



REPI

READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

2021 WEBINAR SERIES



Resilience Tools and Technology

30 June 2021 | 1:00 PM ET

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Speakers

- Moderator:
 - **Andy Porth**, Office of the Assistant Secretary of Defense (Sustainment)
- Presenters:
 - **Dr. Shubhra Misra**, DoD Climate Action Team – Climate Preparedness and Resilience
 - **Kristen Byler**, National Fish and Wildlife Foundation
 - **Maria Abadie**, REPI/Booz Allen Hamilton



UNITED STATES DEPARTMENT OF DEFENSE

REPI READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM



Defense Climate Assessment Tool (DCAT)



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Climate Action Team (POC: Kathleen White, PhD, PE)

Office of the Deputy Assistant Secretary of Defense (Environment and
Energy Resilience)

30 Jun 2021



Defense Climate Assessment Tool

- **Defense Climate Assessment Tool (DCAT)**
- **DCAT Need**
- **DCAT Purpose**
- **DCAT Access**
- **DCAT Overview**
- **DCAT User Guide**
- **Defense Installations Spatial Data Infrastructure (DISDI) Portal Overview**
- **Key Takeaways**
- **Summary**



Defense Climate Assessment Tool

WHAT IS THE DoD CLIMATE ASSESSMENT TOOL (DCAT)?

A CAC-enabled, web-based collection of scientific climate data to support research, analysis, and decision making about exposure to historical extreme weather and reasonably foreseeable climate effects.

WHAT IS THE PURPOSE OF THE DCAT?

Enables Military Departments and their installation personnel to deliver consistent exposure assessments and identify regions or installations for additional climate-related studies.

HOW WILL DCAT SUPPORT ANALYSIS AND DECISION MAKING?

The tool uses data from past extreme weather events (e.g., hurricanes, tornado tracks) and the effects of future changes in sea levels, riverine flooding, drought, heat, land degradation, energy demand, and wildfires to produce hazard indicators. The data supports a screening-level assessment of installation vulnerability expressed as a combination of exposure (designated by the tool) and sensitivity.

WHO SHOULD BE USING DCAT?

Climate Assessment Tool Users	Impacts on Decision Making
Installation-level Planners and Engineers	<ul style="list-style-type: none">■ Analyze an installation's exposure or susceptibility to climate and extreme weather events.■ Use this information to help inform planning and land use recommendations, and support resilient design, engineering, and construction.■ Add separate geographic information system (GIS) layers (e.g., flooding) available for Military Department-specific GIS systems used at the installation level.
Military Department Headquarters	<ul style="list-style-type: none">■ Identify regions or installations for focused attention, such as performing detailed studies to determine mission impacts and strategies to mitigate exposure.
DoD Leadership	<ul style="list-style-type: none">■ Compare exposure across the Department to answer questions from Congress.■ Inform investment and policy decisions.



Defense Climate Assessment Tool (DCAT) Need

DoD Requirements

- DoD Quadrennial Defense Review (2014)
- DoD Climate Change Adaptation Roadmap (2014)
- DoD Directive 4715.21 Climate Change Adaptation and Resilience (2016)
- FY 18-19-20 National Defense Authorization Acts
- USD(AS) Memo Improving Defense Installation Resilience to Rising Sea Levels, 24 Feb 2020

Climate Data provides input to:

- Real Property Master Plans
- Installation Natural Resources Master Plans
- Installation Energy & Water Resilience Plans
- Unified Facilities Criteria Updates



EO 14008, Tackling the Climate Crisis at Home and Abroad, released 27 January 2021

- Emphasis on national security, climate mitigation (energy and sustainability), climate adaptation, and environmental justice
- Deliverables:
 - DoD Climate Risk Assessment 120 days
 - DoD Climate Action Plan 120 days

DoD Climate Assessment Tool (DCAT):

Provides screening level to guide further studies where mission and operations are sensitive to these hazards, and the resulting investments in resilience measures

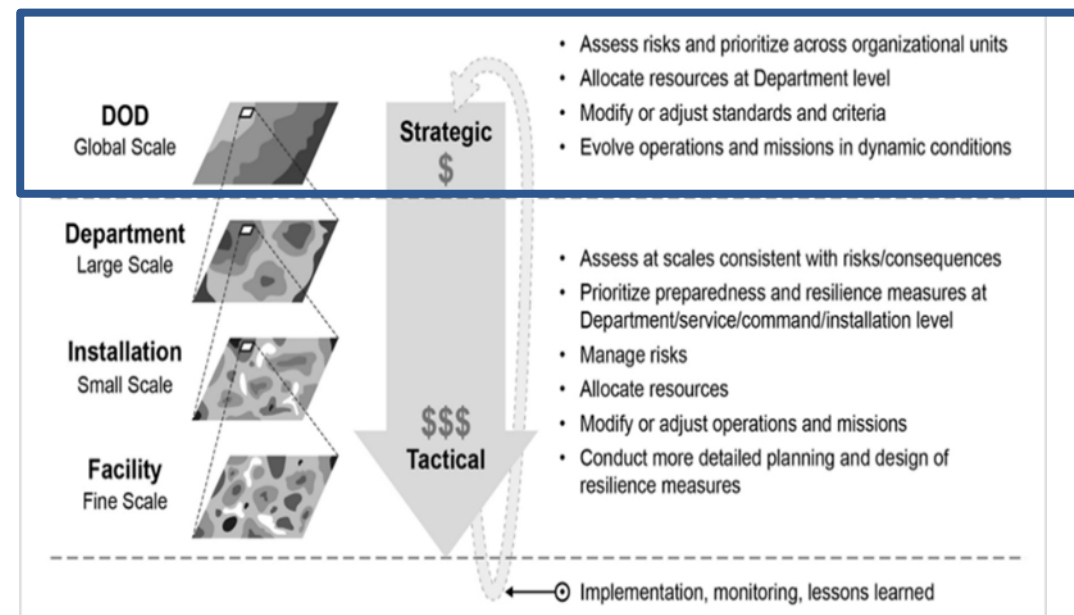
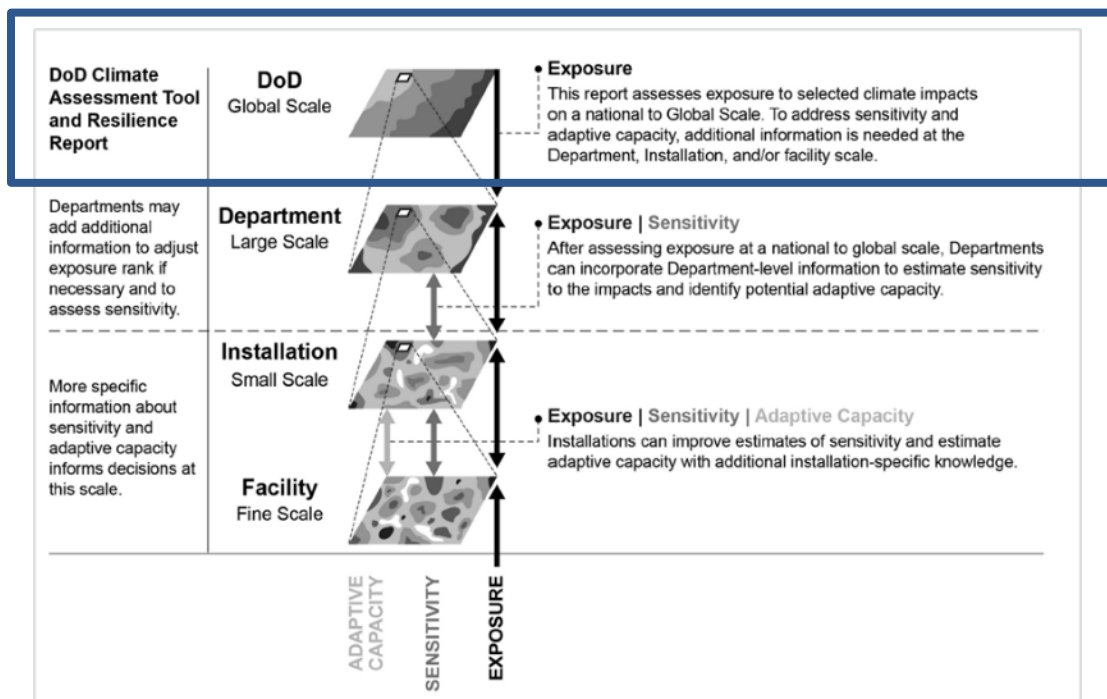
Based on best available and actionable science – USACE aggregates, integrates and translates best available science into actionable information for decision-makers

Results indicate there is no epoch-scenario under which installation exposure to climate hazards is projected to decrease



Defense Climate Assessment Tool (DCAT) Purpose

- Leverage nationally consistent, authoritative data to provide robust, screening-level assessments of exposure across DoD installations
- Vulnerability = {exposure x sensitivity x adaptive capacity}
- Exposure screening help prioritize further investments to determine sensitivity and adaptive capacity using more detailed and site-specific data





DoD Climate Assessment Tool (DCAT) Access

CONUS/AK/HI:

Public CAC-enabled Site - https://corpsmapr.usace.army.mil/cm_apex/f?p=118

(Read-only access except those with permissions)



Welcome to the DOD Climate Assessment Tool

Welcome to the DOD Climate Assessment Tool. The tool presents information on exposure to projected climate risks as a preliminary step toward understanding potential impacts to mission and operations. It is useful for determining if more detailed assessments are necessary to better understand vulnerability and then to inform installation resilience planning.

Please enter your CAC and press login.

CAC Login

Rest of World (ROW):

Public CAC-enabled Site - https://corpsmapr.usace.army.mil/cm_apex/f?p=119

(Read-only access except those with permissions)



Welcome to the DOD Climate Assessment Tool

Welcome to the DOD Climate Assessment Tool. The tool presents information on exposure to projected climate risks as a preliminary step toward understanding potential impacts to mission and operations. It is useful for determining if more detailed assessments are necessary to better understand vulnerability and then to inform installation resilience planning.

Please enter your CAC and press login.

CAC Login



DoD Climate Assessment Tool (DCAT) Access

DCAT Home Screen (CONUS/AK/HI)



DOD Climate Assessment Tool (CONUS/AK/HI) (VA6)

Logged in as: Shubhra Misra - DOD HQ [Log out](#)

[Home](#)

[I: Impact Awareness](#)

[II: National Standard View](#)

[My Assessment](#)

[My Results](#)

[Admin](#)

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[Introduction](#)

[WOWA Score Overview](#)

[Indicator Information](#)

DOD Climate Assessment Tool

Use of This Tool

This tool enables DOD staff to gain better awareness of current and projected exposure to climate effects in 30-year periods of analysis centered on 2050 and 2085 that may result in changes to coastal flooding, riverine flooding, heat, drought, energy demand, wildfire, and land degradation. This tool also provides information on current exposure to extreme weather events (hurricanes, wildfire, drought, ice storms, ice jams, and tornadoes). This screening-level assessment provides authoritative climate information in the Impact Awareness Tab and supports installation-level assessments of climate exposure as well as comparisons across installations and commands.

The simulated historical and projected future climate model outputs used to form and bound the indicators in this high-level screening assessment were taken from several sources already completed and publicly available as required in this project's scope.

Steps to Take:

I: Impact Awareness (Improve Knowledge of Current and Projected Climate)

Choose the **Impact Awareness** from the main menu to review climate information for CONUS/AK/HI taken from the 3rd National Climate Assessment (USGCRP, 2014) updated with information from Volumes I and II of the 4th National Climate Assessment (USGCRP 2017, 2018), and global climate information taken from recent Intergovernmental Panel on Climate Change (IPCC) reports. The user will be prompted to select a region where the user's installation resides. Click on "Go to next section: Regional Overview" to see regional climate information.

For overall global climate information, please click here to review the global document: [Global Climate Summary](#)

II: Impact Assessment (Start Screening-Level Impact Assessment)

Choose the **National Standard View** to review results of impact assessments conducted for select DOD installations at the HUC-8 watershed scale. Here the user can see visualizations of current and projected in 30-year climate epoch centered on 2050 and 2085 installation exposure to coastal flooding, riverine flooding, heat, drought, energy demand, wildfire, and land degradation, as well as current impacts from extreme weather events (hurricanes, wildfire, drought, ice storms, ice jams, and tornadoes). The National Standard View uses settings that reflect a standard set of planning processes, indicators, and importance weights which can be applied across geographies.

The **My Assessment** tab allows users to modify the underlying settings of the National Standard View to reflect DOD information or knowledge of local conditions and knowledge of the relative significance of exposure to these climate impact categories as measured by the indicators.

The **My Results** the results from conducted under **My Assessment** are displayed using the full suite of visualizations. The results of the user assessment can be compared to the National Assessment to better understand the projected changes in exposure of installation mission components of interest.



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DoD Climate Assessment Tool (DCAT) Overview

- Calculates projected exposure to eight hazard areas
- Calculates historical exposure for which climate projections are not yet possible
- Provides for two time periods and two GHG emissions pathways; so, can evaluate four scenarios
- 1391 locations (1055 CONUS-AK-HI (Army – 439, Navy – 326, AF - 258; 336 ROW (Army – 128, Navy – 110, AF – 98)
- Aggregates exposure across the hazard areas and indicators to attain a “score”



Drought	Riverine Flooding	Coastal Flooding	Heat
Energy Demand	Land Degradation	Wildfire	Historical Extreme Conditions



<i>Tornado Frequency</i>	<i>Hurricane Wind >50Kts</i>	<i>Hurricane Max Precipitation</i>	<i>Hurricane Frequency</i>
<i>Ice Storms</i>	<i>Historic Drought Frequency</i>	<i>Ice Jams</i>	<i>Wildland Fire Interface</i>



Epoch: Time period of indicator data

Future 1: 2035-2065, centered on 2050

Future 2: 2070-2100, centered on 2085

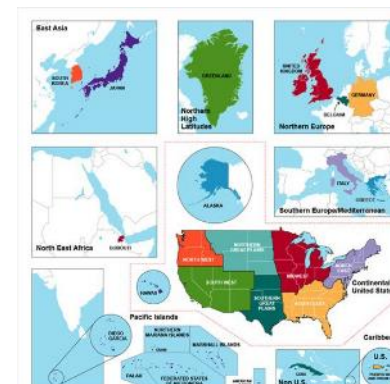
Climate Scenarios: Future climate scenarios according to emissions pathway

Lower greenhouse gas (GHG) emissions

Higher GHG emissions

Therefore user can evaluate:

2050 Lower, 2050 Higher, 2085 Lower, or 2085 Higher





DCAT User Guide – Step 1

Review Background Information and Reports:

- DoD “Report on Effects of a Changing Climate to the Department of Defense”
(<https://media.defense.gov/2019/Jan/29/2002084200/-1/-1/1/CLIMATE-CHANGE-REPORT-2019.PDF>)
- DCAT Report “DoD Installation Climate Exposure At Home and Abroad”
(<https://media.defense.gov/2021/Apr/20/2002624613/-1/-1/1/DOD-INSTALLATION-EXPOSURE-TO-CLIMATE-CHANGE-AT-HOME-AND-ABROAD.PDF>)
- Army Climate Resilience Handbook, Change 1
(https://www.asaie.army.mil/Public/ES/doc/Army_Climate_Resilience_Handbook_Change_1.pdf)
 - Note where climate information would fit into Army climate planning (e.g., Figure 2)
 - Read through the notional installation example
 - Think about how you might approach a climate assessment on your own
 - Review Appendix C, Climate Preparedness and Resilience Measures
- Review DoD Requirements and Component Guidance in the Background section of this primer to see the kinds of information that might be important in a report for each of the requirements
- Review the Installation Success stories in the Background section of this primer to get an idea of the kinds of resilience actions are occurring
- Review Global Climate Summary (available from within DCAT)
(https://corpsmapr.usace.army.mil/rccinfo/va4/docs/Global_Climate_Summary.pdf)



DCAT User Guide – Step 2

- Go to the DCAT Portal and Log in using CAC:
 - CONUS/AK/HI: https://corpsmapr.usace.army.mil/cm_apex/f?p=118
 - ROW: https://corpsmapr.usace.army.mil/cm_apex/f?p=119
- Within the DCAT Tool:
 - Go to “National Standard View”, Select “Reports”, then click on “Installations Ranked by Weighted WOVA Score” to compare your Installation’s score relative to others.



Model Interpretation

Model outputs were used in three bins: CONUS, AK/HI, and rest-of-world (ROW). Comparisons across these bins - as for, say, a location in Africa to a location in South Carolina - can be legitimate for the high-level screening questions that this product has been designed to answer, but are not legitimate for closely resolved questions about either historical climate or projected future possible climate. That is to say, this project emphasized the importance of consistent simulation within each of those three domains, which entailed using different sets of GCMs and downscaling methods for each.

Moreover, for all three geospatial bins, as for climate modeling generally, empirical-statistical downscaled modeled outputs will not reproduce the local climate of locations with high accuracy for all variables everywhere. This is because each modeling system was created and exercised for domains larger than the site-specific locations used in this assessment, and were not built or corrected from local observed climate.

For ROW locations, this means that the accuracy of the historical climatology for some locations, if evaluated against local measurements, is hampered particularly by the lack of accurately observed local data to bound and train the empirical-statistical relationships. Those relationships are better constrained for the CONUS and AK and HI and for some regions of Europe and Asia, though even there the models' performance is variable based on the local setting of selected locations - near inland water or mountains or not, or near a coastline, for example. In ROW locations, as elsewhere, too, climate models and downscaling techniques are better for temperature than for precipitation, and performance varies across sites. The model outputs used in this project in each of the three geospatial bins are the most consistent, complete and available at the time of this project's initiation.

Comparative Climate Assessment Reports

Report	Description
Installations Ranked by Weighted WOVA Score	This report displays the relative exposure of each installation across all impacts. The WOVA score represents the combined degree of exposure to all the impacts for that installation.
Scores by Impact	This report displays the relative exposure of each installation to each impact. The WOVA score represents the combined degree of exposure to the indicators that comprise each impact.
First or Second Impact Comparison Report	This report displays the combined exposure of an installation to two impacts identified by the user. The report identifies installations where one of the impacts is the dominant impact for that installation.
Both First Impact Comparison WOVA Report	This report displays installations for which either of two user-selected impacts is the dominant impact for that installation. The installations are ordered by the WOVA score.



Installations Ranked by Weighted WOVA Score

Scenario	Epoch	Department	Installation	Latitude	Longitude	Region	State	Total Weighted WOVA Score
Lower	2050	Navy	MCAS Beaufort	32.472426	-80.715477	Southeast	South Carolina	408.69
Lower	2050	Navy	MCR Camp Lejeune (West Side)	34.652638	-77.436461	Southeast	North Carolina	407.58
Lower	2050	Army	HQ MTA Camp Shelby	31.690246	-89.906600	Southeast	Mississippi	405.36
Lower	2050	Army	Fort Stewart	31.672225	-81.585015	Southeast	Georgia	403.71
Lower	2050	Navy	NAS Kingsville TX	27.499962	-87.912640	Southern Great Plains	Texas	401.29
Lower	2050	Air Force	Edgin AFB (Edgin Main and Reservation)	30.575938	-86.528373	Southeast	Florida	400.58
Lower	2050	Army	Fort Sill	34.648222	-98.426072	Southern Great Plains	Oklahoma	400.09
Lower	2050	Navy	NAWS China Lake	35.934724	-117.645041	Southwest	California	399.24
Lower	2050	Army	RTC and Fort Irwin	35.240320	-116.679893	Southwest	California	398.33
Lower	2050	Navy	MCB Banister	34.859542	-116.944533	Southwest	California	397.70
Lower	2050	Navy	MCAS Cherry Point	34.912075	-76.985425	Southeast	North Carolina	395.69
Lower	2050	Army	Fort Hood	31.254831	-97.709127	Southern Great Plains	Texas	390.61
Lower	2050	Army	Fort Rucker AL	31.368061	-85.747664	Southeast	Alabama	388.79
Lower	2050	Air Force	Hollis	38.24237	-114.98758	Southwest	Nevada	388.45
Lower	2050	Army	Fort Bliss	31.629496	-106.415012	Southern Great Plains	Texas	388.49
Lower	2050	Army	Fort Benning GA	33.369566	-84.868205	Southeast	Georgia	388.00
Lower	2050	Navy	MCAS Yuma	32.649297	-114.902241	Southwest	Arizona	387.77



DCAT User Guide – Step 3

- Click on “Impact Awareness” tab, select your region, and work through each of the tabs (“Regional Overview”, “Background and Context”... “References”) and collect what seems to you to be significant climate information and/or graphics you might use in a report

US DEPT OF DEFENSE

Home **I: Impact Awareness** II: National Standard View My Assessment My Results

Impact Awareness Home **Regional Overview** Background and Context Sediments and Soil Quality Water Quality Vegetation Wildlife Air Qual

Introduction

The US Department of Defense is undertaking climate change assessments and resilience planning at its installations in accordance with the 2014 Department of Defense (DoD) Climate Change Adaptation Plan and the DoD Directive (DoDD) 4715.21 for climate change adaptation and resilience. The Impact Awareness section has been designed to increase installation staff awareness of current and changing climate conditions by presenting summaries of impacts on resources in regions of the United States, now and into the future. The Regional Overview and Background and Context sections contain information consolidated from the 3rd and 4th National Climate Assessments (NCA3 and NCA4) produced by the U.S. Global Change Research Program (USGCRP) for CONUS/AK/HI regions, and also presents information and figures from some of the most recent Intergovernmental Panel on Climate Change (IPCC) reports for ROW. This information creates an overview of climate change causes and effects for Earth that can be useful for analysis in regions for which specific information is not available and can supplement areas where specific information is available. While the Impact Awareness section is the same across the DoD Climate Assessment Tool (CONUS/AK/HI) and the DoD Climate Assessment Tool (ROW), installation specific information for CONUS/AK/HI and ROW are in two separate tools.

For overall global climate information, please click here to review the global document: [Global Climate Summary](#)

Select Your Region and Click the Next Section Button Below

Please select your installation region based on the map provided below. Your module will be specific to the region you select.

Selected region: Southern Great Plains



US DEPT OF DEFENSE

Home I: Impact Awareness **II: National Standard View** My Assessment My Results

Impact Awareness Home **Regional Overview** Background and Context Sediments and Soil Quality Water Quality Vegetation Wildlife Air Quality Conclusion References

Selected Region: Southern Great Plains

Regional Overview

This page provides an overview of the key regional topics and key messages from the NCA3 and NCA4. Information included here is presented in more detail in the sections that follow, with additional links and references to both region- and sector-specific NCA reports and key messages.

[NCA4 Vol 2 Key Message 3: Food, Energy, and Water Resources](#)

Quality of life in the region will be compromised as increasing population, the migration of individuals from rural to urban locations, and a changing climate redistribute demand at the intersection of food consumption, energy production, and water resources. A growing number of adaptation strategies, improved climate services, and early warning decision support systems will more effectively manage the complex regional, national, and transnational issues associated with food, energy, and water.

Section 1: Background and Context

This section presents a high-level summary of the major trends projected to occur as a result of climate change. Changes in precipitation and temperature, presented in this section at the national level with some region-specific highlights, are likely to influence many of the specific climate stressors discussed in this module. This section should provide basic background information and includes links to relevant sections of the National Climate Assessment. Please be aware that this is only a basic summary of trends in precipitation and temperature, and is not a comprehensive presentation of climate changes. Also note that both observed (historic) and projected climate data is presented throughout the document.

The Southern Great Plains region varies significantly from the arid, high-elevation borders with the mountainous states of Colorado and New Mexico to the west, to the humid states of Missouri, Arkansas, and Louisiana in the Mississippi River valley on the east (NCA 2018). Extensive rangelands spread throughout the Plains, marshes extend all along Texas' Gulf Coast, and desert landscapes distinguish far west Texas (Ormsirk, 1987).

Precipitation Change

Average precipitation nationwide has increased since 1900, with wide regional variations in the degree of increase (or decrease) (McRoberts and Niellson-Gammon, 2011; Peterson et al, 2013). The average increase is mostly a result of large increases in the Fall season (see Figure 1), with increases in excess of 15% in much of the eastern Southern Great Plains. The Southern Great Plains exhibits large differences in land use, and climate resulting from the region's large east-west gradient of precipitation (see Figure 2) and a stark rise in elevation at the montane western boundary.



DCAT User Guide – Step 4

- Under “National Standard View”, “Reports”, click on “Installation Information Sheet” at the bottom of the page. Select your Installation from the drop-down menu and click “Submit”.



Model Interpretation

Model outputs were used in three bins: CONUS, AK-HI, and rest-of-world (ROW). Comparisons across these bins - as for, say, a location in Africa to a location in South Carolina - can be legitimate for the high-level screening questions that this product has been designed to answer, but are not legitimate for closely resolved questions about either historical climate or projected future possible climates. That is to say, this project emphasized the importance of consistent simulation within each of those three domains, which entailed using different sets of GCMs and downscaling methods for each.

Moreover, for all three geospatial bins, as for climate modeling generally, empirical-statistical downscaled modeled outputs will not reproduce the local climate of locations with high accuracy for all variables everywhere. This is because each modeling system was created and exercised for domains larger than the site-specific locations used in this assessment, and were not built or corrected from local observed climate.

For ROW locations, this means that the accuracy of the historical climatology for some locations, if evaluated against local measurements, is hampered particularly by the lack of accurately observed local data to bound and train the empirical-statistical relationships. Those relationships are better constrained for the CONUS and AK and HI and for some regions of Europe and Asia, though even there the models' performance is variable based on the local setting of selected locations - near inland water or mountains or not, or near a coastline, for example. In ROW locations, as elsewhere, too, climate models and downscaling techniques are better for temperature than for precipitation, and performance varies across sites. The model outputs used in this project in each of the three geospatial bins are the most consistent, complete and available at the time of this project's initiation.

Comparative Climate Assessment Reports

Report	Description
Installations Ranked by Weighted WOWA Score	This report displays the relative exposure of each installation across all impacts. The WOWA score represents the combined degree of exposure to all the impacts for that installation.
Installations Ranked by Weighted WOWA Score by Impact	This report displays the relative exposure of each installation to each impact. The WOWA score represents the combined degree of exposure to the indicators that are selected by the user.
First or Second Impact Comparison Report	This report displays the combined exposure of an installation to two impacts identified by the user. The report identifies installations where one of the impacts is the dominant impact for that installation. Larger values for this WOWA score indicate greater exposure to the selected combination of impacts.
Both First Impact Comparison WOWA Report	This report displays installations for which either of two user-selected impacts is the dominant impact for that installation. The installations are ordered by the WOWA score.

Installation Climate Assessment Summary Reports

Report	Description
Installation Information Sheet	Displays a summary report of an installation specific information.



- Installation:
- Aberdeen Proving Ground
 - Altus AFB
 - Bangor WA
 - Barksdale AFB
 - Beale AFB
 - Bridgeport
 - Buckley AFB
 - CNI NAVMAG Indian Island
 - Camp Mackall
 - Cape Canaveral Air Force Station
 - Cape Cod Air Station
 - Cavalier Asn
 - Charleston AFB
 - Cheyenne Mountain AFS
 - Clear Air Force Station
 - Columbus AFB
 - Crech AFB
 - Dam Neck
 - Davis Monthan AFB



DCAT User Guide – Step 4 (Continued)

- The “Key Messages” and Installation hazards (for all four scenarios) including coastal and riverine flood inundation percentages (percentage of Installation area inundated for that scenario), if applicable, are displayed

[Home](#) | [I: Impact Awareness](#) | [II: National Standard View](#) | [My Assessment](#) | [My Results](#)

[National Standard View Home](#) | [Reports](#) | [Relative Exposure](#) | [Exposure By Impact and Scenario](#) | [Dominant Impact](#) | [Indicator Contribution](#) | [Indicator Value](#)

Installation: [Redacted]

Background

Date: 05 April 2021
Location: Maryland
 [Redacted]
Component: Army
Department: Army
NCA4: Northeast

This table identifies the hazards to this installation due to climate and climate change across all eight impact categories.

Hazards

Impact Category	2050 - Lower	2050 - Higher	2085 - Lower	2085 - Higher
Coastal Flooding	X	X	X	X
Drought	X	X	X	X
Energy Demand	X	X	X	X
Heat	X	X	X	X
Historical Extreme Conditions	X	X	X	X
Land Degradation	X	X	X	X
Riverine Flooding	X	X	X	X
Wildfire	X	X	X	X

4th National Climate Assessment - Key Messages: Northeast

NCA Vol 2 Key Message 1: Changing Seasons Affect Rural Ecosystems, Environments, and Economies

The seasonality of the Northeast is central to the region’s sense of place and is an important driver of rural economies. Less distinct seasons with milder winter and earlier spring industries and livelihoods are at risk from further changes to forests, wildlife, snowpack, and streamflow.

NCA Vol 2 Key Message 2: Changing Coastal and Ocean Habitats, Ecosystems Services, and Livelihoods

The Northeast’s coast and ocean support commerce, tourism, and recreation that are important to the region’s economy and way of life. Warmer ocean temperatures, sea level rise, ecological and socioeconomic outcomes as climate risks increase.

NCA Vol 2 Key Message 3: Maintaining Urban Areas and Communities and Their Interconnectedness

The Northeast’s urban centers and their interconnections are regional and national hubs for cultural and economic activity. Major negative impacts on critical infrastructure, urban

NCA Vol 2 Key Message 4: Threats to Human Health

Changing climate threatens the health and well-being of people in the Northeast through more extreme weather, warmer temperatures, degradation of air and water quality, and s room visits and hospitalizations, and a lower quality of life. Health impacts are expected to vary by location, age, current health, and other characteristics of individuals and comm

NCA Vol 2 Key Message 5: Adaptation to Climate Change is Underway

Communities in the Northeast are proactively planning and implementing actions to reduce risks posed by climate change. Using decision support tools to develop and apply ada foundation to advance future adaptation efforts.

Flood Inundation Percent

Indicator	2050 - Lower	2050 - Higher	2085 - Lower	2085 - Higher
Coastal Flood Extent	[Redacted]	[Redacted]	[Redacted]	[Redacted]
Riverine Flood Extent	[Redacted]	[Redacted]	[Redacted]	[Redacted]



DCAT User Guide – Step 5

- Click on “Installation Details”. Identify where your Installation falls, for each of the four scenarios, relative to others, in the slider bar at the top left above the “doughnuts”.

Home | **I: Impact Awareness** | **II: National Standard View** | My Assessment | My Results

National Standard View Home | Reports | Relative Exposure | Exposure By Impact and Scenario | Dominant Impact | Indicator Contribution | Indicator Value | Dominant Indicator | **Installation Details**

Purpose: For the selected installation, this visualization provides a one-stop view of overall exposure to climate change. In the first column (Impacts) the pairs of pie charts for Lower and Higher scenarios show how much each impact type is projected to contribute to installation climate effects in 30-year periods of analysis centered on 2050 and 2085 with the WOWA ranking in the center. These four scenario and epoch related WOWA values are also shown in the scale bar above the Impacts column. Each of the four WOWA values are represented as dots on the scale with the minimum and maximum WOWA values for all installations. For each impact, the pie charts in each column across the page show which indicators contribute the most to the installation’s exposure to that impact. Colors shown in each pie chart are depicted in the legend below. Users should keep in mind that this information does not provide insight into the magnitude of the overall exposure of the installation. That information may be found in the Relative Exposure, Exposure Level, and Exposure by Impact and Scenario visualizations, as well as by consulting the absolute values in the Indicator Value visualization. The Installation Maps tab provides information on the spatial distribution of coastal and riverine flood risk for each installation.

Tips ⓘ

National Standard

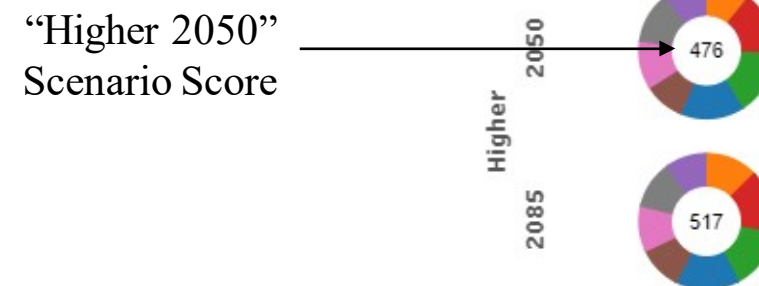
Installation: [dropdown]

(min) Total WOWA (max)

Coastal | Riverine | Historical | Land



- In this example, the overall minimum and maximum scores among all Installations is 291 and 526, respectively. Therefore, for scenario “Higher 2050” with a score of 476, this Installation falls in the 79th percentile of all Installations, i.e., 79 percent of all installations have a score lower than 476.

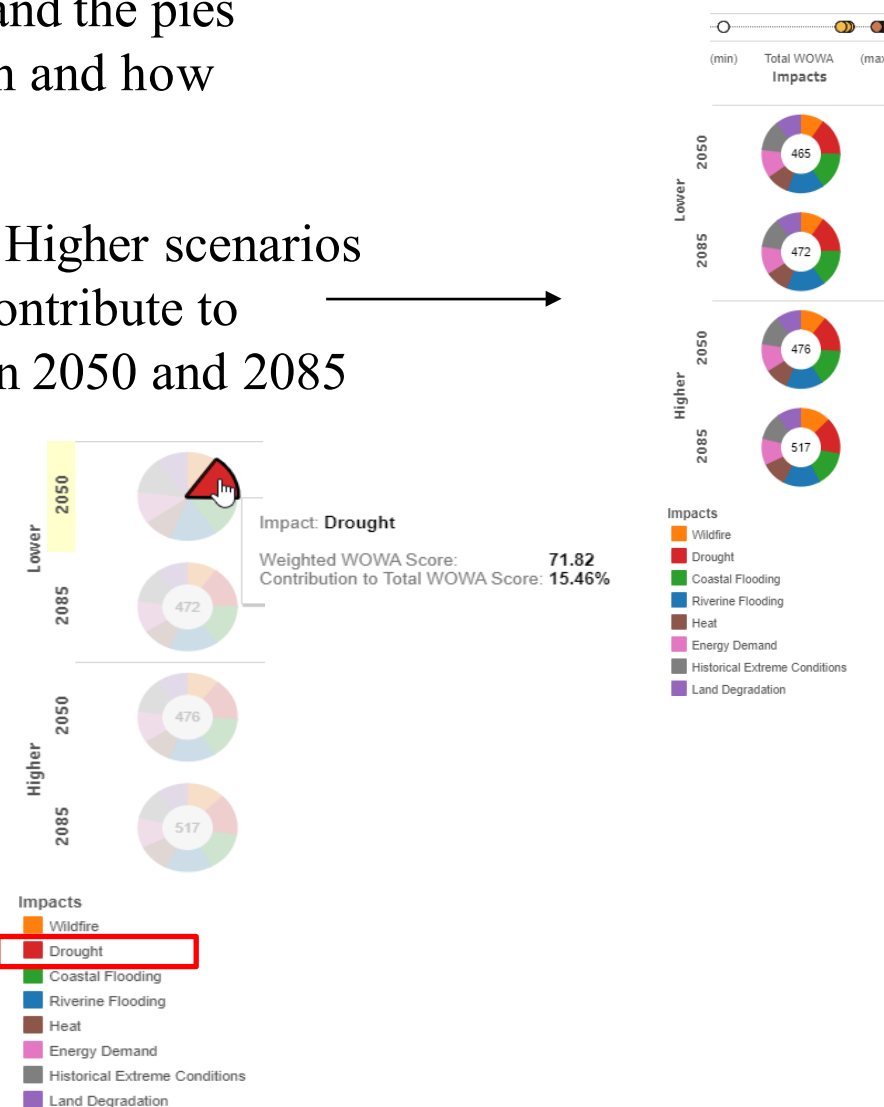




DCAT User Guide – Step 5 (Continued)

- On “Installation Details”, review the information in the doughnuts and the pies to get a feel for the major contributors of exposure for your location and how these might change over time and between scenarios (or not).
- In the first column (“Impacts”) the pairs of “donuts” for Lower and Higher scenarios show how much each of the eight (8) hazard types is projected to contribute to installation climate effects in 30-year periods of analysis centered on 2050 and 2085 with the score in the center of the “donut”.

- Clicking on any of the “pie slices” of a donut will provide the contribution of that hazard to the total score for that scenario, both as a score and as a percentage. In this example, for the “Lower 2050” scenario, clicking on the “Drought” hazard shows the score for Drought to be 71.82, which is 15.46% of the total score (465) for this scenario. As the Drought hazard has the largest percentage contribution among the eight hazards, it is the dominant hazard for this Installation and for this scenario.





DCAT User Guide – Step 5 (Continued)

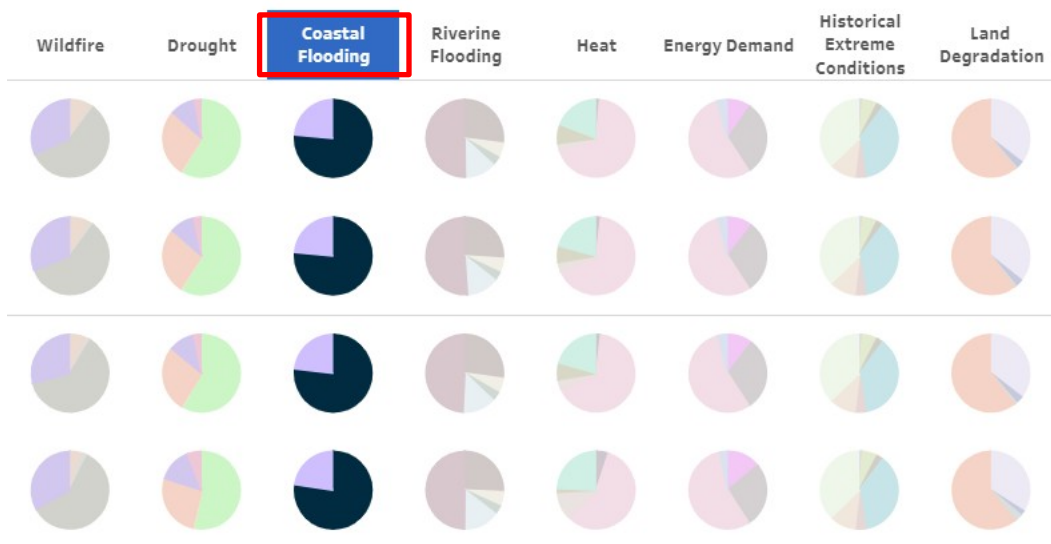
On “Installation Details”, while reviewing the information in the donuts, it is useful to produce a chart like the one shown here to summarize the major hazards and their relative influence, including any change, across the four scenarios. For example, this chart shows that the top three hazards (Drought, Riverine Flooding and Heat) do not change across the four scenarios, and neither does the order of importance (Drought being always dominant) but their relative contributions change (Drought changes from 20.56% in Lower 2050 to 18.14% in Higher 2085).





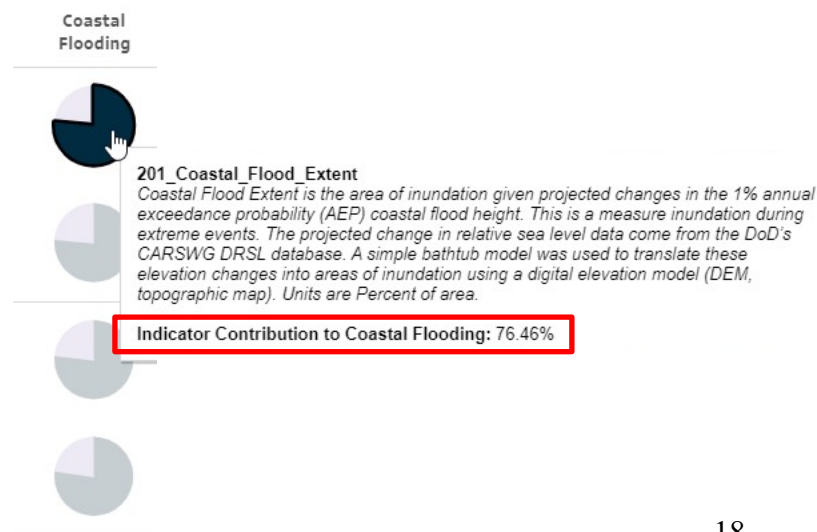
DCAT User Guide – Step 5 (Continued)

- On “Installation Details”, review the information in the Hazard pies to get a feel for the major contributors (“Indicators”) of exposure for your location and how these might change over time and between scenarios (or not).
- Clicking on the Hazard at the top of the pies will show the Indicators (listed below) to the hazard



- Clicking on the Indicator(s) on the pie will show the percentage contribution of that Indicator to that Hazard. In the example below, for scenario “Lower 2050”, “Coastal Flood Extent” Indicator contributes 76.46% to the “Coastal Flooding” Hazard.

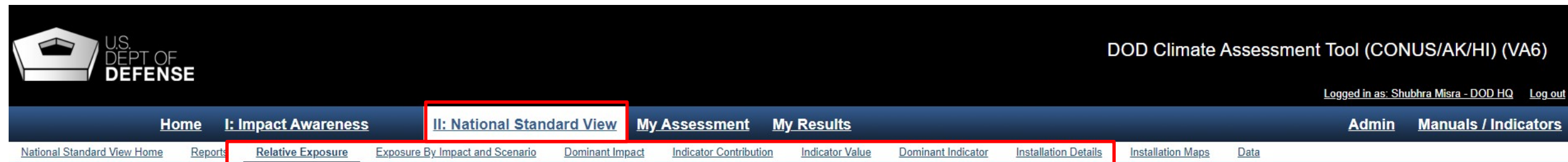
Indicator			
101_Flash_Drought_Freq	304_Max_5-Day_Precip	601_Fuel_Abundance	806_Hurricane_Wind > 50knots
102_Drought_Year_Freq	305_Extreme_Precip_Days	602_Ignition_Rate	807_Hurricane_Max_Precip
105_Aridity	401_Days_>95F	604_Fire_Season_Length	808_Ice_Jam_Occurrence
106_Consec_Dry_Days	402_5-Day_Max_Temperature	701_Soil_Loss	
108C_Mean_Annual_Runoff	403_High_Heat_Days	702_PF_Hazard_Potential	
201_Coastal_Flood_Extent	404_Frost_Days	801_Tornado_Freq	
202_Coastal_Erosion	405_High_Heat_Index_Days	802_Hurricane_Freq	
301_Riverine_Flood_Extent	501_Heating_Degree_Days	803_Ice_Storms_Occurrence	
302C_Flood_Mag_Factor	502_Cooling_Degree_Days	804_Hist_Drought_Freq	
303_Max_1-Day_Precip	503_5-Day_Min_Temperature	805_Wildland_Urban_interface	



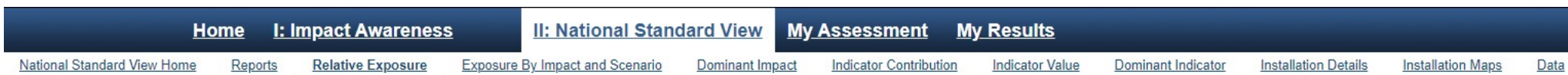


DCAT User Guide – Step 6

- Move through each of the “National Standard View” tabs (“Relative Exposure”, “Exposure by Impact and Scenario”, “Dominant Impact”, “Indicator Contribution”, “Indicator Value”, “Dominant Indicator”) collecting downloads (or screenshots) as you go for later use in write-up whenever you feel these might be pertinent for decision-making. Each tab has drop-down menus for selection of scenarios, Installation etc. and additional instructions on interpreting the graphics



- Each tab has a “Purpose” description of the contents, as well as “Tips” for interpreting the results/graphics, drop-down menus for selection of Installation, scenarios etc.



Purpose: The Relative Exposure visualization shows the installations ranked by their aggregate exposure to the climate impacts in this tool: coastal flooding, riverine flooding, heat, drought, energy demand, wildfire, and land degradation, as well as impacts from historic extreme weather events. The purpose of this visualization is to compare among and across departments and regions. Drill down to specific impacts and installations in the Exposure by Impact and Scenario tab. The data presented here are summarized in tabular form in the report Installation Ranked by Weighted WOWA Score, found on the Reports tab.

Tips ☰

- Hovering the pointer over an installation will bring up the value for that installation.
- To return to the full map view of all installations after a single installation has been selected, click outside the boundaries of any of the mapped installations or click Revert in the lower toolbar.
- To view or download data and/or graphics, use the tools below the maps.
- The tool refreshes after each dropdown setting is changed; if you change additional settings while the first is refreshing, data errors may occur. It is recommended that you let the tool update the visualization after each setting change.



DCAT User Guide – Step 7

- Within the “National Standard View” tab, click on the “Installation Maps” tab.
- The visualization provides spatial data on the extent of coastal and riverine flooding under current and future 1% annual exceedance probability (AEP) events. For riverine flooding, the maps show the current 1% flood delineation (top, both columns), and the 1% flood delineation plus 2 ft of freeboard (bottom left) and plus 3 ft of freeboard (bottom right). For coastal flooding, the maps show the Department of Defense Regional Sea Level (DRSL) 1% extreme water level for the lowest DRSL scenario (left) and the highest DRSL scenario (right) in 2050 (top) and 2085 (bottom).
- The maps shown are available via the Climate Assessment Data page of the Defense Installations Spatial Data Infrastructure (DISDI) portal as ArcGIS shapefiles and as PDFs. Click the DISDI Portal link.

[Home](#) [I: Impact Awareness](#)

[II: National Standard View](#)

[My Assessment](#)

[My Results](#)

[Admin](#) [Manuals / Indica](#)

[National Standard View Home](#)

[Reports](#)

[Relative Exposure](#)

[Exposure By Impact and Scenario](#)

[Dominant Impact](#)

[Indicator Contribution](#)

[Indicator Value](#)

[Dominant Indicator](#)

[Installation Details](#)

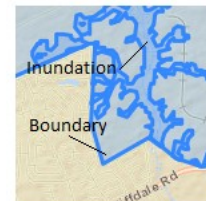
[Installation Maps](#)

[Data](#)

Purpose: The Installation Maps visualization provides spatial data on the extent of coastal and riverine flooding under current and future 1% annual exceedance probability (AEP) events. These maps are intended to provide screening-level information on flood exposure for different portions of an installation. For riverine flooding, the maps below show the current 1% flood delineation (top, both columns), and the 1% flood delineation plus 2 ft of freeboard (bottom left) and plus 3 ft of freeboard (bottom right). For coastal flooding, the maps show the Department of Defense Regional Sea Level (DRSL) 1% extreme water level for the lowest DRSL scenario (left) and the highest DRSL scenario (right) in 2050 (top) and 2085 (bottom). The installation boundary is shown as a blue line bonding the light-blue shaded installation. The flood inundation areas are shown as a darker blue. These maps have been developed with consistent topographic data across the Nation to support comparisons, and may be considered as screening-level delineations to support planning decisions. More detailed hydrologic and mapping analyses are needed to support engineering and construction decisions, or planning decisions related to critical missions or functions.

The maps shown below are available via the Climate Assessment Data page of the Defense Installations Spatial Data Infrastructure (DISDI) portal as ArcGIS shapefiles and as PDFs. Click the link below to access these maps for your installation.

[Defense Installations Spatial Data Infrastructure \(DISDI\) Portal](#)





Defense Installations Spatial Data Infrastructure (DISDI) Portal

DISDI Portal provides data and information supplementary to DCAT

<https://rsgisias.crrel.usace.army.mil/disdiportal/f?p=166:5:>
(CAC-enabled access)

The DISDI Atlas Pro web map provides detailed views of all DoD installations and operating areas along with useful National-scale layers (e.g., Congressional Districts, infrastructure, environmental data) and up-to-date imagery. The user can create their own "operating picture" of Defense installations. A User Guide in pdf format is available for download.

Installations and climate exposure data and maps are also available for download; custom maps and data can also be requested

Defense Installations Spatial Data Infrastructure (DISDI) Portal

Home IGI&S Programs DoD Links Federal Links Standards Resources IGG Mgmt FAQs Contact Us

DISDI Atlas
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Data / Metadata Search
Search for geospatial data and metadata from across the IGI&S community.
** Search Coming Soon **

DISDI Atlas Pro (Map Viewer)
With customizable data views, more extensive tools and querying capabilities, this global map viewer of DoD installations is designed for the more advanced user. DISDI Atlas Pro User Guide

IGI&S Governance Group
Find information and documents pertaining to the IGI&S Governance Group (IGG) here. Includes the Group's SOP, calendar, working group meeting materials, task tracking and a document archive.

Map Library
Browse our collection of ready-to-use IGI&S maps. This library includes maps of DoD installations organized by State, Territory and COCOM.

Data / Custom Map Request
Contact the DISDI Program to (a) request authoritative geospatial data, (b) gain access to secure web map services (WMS), or (c) request customized map products.

Policy & Documents
Find and download DoD policy, guidance, presentations and other documents applicable to the IGI&S community.

Data Download
Browse and download publicly releasable geospatial datasets for immediate use.

News

- 10-01-2020 - SDSFIE-V 4.0.3 Approved
- 10-01-2020 - SDSFIE-M and Q Mandate
- 04-24-2019 - Air Force GeoBase Conference

Updates

- 10-01-2020 - FY19 MIRTA Dataset
- 10-01-2020 - FY19 CIP Dataset Available

Featured Maps

- 03-19-2020 - FIRMA Map Now Available
- 12-21-2020 - FY19 COCOM Maps Available
- 12-21-2020 - FY19 State Maps Available



DCAT User Guide – Step 8

- On the DISDI portal, click “DISDI Atlas Pro (Map Viewer)”. Either zoom in to your Installation area or search for your Installation

Defense Installations Spatial Data Infrastructure (DISDI) Portal

Home IGI&S Programs DoD Links Federal Links Standards Resources IGG Mgmt FAQs Contact Us

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News

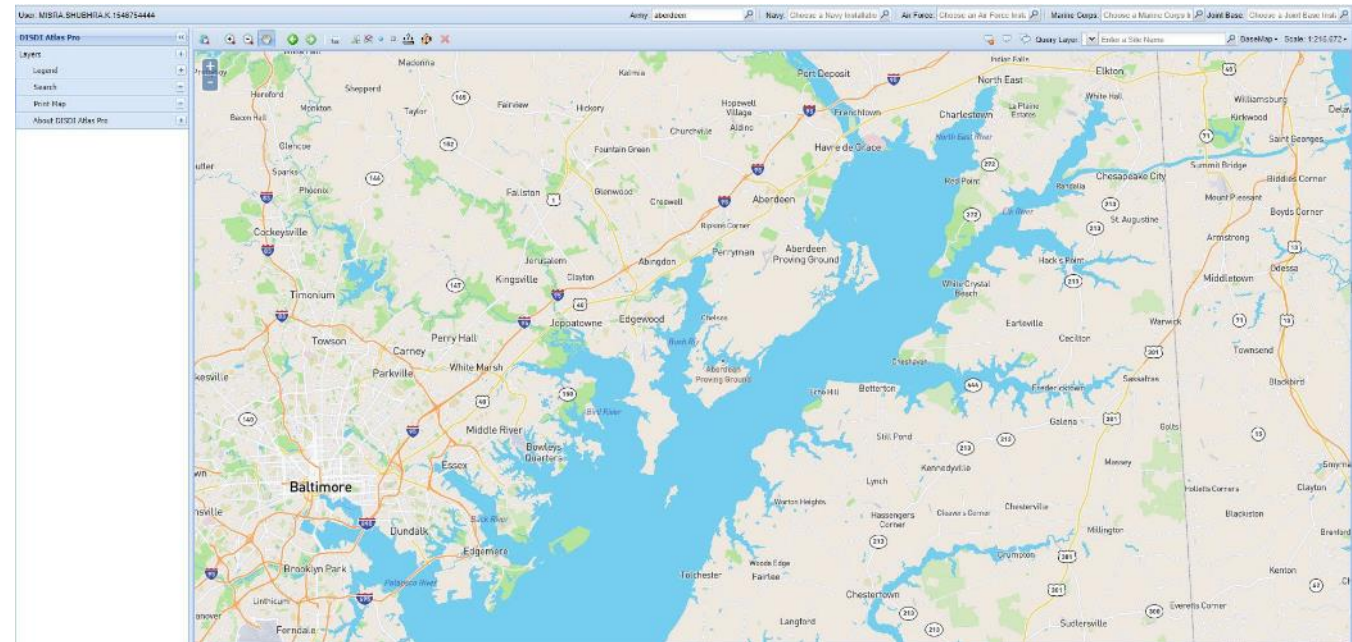
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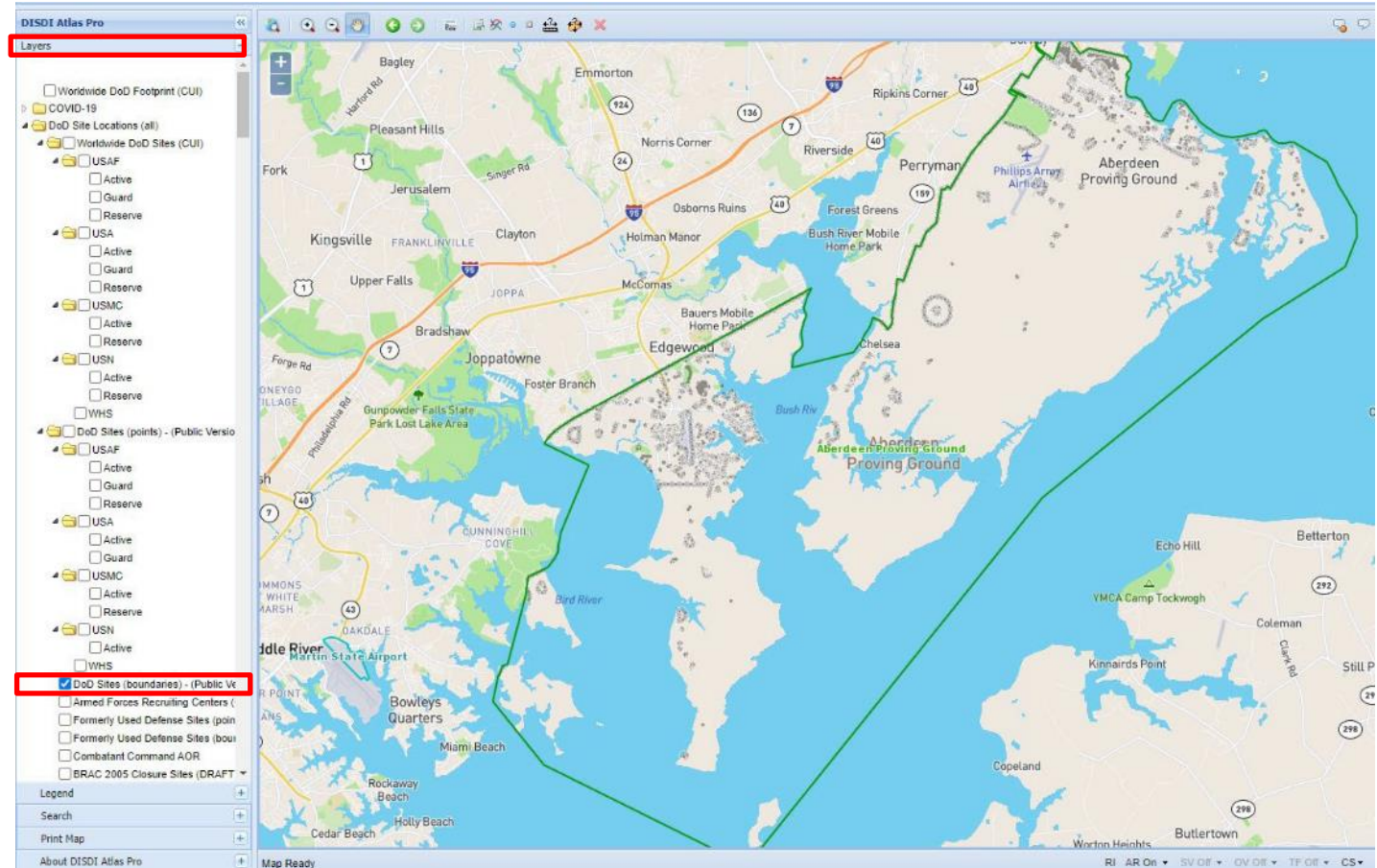
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- 12-21-2020 - FY19 State Maps Available





DCAT User Guide – Step 8 (Continued)

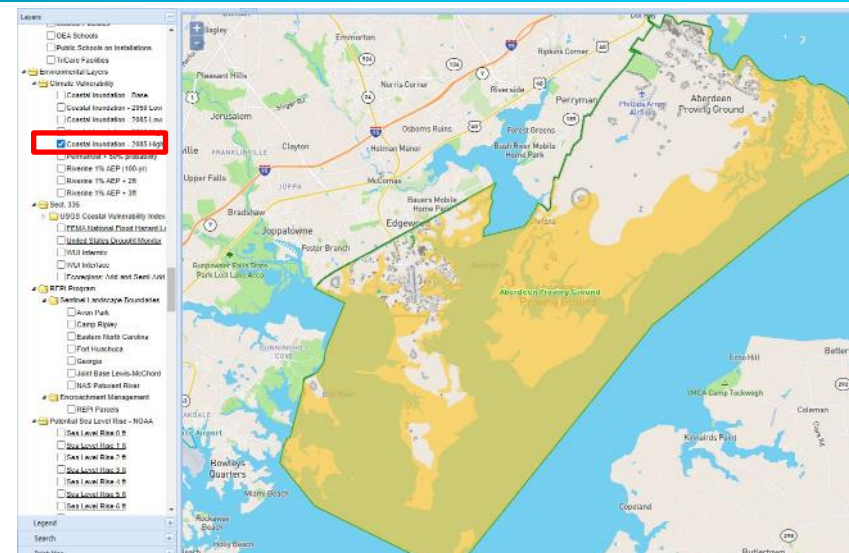
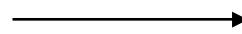
- Click on “Layers” to expand the “Layers” tab and select one or more sub-layers to show on the map. In the example to the right, the sub-layer “DoD Site Boundaries (Public Version)” has been selected to highlight the Aberdeen Proving Ground Installation boundary.
- A variety of layers are available to be superimposed on the Installation boundary layer to assess the exposure of the Installation to the hazard. For example, Coastal Inundation extents for all four scenarios, and Riverine Inundation extents at 1% AEP (100-year) can be visualized. See next slide for inundation extent visualizations.



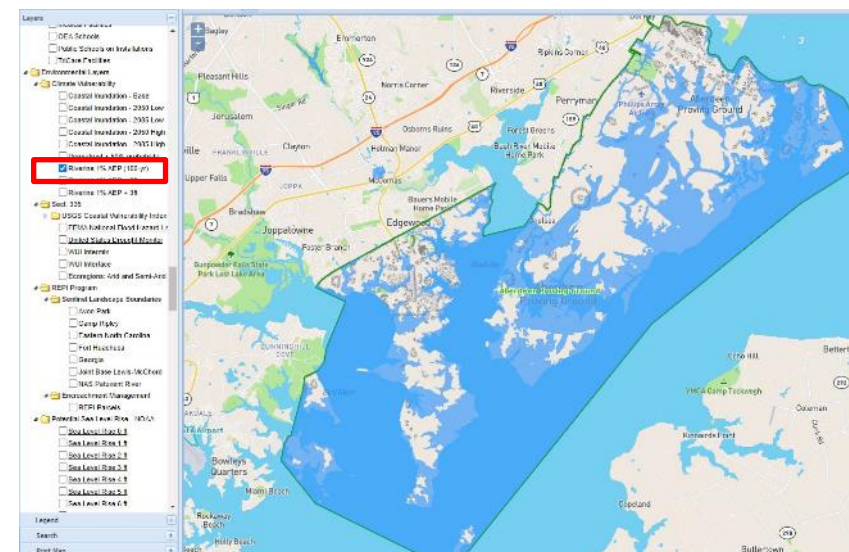
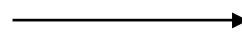


DCAT User Guide – Step 8 (Continued)

- Coastal Inundation (2085 High) layer superimposed on Installation boundary layer



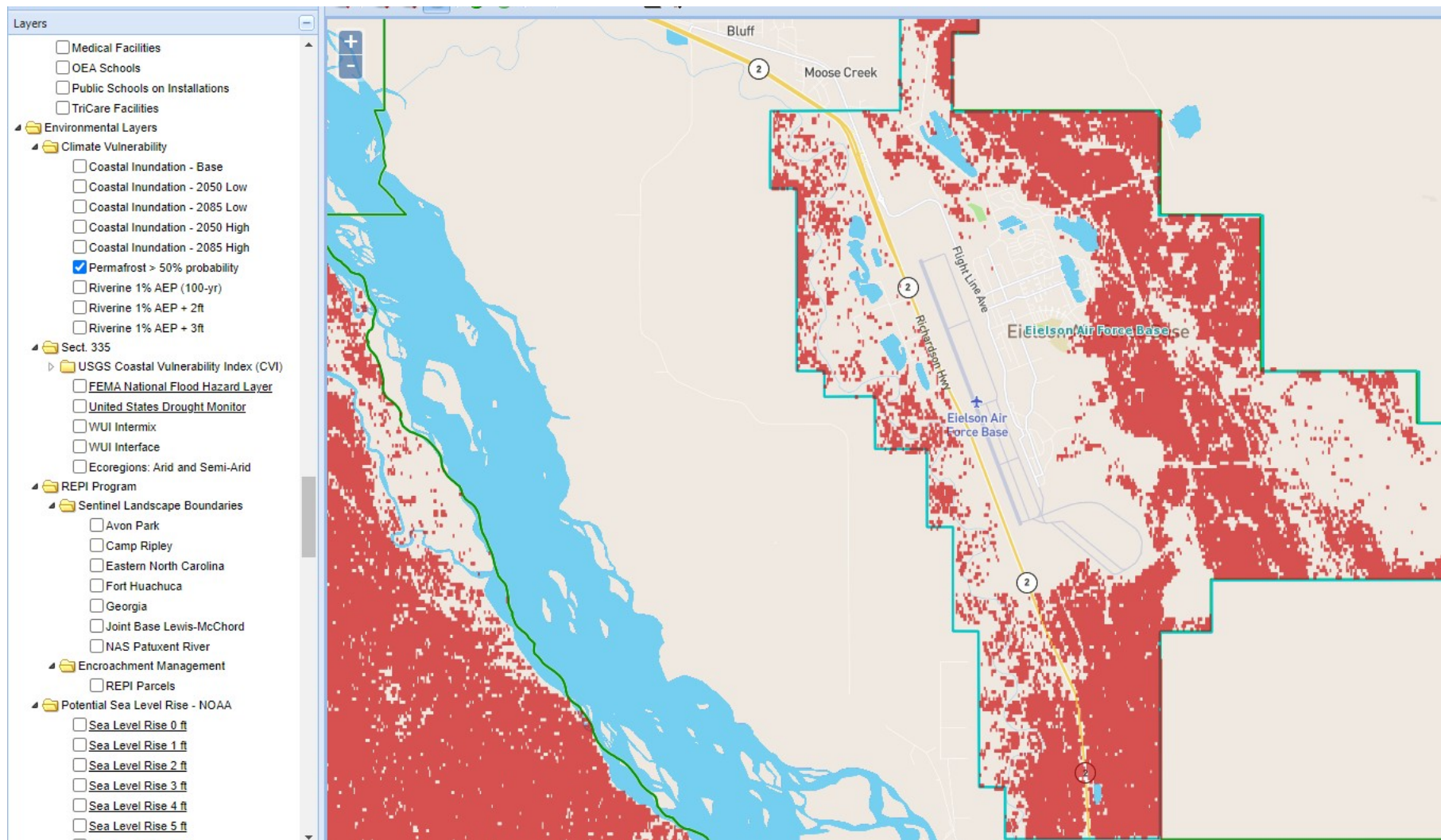
- Riverine Flooding (1% AEP/100-year) layer superimposed on Installation boundary layer





DCAT User Guide – Step 8 (Contd.)

- Permafrost potential (likelihood of permafrost > 50%) overlain on Installation boundary





Key Takeaways

1. Climate hazard exposure across all installations increases through time for scenarios of both lower and higher warming.
2. Climate hazard **exposure is more pronounced for the later epoch (2085) and the scenarios of higher warming.**
3. For most hazards, there is close similarity in values between the 2085 lower and 2050 higher conditions.
4. Differences in the degree of exposure to hazards are **similar across both scenarios until mid-century, when they diverge.**
5. Hazards more directly tied to **temperature change** (e.g., heat, drought, wildfire) **show larger increases in exposure under the 2085 higher** scenario than other hazards.
6. Slower increases in exposure with time are evident for other hazards (e.g., coastal flooding, energy demand, land degradation).
7. **Drought is the dominant indicator** across all epoch-scenarios for DoD and for the individual Departments.
8. **There is no epoch-scenario combination under which installation exposure to climate hazards is projected to decrease.**



Summary

- Exposure to climate change hazards is not a new problem for DoD installations, but **the nature and severity of the problem is changing.**
- **The costs and consequences for failing to adapt are increasing, as are the benefits of improved climate resilience.**
- **The DCAT provides an important new capability** for assessing and responding to these threats.
- Identifying the climate hazards to which DoD installations are most **exposed is the first step** in addressing the potential physical harm, security impacts, degradation in readiness, and increased humanitarian deployment needs resulting from global climate change.
 - Site-specific information can be difficult and expensive to obtain.
 - Fortunately, DoD has undertaken a number of site-specific climate-related studies through its Strategic Environmental Research and Development Program (SERDP, 2013) and the Environmental Security Technology Certification Program (ESTCP).
- **Climate change exposure and impacts do not stop at the installation boundary.**

Speakers

- Moderator:
 - **Andy Porth**, Office of the Assistant Secretary of Defense (Sustainment)
- Presenters:
 - **Dr. Shubhra Misra**, DoD Climate Action Team – Climate Preparedness and Resilience
 - **Kristen Byler**, National Fish and Wildlife Foundation
 - **Maria Abadie**, REPI/Booz Allen Hamilton



UNITED STATES DEPARTMENT OF DEFENSE

REPI READINESS AND ENVIRONMENTAL
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REGIONAL COASTAL RESILIENCE ASSESSMENTS



REPI Webinar | 30 June 2021



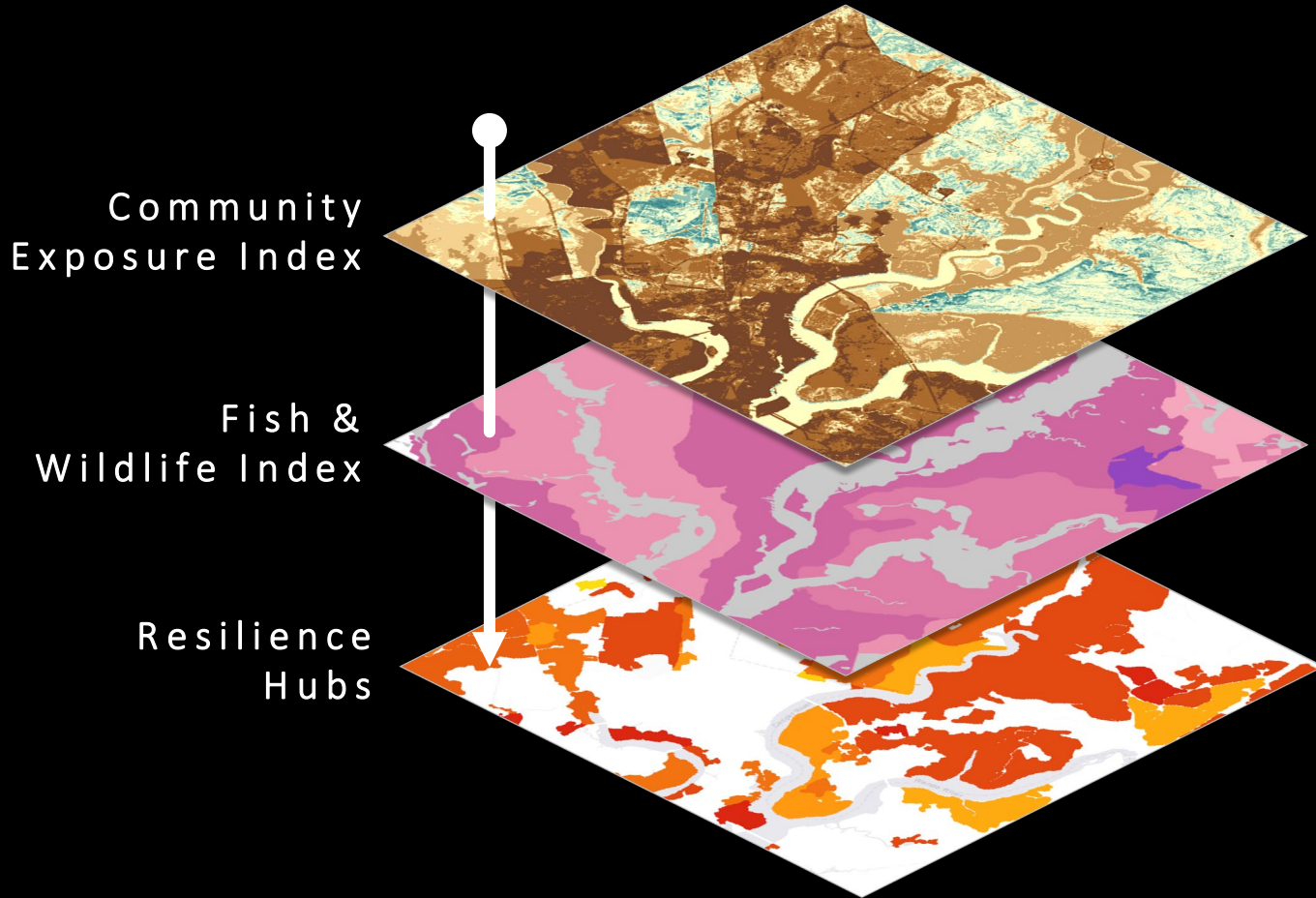
NFWF



UNC ASHEVILLE

NEMAC
NATIONAL ENVIRONMENTAL
MODELING & ANALYSIS CENTER

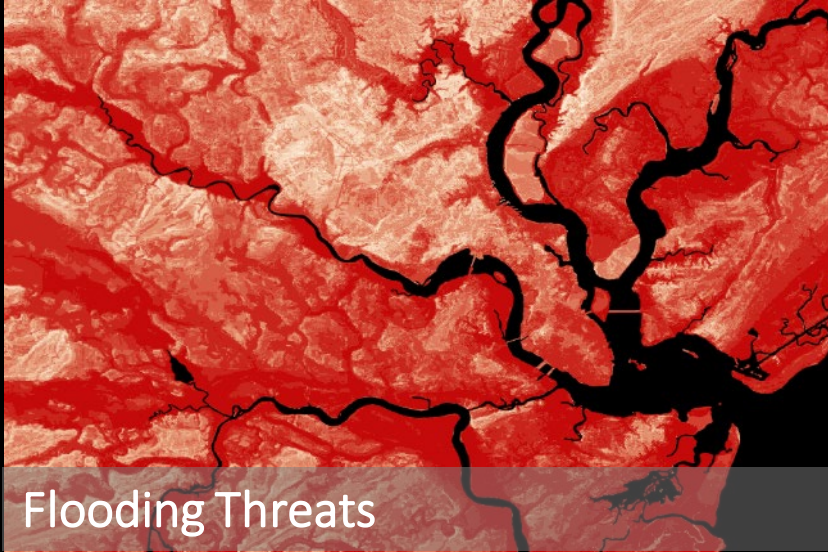
REGIONAL COASTAL RESILIENCE ASSESSMENTS



Identify areas on the landscape where nature-based solutions may maximize *fish and wildlife* benefits and *human community resilience* to flooding threats.

COMMUNITY EXPOSURE INDEX

helps identify where the most people and assets are exposed to flooding threats



X



Threat Inputs

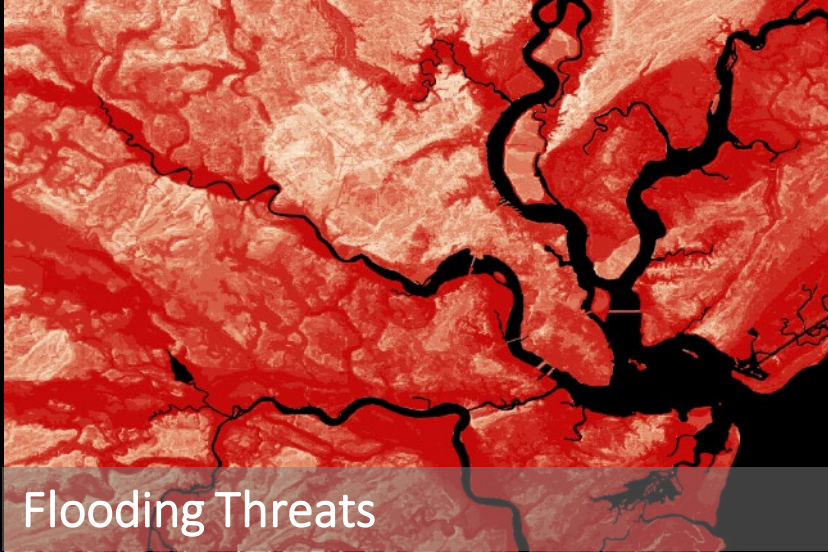
- Storm Surge
- Sea Level Rise
- Flood-prone Areas
- Soil Erodibility
- Impermeable Soils
- Areas of Low Slope
- Geologic Stressors
- Other Regional Stressors

Community Asset Inputs

- Population Density
- Critical Facilities
- Critical Infrastructure
- Social Vulnerability

COMMUNITY EXPOSURE INDEX

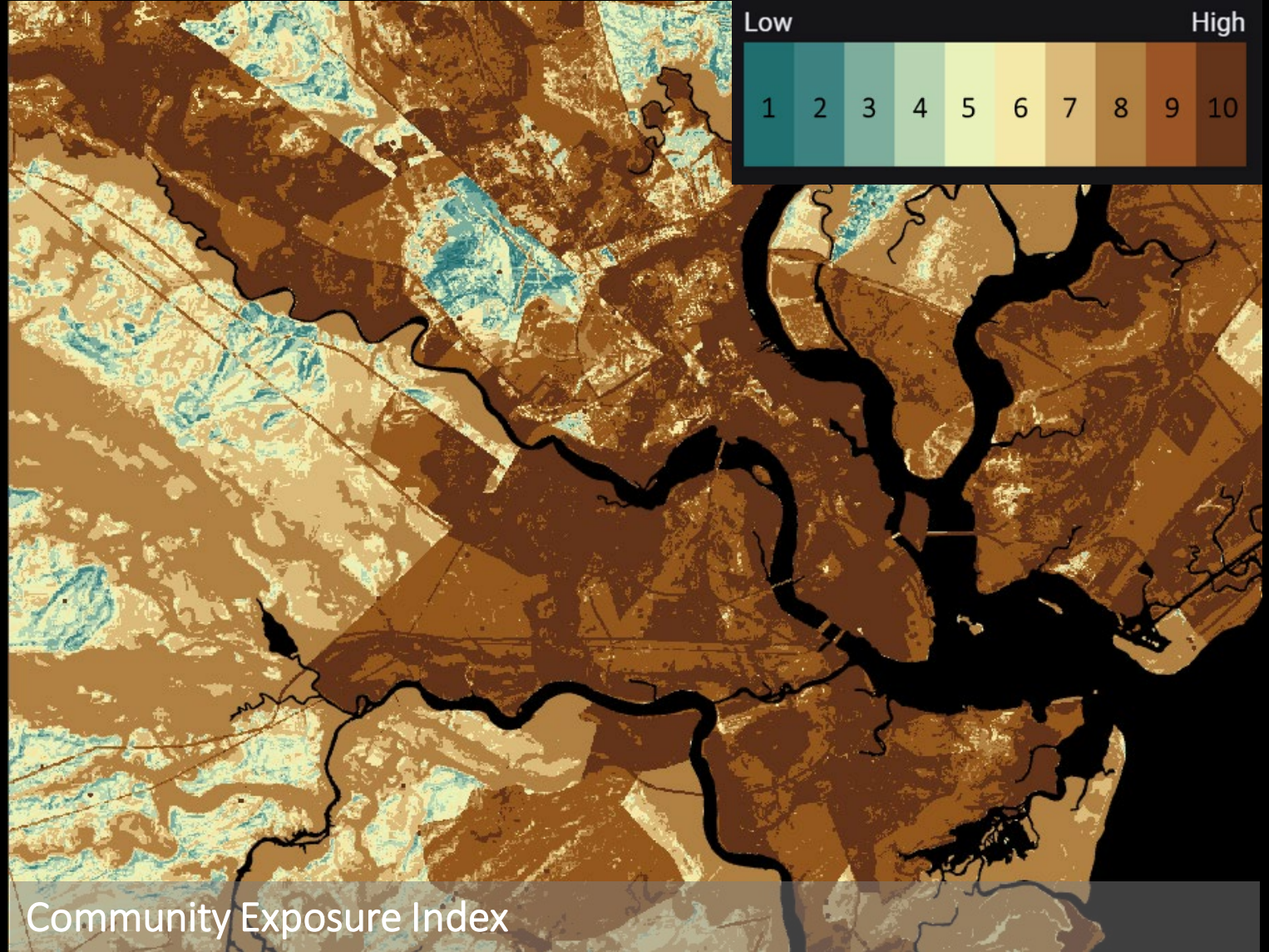
helps identify where the most people and assets are exposed to flooding threats



X



=



FISH & WILDLIFE INDEX

helps identify where aquatic & terrestrial species of concern are located



+



Terrestrial Inputs

- Species occurrence & habitat suitability
- ESA-Designated Critical Habitat
- BirdLife International Important Bird Areas
- Other Priority Conservation Areas

Aquatic/Marine Inputs

- Species occurrence & nearshore habitat extent
- ESA-Designated Critical Habitat
- NOAA Essential Fish Habitat
- Marine Protected Areas

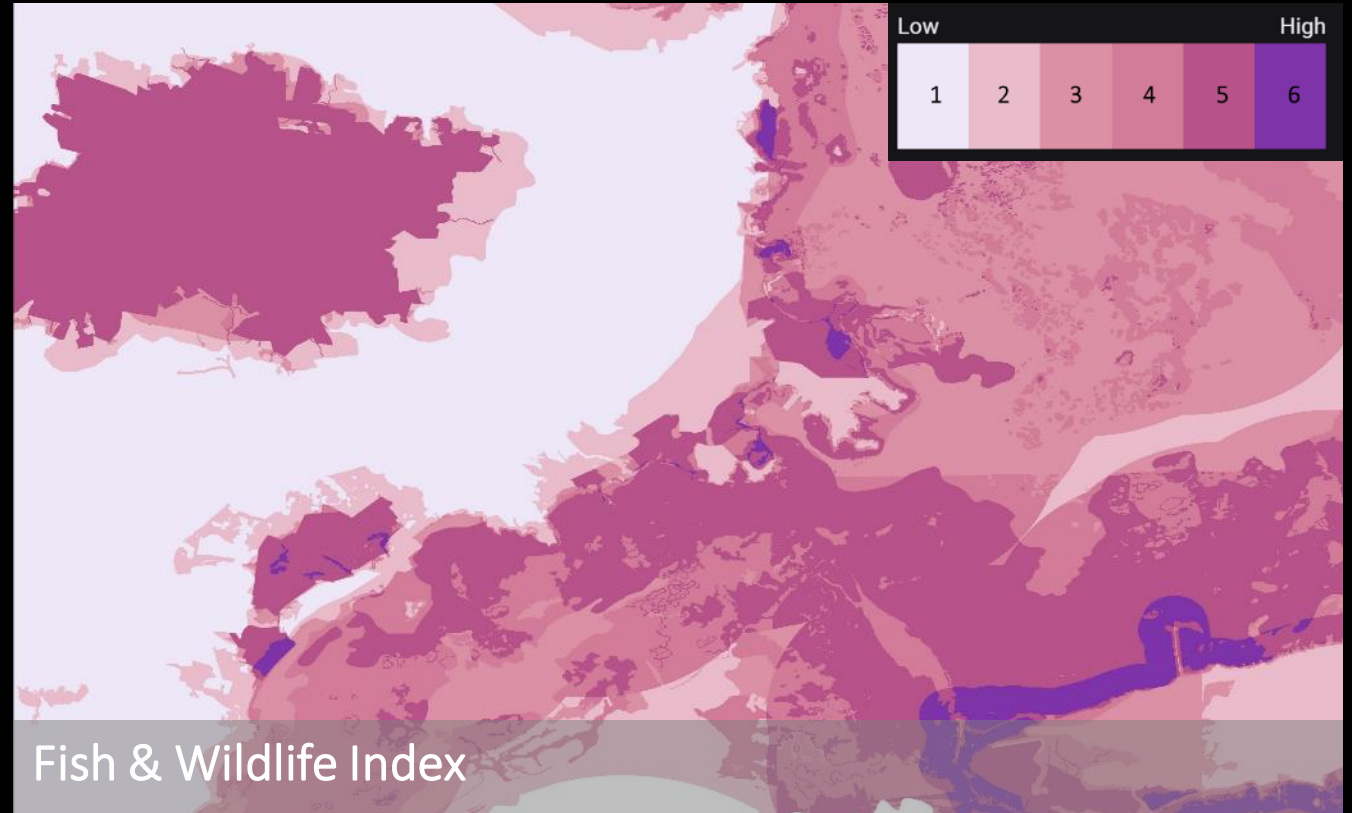
FISH & WILDLIFE INDEX

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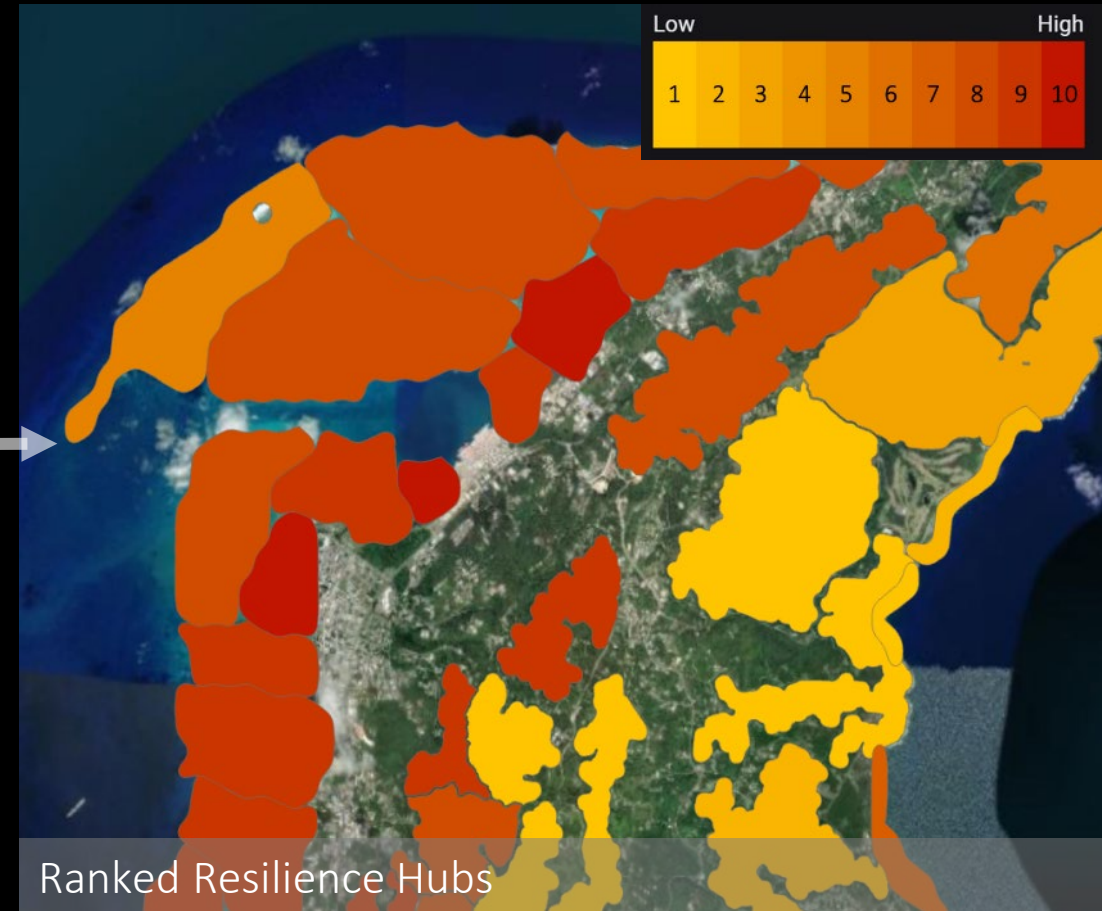
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RESILIENCE HUBS

areas of open space where conservation projects may have the greatest potential to benefit both human community resilience and fish and wildlife





Coastal Resilience Evaluation and Siting Tool (CREST)

CREST is used to make informed decisions about the siting of coastal restoration and resilience projects. The tool identifies Resilience Hubs, which are areas of open space where projects may have the greatest potential to benefit both human community resilience and fish and wildlife. Resilience Hubs incorporate multiple indices, all of which are available in CREST.

Select a region to start using CREST

Continental U.S.



Continental U.S.

Hawai'i



Hawai'i

Northern Mariana Islands



Northern Mariana Islands

Puerto Rico



Puerto Rico

U.S. Virgin Islands



U.S. Virgin Islands

resilientcoasts.org

THANK YOU

Kristen Byler

kristen.byler@nfwf.org



Red mangrove & seagrass

Speakers

- Moderator:
 - **Andy Porth**, Office of the Assistant Secretary of Defense (Sustainment)
- Presenters:
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Climate Change as a
National Security Threat

How REPI Helps DoD Build
Resilience to Climate Change

How to Develop a
REPI Resilience Project

REPI Resilience
Project Examples

 Glossary and Acronyms

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Building Resilience to Climate Change: A Guide for Installations and Partners






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Climate Change Impacts That Threaten Military Activities
Numerous climate change impacts threaten military installations. The most common are:

- Introduction
- What is the Department of Defense?
- What is Encroachment?
- How do REPI Projects Work?
- How Do I Develop and Implement a REPI Project?
- What Else Does the REPI Program Support?
- What are the Key Steps in Developing a REPI Partnership?
- Summary
- Glossary, Acronyms, and Resources
- REPI Map
- Military Services Implementation Programs
- Download PDF




Coastal and Riverine Flooding

Common Causes

- Extreme weather events
- Prolonged rainfall
- Storm surge
- High tides
- Sea level rise

[+ Learn More](#)




Desertification

Common Causes

- Land degradation
- Overgrazing
- Urbanization

[+ Learn More](#)




Drought

Common Causes

- Little or no rain fall
- Warmer temperatures
- Depleted soil moisture levels

[+ Learn More](#)




Thawing Permafrost

Common Causes

- Warmer temperatures
- Infrastructure emplacement
- Climate variability

[+ Learn More](#)



Wildfires

Common Causes

- Human-caused fires
- Warmer temperatures
- Lightning
- Unmanaged forests

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 - Storm surge



Desertification

- Common Causes
- Land degradation
 - Overgrazing
 - Urbanization



Desertification

- Common Causes
- Land degradation
 - Overgrazing
 - Urbanization

Effects on Military Operations

- Increased soil fragility, which limits future testing exercises
- Increased runoff from precipitation events, which affects the suitability of the landscape for off-road use

Installation Examples



About 27 percent of **White Sands Missile Range, NM**, is covered by grasslands. Desertification from past grazing practices and changes in precipitation patterns has led to an increase in the number of shrubs and cacti, which are highly vulnerable to wildfire spread.

Close

- Common Causes
- Human-caused fires
 - Warmer temperatures
 - Lightning
 - Unmanaged forests

+ Learn More

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Examples of Natural Infrastructure Solutions

BUILDING RETENTION BERMS
Learn More →

CONDUCTING PRESCRIBED BURNS
Learn More →

CONDUCTING SOIL REHABILITATION
Learn More →

CONSTRUCTING LIVING SHORELINES
Learn More →

ENHANCING RIPARIAN BUFFERS
Learn More →

RECHARGING AQUIFERS
Learn More →

REMOVING HAZARDOUS FUEL LOADS
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RESTORING DUNES
Learn More →

RESTORING WETLANDS
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STORMWATER DRAINAGE RECHARGE BASINS
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Natural Infrastructure Solutions

CONSTRUCTING LIVING SHORELINES

Solution: Constructing Living Shorelines

Climate Impact: Recurrent Flooding

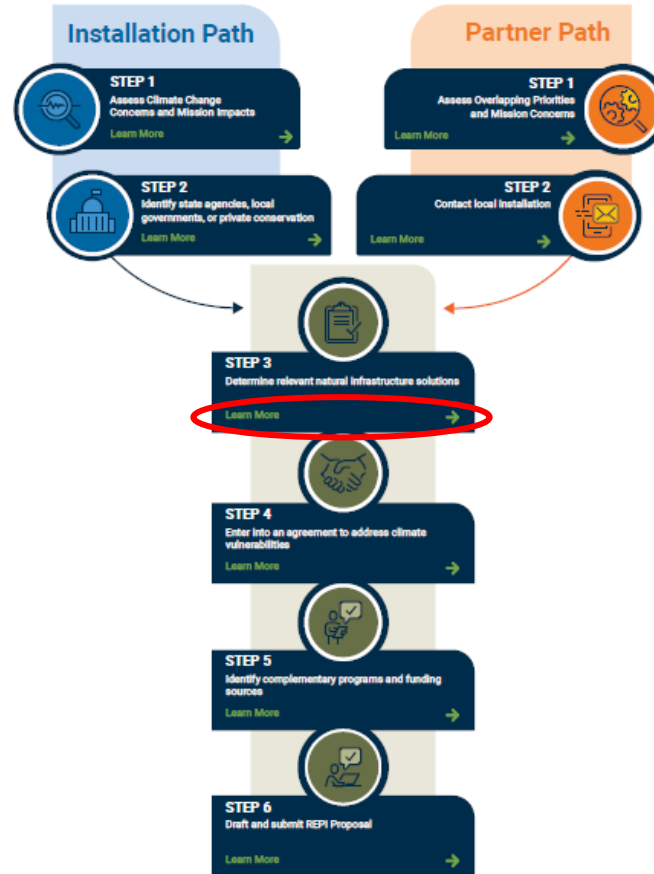
A living shoreline is a stabilized shoreline made of plants or organic materials, such as oyster shells. Living shorelines protect the coast from storm surge and erosion, by absorbing wave energy and acting as a natural buffer to upland areas. They also store carbon, improve water quality, and provide habitat for species.



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REPI

READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM

- Introduction**
- What is the Department of Defense?
- What is Encroachment?
- How do REPI Projects Work?
- How Do I Develop and Implement a REPI Project?
- What Else Does the REPI Program Support?
- What are the Key Steps in Developing a REPI Partnership?
- Summary
- Glossary, Acronyms, and Resources
- REPI Map
- Military Services Implementation Programs
- Download PDF

Installation Path

Partner Path

1 2 **3** 4 5 6

Step 3 Installation:
Assess Climate Change Concerns and Mission Impacts

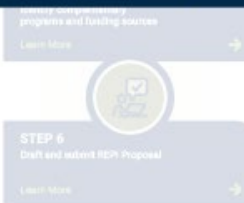
As an installation, your first step in developing a REPI resilience project is to evaluate how climate change is impacting the installation's ability to carry out its mission. There are several different tools available to carry out this assessment:

- DoD Climate Assessment Tool:**
 - This CAC-enabled resource provides a screening-level exposure assessment of DoD installations for eight different climate-related hazards including installation exposure to coastal and riverine flooding, drought, desertification, wildfire, and permafrost thaw. Please note that this tool is only available to DoD personnel.
- NFWF Coastal Resilience Evaluation and Siting Tool**
 - This public tool helps users identify areas of open space where coastal resilience projects may have the greatest benefits for human communities and wildlife. [Learn More](#)
- FEMA National Risk Index for Natural Hazards**
 - This public tool allows users to identify communities most at risk to 18 natural hazards. The application also displays natural hazard risk metrics and includes data about expected annual losses, social vulnerabilities, and community resilience. [Learn More](#)
- REPI Interactive Map**
 - This public map application includes not only military and sentinel landscape geospatial layers, but also climate change layers that display data on sea level rise, wildfire hazards, and flooding. Additionally, the REPI map provides layers containing census, species, public land, SERPPAS, and WRP data and priorities. [Learn More](#)

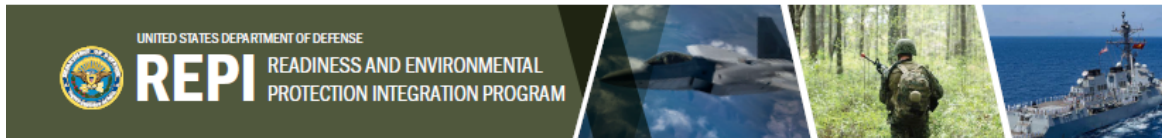
These tools allow users to visualize, on a map, areas of overlapping concern. In the past, installations have been successful in using public-facing mapping applications like these to engage with partners and secure community buy-in for resilience efforts. [Learn More](#)

[← Previous Installation Step](#) [Close](#) [Next Step →](#)

[← Previous Partner Step](#)



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Climate Resilience Resource Library

The goal of REPI's Climate Resilience Resource Library is to provide installations and partners access to online tools that will help your partnership address climate vulnerabilities and build military installation resilience. This library is organized into five categories: Climate change Impacts, GIS Tools, Natural Infrastructure Solutions, Complementary Resilience Programs, and Resilience Authorities. Select each category to learn more about the available resources.

Filter by:

Topic

Category

Type

Climate Change Impacts

- Coastal and Riverine Flooding
- Desertification
- Drought
- Thawing Permafrost
- Wildfire

Complimentary Resilience Programs

- Department of Defense Programs
- Non-Governmental Organization Programs

Showing 1-11 of XX Resources

- Climate Change Impacts
 - Category
 - Type
- Complementary Resilience Programs
- GIS Tools
- Natural Infrastructure Solutions
- Resilience Authorities





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Filter by:

Topic

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Type

Climate Change Impacts

- Coastal and Riverine Flooding x
- Thawing Permafrost x
- Wildfire x
- Federal Grants and Programs x
- Webinar Clips x
- Clear All

3 Results:

- Coastal and Riverine Flooding
- Thawing Permafrost
- Wildfire
 - FEDERAL GRANTS AND PROGRAMS**
The Federal Emergency Management Agency's [Fire Management Assistance Grants](#): Fire Management Assistance Grants support the mitigation, management, and control of fires on publicly or privately owned forests or grasslands.
 - WEBINAR CLIPS**
[REPI Resiliency and Readiness Virtual Workshop](#): Matt Walsh, Fort Huachuca, Wildfire Threats

Showing 1-3 of 3 Resources





REPI

READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

2021 WEBINAR SERIES



Please join us for our next REPI webinar:

2021 REPI Challenge Funding Recipient Spotlight

21 July 2021 | 1:00 PM ET

- **Description:** During this webinar, participants will learn more about a selection of the 2021 REPI Challenge funding recipients. The 2021 REPI Challenge focused on innovative projects that limit incompatible development, enhance military installation resilience, and relieve current or anticipated environmental restrictions on military testing, training, or operations at installations across the country.
- Please respond to the audience polls posted, if you have not already.
- Please contact the REPI office at osd.repi@mail.mil with any questions about this webinar or any other REPI-related topics.