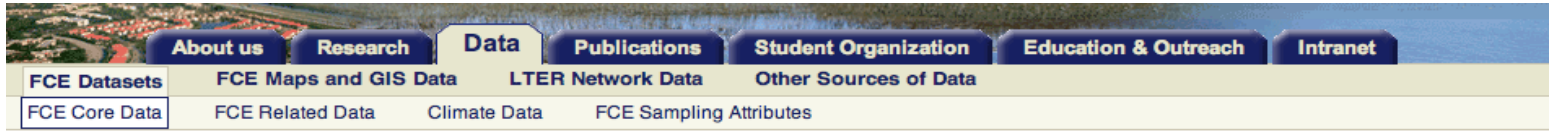
Relating precipitation and water management to nutrient concentrations in the oligotrophic "upside-down" estuaries of the Florida Everglades

Daniel L. Childers, Joseph N. Boyer, Stephen E. Davis, Christopher J. Madden, David T. Rudnick, Fred H. Sklar

First published: 26 January 2006 | https://doi.org/10.4319/lo.2006.51.1_part_2.0602 | Citations: 142

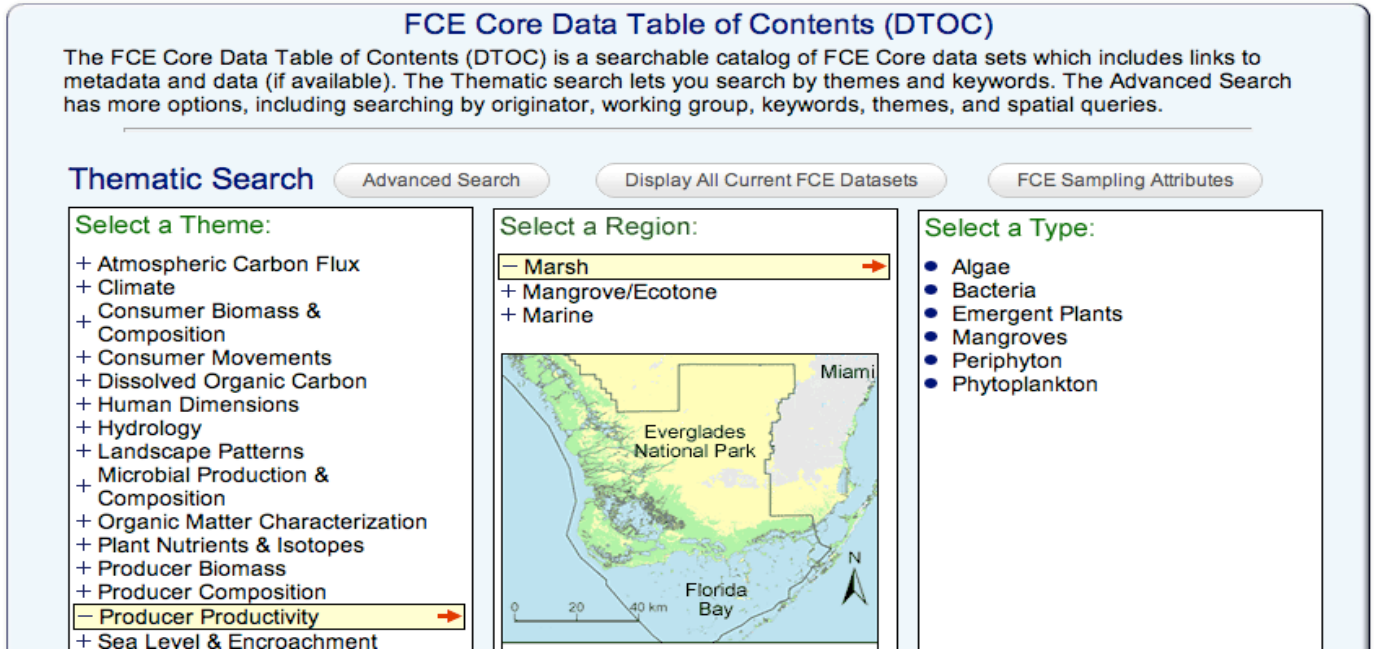
FCE II (2007-2012)

- 42 new datasets (135 total)
- FCE metadata upgrade to EML 2.1.0 begins
- FCE data and metadata prepared for migration to **centralized** LTER Network Information System (NIS) repository



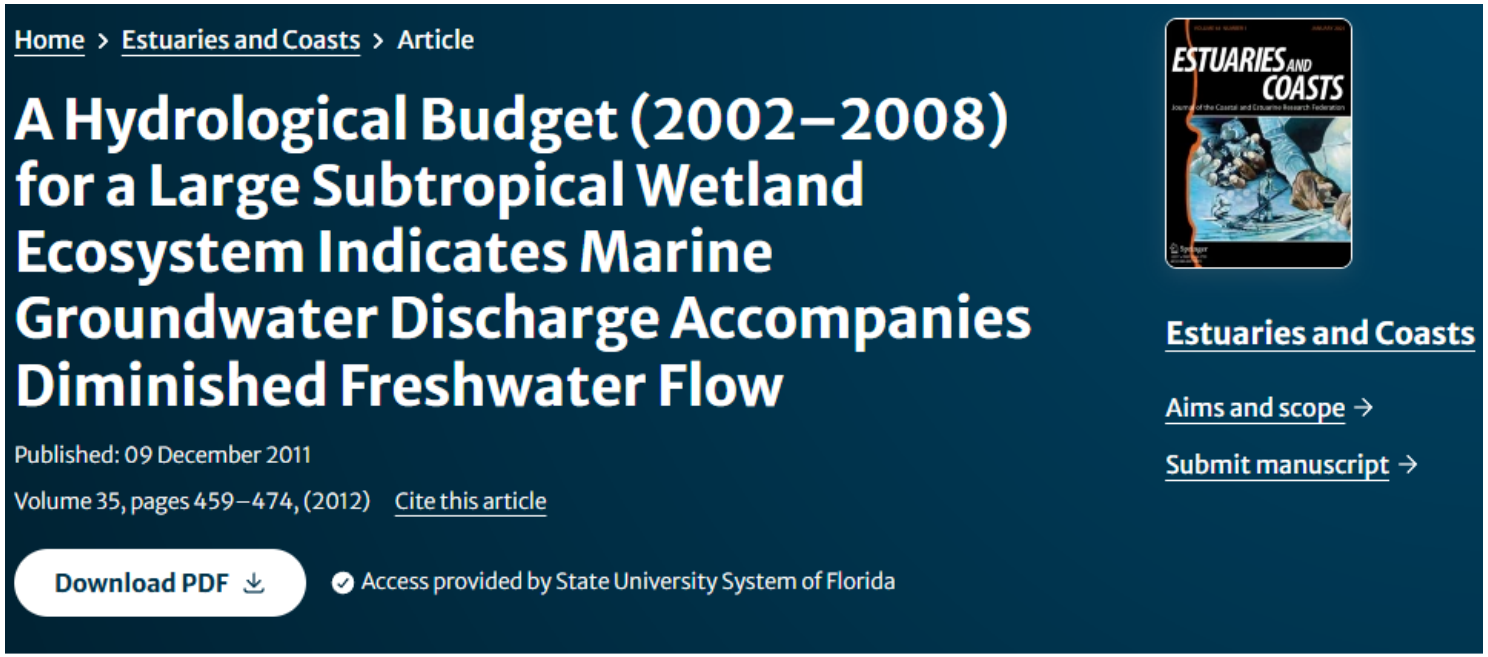
FCE Core Data

FCE Core Data are long-term data sets that address FCE LTER objectives and hypotheses as outlined in LTER proposals for FCE I and FCE II and that are supported primarily by LTER funds. All data are provided with accompanying documentation called 'metadata', which is data about data. Metadata includes many detail about the data including how, when and by whom a particular set of data was collected, and details on the data format. By downloading and using data collected by FCE researchers, the user agrees to the terms of our Data User Agreement found in the FCE LTER Program Data Management Policy and accessed during the data download process.



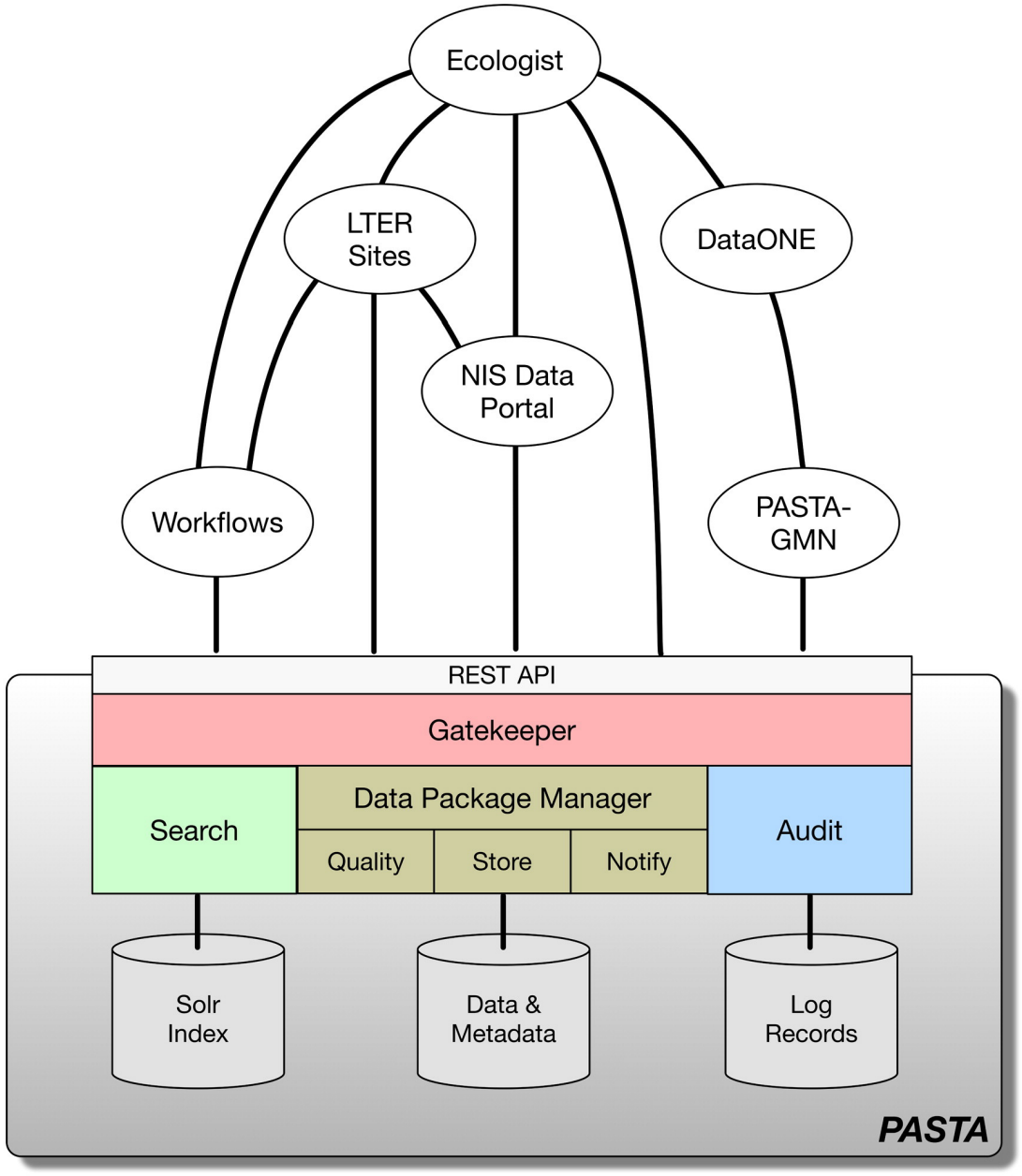
FCE II Data Highlight

- FCE eddy flux tower data contribute to findings of Saha et al. 2012



FCE III (2013-2018)

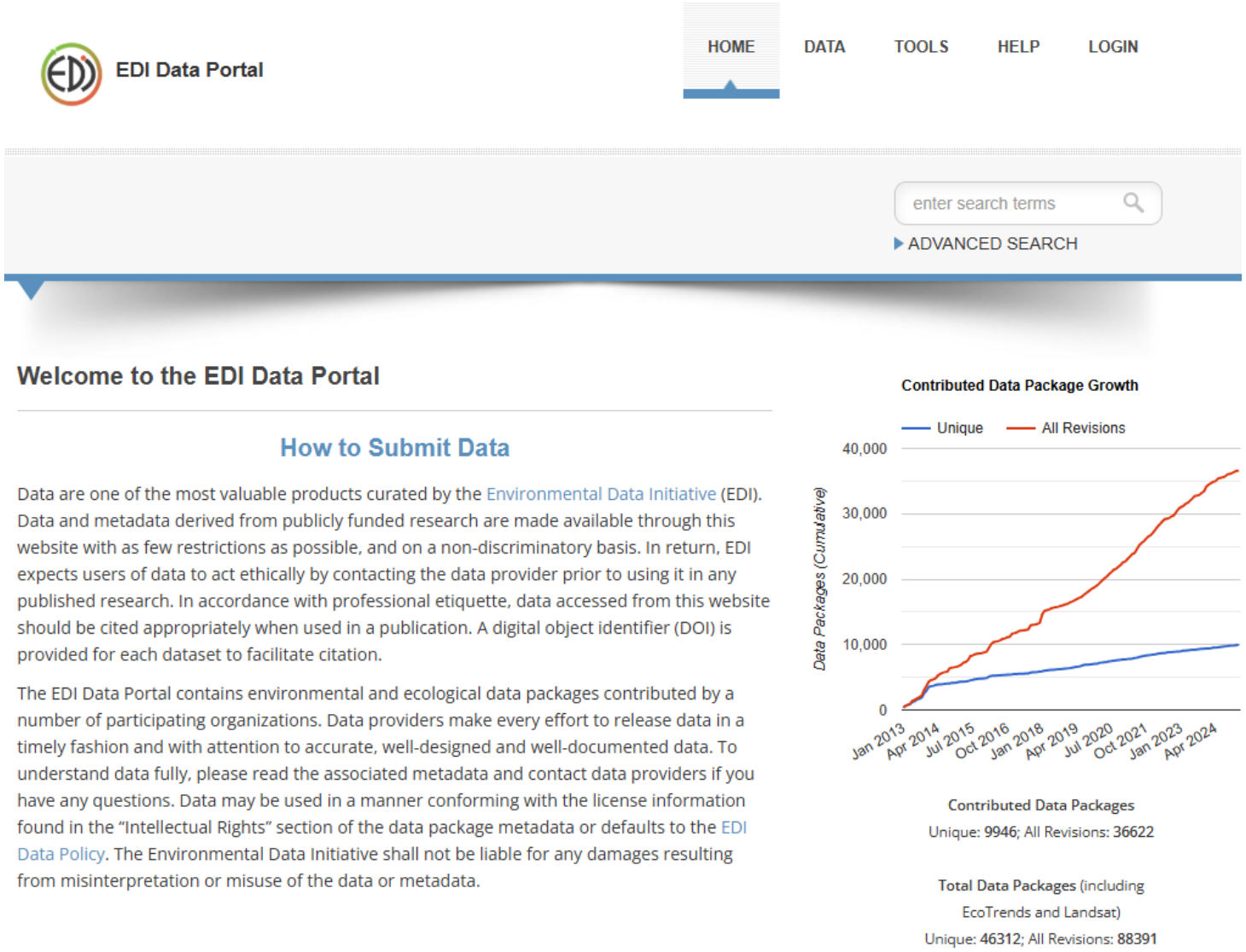
- 39 new datasets (172 total)
- LTER Network adopts Provenance Aware Synthesis Tracking Architecture (PASTA) in 2013 to serve as **centralized** NIS metadata and data repository
  - Congruency checks
  - Data provenance
  - Digital Object Identifiers (DOIs)
  - DataONE node



Servilla et al. 2016

FCE III (2013-2018)

- Inception of Environmental Data Initiative (EDI) in 2016
- LTER NIS and PASTA superseded by EDI Data Portal and PASTA+
- EDI supports **LTER and non-LTER** data packages



https://portal.edirepository.org

FCE III Data Highlight

- Long-term monitoring data contribute to findings of Troxler et al. 2014
- Data from Peat Collapse-Saltwater Intrusion Field Experiment contribute to findings of Wilson et al. 2018

Wetlands (2014) 34 (Suppl 1):S81–S90
DOI 10.1007/s13157-013-0446-5

HYDROLOGIC RESTORATION

Drivers of Decadal-Scale Change in Southern Everglades Wetland Macrophyte Communities of the Coastal Ecotone

Tiffany G. Troxler · Daniel L. Childers · Christopher J. Madden

ECOLOGICAL APPLICATIONS
ECOLOGICAL SOCIETY OF AMERICA

Article | Full Access

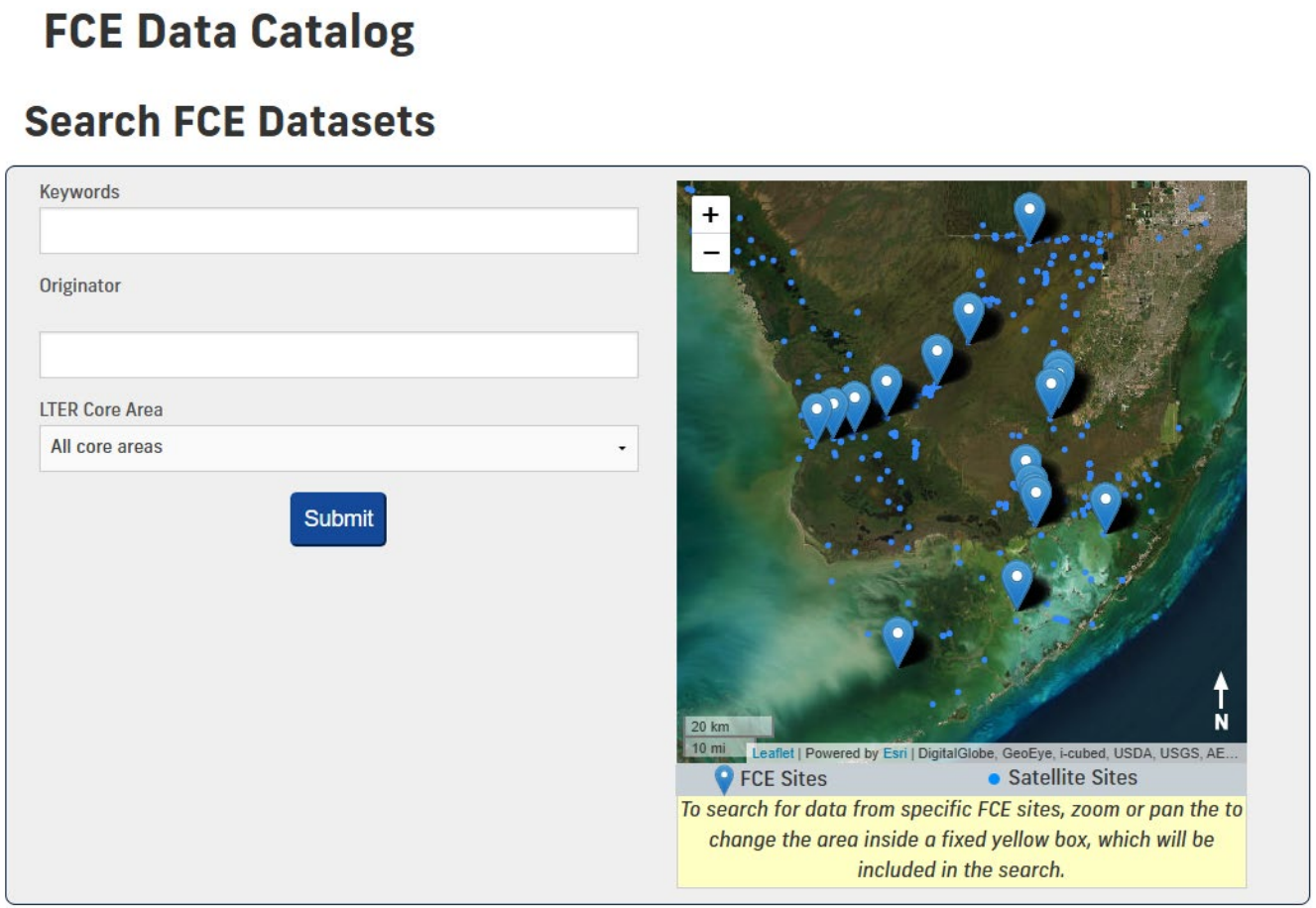
Salinity pulses interact with seasonal dry-down to increase ecosystem carbon loss in marshes of the Florida Everglades

Benjamin J. Wilson, Shelby Servais, Viviana Mazzei, John S. Kominoski, Minjie Hu, Stephen E. Davis, Evelyn Gaiser, Fred Sklar, Laura Bauman, Stephen Kelly, Christopher Madden ... See all authors

First published: 30 October 2018 | https://doi.org/10.1002/eap.1798 | Citations: 40

FCE IV (2019-2025)

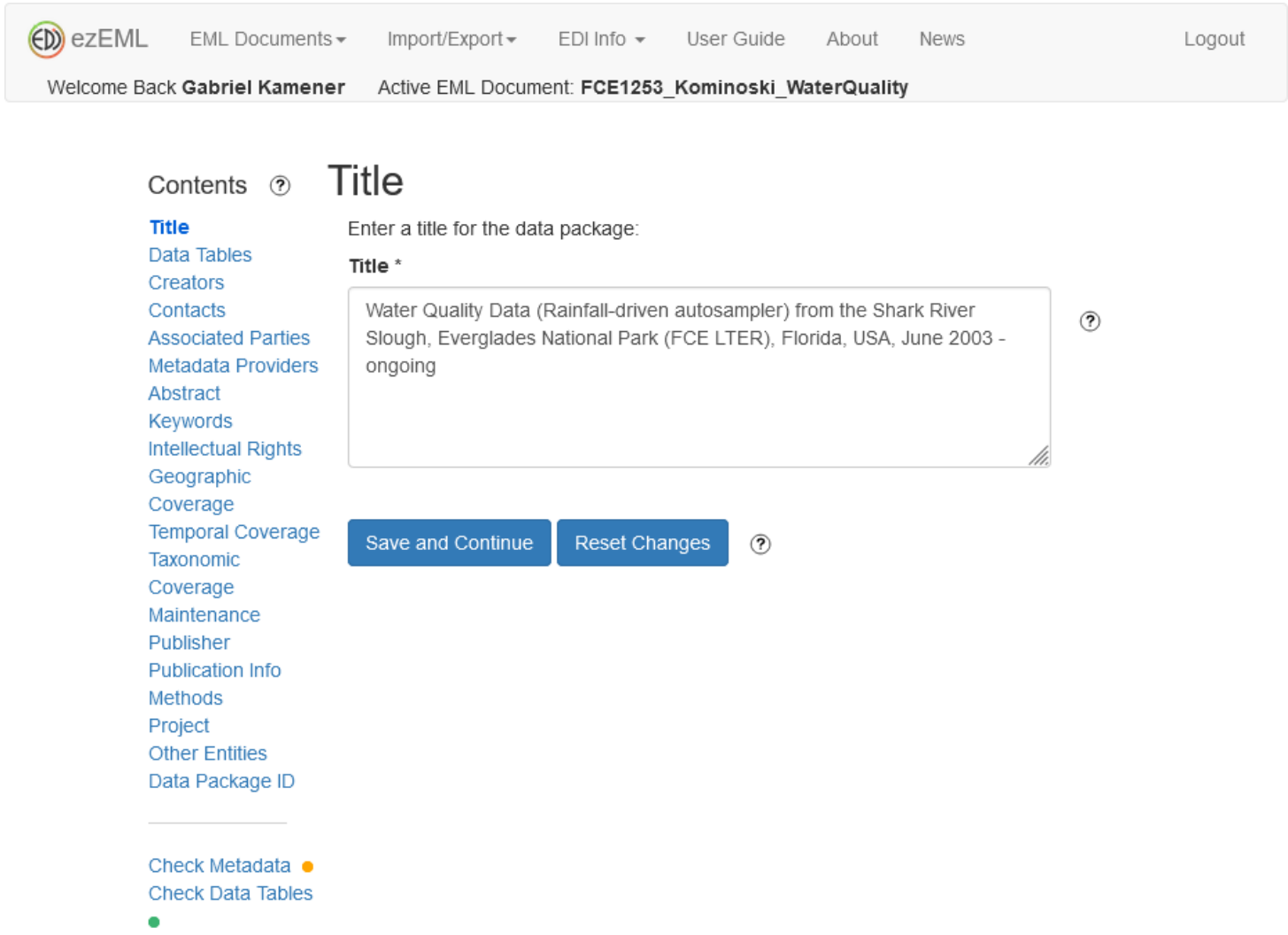
- 49 new datasets (221 total)
- Local FCE Data Catalog populated from EDI via PASTA+ REST API
- EDI provides enhanced discovery
  - DataONE
  - Google Dataset Search



https://fce-lter.fiu.edu/data/core/

FCE IV (2019-2025)

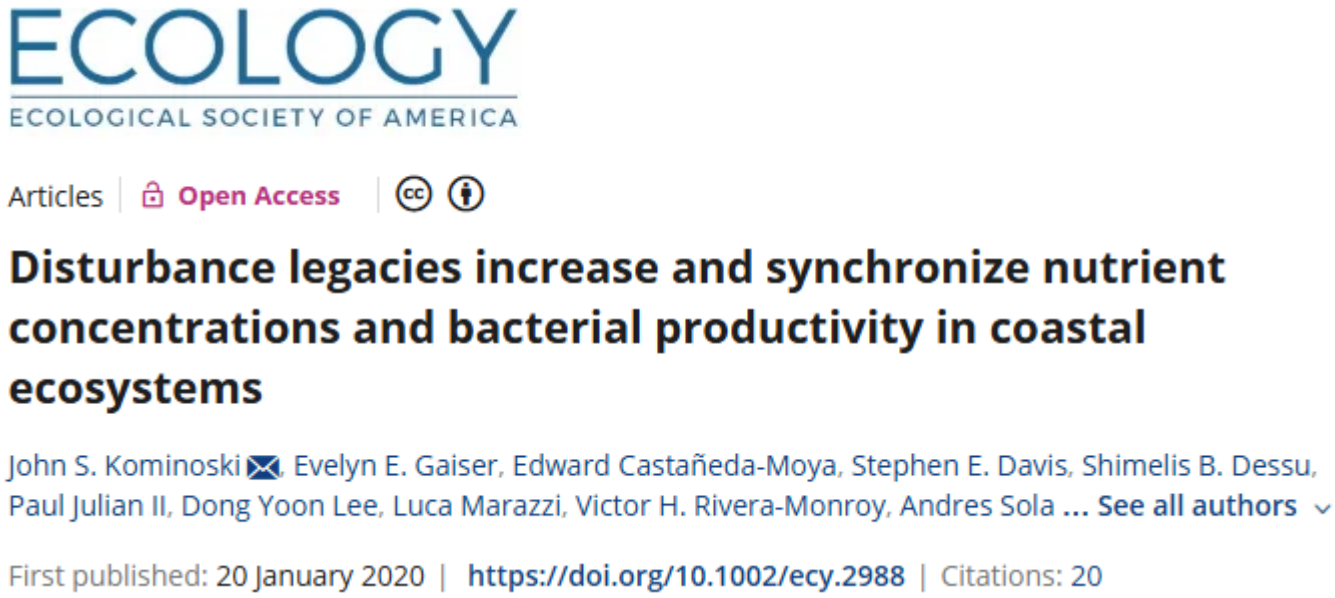
- FCE begins upgrade to EML 2.2.0
- FCE begins transition from Excel2EML workflow to EDI's ezEML webtool



https://ezeml.edirepository.org

FCE IV Data Highlight

- FCE and National Audubon Society data in FCE Data Catalog contribute to findings of Kominoski et al. 2020



ECOLOGY

ECOLOGICAL SOCIETY OF AMERICA

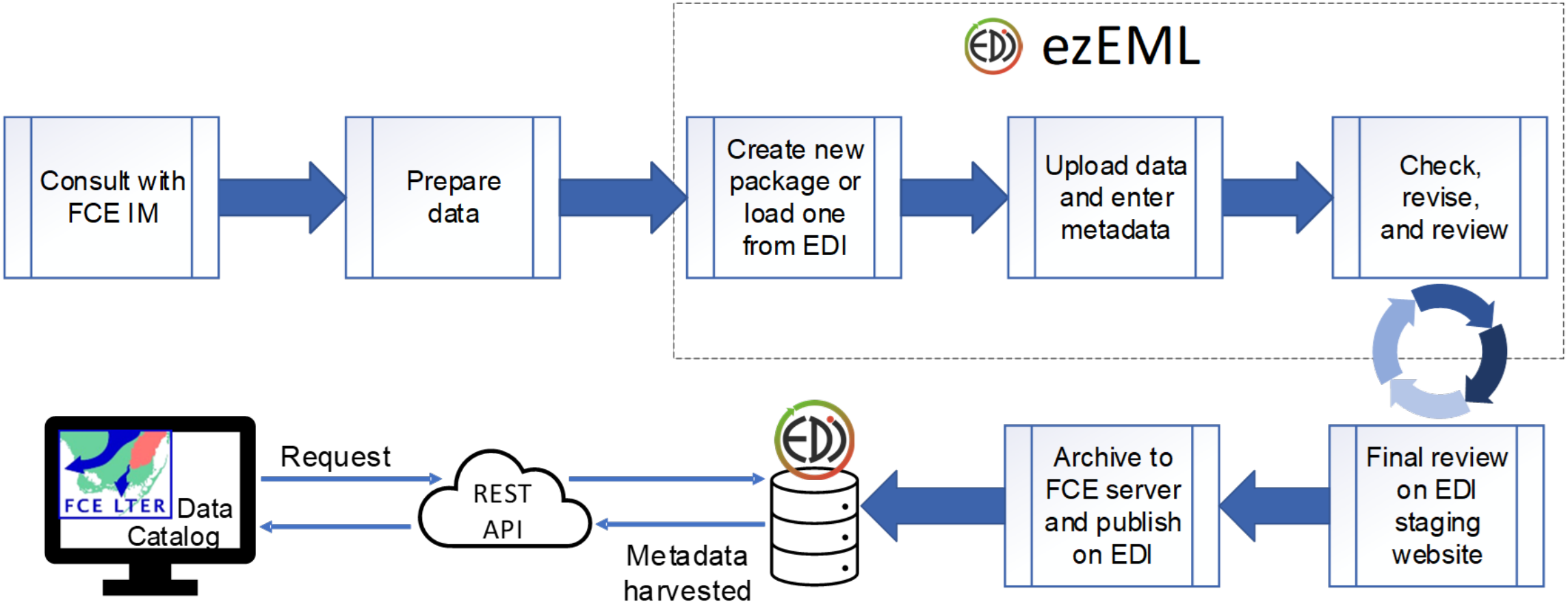
Articles | Open Access

Disturbance legacies increase and synchronize nutrient concentrations and bacterial productivity in coastal ecosystems

John S. Kominoski, Evelyn E. Gaiser, Edward Castañeda-Moya, Stephen E. Davis, Shimelis B. Dessu, Paul Julian II, Dong Yoon Lee, Luca Marazzi, Victor H. Rivera-Monroy, Andres Sola ... See all authors

First published: 20 January 2020 | https://doi.org/10.1002/ecy.2988 | Citations: 20

Present Data Publishing Workflow



Future improvements

- Update metadata for **all datasets** to EML 2.2.0
- Taxonomic authority IDs
- Structured funding information
- Semantic annotations
- Persistent digital identifiers

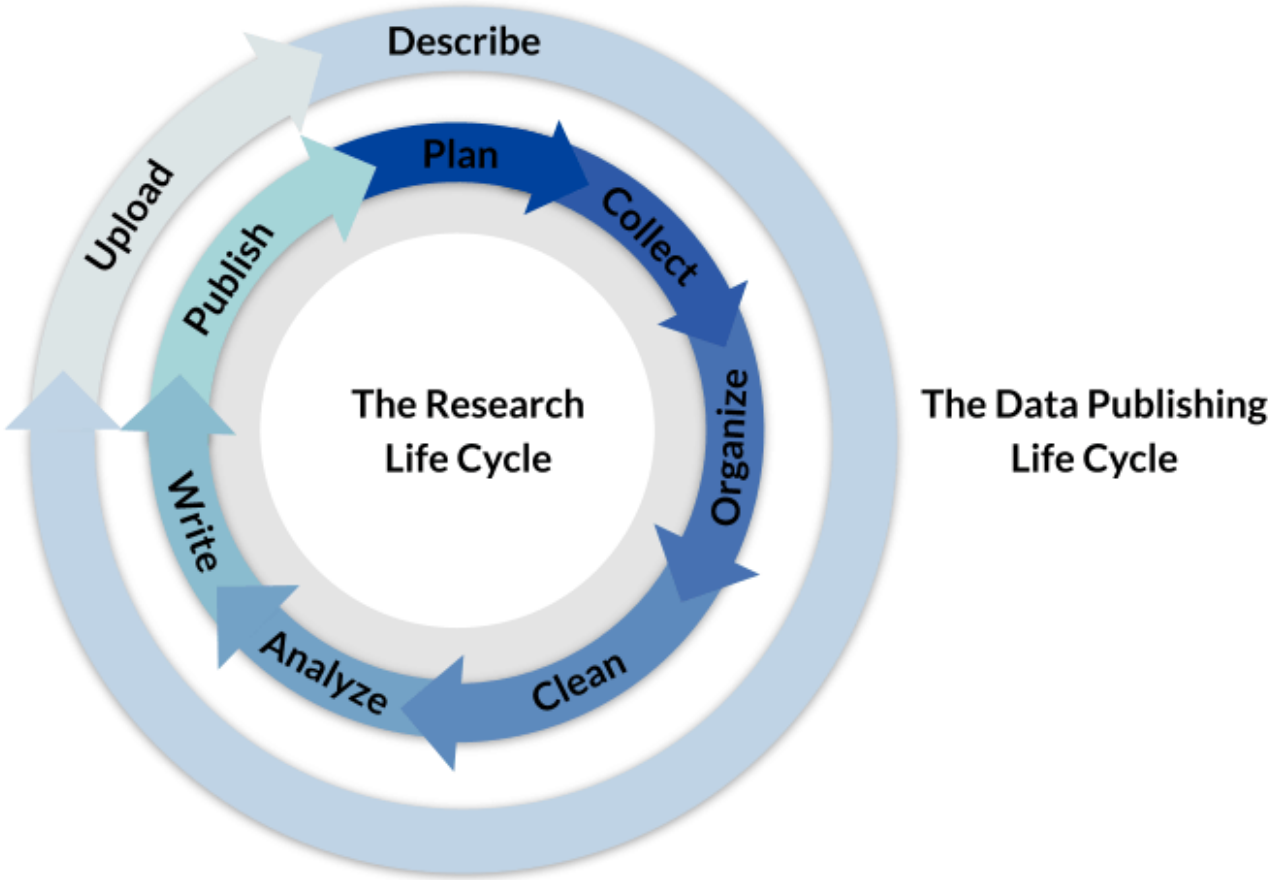


Image courtesy of Environmental data Initiative

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- Michael Rugge
- John Kominoski
- All the researchers who have contributed data and metadata over the years!

Photo by Michael Rugge

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Questions?

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