

THE MARSHALL ISLANDS MIGRATION PROJECT:

# CLIMATE-CHANGE FORUM

AN INTERACTIVE FORUM TO DISCUSS  
ENVIRONMENTAL CHANGE IN THE REPUBLIC OF  
THE MARSHALL ISLANDS IN COLLABORATION  
WITH THE RMI CONSULATE AND THE  
ENVIRONMENTAL LAW PROGRAM OF THE WILLIAM  
S. RICHARDSON SCHOOL OF LAW



MARSHALLESE CONSULATE GENERAL  
1888 LUSITANA STREET, SUITE 301  
OCTOBER 2ND, 5.30PM-8PM  
REFRESHMENTS WILL BE PROVIDED



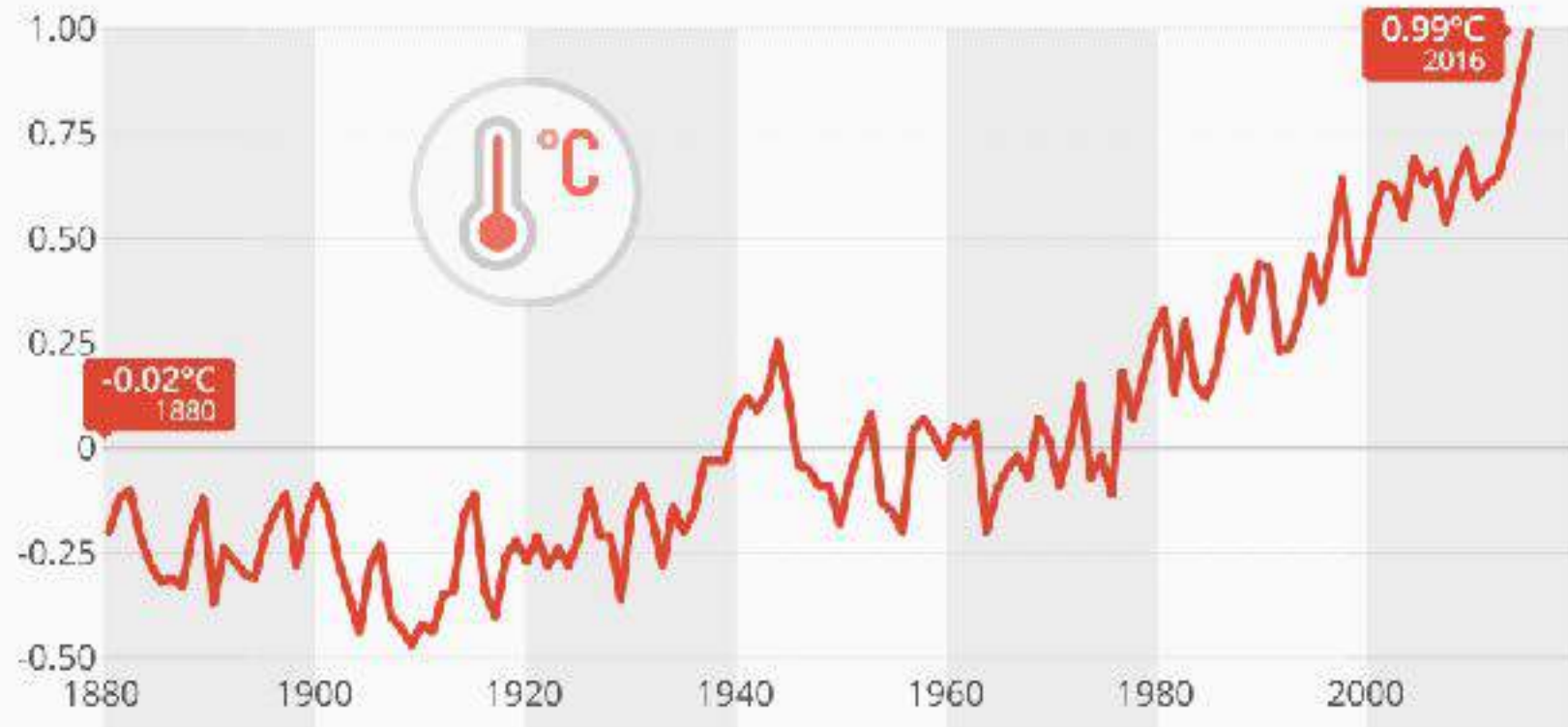
# AGENDA

1. WHAT IS CLIMATE CHANGE AND HOW IS IT IMPACTING THE MARSHALL ISLANDS?
2. WHAT ARE THE FUTURE CLIMATE PROJECTIONS FOR THE RMI?
3. WHAT ARE THE CURRENT CLIMATE POLICIES AND LEGISLATION IN THE RMI?
4. WHAT EFFORTS AND ORGANISATIONS CURRENTLY EXIST TO ADDRESS THESE ISSUES?

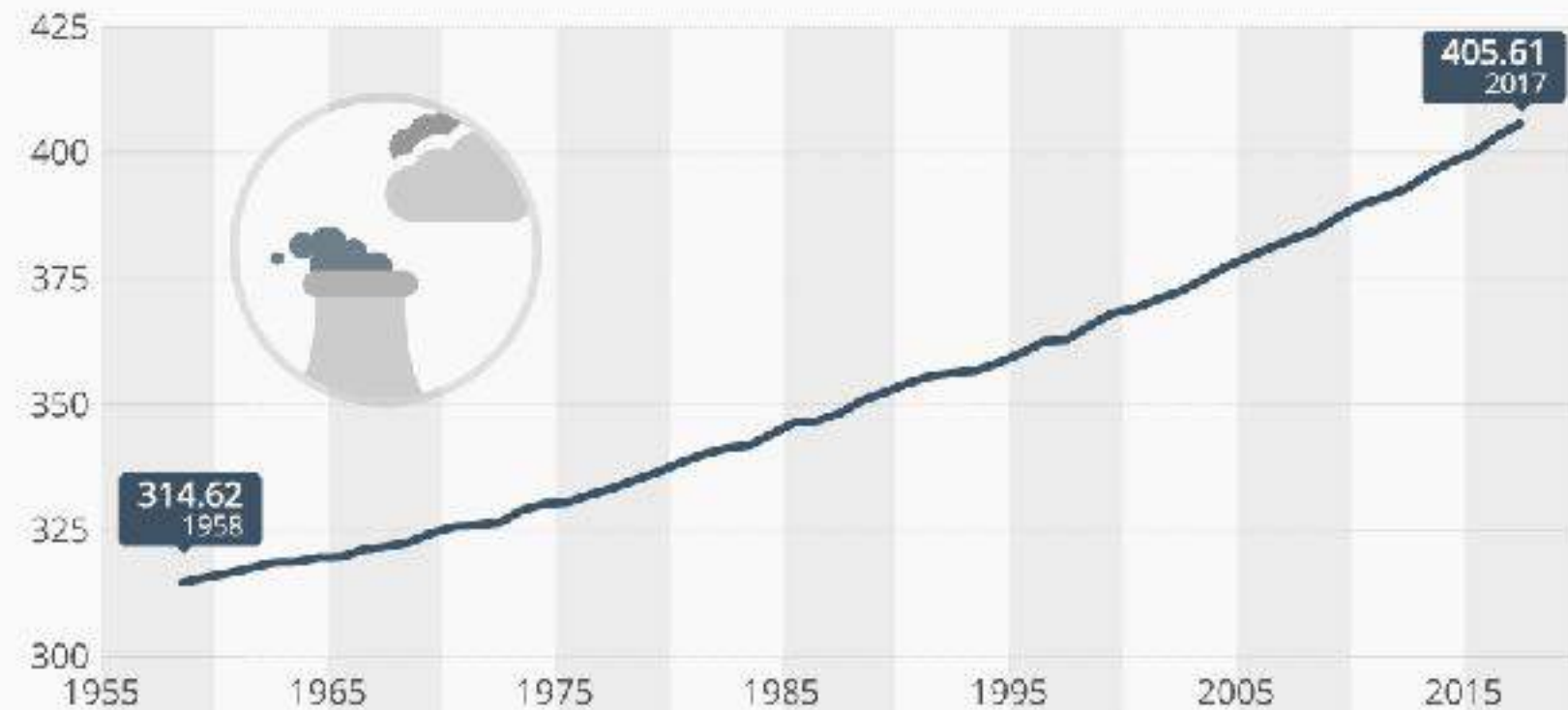
# WHAT IS CLIMATE CHANGE?

## CO2 Levels and Global Warming

Annual mean surface temperature of the earth from 1880 to 2016 (in °C)



Direct measurements of atmospheric carbon dioxide from 1958 to 2017 (in parts per million)\*



# THE EFFECTS OF CLIMATE CHANGE



CLIMATE CHANGE IS WORSENING THE EFFECTS OF STORMS AND EXTREME WEATHER EVENTS:



LONGER DROUGHTS



INCREASED FLOODING



MORE FREQUENT COLD WAVES AND HEAT WAVES



STRONGER STORMS, CYCLONES, AND HURRICANES

Each day new greenhouse gas emissions further accelerate these physical changes.



**YOU CAN HELP**  
Reducing our greenhouse gas emissions can have a real impact and fight the effects of climate change.



A photograph of a coastal area in the Marshall Islands. In the background, there is a white building with a corrugated metal roof. To the left, there are several palm trees and other tropical vegetation. In the foreground, there is a low stone wall that runs along the edge of a sandy beach. The beach is littered with some debris, including a blue plastic bottle. The sky is overcast and grey.

HOW DOES CLIMATE CHANGE EFFECT RMI?

WHAT ARE SOME CHANGES IN THE ENVIRONMENT  
THAT HAVE YOU HAVE OBSERVED IN THE  
MARSHALL ISLANDS IN THE LAST 5-10 YEARS?



# CURRENT CLIMATE IN THE RMI

- RAINFALL VARIES GREATLY - IN THE WET, SOUTHERN ATOLLS, RAINFALL IS HEAVY. AVERAGE = 160 IN/YR.
- DRY, NORTHERN ATOLLS = ~20 IN.
- THE MAIN DRIVER OF RAINFALL IS THE INTERTROPICAL CONVERGENCE ZONE (ITCZ).
- TROPICAL CYCLONES AFFECT THE RMI BETWEEN JUNE AND NOVEMBER.
- THE NORTHERN ATOLLS ARE MORE VULNERABLE THAN THE SOUTHERN ATOLLS.
- TROPICAL CYCLONES ARE MORE LIKELY TO OCCUR IN EL NIÑO YEARS.

# PAST CLIMATE IN RMI

- SEA LEVELS HAVE RISEN GLOBALLY BY 4-8 INCHES OVER THE LAST 100 YEARS;
- TIDE GAUGE DATA IN THE MARSHALLS INDICATES SEA-LEVEL RISE OF ~5-6 INCHES SINCE 1968.
- YEARLY AVG AIR TEMPERATURES HAVE INCREASED (~1-2°C) IN THE RMI SINCE THE 1950S.

WHAT STORIES CAN  
YOU SHARE ABOUT THE  
EFFECTS OF  
ENVIRONMENTAL  
CHANGE ON YOUR  
LIVES AND  
LIVELIHOODS? (HEALTH/  
FOOD SECURITY ETC)





WHAT STRATEGIES  
DID YOU AND YOUR  
COMMUNITY USE TO  
COPE WITH THESE  
ENVIRONMENTAL  
CHANGES?





# HOW HAS CLIMATE CHANGE IN RMI BEEN DEPICTED IN THE MEDIA?

## Despite climate change exodus, some Marshall Islanders head back home

After many young people fled in the face of worsening droughts, tropical storms, coral bleaching, coastal inundation and flooding, some are choosing to return



A child plays near abandoned ships on Majuro, the capital of the Marshall Islands. Photograph: Mae Ryan for the Guardian

MSNBC

## Hell and High Water

Two man-made catastrophes — a toxic nuclear legacy and rising sea levels — threaten to sink the Marshall Islands' country and culture.

CIVIL BEAT

Special Projects: The Micronesians



### Chapter 5: Climate Change: 'The Single Greatest Threat To Our Existence'

Rising tides and changing ecosystems are destroying the subsistence lifestyle on many islands in Micronesia. If disease and a sinking economy don't drive residents away, global warming just might.

BY CHAD BLAIR

PHOTOGRAPHER PHOTOGRAPHER CORY LUM / OCTOBER 21, 2015



### Chapter 6: Jobs And The Economy: It's Only Going To Get Worse

The U.S. has been funneling billions of dollars to Micronesia since 1966. That money is very likely going to dry up in just eight years. Then what?

BY CHAD BLAIR

PHOTOGRAPHER PHOTOGRAPHER CORY LUM / OCTOBER 21, 2015



CLIMATE FEATURE	CLIMATE PROJECTIONS	POTENTIAL IMPACTS
SEA LEVEL RISE	SEA LEVEL IS PROJECTED TO INCREASE IN THE MARSHALLS BY: ~5 INCHES BY 2030 ~10 INCHES BY 2050 ~16-36 IN. OR MORE BY 2100	<ul style="list-style-type: none"><li>• INCREASE THE POTENTIAL FOR LOSS/ DAMAGE OF COASTAL HOMES, LANDS, AND INFRASTRUCTURE</li><li>• CONTAMINATED DRINKING WATER</li><li>• DESTRUCTION OF CROPS</li></ul>
AIR TEMPERATURE	ANNUAL TEMPERATURES WILL TO CONTINUE TO RISE: ~1°C OVER THE NEXT GENERATION (2030) ~1-2°C BY 2050 ~2-4°C BY 2090	<ul style="list-style-type: none"><li>• HUMAN HEALTH AND HEAT STRESS</li><li>• INCREASED NEED FOR ENERGY REQUIRED FOR COOLING</li><li>• AIR TEMPERATURE IMPACTS SEA SURFACE TEMPERATURE, STORMS, AND PRECIPITATION</li><li>• AGRICULTURE AND WATER RESOURCES</li></ul>
STORM PATTERNS	INCONSISTENT RESULTS FOR THE RMI	<ul style="list-style-type: none"><li>• INCREASED COASTAL EROSION</li><li>• SALINITY INTRUSION CAN DAMAGE COASTAL AQUIFERS &amp; AGRICULTURAL LAND</li><li>• INCREASED FLOODING</li></ul>

CLIMATE FEATURE	CLIMATE PROJECTIONS	POTENTIAL IMPACTS
RAINFALL PATTERNS	<p>PROJECTED TO INCREASE ALONG WITH MORE EXTREME RAIN EVENTS</p> <ul style="list-style-type: none"><li>• ~2-3% INCREASE BY 2030</li><li>• ~4-8% INCREASE BY 2050</li><li>• ~8-14% INCREASE BY 2090</li></ul>	<ul style="list-style-type: none"><li>• HUMAN HEALTH, WATER SUPPLY AND AGRICULTURE.</li><li>• DAMAGE TO CROPS AND INCREASES IN RUN- OFF/POLLUTANTS INTO COASTAL WATERS.</li><li>• INCREASES IN VECTOR-BORNE DISEASES</li></ul>
SEA-SURFACE TEMPERATURE (SST)	<p>PROJECTED INCREASES IN SST:</p> <ul style="list-style-type: none"><li>• ~1°C OVER THE NEXT GENERATION (2030)</li><li>• ~1-2°C BY 2050 ~2-4°C BY 2090</li></ul>	<ul style="list-style-type: none"><li>• CORAL BLEACHING</li><li>• CORAL DISEASES</li><li>• AFFECT REEF-DEPENDENT SPECIES</li><li>• REDUCE SERVICES REEFS PROVIDE (TOURISM; COASTAL PROTECTION; FOOD/ LIVELIHOODS; HABITAT; MEDICINE).</li></ul>



CLIMATE FEATURE	CLIMATE PROJECTIONS	POTENTIAL IMPACTS
OCEAN ACIDIFICATION	CORAL REEF GROWTH RATE- DECLINED FROM 4.5 TO 3.9 IN THE LAST 200 YEARS. MODELS SUGGEST THE BY 2030, THIS WILL DECREASE FURTHER TO< 3.0.	<ul style="list-style-type: none"><li>• AFFECTS MANY MARINE ORGANISMS THAT RELY ON CALCIUM CARBONATE [DECREASED GROWTH AND REPRODUCTION]</li><li>• CORALS ARE CRITICAL- SUPPORT FOOD/ LIVELIHOODS, INCOME FROM TOURISM, MEDICINES, AND COASTAL PROTECTION TO ISLANDS.</li></ul>
EL NIÑO/LA NIÑA – ENSO	CHANGE DUE TO CLIMATE CHANGE IS UNCLEAR	SEA LEVEL, RAINFALL, TEMPERATURE (AIR AND SEA), STORM PATTERNS, AND SST.

WHAT CURRENT PROJECTS/ ORGS ARE  
WORKING ON THE CLIMATE/ MIGRATION  
NEXUS IN THE MARSHALL ISLANDS?





...

WOMEN UNITED  
TOGETHER MARSHALL  
ISLANDS

INTERNATIONAL  
ORGANISATION OF  
MIGRATION

MARSHALL ISLAND  
CONSERVATION SOCIETY

LIVING ISLANDS

MOANA MARINE



MARK STEGE

Chief Research Advisor



WINDER LOEAK

Former Deputy Director / Currently  
USP Student Affiliate



FRANKY ERRA



FRANCIS DEBRUM

WHAT ARE MARSHALLESE DIASPORA GROUPS  
IN HI ALREADY DOING THAT SUPPORTS  
THEIR COMMUNITY IN RMI TO BE INVOLVED  
IN THE CLIMATE DEBATE?





- ONE-STOP-SHOP SERVICES:  
WE ARE OCEANIA
- CHURCH GROUPS
- HOUSING SERVICES: FAITH  
ACTION FOR COMMUNITY  
EQUITY
- HEALTH SERVICES: KOKUA  
KALIHI VALLEY
- MICRONESIANS UNITED - BIG  
ISLAND
- LEGAL SERVICES: COFA CAN
- EDUCATION SERVICES: PACIFIC  
ISLANDER STUDENT CENTER  
AT THE UNIVERSITY OF  
HAWAII AT HILO



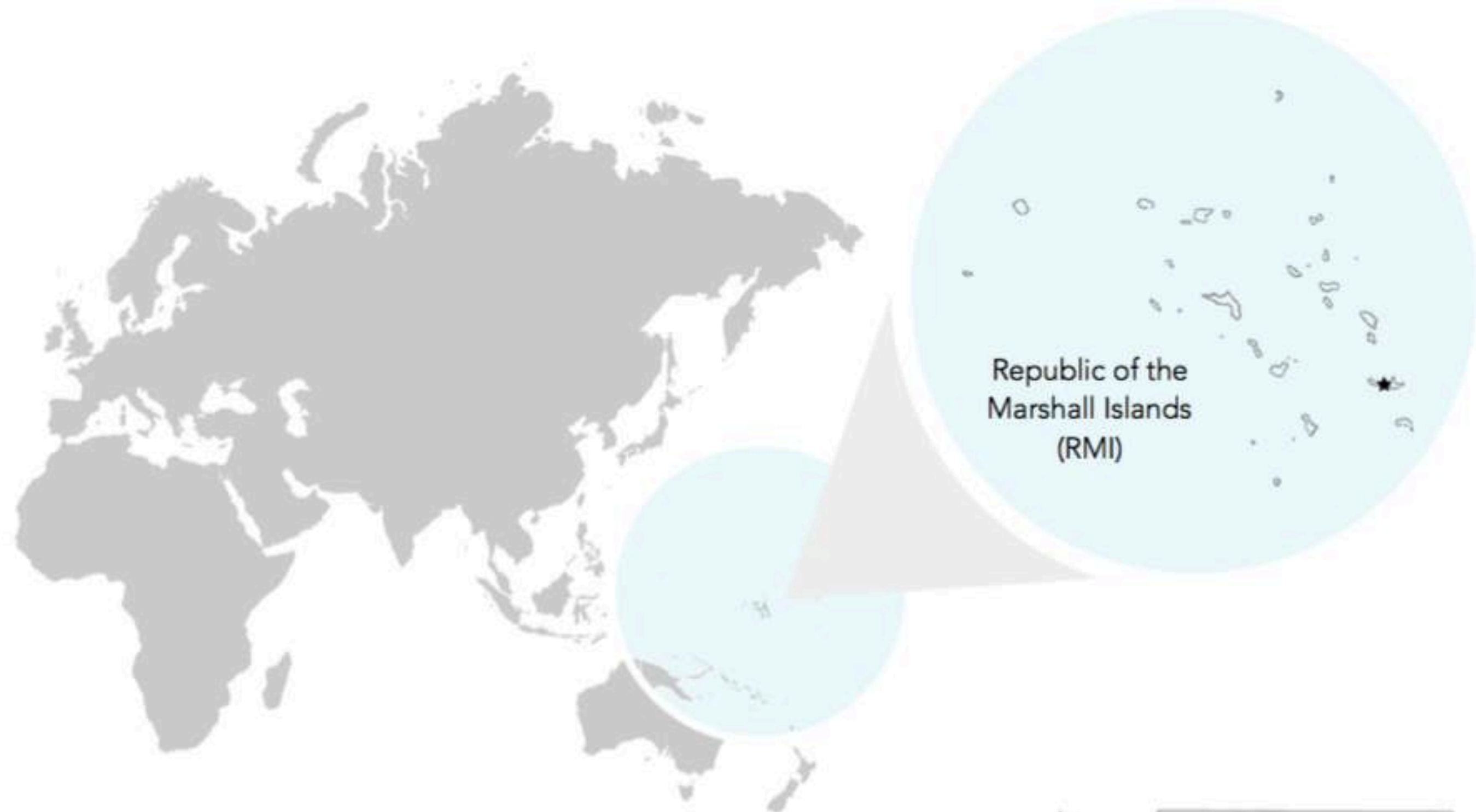


# RESEARCH PROJECT: ANALYZING THE CAUSES AND IMPACTS OF CLIMATE-INDUCED HUMAN MIGRATION IN THE REPUBLIC OF THE MARSHALL ISLANDS



PHOTO CREDITS: MICHAEL CHRISTOPHER BROWN, MAGNUM PHOTOS, MSNBC "HELL AND HIGH WATER" & MARK EDWARD HARRIS, CIVIL BEAT "THE MICRONESIANS".





Republic of the  
Marshall Islands  
(RMI)

"THE GRAVEST EFFECTS OF CLIMATE CHANGE MAY BE  
THOSE ON HUMAN MIGRATION AS MILLIONS ARE  
DISPLACED BY SHORELINE EROSION, COASTAL  
FLOODING AND SEVERE DROUGHT" IPCC



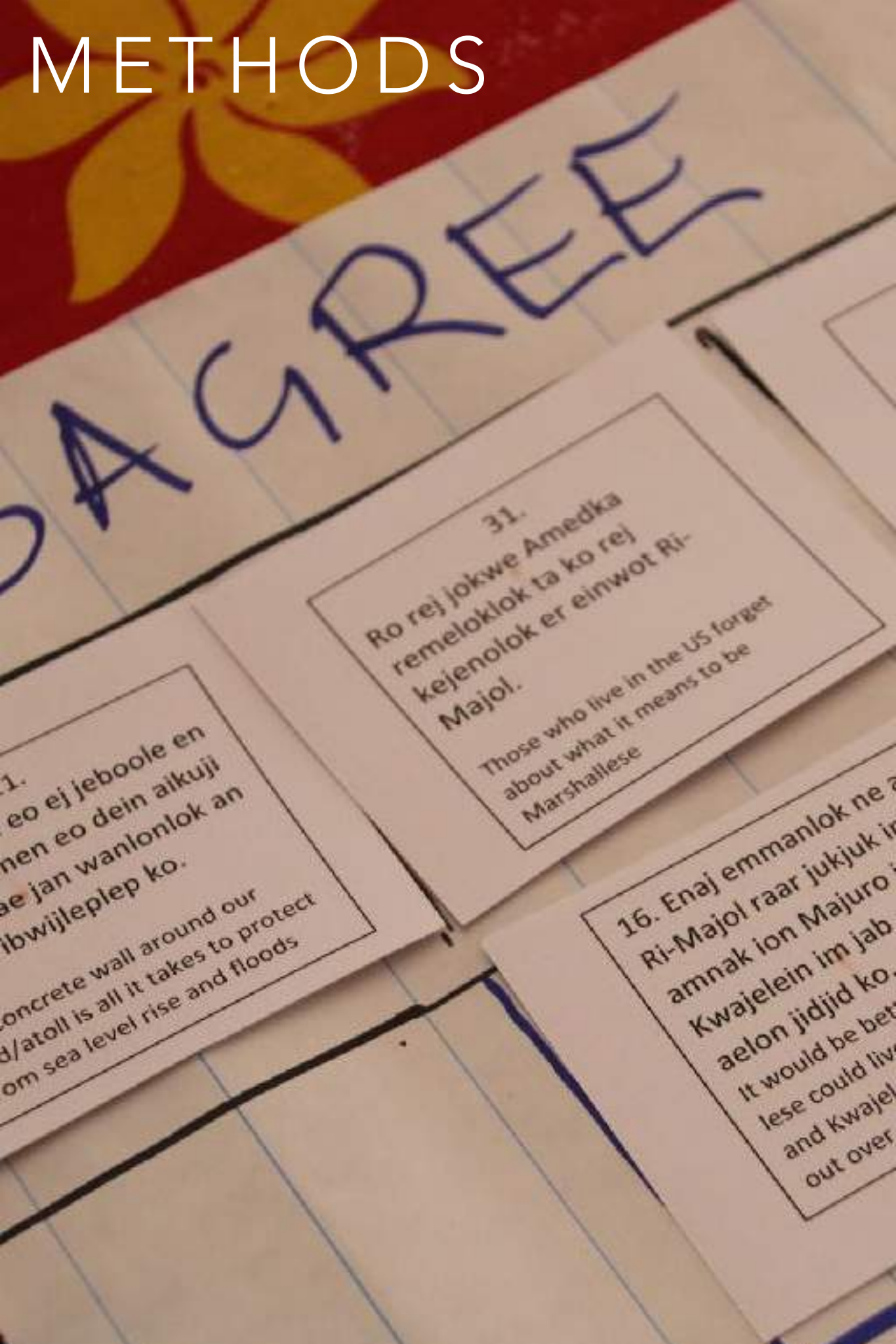




NUMBERS OF MARSHALLESE RESIDING IN THE  
U.S. HAVE RAPIDLY RISEN OVER THE PAST TWO  
DECADES, FROM 7,000 IN 2000 TO 22,000 IN 2010



# METHODS






# PRELIMINARY RESULTS



- EDUCATION, HEALTHCARE AND WORK AS MOTIVATIONS FOR MIGRATION
- IMPACTS OF CLIMATE CHANGE AS UNDERLYING DRIVERS THAT CONTRIBUTE TO MIGRATION
- MANY MARSHALLESE IN THE US FEAR THE IMPACT OF CLIMATE CHANGE ON THE FUTURE HABITABILITY OF THEIR ISLANDS, COMPLICATING RETURN MIGRATION.





# Understanding the role of climate change and ecosystem services in the migration decisions of Marshallese Islanders

THE PROJECT →

# ACKNOWLEDGEMENTS

- Past and current climate information provided by Weather Station Office (WSO) Majuro: <http://www.prh.noaa.gov/majuro/>
- Climate projections are derived from the Australian Bureau of Meteorology and CSIRO (2014). Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports and The Pacific Islands Regional Climate Assessment (PIRCA): <http://www.pacificrisa.org/projects/pirca/>
- Climate Projections and Impacts for the Republic of the Marshall Islands (RMI) by the Marshall Islands Conservation Society