Louisiana DEQ: Nutrient Update

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Louisiana Department of Environmental Quality
Regional Technical Assistance Group Meeting April 3rd, 2012

LOUISIANA DEPARTMENT OF **ENVIRONMENTAL QUALITY**
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Project Summaries – Inland Rivers and Streams, Freshwater Wetlands, Large Rivers (Red River)

Project 1

- **"Approaches for Developing Attainable Nutrient Criteria for Louisiana Waterbodies: Rivers and Streams" LSU (Lane et al) Statistical approaches based on EPA guidance; few significant relationships.**

Project 2

- **"Relationship Between Nutrients, DO Conditions, Habitat, and Fish Assemblage Composition in Louisiana Streams" LSU (Kelso & Rutherford) Relationships inconclusive but provided new data in ecoregion reference streams.**

Project 3

- **"Effects-based Tools for Nutrient Criteria Development" EPA 6/USGS (Kiesling). Largely inconclusive.**

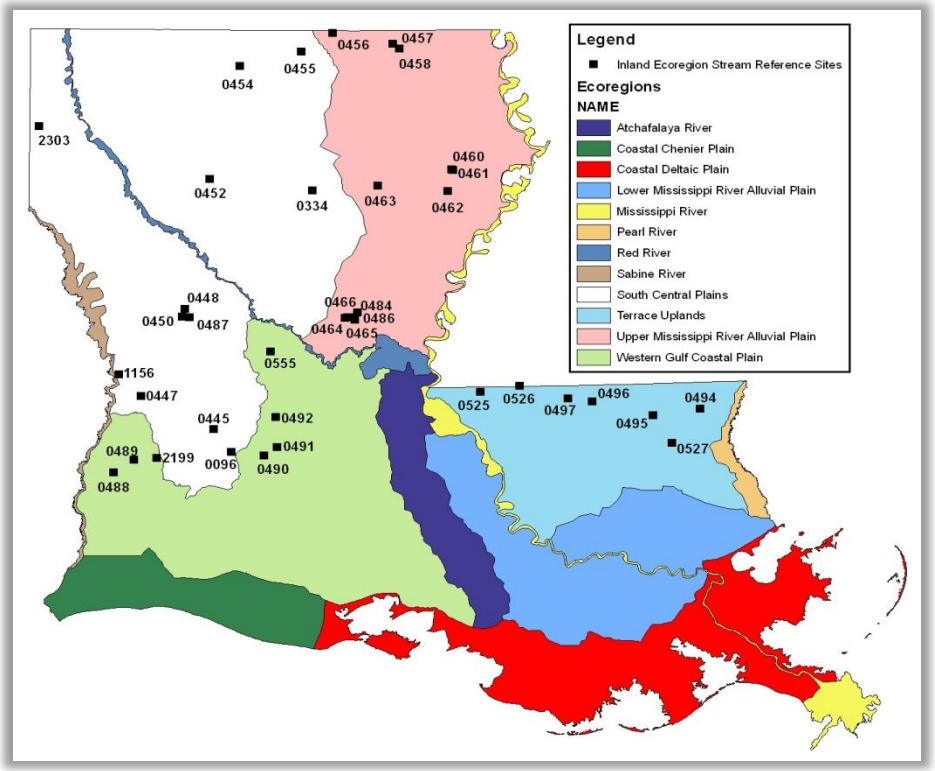
Project 4

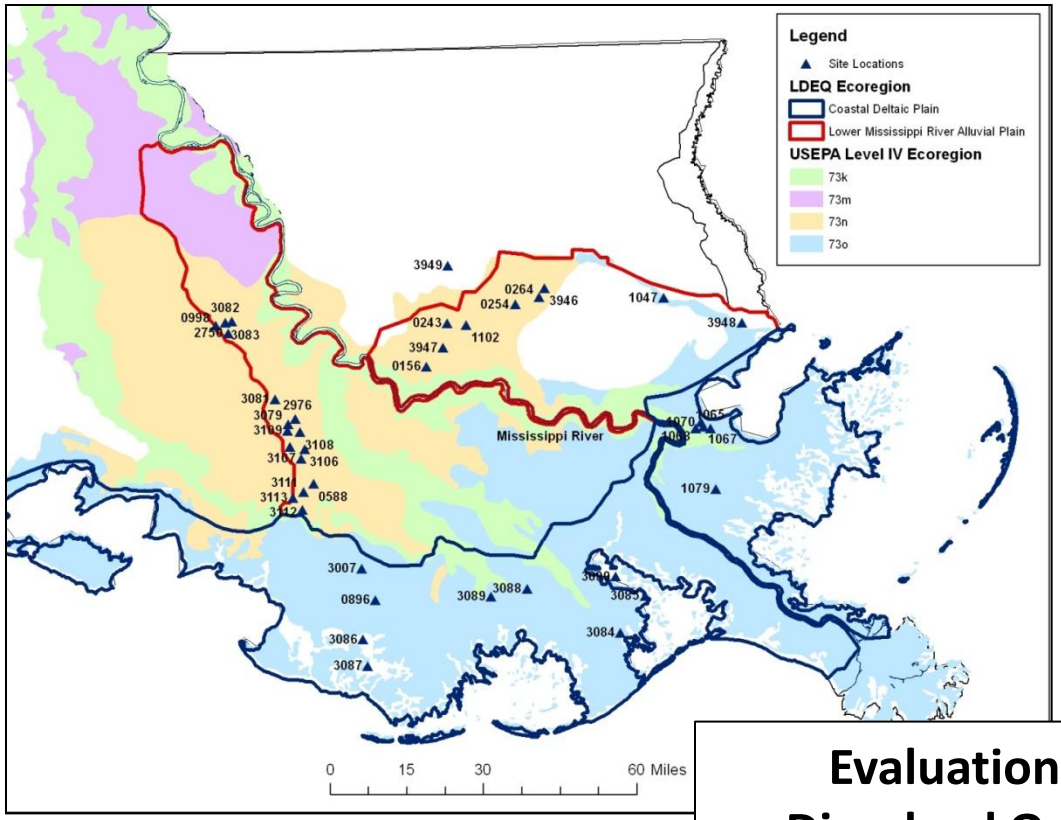
- **Louisiana Freshwater Wetlands Draft Data Report – Classification, Literature Review, and Development of Nutrient Criteria LSU (Hunter et al) Builds on wetland assimilation studies. Data gaps in most wetland types; good start at a classification scheme.**

Project 5

- **Red River Nutrient Criteria Development Project, Phases I-III University of Arkansas/USDA/EPA 6 (Haggard and Loving) AR, LA, OK, NM and TX collaboration on nutrient criteria for the Red River Basin – state driven inventory, database, delineation; includes cause and effects analysis and technical outreach with states.**

Nutrient Criteria Development for Inland Rivers and Streams
LDEQ Ecoregion Study





Evaluation of Aquatic Life Uses and Dissolved Oxygen and Nutrient Criteria in Louisiana's Ecoregion Streams

QAPP 1026

Sampling in Water Bodies in the Coastal Deltaic Plains (CDP) and Lower Mississippi River Plains (LMRAP) Ecoregions

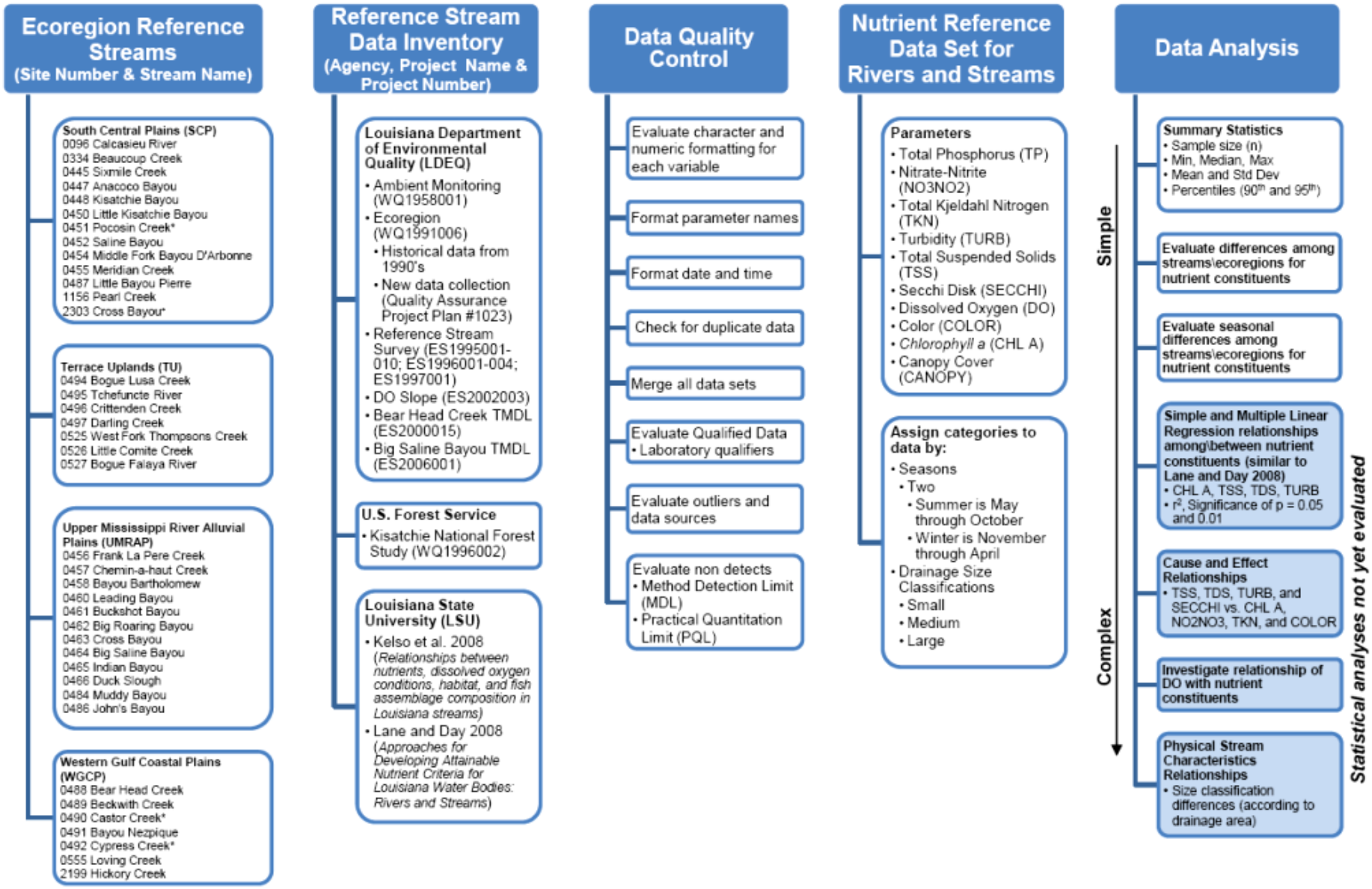
Schedules for tasks in the eastern portion of the CDP and LMRAP Ecoregion Project

Date	Task
June 2009 – July 2009	• Selection of reference sites for the various water body types
August 2009 – December 2009	• Evaluate existing data and identify gaps in d… …gen, nutrient, minerals, and biological (fish)
January 2010 – December 2011	• Collect 72-hour continuous … quality, nutrients, minerals, hab… …y cover, and biological (fish) d… …g design schedule for this project, as d… …ites in either the eastern or weste… …ns (see specific sample collection … and Table 6) …uation of all data collected
Januarv … Apr…	…a evaluatio …a analysis Prepare Use Attaina
May 2(	• Submit UAA report
June 2012	• Receive UAA report
July 2012	• Submit documentat Quality Standards u

OIL SPILL 4/20/10

Nutrient Criteria Development for Rivers and Streams
Data Processes

November 12, 2009

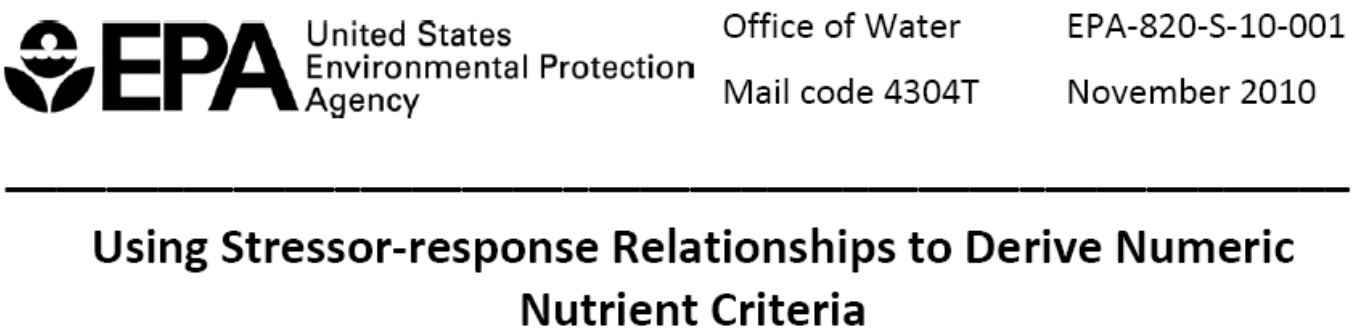


***Historical data only (Pocosin, Castor, Cypress Creeks); +Data not included in analysis pending determination of site status (Cross Bayou).**

LDEQ's Nutrient Gradient Project

- Objectives:
  - To evaluate relationships between nutrient stressors and biological responses

- Guidance:


United States Environmental Protection Agency

Office of Water

Mail code 4304T

EPA-820-S-10-001

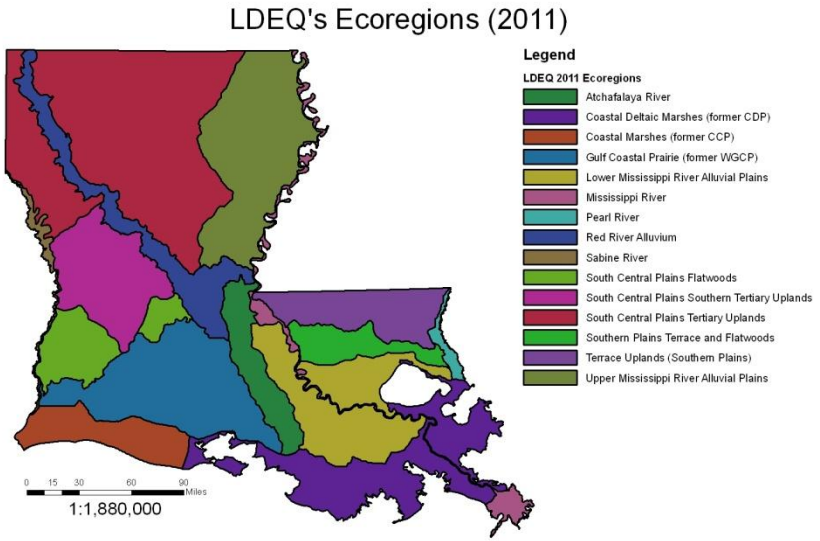
November 2010

Using Stressor-response Relationships to Derive Numeric Nutrient Criteria

- Funding:
  - FY12 Performance Partnership Grant
  - FY11 Section106 base funding
  - FY10 and FY11 Section 106 Supplemental Monitoring Funds

Nutrient Gradient Project Design

- Select 60 stations on inland rivers and streams
  - Classified by ecological region



- Site selection process
  - Sufficient aquatic habitat
  - No nearby urban influence
  - Representative of the ecoregion
  - Accessible
  - Representative of a gradient of nutrient condition
    - Low, medium, and high levels of nutrients

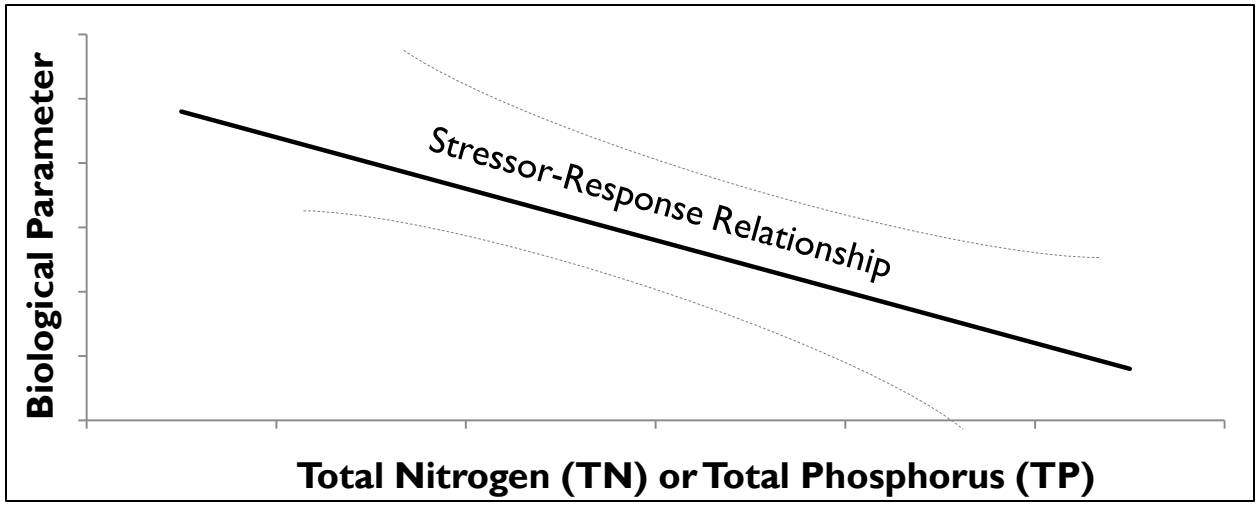
Parameters

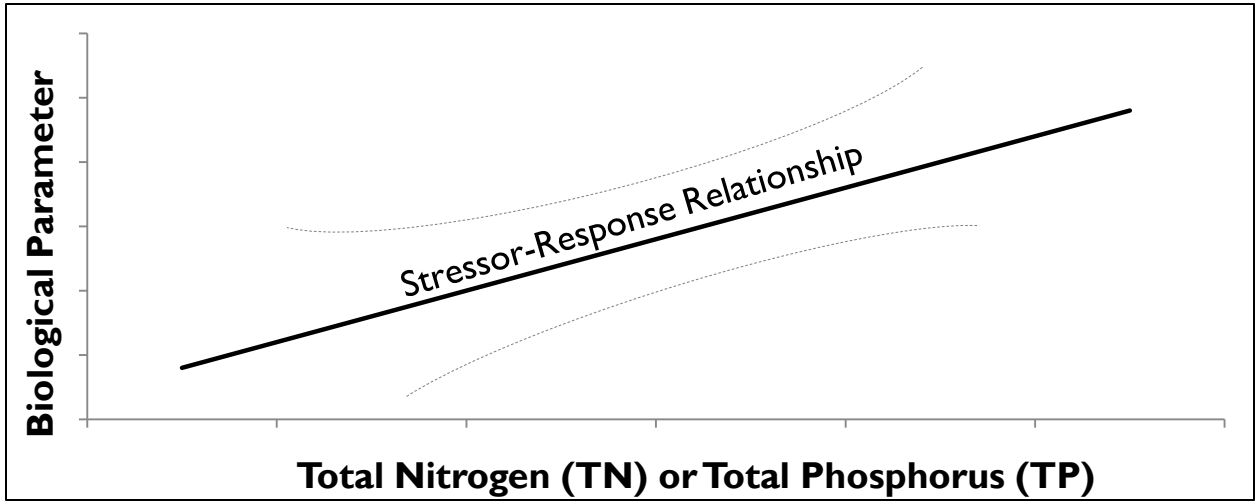
Parameter Category	Parameters to be Measured
Water Quality	Nitrate-Nitrite Nitrogen (NO3-NO2) Total Kjeldahl Nitrogen (TKN) Total Nitrogen (Calculated) Total Phosphorus (TP) *In situ* dissolved oxygen Temperature pH Conductivity Salinity Total Suspended Solids (TSS) Secchi depth Turbidity
Habitat Assessment	Watershed features Instream features Sediment/substrate features Water quality features
Canopy Cover	Densiometer readings
Biological Response Variables	*Algae (benthic and sestonic):* Chlorophyll *a* concentration *Fish and Macroinvertebrate Communities:* Identification to lowest practical taxon Species counts Individual total lengths (fish only)

Progress/Status

- First quality assurance project plan (QAPP) approved on December 2011
  - Fish, habitat, and sestonic chlorophyll a
- Second QAPP submitted to EPA R6
  - Macroinvertebrates and periphyton
- Field reconnaissance complete
- Water quality sampling in progress
- Biological/habitat training in progress
- Biological sampling will begin in June

Project Expectations





Value Added…

- Inter-agency collaboration
  - EPA R6 and Headquarters on QAPP development
  - USGS and LSU on method development

- Development of new protocols/methodology for LDEQ
  - Use of stressor-response relationships in an ecological framework
  - Use of new methodology for monitoring biological communities
    - Macroinvertebrate and periphyton collection

Nutrients - Path Forward

- Determine state-specific numeric nutrient levels protective of designated uses
  - Focus on statewide applicability (ecoregion framework)
- Nutrient Gradient Study
- Identify regulatory language for flexibility that is consistent with CWA goals
- Develop implementation processes
- Continue to work with NPS communities in voluntary reductions of nutrient loads
- NUTRIENT REDUCTION STRATEGY

Nutrients – Tools Needed

- Cost/benefit analyses for rulemaking
- Funding for improvements/retrogrades
- Regulatory innovations for implementation (e.g., Water Quality Trading)
  - Identify sustainable incentives that support CWA goals
  - Leverage ongoing actions
- Link conservation efforts/incentives with water quality benefits
  - Many tools exist but in most cases data is needed to build states' frameworks

Contact Information

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