

Climate Change & Small Island Developing States Case Study of Dominica

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Small Island Developing States (SIDS)

➤ Small size

➤ Remoteness

➤ Limited range in natural resources and export base

➤ Susceptible to external economic shocks, and global climate change

3 regions

➤ **Atlantic, Indian Ocean, Mediterranean and South China Sea (AIMS)**

Bahrain, Cabo Verde, Comoros, Guinea-Bissau, Maldives, Mauritius, Sao Tomé & Príncipe, Seychelles, Singapore

➤ **Caribbean**

Antigua & Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, St. Lucia, St. Vincent & the Grenadines, Suriname, Trinidad & Tobago

➤ **Pacific**

Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Vanuatu

Snapshot of Dominica

| Indicator | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GDP (current US\$) | 458190185 | 489074333 | 493824407 | 501025296 | 485998000 | 501979259 | 523666333 | 535095852 | 581484037 | 562540741 |
| Agriculture, forestry, and fishing, value added (% of GDP) | 11.6% | 12.6% | 11.5% | 12.5% | 12% | 13.9% | 13.4% | 14.2% | 16.1% | 15.7% |
| Industry (including construction), value added (% of GDP) | 12.7% | 11.4% | 11.7% | 12.8% | 12.8% | 12.2% | 12.4% | 11.3% | 11.5% | 11.5% |
| Services, value added (% of GDP) | 58.5% | 59.4% | 60.1% | 59% | 60.1% | 59.4% | 59.3% | 59.6% | 57.7% | 58% |

Sectoral breakdown of GDP from 2008-2017 based on World Bank Statistics (12/15/2018 download)

Snapshot of Dominica

- ~71000 total population
- 751km² or 290 square meters in size
- 1500mm of rain on the West Coast
- Over 8750mm of rain in parts of the interior
- 179 species of birds
- 55 species of butterfly
- ~45 species of inland fish



Objective of paper



- Show the impact of climate change on the nature of hurricane/storm season and its effects on the island of Dominica
- Demonstrate how these effects influence the island's development strategies, particularly as it relates to commodified citizenship

Climate Change and Storm Season

- Anthropogenic carbon emissions linked to:
 - increased frequency of sea-level extremes, coastal flooding, and coastal environmental and infrastructural erosions
 - increased intensity of hurricanes in the Atlantic
- Global warming has been linked to
 - increasing numbers, duration, and intensity of tropical cyclones



Recent Storm Impacts

- Existing ground saturation from increased rainfall in previous rainy seasons
- August 2015 Tropical Storm Erika
 - 30 deaths
 - Significant damages to homes
 - Villages were abandoned
- September 2017 Hurricane Maria (category 5 hurricane)
 - 64 deaths
 - \$1456000 in damages
 - 100% of total population affected

Storm Impacts on Coastal Waters

- The warming of the Atlantic and changing currents lead to increasing intensity of storms
- Pelagic sargassum on coastal shores
- Changes in coastal sea grass
- Impact on fishing (continuing field work)



Changes in Sea Grass and Sargassum



Syringodium filiforme
-native species



Halophila stipulacea
-invasive species

Changes in Sea Grass and Sargassum

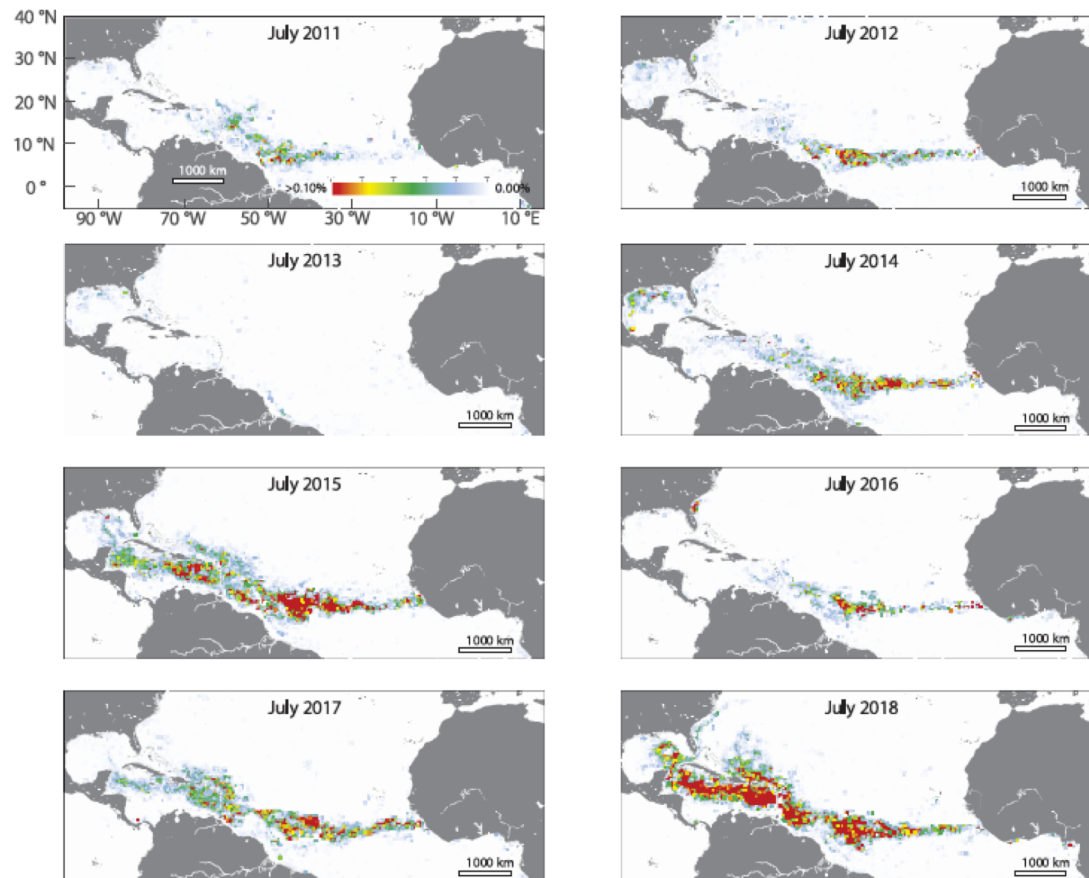


Majority Affected Areas



Great Atlantic Sargassum Belt

Sargassum distribution in the Gulf of Mexico and the Atlantic Ocean



- upwelling off West Africa during boreal winter and by Amazon River discharge during spring and summer
- possibly a new norm

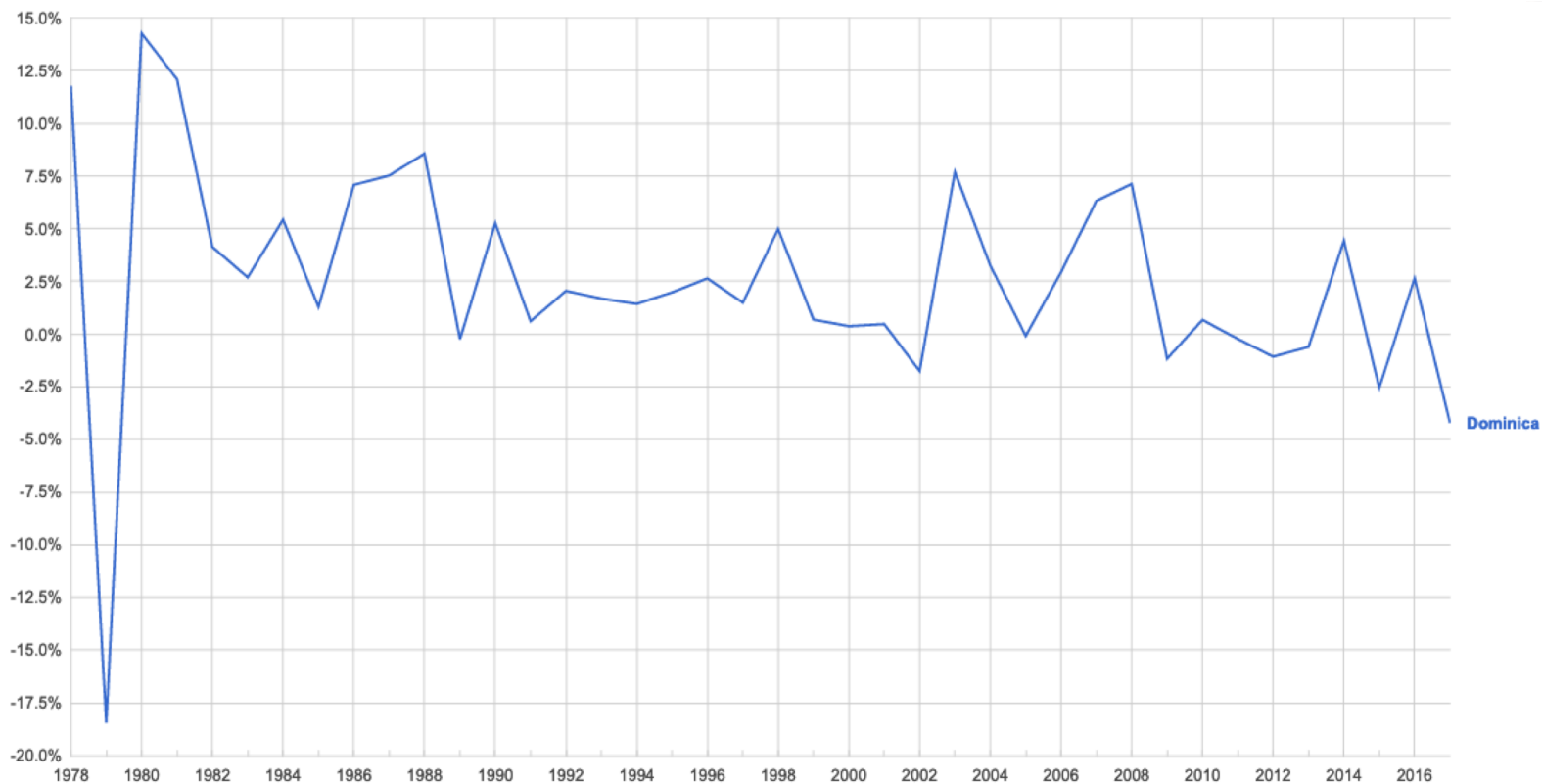
Fishing and Tourism

- Ongoing research
 - administered survey to 25 fisherfolk from 7 villages
- Tourism
 - limited beach access
 - directly tied to commodified citizenship



Implications for Development Strategies

- Commodified citizenship as the saving grace for continued growth?
- Should SIDS be pursuing the economic growth model set under SDGs at all?



Thank You

