



PNAMP Fish Monitoring Work Group (FMWG) Task Description for Task:

Update Terms & Definitions used in CAP Data Standards

Task Description: This task will primarily focus on review and update of terms and definitions in StreamNet [Data Standards that support CAP data](#) (CAX HLI DES, HCAX DES and SN Fish Monitoring Trends DES) to effectively convey the terms' intent. This task will also:

- organize this information as a fish domain-specific controlled vocabulary (specific terms and phrases used in fish-related concepts) made available as a digital resource to facilitate reuse;
- and investigate linking this CAP-specific vocabulary product to a larger scope data ontology (a formal naming and definition of the categories, properties, and relations between the concepts, data, or entities that pertain to one or many domains a way of showing the properties of a subject area and how they are related) in the future that will serve as a resource to help link heterogenous data within the fish domain.

Background and Benefits: The benefits of data standards are many, including: promoting common, clear meanings for data that is often reused; enabling access so that the same well understood terms, codes, and data structures can be used for data retrieval; enabling reuse of data and software for multiple purposes; providing consistent results during data retrieval; and enabling mappings across data systems to allow comparisons even when data isn't standardized. Controlled vocabularies (also called taxonomies), data ontologies, and schemas are building blocks to structure data semantically and to show the relationships between linked data. Expanding from data standards to developing taxonomies, ontologies and schema for CAP data will allow these data to have a broader utility by facilitating linking systems together, accelerating machine learning by supporting inference, and permitting data surfing. **See links below for resources describing metadata, ontologies, taxonomies, controlled vocabularies and why this is important.**

To benefit the Coordinated Assessments Partnership and others with shared interests, PNAMP will facilitate development of consensus-based agreement on a fish domain-specific controlled vocabulary for terms and definitions used in CAP data standards. PNAMP will bring together subject matter experts to achieve consensus-based standards, which is critical to gain adoption, and enable transparency and understanding. We will also investigate how to better connect CAP data standards to other common data standards and vocabularies; develop mechanisms to ensure these standards (and vocabularies) are easily accessible and future revisions are documented; and develop plans to incorporate CAP domain-specific products into broader scope ontologies, taxonomies, and vocabularies.

Work Plan:

1. Staff will compile existing Terms and Definitions used in current CAP and SN data standards in digital format, starting with the existing database table and adding the DES definitions either within the database or into the Excel spreadsheet output of the database table.
 - a. For each Term, include: current definitions and term display views, sources (i.e. citations) if known, date adopted by CAP/SN, which DES references this Term and what, if any, definition divergence may exist between DESs.
 - b. Group into
 - i. Terms we are confident **do not** need review based on alignment with AFS published definitions
 - ii. Terms that do need review [e.g. same term used by others to mean different things, or data is incorrectly populated in these fields etc.]
2. Facilitate review and collect input from FMWG, CAP, and others as interested (invite international Salmon Data Mobilization Work Group)
 - a. Start with virtual Introductory Workshop: explain goals and process; confirm lists of Terms that need review/don't need review
 - b. Present Terms and Definitions in a spreadsheet pulled from the database table.

- c. Review terms structured way that will allow us to track each respondent's input using MS Forms input. (Note, this is the same approach as used in HCAX controlled vocabulary development).
 - i. For example: "Term A is defined as XYZABC. Do you agree to this definition? If NO, provide your accepted definition" and "in this QWERTY scenario, you would interpret this to mean XYZ data".
- d. Query ISO, Darwin Core, etc. for potential overlaps in terms to ensure consistency with previously established standards
- e. Publish the final version of the updated Terms and Definitions as a controlled vocabulary and define a protocol for how future updates to the controlled vocabulary will be implemented
- f. Consider how to incorporate (or connect to within the data ontology structure linking to our fish domain specific terms) other standards (e.g. ISO, Darwin Core, etc.) as appropriate
- g. Focusing on how the CAP DES will be used, adopt a modern approach to publish the CAP DES that will semantically link to the new digital controlled vocabulary and will allow efficient updates across DESs as terms or definitions are modified in the future, with changes recorded in versioning.

Task Outcomes:

- Comprehensive update to all data standards (DES) used by CAP and StreamNet, building off our existing work and also incorporating common data standards and taxonomies as appropriate
- Digital means to publish, share, and track future revisions of CAP data standards
- Creation of a single digital repository for all terms and definitions freely and easily accessible
- Digital means to track future revisions to terms and definitions
- Preparation for connection to proposed international Salmon Method Ontology

Links to Resources:

- Definition of data standard: Data standards are documented agreements on representation, format, definition, structuring, tagging, transmission, manipulation, use, and management of data. CAP uses data standards to facilitate the efficient sharing of data and information among states, tribes, federal agencies, local governments, the private sector, other partners, and the public.
- Citations:
 - [Taxonomies and controlled vocabularies best practices for metadata | Journal of Digital Asset Management \(springer.com\)](#)
 - [Ontologies and Data Management: A Brief Survey | KI - Künstliche Intelligenz \(springer.com\)](#)
 - <https://www.dataversity.net/data-ontology-is-the-future-and-i-cant-wait/>
 - [Taxonomies and Controlled Vocabularies - Metadata & Discovery @ Pitt - Guides at University of Pittsburgh \(libguides.com\)](#)
 - [Controlled Vocabularies - Metadata for Data Management: A Tutorial - LibGuides at University of North Carolina at Chapel Hill \(unc.edu\)](#)
- Supporting materials:
 - [PNAMP Fish Monitoring Work Group webpage](#)
 - [StreamNet CAP Data Exchange Standard \(DES\) documents](#)

Task Timeline - **PROPOSED**

Update Terms & Definitions	Date	who	
Kickoff with FMWG + CAP participants	May 2024?	FMWG & CAP	
Round 1 Review (response window)	(7 weeks)	FMWG & CAP	
Reconcile Round 1 Feedback	(2 weeks)	staff	
Round 2 Review (response window)	(4 weeks)	FMWG & CAP	
Reconcile Round 2 Feedback	(2 weeks)	staff	
Final Product Meeting & Approval	Mid-September		
Product for CAP DDT Input	Early October		
SC Update	November		

Team: Task Leads

First Name	Last Name	Organization	Email	Role
Jen	Bayer	USGS/PNAMP		Lead
Mari	Williams	PSMFC/StreamNet		Lead
Mike	Banach	PSMFC/StreamNet		Lead