Using GitHub for Project Management

NCEAS Learning Hub

for

Working Groups

2024-2025

Learning Objectives

- Understand how GitHub can serve as a Project Management tool
- Know how to create and leverage on GitHub Issues
- Be familiar with how to set and customize GitHub Projects

Today's Agenda

- REVIEW - What exactly are Git and GitHub?
- REVIEW - GitHub Repository Orientation
- REVIEW - Benefits of Using Version Control
- Why GitHub for Project Management?
- GitHub Tools for Project Management
  - Issues & Projects
    - Overview
    - Example
    - Demo

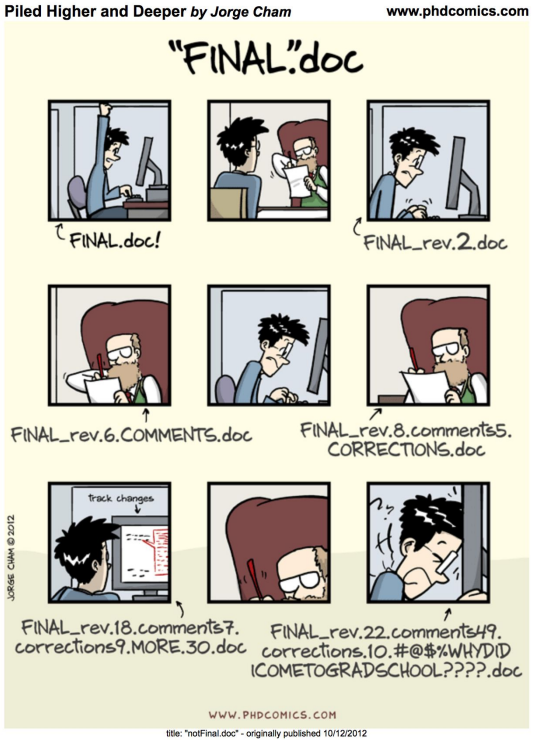
What *exactly* are Git and GitHub?

Git:

- An open-source **version control software** used to manage the versioning and tracking of files in a folder (a repository).

Side note:
Benefits to using version control

- **Maintain a history** of your research project's development while keeping your workspace clean
- **Facilitate collaboration** and transparency when working on teams
- **Explore bugs or new features** without disrupting your team members' work
- *and more!*



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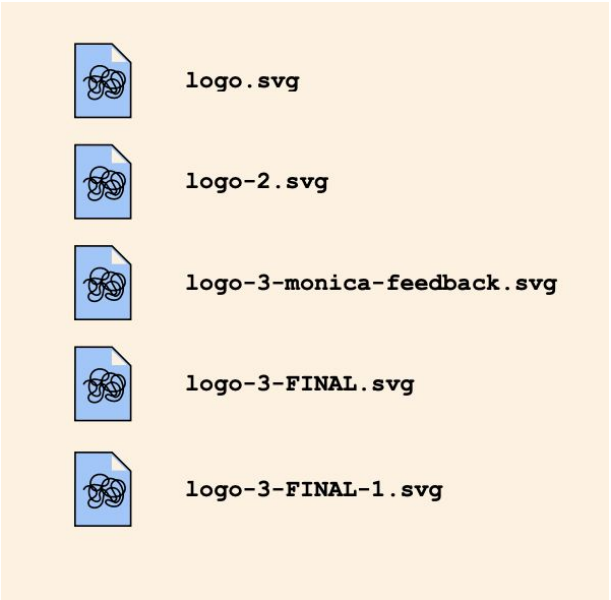
Benefits to using version control



Source: @alicebartlett, git-for-designers

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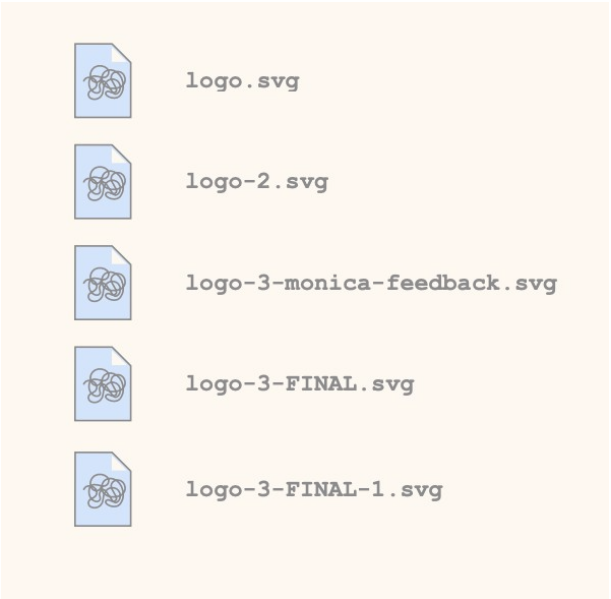

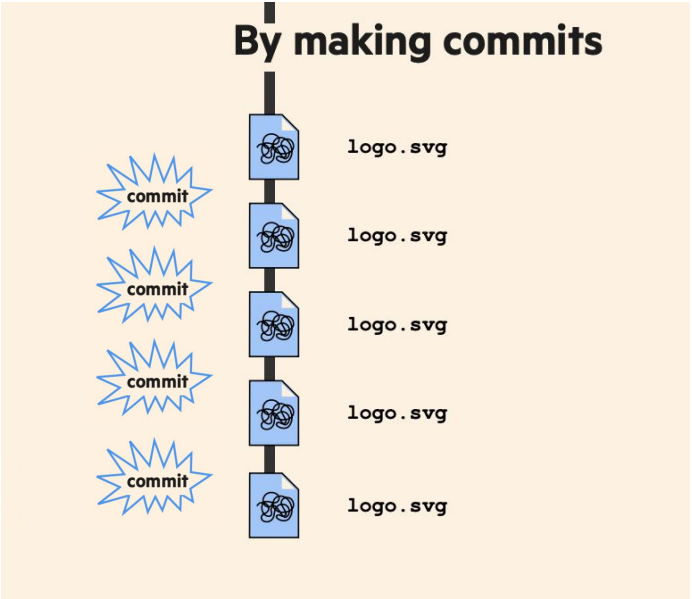

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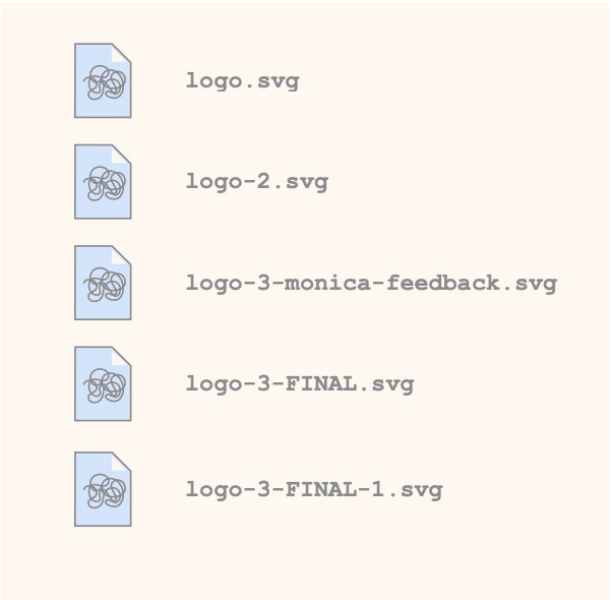

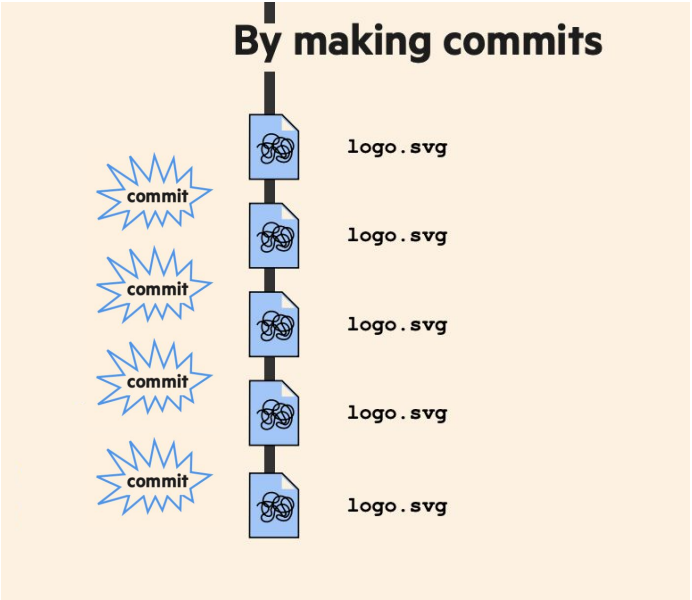

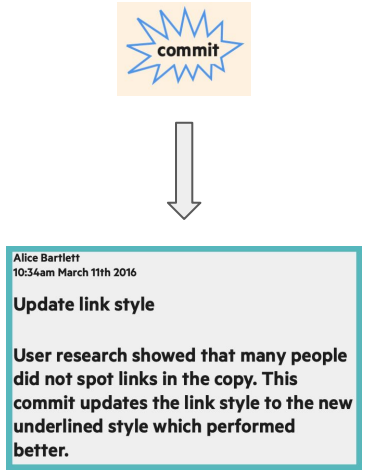

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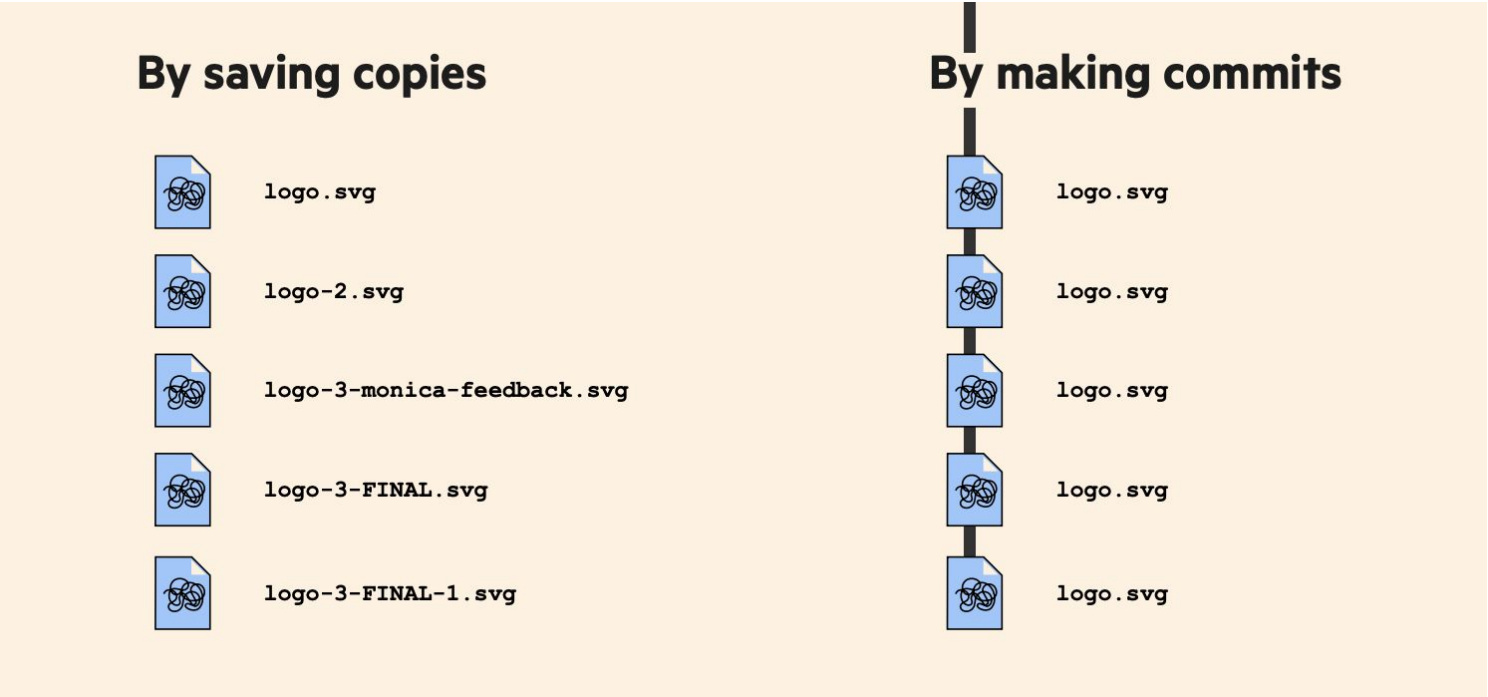

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What *exactly* are Git and GitHub?

`Git`:

- An open-source **version control software** used to manage the versioning and tracking of files in a folder (a repository).

GitHub:

- **Online platform** and service that provides a centralized **place for `Git` repositories (repos)**

GitHub Structure in a Nutshell

- **Repositories (“repos”)** are Git and GitHub main unit. A “contained” folder with permissions. A repository can be public or private.

- Files are stored in **repositories**.

- Repositories are “owned” (live under) by **users /organizations**.

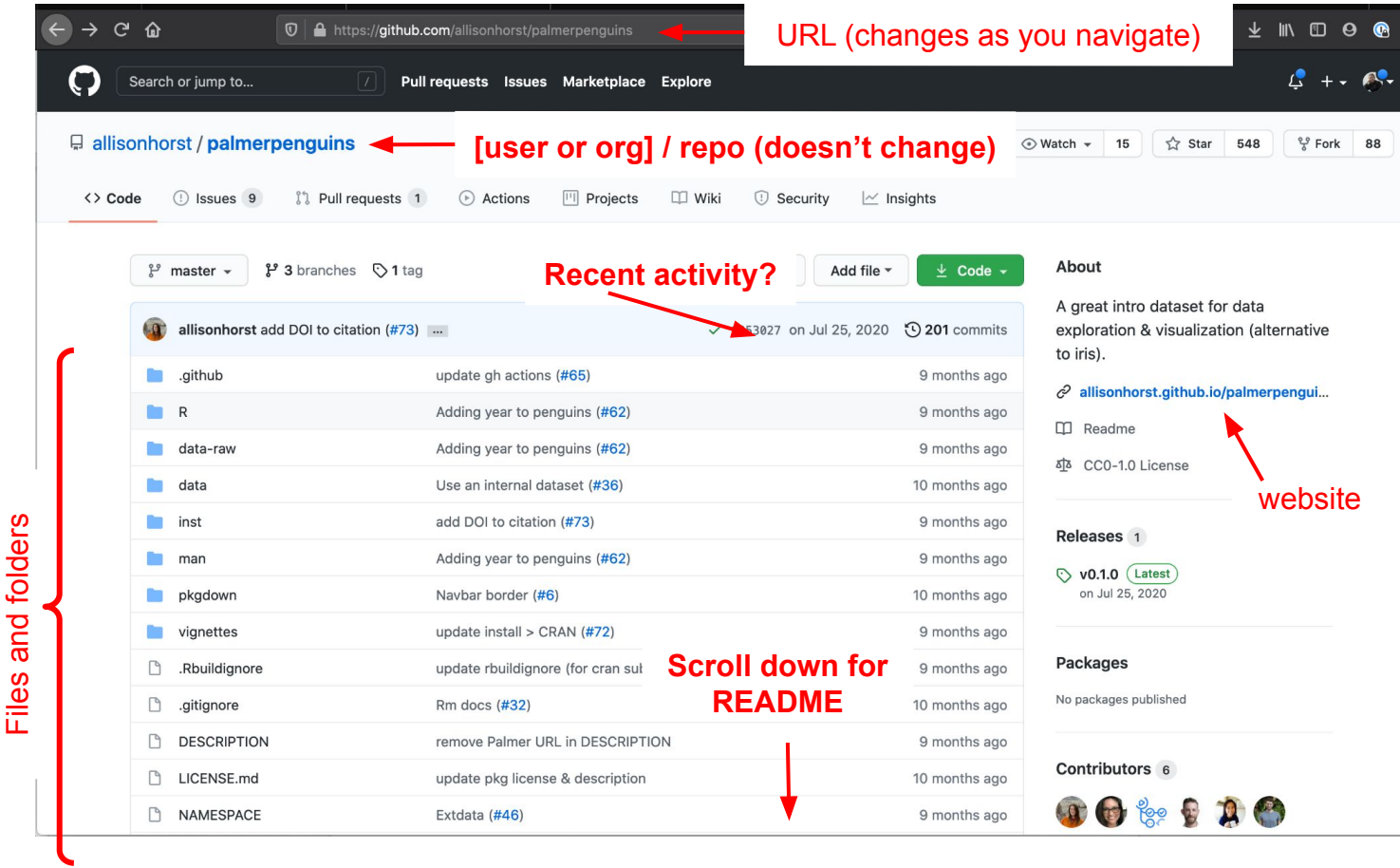
- All repositories have the same structure. Makes is easy and familiar to navigate.

GitHub repo Orientation

Google "penguins github".

Every GitHub repo looks the same.

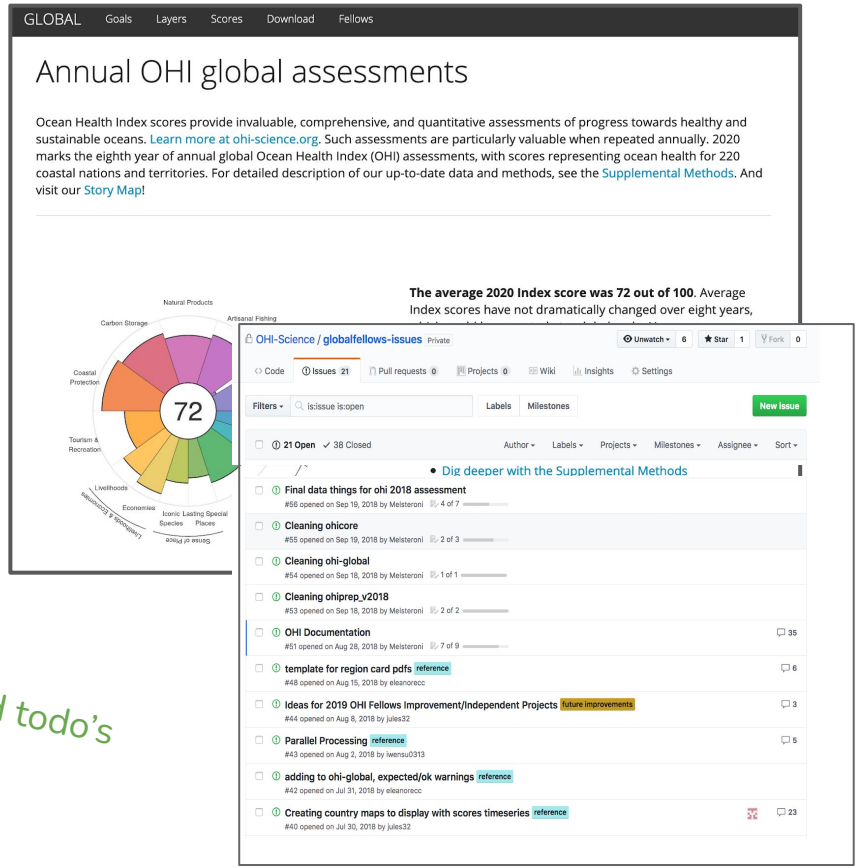
Here's the first things to look for:



The power of GitHub

- **Publishing platform.** A new way for sharing & communication - your files can become websites! Share the url once, it's always the latest version.

Annual reports



- **Project management system.** Short- and long-term collaborative "todo" lists
  - "Issues" & "Projects"

Shared todo's

Why talk about GitHub for Project Management?

(in an academic research context)

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- Also from the software development world comes the idea of using product management software to organize all the moving parts of a project.

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- Also from the software development world comes the idea of using product management software to organize all the moving parts of a project.
- As scientist, we can relate because research also has many moving pieces.

Why talk about GitHub for Project Management?

(in an academic research context)

- To organize all the moving parts of a project (in one place), from analysis to final product to outreach.

- Use it as a communication and coordination tool with colleagues.

- Help us document our work and decisions around it.

GitHub for Project Management

- **Organize and track projects** with single or multiple & overlapping users

Openscapes GitHub Clinic slides

GitHub for Project Management

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- **Streamline technical discussions** for people with different responsibilities

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GitHub for Project Management

- **Organize and track projects** with single or multiple & overlapping users
- **Streamline technical discussions** for people with different responsibilities
- **Key for onboarding Future You and Future Us**
- **Already managing code** and is linked to collaborators

Openscapes GitHub Clinic slides

GitHub Tools for Project Management

- Issues
- Projects

GitHub Issues

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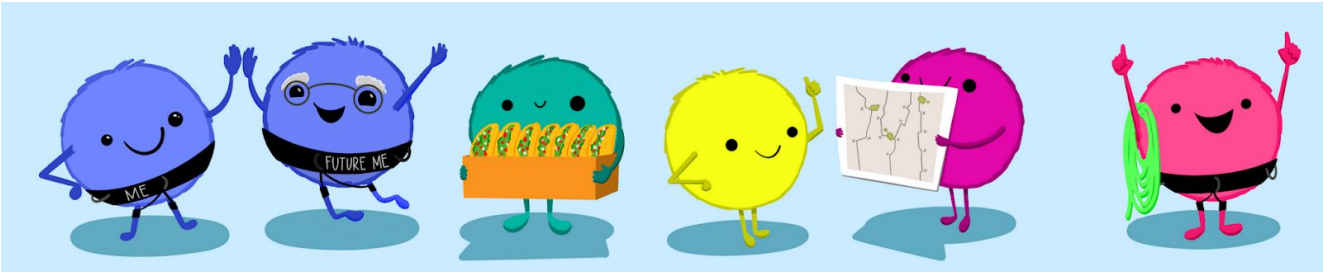
- Let you discuss/organize in the same place as your code & documentation.
- A “place” where you can have active discussions about any “issue” of your project(s). Code related or not.
- It streamlines technical discussions with people who are coming/joining the group.

GitHub Issues

- A project bug tracker
- Digital “Lab Notebook” (ideas, brainstorming)
- Act like an external memory (notes to self, links to resources)
- Identify and delegate task
- Documentation of process over time

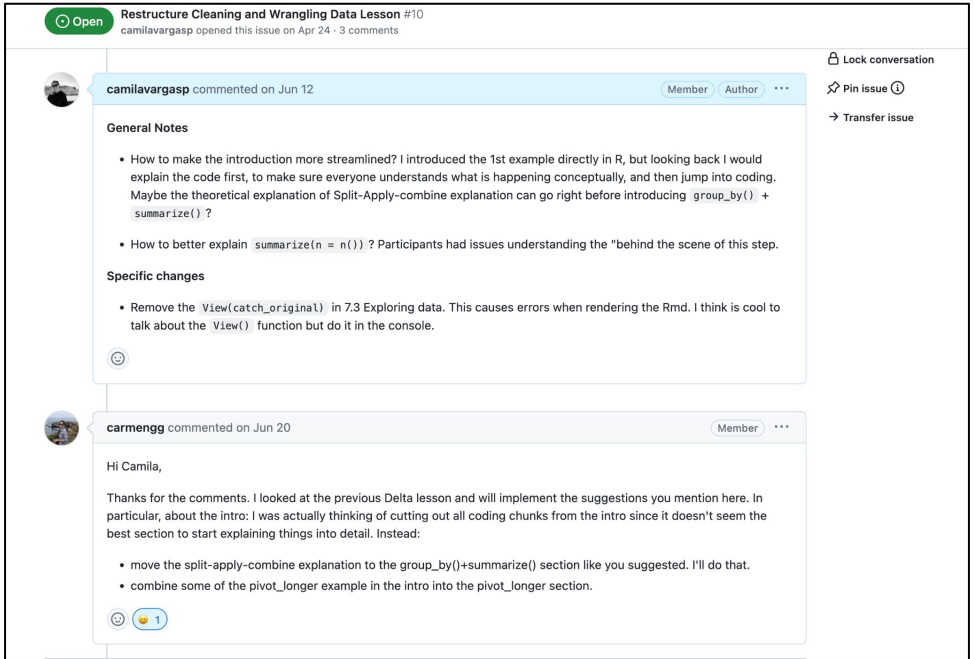


Artwork by Allison Horst

GitHub Issues

You can see and access and issue from

- A repository web interface on GitHub



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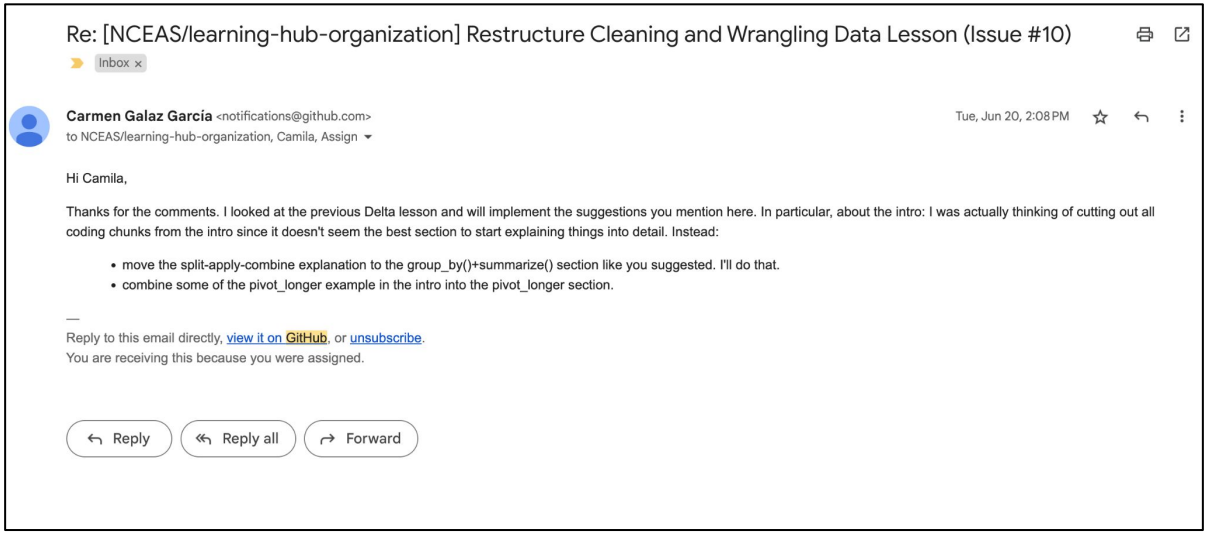
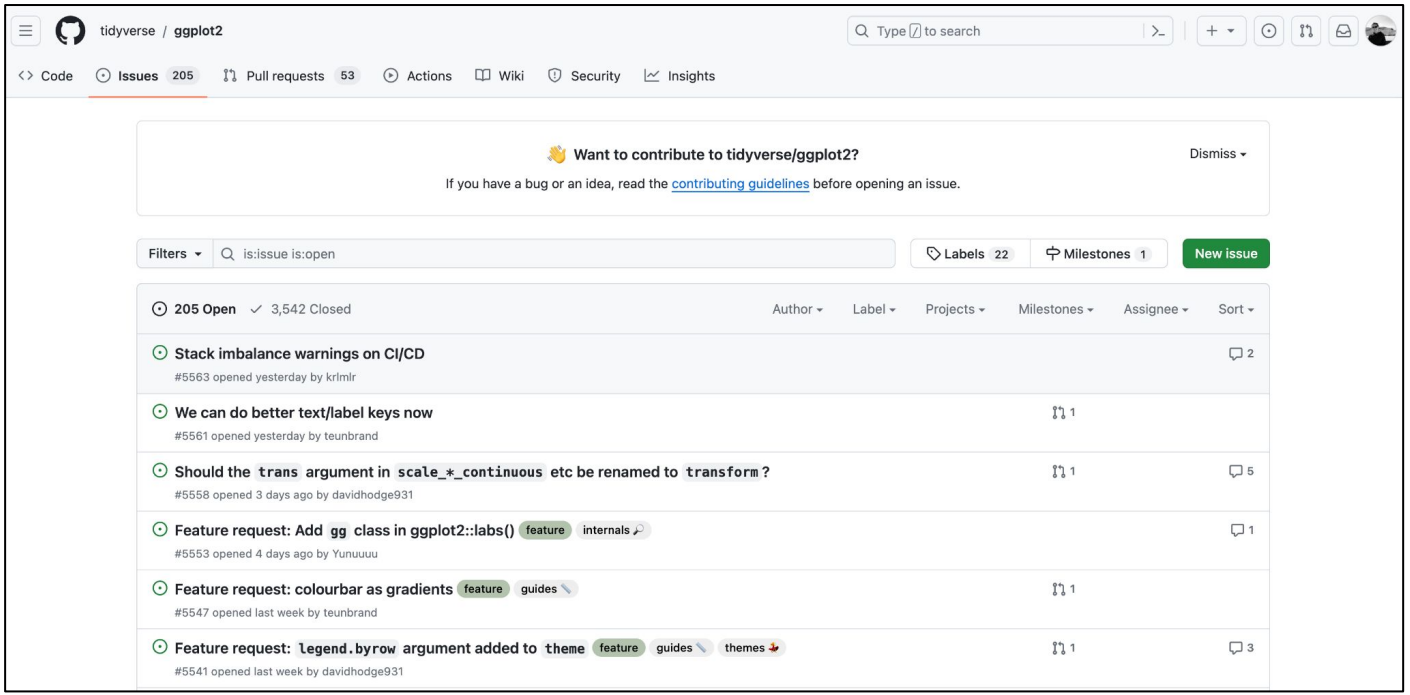


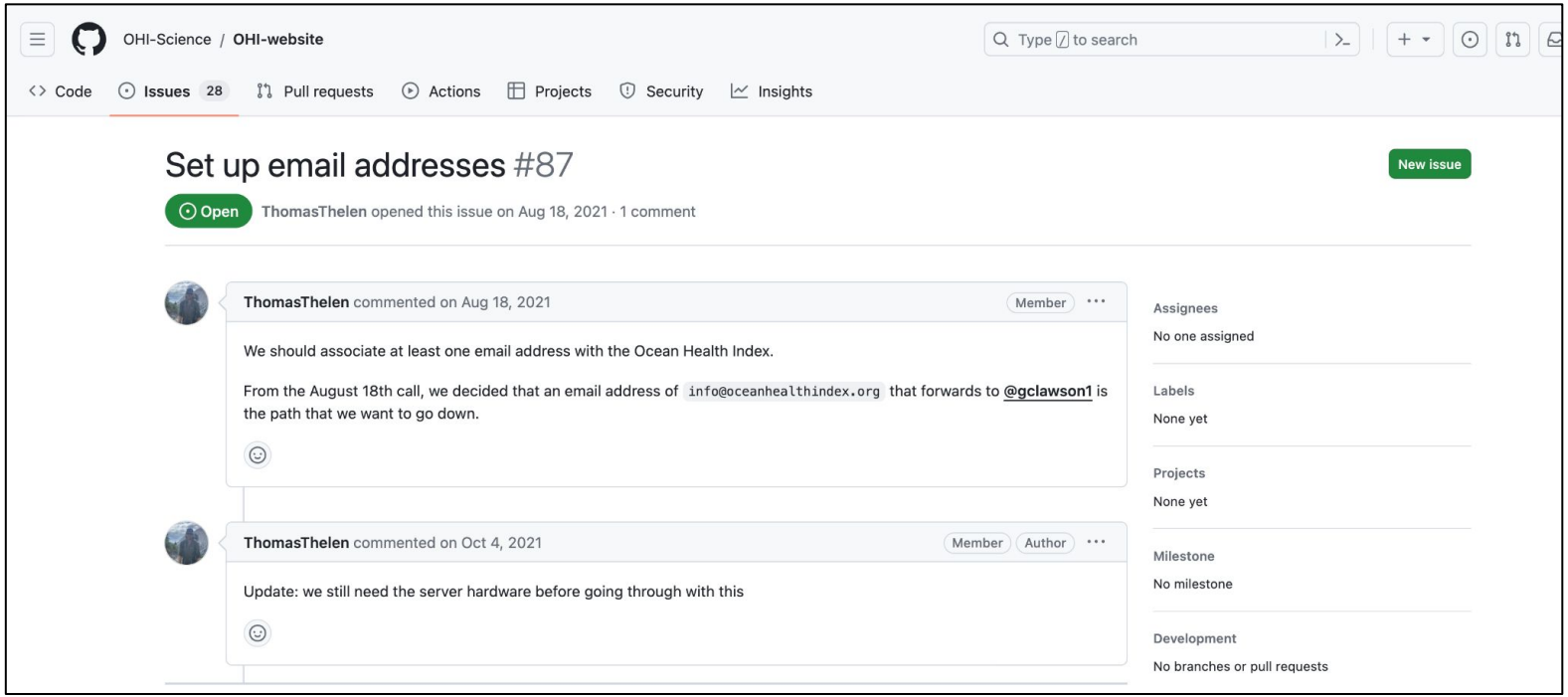
GitHub Issue: Example

- ggplot2 bug reports, code, feature, & help requests



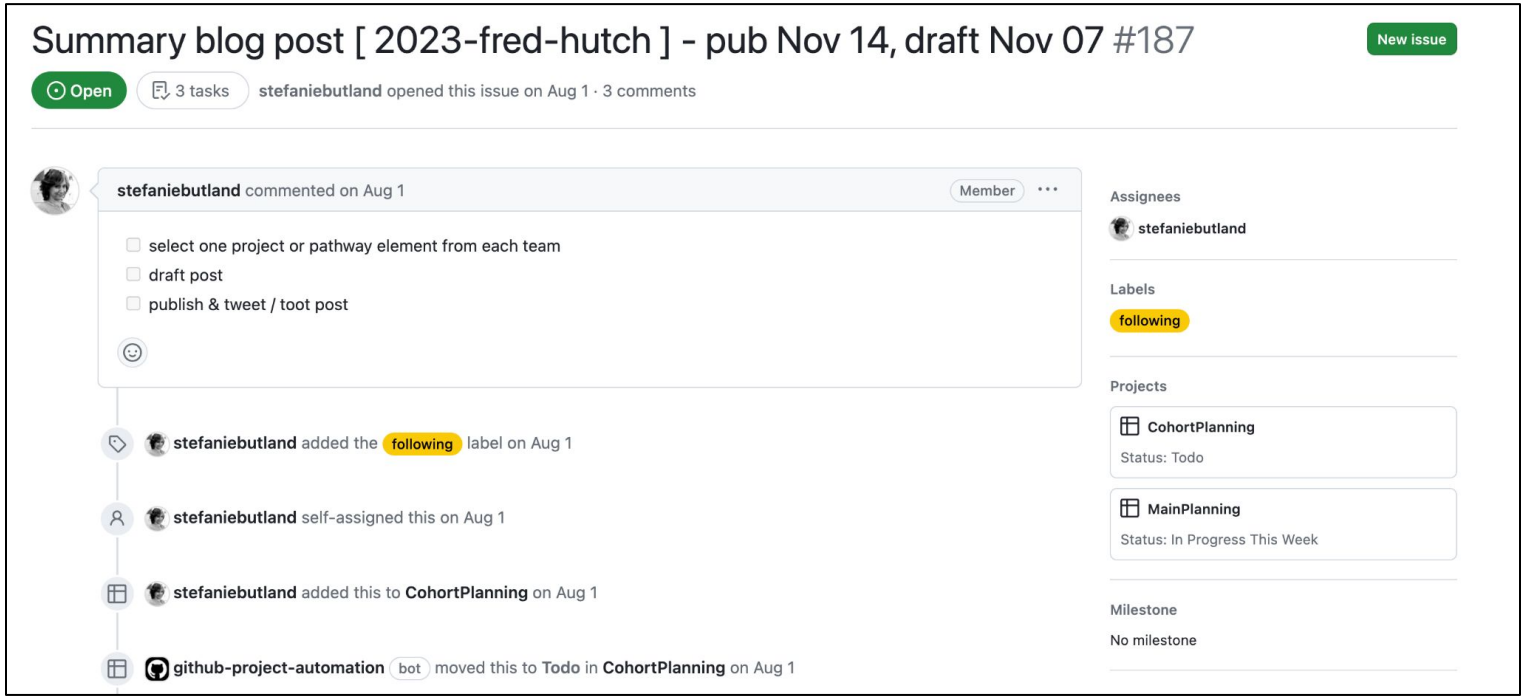
GitHub Issue: Example

- Ocean Health Index Team



GitHub Issue: Example

- Openscapes Team



stefaniebutland commented on Sep 28 Member Author

"Tell your roommate moments" like posit::conf sharing back to Julie.
Near end, what was different about this cohort?
Julie's back from vacation in plenty of time to review

stefaniebutland changed the title ~~Summary blog post [2023-fred-hutch]~~ **Summary blog post [2023-fred-hutch] - pub Nov 14, draft Nov 07** on Sep 28

stefaniebutland added this to **MainPlanning** on Oct 29

stefaniebutland moved this to **In Progress This Week** in **MainPlanning** on Oct 29

stefaniebutland mentioned this issue on Nov 2

Champions Cohort: 2023-fred-hutch. Aug 29 - Oct 24 Openscapes/how_we_work#268 Closed

stefaniebutland commented last month Member Author

@jules32 *rough* draft PR for wrap up post: Openscapes/website-new#69

For now, each team/lab text is not good - just copied what I had in Call 5 digest. It would help me a lot if you took a quick look and noted anything I might highlight. I haven't yet rewatched the video to do my next round of draft.

Development

No branches or pull requests

Notifications Customize

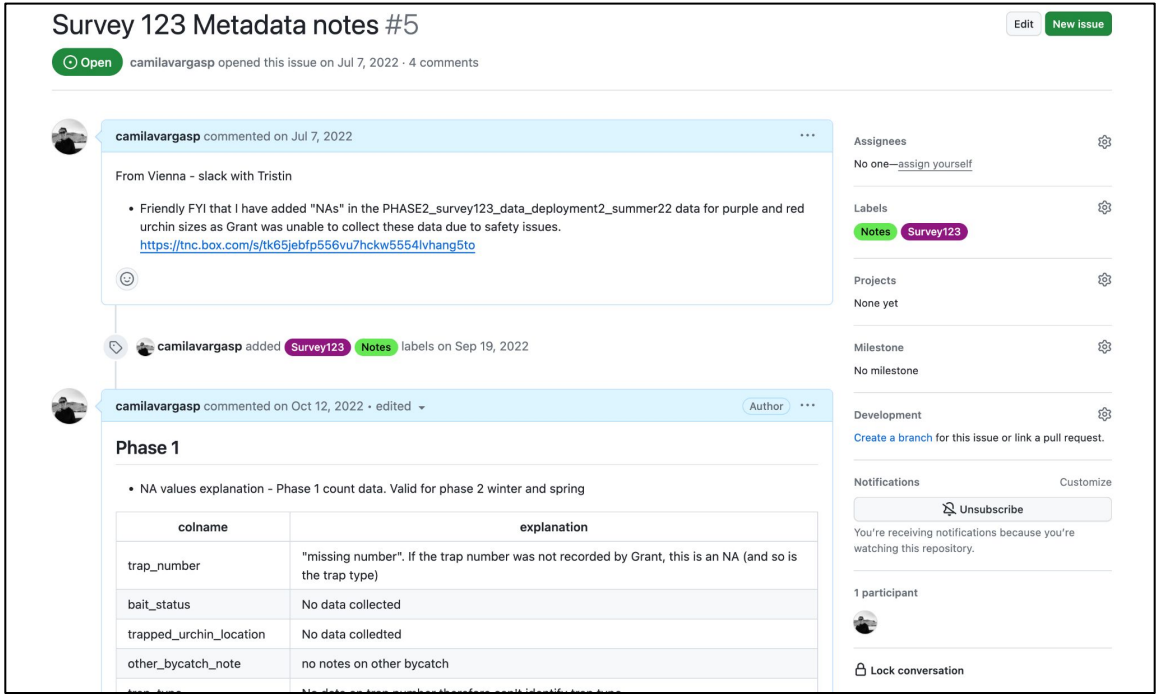
Subscribe

You're not receiving notifications from this thread.

2 participants

GitHub Issue: Example

- Collaborating with myself



Survey 123 Metadata notes #5

Edit | New issue

Open camilavargasp opened this issue on Jul 7, 2022 · 4 comments

camilavargasp commented on Jul 7, 2022

From Vienna - slack with Tristin

- Friendly FYI that I have added "NAs" in the PHASE2_survey123_data_deployment2_summer22 data for purple and red urchin sizes as Grant was unable to collect these data due to safety issues.
  https://tnc.box.com/s/tk65jebfp556vu7hckw5554lvhang5to

camilavargasp added Survey123 Notes labels on Sep 19, 2022

camilavargasp commented on Oct 12, 2022 • edited — Author

Phase 1

- NA values explanation - Phase 1 count data. Valid for phase 2 winter and spring

colname	explanation
trap_number	"missing number". If the trap number was not recorded by Grant, this is an NA (and so is the trap type)
bait_status	No data collected
trapped_urchin_location	No data colledted
other_bycatch_note	no notes on other bycatch

Assignees: No one—assign yourself

Labels: Notes, Survey123

Projects: None yet

Milestone: No milestone

Development: Create a branch for this issue or link a pull request.

Notifications: Customize — Unsubscribe

You're receiving notifications because you're watching this repository.

1 participant

Lock conversation

GitHub Issues Demo 1

1. Create a new issue from: repository/issues
2. Tag a collaborator
3. Add comment
4. Paste and image

GitHub Issues Demo 2

1. Create a new issue from code
2. Add label
3. Assign who is responsible
4. Add To Do list
5. Add emoji
6. Show watching and what that means

GitHub Project

- “A project is an adaptable spreadsheet, task-board, and road map that integrates with your issues and pull requests on GitHub to **help you plan and track your work effectively**.” (GitHub)

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- It is an umbrella that can include many issues.

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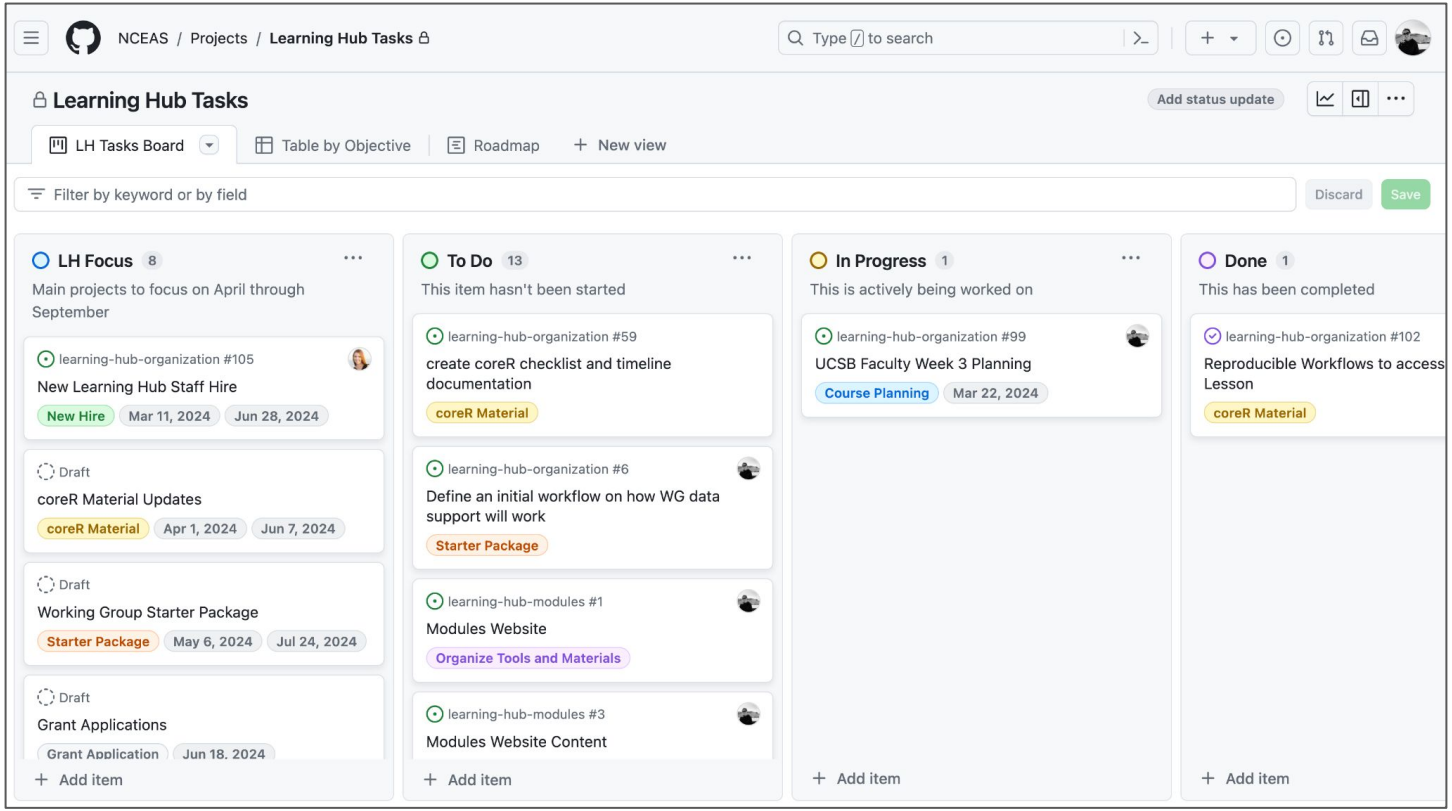
- Projects are GitHub’s main tool for project management.
- It is an umbrella that can include many issues.
- Helps you visualize everything that is being tracked on issues.

GitHub Project



GitHub Project

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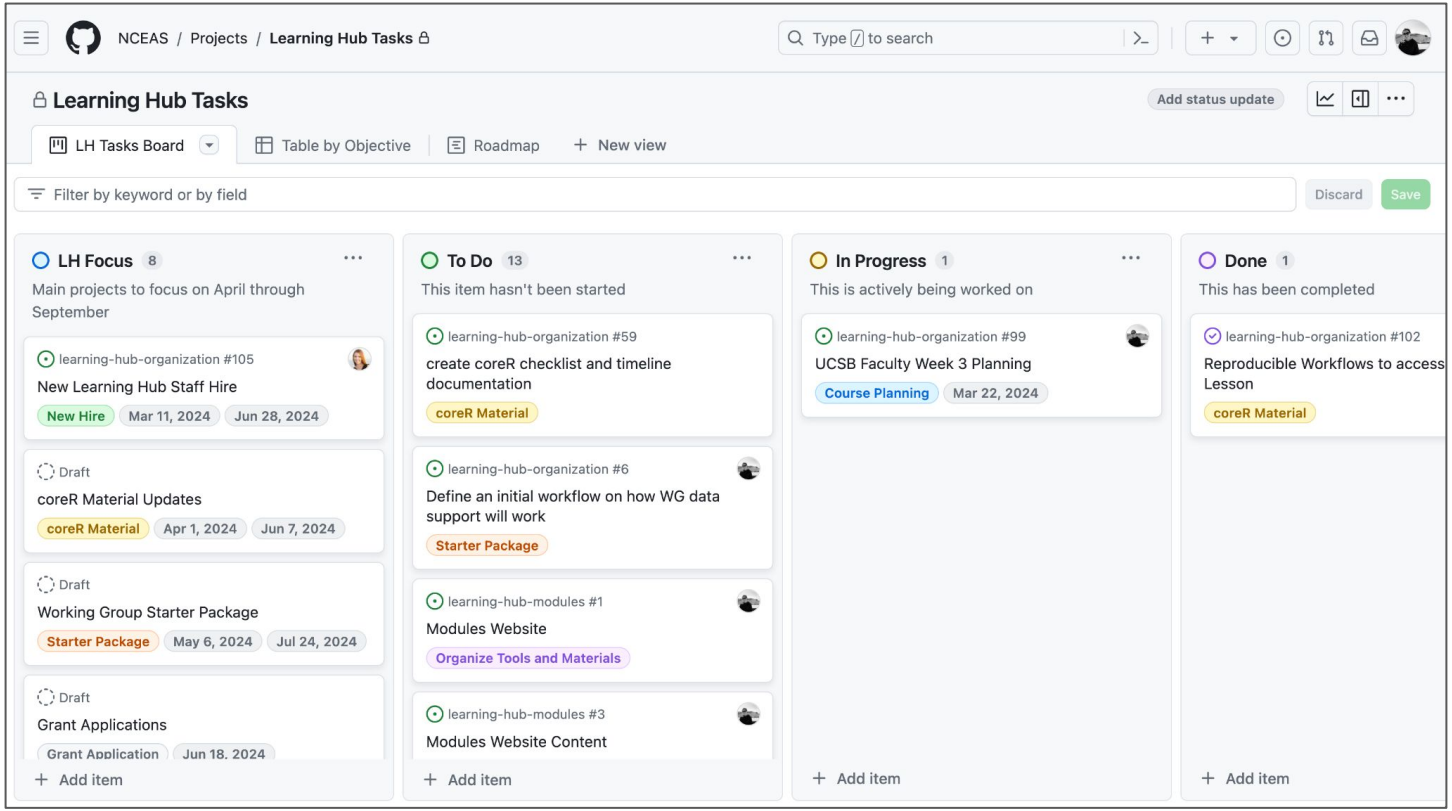

GitHub Project

- A Project can be created
  - within an Organization
  - by a User (under that user account)
- A project can be linked to a repository.
- In a project you can see and create issues in different repositories.

GitHub Project

- A Project created **within an Organization**
  - Supports issues from any repositories
  - Editable by any users in the organization

GitHub Project

- A Project created **from a user account**
  - Supports issues from any repository
  - Editable only by this user
    - *Unless the user allows other users to have admin-level powers in that project.

GitHub Project Demo 1

- Create a project within Ecodatascience organization
- Create a new Draft in the project
- Add issue created in previous Demo to project
- Add and customize columns
- Close issue and show automatization

GitHub Project Demo 2

- Navigate to my Personal Organization project
- Different ways to open the project
- Different views
- Customize categories
- Customize labels
- Start and End dates
- Milestones

Summary: The Workflow

- Issues are related to a repository
- Projects can be created under a user or organization
- Use Issues to track and document each task or idea of your analysis
- Use a GitHub Project to oversee all the moving pieces of your research project. Each member can track their tasks and ensure equitable effort.
- Mix and match repositories and project categories as you see fit

Resources and References

- Openscapes GitHub for Project Management (Champion Series)
- Openscapes GitHub Clinic slides
- LTER SciComp Workshops
  - GitHub Issues
  - GitHub Projects
- GitHub Docs
  - Issues
  - Projects