

# ORD CLEARANCE FORM

Initiator Information		Product Category	
First Name:	Anne	<input type="checkbox"/> HISA (Highly Influential Scientific Assessment) <input type="checkbox"/> ISI (Influential Scientific Information) <input checked="" type="checkbox"/> Not HISA or ISI <input type="checkbox"/> Requires Advance Notification <input checked="" type="checkbox"/> Does not Require Advance Notification	
Last Name:	Kuhn		
E-mail Address:	Kuhn.Anne@epa.gov		
Organization:	ord, cemm, acesd, eeb		
Principal Investigator / Project Officer Information		Product Information	
First Name:	Anne	Clearance Tracking #:	ORD-049366
Middle Initial:		EPA Publication #:	
Last Name:	Kuhn-Hines	Product Type:	Presentations and Technical Summaries
Email:	Kuhn.Anne@epa.gov	Product Subtype:	Extended Abstract
Phone #:	401-782-3199	Records Schedule:	Not A Senior Official
Product Title			
Develop relationship between the index of catchment integrity and NCCA estuarine response in low gradient coastal catchments			
Author(s), Affiliation, and Address			
EPA Author		EPA Author	
First Name: Anne		First Name: Michael	
Last Name: Kuhn-Hines		Last Name: Charpentier	
Organization: ord, cemm, acesd, eeb		Organization: ord, osim, aimd	
Address:		Address:	
Telephone: 401-782-3199		Telephone: 401-782-3186	
Email: Kuhn.Anne@epa.gov		Email: Charpentier.Mike@epa.gov	
Percentage Contribution %: 40		Percentage Contribution %: 30	
Impact / Purpose Statement			
Note: The Impact / Purpose Statement information for this work product will be displayed on the additional pages.			
Product Description / Abstract			
Note: All Product Description / Abstract information for this work product will be displayed on the additional pages.			
Tracking and Planning			
Note: All Tracking and Planning Field data for this work product will be displayed on the additional pages.			
Bibliographic Citation Components			
Publisher:		Meeting Name:	
Publisher City:		Meeting Start Date:	
Publisher State:		Meeting End Date:	
Publisher Country:		Meeting City:	
Editors:		Meeting State:	
Edition:		Meeting Country:	
Book Title:		Journal:	
Chapter:		Publication Title:	
Volume:		Year:	
Issue:		Pages:	
URL:			

[illegible]

**Additional Authors**

Author # 3 - EPA Author

First Name: Jane

Last Name: Copeland

Organization: ord, cemm, acesd, eeb

Address:

Phone: 401-782-3168

Email: Copeland.Jane@epa.gov

Percentage Contribution: 20

Author # 4 - EPA Author

First Name: Jeffrey

Last Name: Hollister

Organization: ord, cemm, acesd, mab

Address:

Phone: 401-782-9655

Email: Hollister.Jeff@epa.gov

Percentage Contribution: 10

**Sub-Product ID and Title**

SSWR.1.2.2.3: Develop relationship between the index of catchment integrity and NCCA estuarine response in low gradient coastal catchments

**Tracking and Planning 2019 Forward Field Set(s)**

Research Area ID: SSWR.1

Research Area: Assessment, Monitoring and Management of Aquatic Resources

Product Title: Interpolation and stressor-response analyses that extend the use of NARS data to support regulatory program needs

Brief Description and Use: We will further develop and demonstrate approaches for interpolating and extrapolating NARS data to unsampled areas and finer scales, using rivers and streams, lakes, and estuaries as case study examples. We will update and improve tools used for interpolation of NARS data for freshwater resources. We will also use these data to relate NCCA condition endpoints to the index of catchment integrity, a StreamCat output. We will relate landscape, ocean and in-estuary stressors to estuarine response (including M-AMBI), which may be an alternate way to gauge relative risk. The case studies developed in this product should benefit local decisionmakers by providing more complete assessments, while the approaches and tools should be transferrable for use by OW, Regions, and States. Example milestones: 1) Empirical models to interpolate benthic macroinvertebrate observed/expected ratios, or other biological indicator(s) of aquatic ecosystem health, from NARS stream and lake condition to HUC12 or HUC8 units over the conterminous US (CONUS) (Leibowitz) 2) Updated/maintained StreamCat/LakeCat databases converted into an Oracle database and web service to improve usability (Leibowitz) 3) Relationships between the index of catchment integrity and NCCA estuarine response in low gradient coastal catchments (Kuhn) 4) Relationships of landscape, oceanic and in-estuary stressors to estuarine response variables in NCCA estuaries (Pelletier) 5) Methods to extrapolate estuarine condition from NCCA to unsurveyed areas using ancillary datasets in Gulf of Mexico (Bousquin)

Topic(s):

Watersheds

Research Program Area: Safe and Sustainable Water Resources

**Impact / Purpose Statement**

Under the Clean Water Act (CWA) federal, state, and tribal environmental agencies are delegated to restore and maintain the chemical, physical and biological integrity of US waters and are required to report on the Nation's water resources condition status and trends information. The National Aquatic Resource Surveys (NARS) were developed and implemented as an EPA, state, tribal partnership to address the need to assess the quality of US waters, track changes and condition over time, and to provide critical information for protecting and restoring water quality at national and regional scales. This research spatially relates and evaluates indices of catchment integrity (ICI) with estuarine condition response data using National Coastal Condition Assessment (NCCA) data collected under the NARS program in low gradient coastal areas of the Virginian Province, which includes the coastal region of the Northeast United States from Cape Cod south to the mouth of Chesapeake Bay. Indices of watershed integrity (IWI) and ICI were previously derived using landscape stressor data from StreamCat (<https://www.epa.gov/national-aquatic-resource-surveys/streamcat-dataset>) (Flotemersch et al., 2016; Hill et al., 2016) and mapped for 2.6 million stream segments across the conterminous U.S. (Thornbrugh et al., 2018). The IWI characterizes the integrity of watersheds based on key watershed functions and the relative presence of landscape stressors that affect them. The ICI uses landscape stressors in local drainages of individual stream segments to characterize the local influence and integrity of the catchment. This research evaluates the relationship between the ICI and IWI for low gradient coastal catchments and estuarine condition using the NCCA estuarine response data. This research describes stressor response relationships for coastal managers to support effective management of land-based stressors to reduce their impacts on coastal estuarine waters and assist managers in meeting the goals of the CWA.

**Product Description / Abstract**

This research spatially relates indices of catchment integrity (ICI) with estuarine condition using National Coastal Condition Assessment (NCCA) data in low gradient coastal areas. Old CEMM ID 1.2.2.F

## **CCs**

Benton.Breanne@epa.gov  
Rea.Anne@epa.gov  
Schneider.Marie@epa.gov  
Boone.Hannah@epa.gov  
Stanziano.Elizabeth@epa.gov  
moore.daniellem@epa.gov  
Copeland.Jane@epa.gov  
Latham.Michelle@epa.gov  
LiVolsi.Joseph@epa.gov  
Hollister.Jeff@epa.gov  
vanDrunick.Suzanne@epa.gov  
Greene.Rick@epa.gov  
Impellitteri.Christopher@epa.gov  
Kuhn.Anne@epa.gov  
Williams.Joe@epa.gov  
Charpentier.Mike@epa.gov  
Azzam.Kathleen@epa.gov  
Hagler.Gayle@epa.gov  
Grimm.Ann@epa.gov

## **Comments**

Author: Kuhn, Anne      Date: 08/01/2022 12:39 PM

This sub-product, SSWR 1.2.2.3, research is associated with the product, SSWR.1.2.2: Interpolation and stressor-response analyses that extend the use of NARS data to support regulatory program needs. The SSWR 1.2.2 product contact is Scott Leibowitz (ORD/CPHEA-PESD-FEB). This research is associated with the SSWR Watersheds Topic, and Research Area: Assessment, Monitoring, and Management of Aquatic Resources. Specifically, this research supports the SSWR Output 2: Extended Applications of NARS Data and Approaches to Support Priority Setting and Management Actions.

Author: Marty Chintala      Date: 08/03/2022 4:20 PM

Hi Anne, Interesting study! I have a couple suggestions in the attached version. Is the Excel sheet you referenced in Science Hub (I didn't go in to check). Thanks, Marty

Author: Anne Kuhn      Date: 08/05/2022 2:57 PM

I have incorporated Marty Chintala's comments and uploaded into the updated version: Abstract\_SSWR-1.2.2.3\_NCCA\_ICI\_IWI\_finalV3.docx