Coral Reefs in Congress

by

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Abstract

As coral reef ecosystems disappear at an alarming rate, the United States and the wider world are weighing options for bold policy action to stop the loss of climate sensitive ecosystems. It is difficult for policies to get the attention of lawmakers, due to technical feasibility, differences in values, and constraints related to particular problems (Kingdon, 2003). This is doubly true for climate policies in the United States due to partisan politics. However, several recent instances have seen Democrats and Republicans collaborating to sponsor legislation on coral reef conservation, with actions to both lessen the impacts of climate change and adapt to its impacts (i.e. climate mitigation and adaptation). This research examines how coral reef conservation policies are making it onto the policy agenda by analyzing how and why Democratic and Republican policy-makers come to agreement over these policies despite the polarized context of American politics. I use policy process theory, including John Kingdon's multiple streams framework and Deborah Stone's work on symbols and ambiguity in public policy, to analyze 137 congressional testimonies, press releases, and other policy documents on three bipartisan coral reef conservation policies cases. I use a comparative case study design, examining coral reef conservation policy at different scales: international, national, and state/subnational. Cases include the Tropical Forest and Coral Reef Conservation Act, which proposes debt for nature foreign aid to countries with coral reefs; the Restoring Resilient Reefs Act which funds new national-level conservation efforts in the United States; and the Offshore Wind for Territories Act which allocates funding from offshore wind in United States territories into a dedicated coral reef conservation fund. My findings show that Democrats and Republicans agree on several key themes when providing rationale for supporting coral conservation policy. These themes include governance, human well-being, and economics. In addition to conceptual

agreement on those themes, decision-makers are also more likely to support coral reef legislation if they represent a coastal jurisdiction, have reefs present in their jurisdiction, and are members of the Democratic Party. I propose a novel theoretical framework for decision-maker rationale for support of conservation policy which includes agreement on governance, human well-being, economics, considerations of geography, proximity to threatened ecosystems, and political party identification. The significance of this research is twofold: theorizing how conservation policy agendas are set and asking whether these insights can inform how more controversial policies (e.g. those that address climate change) may be included on the future agenda.

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INTRODUCTION

American politics and policy-making are presently polarized, in contrast to the context in which the hallmark environmental policies of the 1970s were passed, including the Clean Air Act and Clean Water Act (Klyza & Sousa, 2013; Kraft, 2017; Turner, 2009). Polarization, defined as prejudice and bias between political parties which further grows into greater intolerance, has increased the number of Democratic and Republican idealists in Congress skeptical of compromise (Mason, 2018). Environmental policy is a focal point of political struggle between the two main parties in the United States (U.S.): the Republican Party and the Democratic Party (Klyza & Sousa, 2013). Historically, there has been a documented, decades-long effort by Republican lawmakers to pare back environmental legislation which they see as excessive, costly, ideological, and harmful to the economy (Dotto & Oakes, 2019; Kraft 2017). Democrats, on the other hand, tend to believe that expert judgment, experienced agency staff, and well-established administrative law should be the foundation of environmental policy-making (Dotto & Oakes, 2019; Kraft 2017). However, there is a recent shift from polarization towards greater cooperation between political parties regarding specific environmental topics and problems. For example, Republicans from Florida and U.S. territories alongside Democrats have started calling for coral reef conservation policies, calls that include statements that acknowledge the risk of climate change to coral reef ecosystems (United States Representative Darren Soto, 2021). The positions members of Congress take on issues through roll call votes and press releases are important for understanding what their policy priorities are and what they are willing

to compromise their partisan reputation on if the issue does not align with what their party supports (Mason, 2018).[1]

Simultaneously, coral reef ecosystems are changing on a large-scale. As sea surface temperatures around the globe continue to increase, climate vulnerable ecosystems like coral reefs are further under threat (Cane et al., 1997). Coral reefs provide a wide range of direct economic, cultural, supporting, and regulating environmental services important to coastal communities and people around the world (Hoegh-Guldberg et al., 2017).[2] As global sea surface temperatures around the world increase, shallow coral ecosystems face worsening threats of bleaching and mortality,[3] which would negatively impact the individual species and the habitats for other reef organisms that they provide (Hughes et al., 2003). Coral reef ecosystems are threatened by human activities as well, such as harmful overfishing of reef fish, pollution from mainland agriculture and runoff, physical damage from tourism and boating, among others (Frys et al., 2020).

Coral reefs provide an important case of how climate vulnerable ecosystems are being placed on the policy agenda. Policy scholar John Kingdon (2003) defines a policy agenda as the issues that government officials and those around government are paying attention to. The research question and objective of this study is to determine how lawmakers place bipartisan policy on the policy agenda, using a case study of climate vulnerable ecosystems. Bipartisan policies are those that are supported by both major political parties in the U.S. Using case studies

[1] Roll call votes occur when a representative or senator votes "yea" or "nay," so that the names of members voting on each side are recorded, compared to voice votes which do not record the stance taken by individual members (U.S. Senate, 2021).

[2] Environmental services are defined as the benefits received from various natural ecosystem functions. Economic services include those that have direct economic benefits and profits; cultural services include those associated with social human structures; regulating services include those that the ecosystem regulates such as shoreline protection or erosion protection (Hicks & Cinner, 2014).

[3] Coral bleaching is the act of individual coral polyps expelling their symbiotic algae under stressful conditions, such as increased heat events. This decreases the amount of nutrition the coral can receive and can lead to its death (Hughes et al., 2003).

of legislation for coral reef conservation across scales (international, national, and subnational), I perform qualitative analysis using inductive reasoning to develop a theory of why lawmakers from different political parties support conservation policy of climate vulnerable ecosystems. Specifically, I examined the following policies using a comparative case study design: (1) the Tropical Forest and Coral Reef Conservation Act which proposes to alleviate debt in developing countries in exchange for conservation as a form of foreign aid to countries with coral reefs (a policy known as a "debt for nature swap"); (2) the Restoring Resilient Reefs Act which funds new national-level conservation efforts in the U.S.; and (3) the Offshore Wind for Territories Act which allocates funding from offshore wind in U.S. territories into a dedicated coral reef conservation fund. My expectations (similar to hypotheses in causal inference) were that there are relationships between political parties and rationale for policy support, relationships which can lend insights into why lawmakers back conservation policy. I expected there to be additional relationships between policy support, proximity to ecosystems, political party and ideology,[4] and other political drivers that can further explain rationale for support.

To answer my question and test my expectations, I use a foundational theoretical framework of agenda setting from the field of public policy, specifically the multiple streams framework and Deborah Stone's scholarship on stories and symbols in policy-making. I theorize and analyze possible reasons for how bipartisan support for conservation policy-making specifically focused on climate vulnerable ecosystems is possible in the United States. I used qualitative methods and inductive logic to code data for how politicians and other stakeholders were defining the problem of coral reef degradation and related policy solutions. I use quantitative analysis and data on policy-makers' historical level of support of coral reef

[4] A political ideology is the set of beliefs and values someone bases their political preferences on, allowing them to justify or contest the social and political realities and processes of society (Freeden, 2001).

legislation to refine my novel model and suggest additional motivations for lawmaker support of conservation policy for climate vulnerable ecosystems. The rationale for a mixed methods research design was the initial need for qualitative data to build theory of why lawmakers support conservation policies for coral reefs, that also required additional testing on further plausible explanations through a quantitative model.

Specifically, this research finds that legislators from different political parties have two main rationales for supporting coral reef conservation policy: ideas of governance and economics. For economic rationale, lawmakers emphasize community development efforts that complement coral reef conservation. Governance-focused rationale shows that coral reefs enable lawmakers to tout their own capacity to work in a bipartisan way in addition to any conservation action. Lawmakers from both parties increasingly prioritize grass roots or community-based conservation efforts as their preferred institutional framework for governance. Other significant predictors of rationale for support for coral reef conservation policy include lawmakers belonging to the Democratic Party, possessing a more liberal ideology, and coming from states that have coral reefs or coastlines. In reviewing all coral reef policy enacted in various forms between 1988-2021, I find that Democrats supported coral reef legislation nearly twice as much as Republicans, suggesting that while there are points of agreement, coral reef conservation still faces partisan obstacles to making it on the policy agenda. I propose a novel theoretical framework for decision-maker rationale for support of conservation policy which includes agreement on governance, human well-being, economics, considerations of geography, proximity to threatened ecosystems, and political party identification. My findings shed light on what causes policy-makers to add conservation policy to the agenda. Since coral reefs are

climate vulnerable ecosystems, the relationships I describe may provide a roadmap for future win-win policy agreements in Congress that address both conservation and climate change.

This thesis is made of six parts including the policy case context and background on the three case studies and why they were chosen, theory and literature review of my theoretical framework, methods for qualitative and quantitative analysis, findings, discussion, and conclusion.

POLICY CASE CONTEXT

Environmental problems first appeared on the policy agenda in the 1960's with the rise of the environmental movement in the U.S., which followed the publication of key works such as *Silent Spring* (Carson, 1962). Public attention started to be paid to the degradation of the environment due to industrial pollution (Carson, 1962; Udall, 1963). During this period, known as the environmental movement, the federal government began to make bipartisan policies to address environmental issues including some of the most important American environmental laws: the Clean Water Act, Clean Air Act, and the Endangered Species Act, among others. Polarization between Democrats and Republicans began growing in the late 1980s and continued into the twenty-first century, stalling future policy to address environmental issues (Gershtenson et al., 2006).

Polarization in environmental policy-making since the 1980s is characterized by legislative gridlock of environmental policy in congressional committees,[5] such as the delays which caused key fisheries management policy to be held in the Committee on Commerce,

[5] To manage the volume and complexity of congressional bills introduced in the House of Representatives and the Senate, there are committees put in place to discuss and amend bills, reach out to experts for testimony, and hold hearings on issues (U.S. Senate, 2020).

Science, and Transportation,[6] ultimately causing it to fail to pass (Kustic, 2020; Waldeck & Buck, 2001).[7] In Congress, Republicans have historically worked to halt environmental legislation, to repeal environmental regulations, to reduce the enforcement abilities of federal agencies, and to voice skepticism and denial of the existence of man-made global climate change (McCright and Dunlap, 2010). In the 2000s, the Republican party transitioned to a more subtle strategy of discrediting climate science by targeting specific pieces of evidence, scientists, and political processes (McCright & Dunlap, 2010). Bipartisan legislation for climate change has faced considerable obstacles due to polarization of the parties and the use of congressional rules to impede legislation (Kurz, 2020).

In 2016, signs that both parties were beginning to see climate change as a serious issue arose when a group of bipartisan, climate-focused lawmakers formed the Climate Solutions Caucus in the House of Representatives (the lower chamber of a bicameral legislature with the Senate constituting the upper chamber).[8] The Climate Solutions Caucus has contributed to bipartisan climate policy developments such as carbon pricing proposals included in the annual congressional budget (Citizens' Climate Lobby, 2021). Subsequent polls of legislators revealed that both Republicans and Democrats agreed that climate change is an important issue, but that significant disagreement exists on how to enact policy in the face of a changing climate (Van Boven et al., 2018). As of the late 2010s, there appears to be a shift in Republican lawmakers away from polarized attitudes towards support for policies, where lawmakers will not admit to its existence, to a new position characterized by a greater willingness to address some climate change impacts (Tolbert 2019). This change is somewhat recent, and important to understand as

[6] During the 106th Congress which was in session from January 3, 1999, to January 3, 2001 (congress.gov).
[7] The Magnuson-Stevens Fishery Conservation and Management Act.
[8] In the United States, a caucus is a group for lawmakers to participate in to advance their specific goals for policy. The Climate Solution Caucus in the House of Representatives and in the Senate exist for members to discuss climate policy solutions and cooperate on climate legislation (Citizens' Climate Lobby, 2021).

U.S. lawmakers are increasingly called upon to address climate change by their constituents (Krosnick & MacInnis, 2020). Evidence suggests several reasons are behind the shift away from polarized attitudes over climate policy, which include: single party control of Congress, residency of legislators near the U.S. Capitol meaning that there is less opportunity to create a cooperative work atmosphere that encourages bipartisan compromise, congressional primaries that nominate extremely conservative or extremely liberal candidates,[9] and wider acknowledgement by lawmakers that climate change is an issue in Congress (Kustic, 2020).

My research sheds light on the puzzling reasons why lawmakers may collaborate on bipartisan policy-making that involves coral reef conservation in Congress. Coral reef related laws in the U.S. initially focused on the mitigation of various stressors for coral reefs, such as sediment runoff from coasts, and now focuses on establishing protected areas and actively supporting the restoration of these ecosystems (Richmond et al., 2007). The earliest laws, the Rivers and Harbors Act of 1899 and the Fish and Wildlife Coordination Act of 1958, provided legal authorization to U.S. agencies for modifying waterways for navigation, before coral reefs were valued ecologically (Richmond et al., 2007). The Coastal Zone Management Act created a federal grant program for coastal states to plan and implement programs to promote effective coastal management (Richmond et al., 2007). The Endangered Species Act is one of the most important and long-standing conservation policies which provides protections and limitations for species that make up the coral reef ecosystem (Richmond et al., 2007). The Clean Water Act of 1977 grants authority to the Environmental Protection Agency of the U.S. to regulate pollution in waterways, which is one of the most prevalent stressors on coral reef ecosystems due to

[9] To elect a U.S. representative or senator, a primary election takes place for each political party to nominate who will represent the political party as the final candidate in that election, to then be voted against the nominates from the other parties. This often leads to more extreme candidates on the left and right and rigid party competition to represent their party (USA.gov, n.d.).

increased nutrient inputs from surface runoff (Richmond et al., 2007). The Magnuson-Stevens Fishery Conservation and Management Act is based on creating plans for managing single species fisheries, including those that are located or spend parts of their lives on coral reefs (Richmond et al., 2007). The National Environmental Policy Act of 1969 was put in place to establish environmental impact standards to lessen environmental damage (Richmond et al., 2007). The National Marine Sanctuaries Act, National Park Service Organic Act, and National Wildlife Refuge System Administration Act are the basis for creating protected areas under federal jurisdiction in the U.S. and there are many concerned with preserving coral reef ecosystems (Craig, 2000). The most important policy for the conservation of coral reefs is the Coral Reef Conservation Act of 2000, which created legislation authorizing funding for coral reef conservation projects within U.S. resource management agencies and led to the creation of the Coral Reef Conservation Program (Craig, 2000). The Coral Reef Conservation Program was the first of its kind in the U.S. and provided the framework for the decades of coral reef research, conservation, and restoration work funded and completed by the federal government to protect these valuable ecosystems (Craig, 2000).

To study this current bipartisan support of coral reef conservation policies, I have selected three cases of this occurring in practice. My specific criteria for including cases in my study has three parts. First, policies must reflect the most up to date policy priorities on coral reef conservation. These priorities can be summarized as 1) the use of coral reef conservation projects to mitigate the impacts of climate change in the Tropical Forest and Coral Reef Conservation Act; 2) the adoption of novel funding arrangements and decision-making frameworks for coral conservation in the U.S. federal government for the Restoring Resilient Reefs Act; and 3) distinct funds for local restoration activities by the Offshore Wind for Territories Act. Second, policies

must not be limited to conservation alone, but deal in some way with a changing climate. Third, policies do not necessarily need to be legislation on the books but can be modern iterations of historical legislation so long as there is suitable data to study policy-maker support of that legislation. The following subsections review my case examples of policies for coral reef conservation with implications for climate change mitigation.

Tropical Forest and Coral Reef Conservation Act

The Tropical Forest and Coral Reef Conservation Act met the criteria for inclusion because this law uses coral reef conservation projects in developing countries to mitigate the impacts of climate change (as a modern iteration of the Tropical Forest Conservation Act of 1998). Because the law facilitates coral reef conservation as a pathway to climate mitigation, it can inform my study of the rationale for bipartisan conservation of climate vulnerable ecosystems.

The Tropical Forest and Coral Reef Conservation Act would reauthorize the Tropical Forest Conservation Act of 1998, one of the first bipartisan and bicameral bills for conservation funding in the U.S. Reauthorization is a necessary legislative action for approving and funding activities in federal agencies in the executive branch that enact the laws passed by the legislature (Congress) (Heniff Jr., 2012).[10] This innovative policy offered eligible developing countries options to relieve debt owed to the U.S. government while simultaneously generating funds to support local tropical forest conservation activities. These programs, known as "debt for nature swaps" were developed with the U.S. branch of the non-governmental organization (NGO) the

[10] Due to the two-house structure of the U.S. Legislature, draft laws or bills have to be passed in both houses of Congress (the House of Representatives or the lower house and the Senate or the upper house) in order to become a law. Bicameral means that bills are introduced in both houses, so they have a higher chance of becoming a law (U.S. Capitol, n.d.).

World Wildlife Fund (commonly referred to as "WWF") to address the environmental degradation associated with economic crises in developing countries in the 1980s.[11] These crises were related to developing countries' dependence on imported fuels, low commodity prices, negative accounts and growth, and inflation (McFarland, 2018; Patterson, 1990).

Debt for nature swaps occur when a government agency in a country or an NGO partner purchases a portion of the debt owed to the U.S. and provide options to forgive the debt in return for actions taken for environmental conservation, preservation, or restoration activities in that country (Alagiri, 1992; McFarland, 2018; Patterson, 1990). Debt for nature swaps are argued to be vital for preserving tropical forests which house more than half of the world's biodiversity and significant populations of indigenous people (Patterson, 1990). Forests are important for capturing and holding carbon dioxide and steadying the climate (Alagiri, 1992).[12] In the 2010s and beyond, debt for nature swaps are increasingly addressing ocean conservation and climate adaptation efforts (Fuller et al., 2018; McGowan et al., 2020; Rambarran, 2018; Silver & Campbell, 2018). Climate adaptation is defined as the adjustment of societal practices, processes and systems in order to lessen any potential negative effects associated with climate change (IPCC, 2007). Ocean conservation initiatives contained in contemporary debt for nature swaps can include protections for coral reef ecosystems. Coral reefs are included as targets of conservation due to their importance for providing carbon storage in their calcium carbonate

[11] The economic crises of the 1980s were brought about by the "(1) first oil price shock in 1973 and its aftermath; (2) the second oil price shock in 1979; (3) the protracted global recession of 1981-83, distinguished by unprecedented high interest rates and growing protectionism in industrialized countries' raw material exports; and (4) the repercussions caused by the response of international credit markets to the Mexican liquidity crisis of August 1982" (Alagiri, 1992, p. 486).

[12] The original legislation for the Tropical Forest Conservation Act of 1998 specifically mentions the benefits of Tropical forests for "playing a critical role as carbon sinks in reducing greenhouse gasses in the atmosphere, thus moderating potential global climate change" (Tropical Forest Conservation Act, 1997).

skeletons and their provisioning of coastal resilience, defined as hazard mitigation along shorelines to increasingly defend communities from coastal hazards (Ferrario et al., 2014).

The initial legislation for debt for nature swaps in the U.S. began with the Americas Initiative Act of 1990, a program for Latin American or Caribbean countries (Alagiri, 1992; Cassimon et al., 2011). The earliest version of the Tropical Forest and Coral Reef Conservation Act was introduced by Republican representative Rob Portman from Ohio in 1997 with equal parts Democratic and Republican policy-makers acting as cosponsors.[13] Cosponsors in American lawmaking are defined as legislators who publicly introduce and support a bill; and this is important because cosponsors are tying their reputation to the bill and assigning the issue priority on the policy-making agenda (American Legion, n.d.). This bill was passed in the House of Representatives. By the time it was passed, the bill had 44 cosponsors, equally supported by Democrats and Republicans.[14] The bill, or draft law, became official U.S. law in July of 1998 and was reauthorized every subsequent session of Congress afterward until the 110th Congress.[15]

Debt for nature swaps for coral reefs and other marine ecosystems are still a somewhat new area in conservation policy. There are a handful of examples primarily from small island

[13] The bill had 44 cosponsors.

[14] Rep. Kasich, John R. [R-OH-12], Rep. Hamilton, Lee H. [D-IN-9], Rep. Furse, Elizabeth [D-OR-1], Rep. Ewing, Thomas W. [R-IL-15], Rep. Hastert, J. Dennis [R-IL-14], Rep. Maloney, Carolyn B. [D-NY-14], Rep. Klug, Scott L. [R-WI-2], Rep. Pryce, Deborah [R-OH-15], Rep. LaTourette, Steven C. [R-OH-19], Rep. Chabot, Steve [R-OH-1], Rep. Brown, Sherrod [D-OH-13], Rep. Stokes, Louis [D-OH-11], Rep. Sawyer, Tom [D-OH-14], Rep. Pastor, Ed [D-AZ-2], Rep. Camp, Dave [R-MI-4], Rep. Latham, Tom [R-IA-5], Del. Faleomavaega, Eni F. H. [D-AS-At Large], Rep. Lipinski, William O. [D-IL-3], Rep. Wexler, Robert [D-FL-19], Rep. Kolbe, Jim [R-AZ-5], Rep. Dooley, Calvin M. [D-CA-20], Rep. Sherman, Brad [D-CA-24], Rep. Gallegly, Elton [R-CA-23], Rep. Ackerman, Gary L. [D-NY-5], Rep. Luther, Bill [D-MN-6], Rep. Bilbray, Brian P. [R-CA-49], Rep. Kelly, Sue W. [R-NY-19], Rep. Hobson, David L. [R-OH-7], Rep. Leach, James A. [R-IA-1], Rep. Shays, Christopher [R-CT-4], Rep. McHugh, John M. [R-NY-24], Rep. Woolsey, Lynn C. [D-CA-6], Rep. Gutierrez, Luis V. [D-IL-4], Rep. Lantos, Tom [D-CA-12], Rep. Ballenger, Cass [R-NC-10], Rep. Campbell, Tom [R-CA-15], Rep. Smith, Christopher H. [R-NJ-4], Rep. Skaggs, David E. [D-CO-2], Rep. Frank, Barney [D-MA-4], Rep. English, Phil [R-PA-21], Rep. Bereuter, Doug [R-NE-1], Rep. Manzullo, Donald A. [R-IL-16], Rep. Kaptur, Marcy [D-OH-9], Rep. Porter, John Edward [R-IL-10] (Tropical Forest Conservation Act, 1997).

[15] The 110th Congress was in session between January 3, 2007, and January 3, 2009 (congress.gov).

developing states. The most well-known example is the *Debt Restructuring for Marine Conservation and Climate Adaptation Program* managed by the global conservation NGO The Nature Conservancy collaborating with the Government of the Republic of Seychelles to incorporate conservation areas within their coastal waters (Silver & Campbell, 2018). Another example of debt for nature swap legislation can be found in the Philippines, which created ninety-fmy new marine protected areas as part of their debt swap (McFarland, 2021). Over the past thirty years the Tropical Forest and Coral Reef Conservation Act and its previous iterations have produced USD$218.4 million for tropical forest conservation funding in twenty-five countries (McFarland, 2021). There has been a decrease in debt for nature swaps since the 1990s as economies of developing countries have improved. However, debt for nature swaps are making a resurgence as a tool to mitigate the effects of global climate change, although the challenges have persisted in the twenty-first century (Cassimon et al., 2011; McFarland, 2018, 2021).

Neoliberalism, defined as the shift in power and decision-making centers away from government-led management and towards greater influence of markets, occurred simultaneously with the economic crises in the 1980s (Corson, 2010). The rise of neoliberalism coincides with policy-makers having greater tendency to embrace the market for conservation efforts, especially in developing countries. Due to the economic crises that caused environmental degradation and high debts owed to foreign countries, many developing countries were powerless to alter their paths of development to be environmentally sustainable long-term (Patterson, 1990). Their borrowing from foreign countries harmed the local environment by direct or indirect exploitation of regional natural resources in borrower countries (Alagiri, 1992; Patterson, 1990). It has been argued that debt for nature swaps were marketed as a practical and somewhat easy solution to a

complicated problem, yet research has shown a range of challenges that result (Patterson, 1990). There are multiple restraints that limit the efficiency and effectiveness of debt for nature swaps including the kinds of actors that are involved (e.g. NGO, government, private industry), the types of projects that can be funded (e.g. insufficient temporal and geographic scales), the effects of the debt for nature swaps on the local economy (e.g. economic goals not met, damages incurred, resources not provided to local people) and sovereignty issues (e.g. resistance or resentment from locals, lack of recognition for indigenous groups) (Alagiri, 1992; Cassimon et al., 2011; Corson, 2010; Patterson, 1990).

Some U.S. laws can fail to be reauthorized, but their funding can remain in place so their enaction in the bureaucracy continues. This was the case for the early versions of the Tropical Forest and Coral Reef Conservation Act, which was not reauthorized in 2007, however the programs put in place through the original legislation persisted due to continuing appropriations. Appropriations in American lawmaking occur when a law provides a specific budget to a federal agency to perform the duties described in the policy (United States House of Representatives, n.d.). In my case, appropriations allowed for the continued funding of debt for nature swaps in countries around the world that owed the U.S. foreign debt, even if Congress did not reauthorize the law.

The year 2018 marked a shift in debt for nature swap policy as coral reefs were included as a conservation objective in recent versions of the law, despite ongoing implementation delays following a hiatus of six years where appropriations continued but the bill failed to be reauthorized.[16] Both chambers of Congress passed the law as The Tropical Forest and Coral Reef

[16] In the meantime, An amendment was passed in the 112th Congress to move the funding for the Tropical Forest Conservation Act to the spending reduction account, creating a lag in the availability of funds for these programs as

Conservation Act.[17] Its innovative aspects saw the inclusion of coastal ecosystems and coral reefs for the first time as potential project areas for debt for nature swaps in addition to the tropical forest-focus of prior versions of the law. The subsequent legislative activity in the 116th and 117th Congress between 2019-2021 have been characterized by both bipartisan and bicameral support,[18] however, new versions becoming law were delayed in committees and not passed. The legislative history of the Tropical Forest and Coral Reef Conservation Act in Congress is in Appendix A.

The Restoring Resilient Reefs Act

The Restoring Resilient Reefs Act was included as a case study in this research because it changes funding and decision-making for coral conservation in the U.S. federal government. While the text of the Restoring Resilient Reefs Act does not explicitly mention climate change, it does mention that coral reef ecosystems are facing both natural and "human-accelerated changes," including increasing ocean temperatures, ocean acidification, and stressors like coral bleaching which are attributed to climate change (Restoring Resilient Reefs Act, 2019). Thus it meets my criteria of policies having to do with conservation of climate vulnerable ecosystems.

The purpose of the Restoring Resilient Reefs Act is to provide resources and assistance from American federal government agencies to state and local government-run coral reef conservation and restoration projects. The Restoring Resilient Reefs Act is still in the process of being passed in Congress and becoming a law, but was selected for inclusion in this research because it demonstrates the most up to date thinking underpinning executive and legislative

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priorities shifted (H.Amdt.71 to H.R.1). Rob Portman transitioned from a congressman to a senator in 2011, meaning the bicameral reauthorization of this bill was taken up by Ohio Representative Steve Chabot in the House while Portman would introduce a companion bill in the Senate.

[17] S.1023 Tropical Forest Conservation Reauthorization Act.

[18] This activity took the form of a reauthorization act in Congress.

efforts for coral reef conservation in the U.S. The main purpose of the law is to provide resources and a government-facilitated means to collect private donations to fund conservation projects. The Restoring Resilient Reefs Act and its earlier predecessors outlined below mark the first time that dedicated funding and protection for coral reefs was written into U.S. law. The Restoring Resilient Reefs Act has a unique structure that would increase spending on coral reef conservation over time, authorizing increased appropriations, a process enduring until the expiration of the law in the next congressional session.[19] Funds are to be used for federal coral reef management programs, specifically for activities such as monitoring and education in federal management areas and state grants to support community-based management programs. Community-based management programs are defined as the organization of local people to be actively involved in the management of their resources (Ostrom, 1990). An example of one such program is Mission: Iconic Reefs which is made up of U.S. agencies, NGOs, and scientific teams to restore and conserve the third largest barrier reef in the world, the Florida Reef Tract (NOAA, 2021). This program is a strategic framework for conducting sustained observations of biological, climatic, and socioeconomic indicators in U.S. states and territories. The resulting data provide a robust picture of the condition of U.S. coral reef ecosystems and the communities connected to them. Additional funds from this policy are allocated for research, state agency-led conservation programs, emergencies such as disease outbreaks and others (Restoring Resilient Reefs Act, 2019).

The Restoring Resilient Reefs Act aims to reshape and modernize the U.S. Coral Reef Task Force. The U.S. Coral Reef Task Force is a government body with responsibilities to conserve, restore, and monitor coral reef ecosystems located within federal natural resource

[19] Section 224 of the bill specifically.

agencies (Craig, 2000). The U.S. Coral Reef Task Force, established in 2000, has expanded in members and responsibilities since its early days. Agencies with roles in the U.S. Coral Reef Task Force include the National Oceanic and Atmospheric Administration (NOAA),[20] the National Park Service,[21] U.S. Fish and Wildlife Service, the U.S. Geological Survey (USGS), and The Office of Insular Affairs (*U.S. Coral Reef Task Force Members*).[22] The Restoring Resilient Reefs Act legislation specifically grants them authority to implement policy when the legislation is passed (Restoring Resilient Reefs Act, 2019). Decisions are made through voting, with votes held by representatives from the federal agencies and U.S. states, but with U.S. territories having non-voting memberships to observe and offer insight (Craig, 2000).[23]

The Restoring Resilient Reefs Act reauthorizes an important earlier law aimed at coral reef conservation titled the Coral Reef Conservation Act of 2000and is the latest version of this law.[24][25] Earlier versions of the Restoring Resilient Reefs Act were enacted to support other environmental policies such as the Clean Water Act of 1977 by "preserving and protecting the biodiversity, health, heritage, and social and economic value of U.S. coral reef ecosystems and the marine environment" (Exec. Order No. 13089, 1998). It also furthers the U.S. Coral Reef Initiative, a program put in place to promote federal protection for the nation's coral reefs. The

[20] Which is housed in the United States (U.S.) Department of Commerce.

[21] Which is housed in the U.S. Department of the Interior (as is U.S. Fish and Wildlife, the USGS, and the Office of Insular Affairs).

[22] The U.S. Office of Insular Affairs oversees the administration of various U.S. island areas, including all U.S. Island Territories. Other Task Force agencies include the Mineral Management Service, Natural Resource Conservation Service, U.S. Agency for International Development, U.S. Coast Guard, U.S. Department of Agriculture Field Office, U.S. Navy, U.S. Army Corps of Engineers, U.S. Department of State, U.S. Department of Transportation, Environmental Protection Agency, National Science Foundation, and National Aeronautics and Space Administration.

[23] State and Territory voting members are the Commonwealth of the Northern Mariana Islands, Commonwealth of Puerto Rico, State of Florida, State of Hawaii, Territory of Guam, Territory of American Samoa, Territory of the U.S. Virgin Islands and non-voting members include the Federated States of Micronesia, Republic of Marshall Islands, and Republic of Palau.

[24] The result of President Clinton's Executive Order No. 13089.

[25] Although the legislative authority to amend the program expired, the Coral Reef Conservation Program still receives annual appropriations similar to the fate of the Tropical Forests and Conservation Act described above.

programs that these laws created remain in place through appropriations.[26] A summary of these bills and the policy-makers who have supported them is in Appendix B.

The Restoring Resilient Reefs Act was first introduced in the House of Representatives by Democrat Darren Soto from Florida with twenty-two cosponsors in 2019.[27] It was then introduced in the Senate by Republican (R) Marco Rubio, with three bipartisan cosponsors: Brian Schatz, a Democrat (D), Mazie K. Hirono (D), and Rick Scott, (R). Senator Rubio's sponsorship is of note because he frequently criticized federal government spending. His shifting attitude on federal spending regarding reefs received widespread praise from local politicians in his home state of Florida, from scientists, and environmental NGOs (Hudson, 2019). Democratic Representative Ed Case from Hawaii introduced a competing bill to reauthorize earlier versions of the Restoring Resilient Reefs Act.[28][29] Although bipartisan, this bill was supported by a Democratic party majority, while Rubio's Restoring Resilient Reefs Act of 2019 had support from a majority of Republican policy-makers. A reason for this dueling bill with bipartisan support may have been that this other group of representatives wanted to introduce it to make a point about not supporting Rubio's version of the bill (Lee, 2016). This theory is supported by the fact it never made it out of committee and has not appeared in the 117th House session.[30]

[26] The Coral Reef Conservation Act of 2000 expired in 2004 and there have been multiple attempts to introduce reauthorization bills in both chambers almost annually since then.

[27] Resident Commissioner González-Colón, Jenniffer [R-PR-At Large], Rep. Crist, Charlie [D-FL-13], Rep. Mast, Brian J. [R-FL-18], Rep. Murphy, Stephanie N. [D-FL-7], Del. Radewagen, Aumua Amata Coleman [R-AS-At Large], Rep. Gabbard, Tulsi [D-HI-2], Rep. Fitzpatrick, Brian K. [R-PA-1], Rep. Rush, Bobby L. [D-IL-1], Rep. Deutch, Theodore E. [D-FL-22], Rep. Lawson, Al, Jr. [D-FL-5], Del. Sablan, Gregorio Kilili Camacho [D-MP-At Large], Rep. Posey, Bill [R-FL-8], Rep. Frankel, Lois [D-FL-21], Rep. Rooney, Francis [R-FL-19], Rep. Waltz, Michael [R-FL-6], Rep. Yoho, Ted S. [R-FL-3], Rep. Mucarsel-Powell, Debbie [D-FL-26], Rep. Buchanan, Vern [R-FL-16],Rep. Castor, Kathy [D-FL-14], Rep. Bilirakis, Gus M. [R-FL-12], Rep. Gaetz, Matt [R-FL-1], Rep. Webster, Daniel [R-FL-11] (Restoring Resilient Reefs Act, 2019).

[28] H.R.6738 Coral Reef Conservation Reauthorization Act of 2020.

[29] The Coral Reef Conservation Act.

[30] The 117th Congress will be in session from January 3, 2021 to January 3, 2023 (congress.gov).

Offshore Wind for Territories Act

The Offshore Wind for Territories Act was selected for inclusion in this research because of its focus on financing coral reef conservation through a fund, financed by a leasing system for renewable energy. Thus, conservation of a climate vulnerable ecosystem is the outcome of the efforts to lease publicly owned seascapes to renewable energy companies. This distinction allows the Offshore Wind for Territories Act to fit my criteria for coral reef conservation policies with implications for a changing climate. Although this policy is not yet a law, there is suitable data to study policy-maker support of this legislation from 2017-2021.

The Offshore Wind for Territories Act is a bipartisan bill that allows the U.S. Territory islands to begin the process of developing offshore wind programs in American territorial waters with the revenues of this program specifically set aside for supporting coral reef conservation and restoration (Appendix C).[31] Territories are islands in the Pacific and Atlantic Oceans that were obtained after the Spanish-American War, thus they all have histories as U.S. military installations (Lewallen, 2017). U.S. territory governance is unique since they have their own laws, municipal governments, and taxes in addition to federal U.S. taxes and laws. Of the territories, there are two commonwealths which have their own constitutions, which are The Northern Mariana Island and Puerto Rico (Roberts, 2017). The purpose of the Offshore Wind for Territories Act is to amend the Outer Continental Shelf Lands Act to include the U.S. territories in the rules for creating offshore wind farms,[32] a form of renewable energy (Offshore Wind for Territories Act, 2021). This law was necessary because in the case of offshore wind, U.S.

[31] Includes Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands.

[32] The Outer Continental Shelf Lands Act allows the Secretary of the Interior to implement an oil and gas exploration and development program in U.S. waters and subsequently grant leases to the private sector for harvest (U.S. Department of The Interior, n.d.). U.S. states currently benefit from these programs, but U.S. territories are not included in the original legislation and are now arguing they have the rights to develop these programs as U.S. territories and contribute some of the funding to local conservation programs as the U.S. states do.

Territories have been left out of the legal process for creating offshore wind farms, and Territory Governments need these reforms to establish offshore wind in their U.S. waters. Stakeholders in American Samoa, Guam, and the Northern Mariana Islands feel that they have been excluded from climate change preparation and adaptation policies due to their lack of U.S. representation and status as territories in comparison to sovereign neighbors in the Pacific (Schwebel, 2018).

Section five of this bill outlines the establishment of a coral reef conservation fund "for the purpose of maintaining the health of U.S. coral reefs" (Offshore Wind for Territories Act, 2021). This section outlines how revenue generated from offshore wind in these U.S. territories will be set aside in a dedicated fund for future coral reef conservation activities as defined by the Coral Reef Conservation Act of 2000.[33] Access to these funds would be subject to appropriation by Congress if the legislation passed.

The Offshore Wind for Territories Act was introduced in the House by Delegate Madeleine Bordallo of Guam in 2018. Delegates of U.S. Territories are able to introduce and cosponsor legislation in Congress and participate in committees in the House of Representatives. Territories have no representation in the Senate (Lewallen, 2017). Since 2018, the Offshore Wind for Territories Act has been stalled, with U.S. territory delegates serving as congressional representatives, attempting to revive its passage.[34] The latest iteration of the Offshore Wind for Territories Act was introduced just as the Biden administration announced a new policy plan to catalyze offshore wind energy efforts to create jobs and secure a clean energy economy in the

[33] Specifically, 12.5% of total revenue will be set aside for coral reef conservation (Offshore Wind for Territories Act, 2021).

[34]The first Offshore Wind for Territories Act introduced in 2018 passed the House of Representatives, however the subsequent bills have not. It was cosponsored by all representatives from U.S. territories and by Representative Darren Soto from Florida (H.R.6665). After Bordallo's last term, Resident Commissioner González-Colón from Puerto Rico took up the mantle of re-introducing the legislation. Interestingly, Bordallo's successor Delegate Michael San Nicolas never cosponsored the legislation. In 2019, Senators Bill Cassidy and Brian Schatz introduced a companion bill, S.499 that only made it to committee. The latest bill for the 117th Congress was only introduced in the House.

U.S. as part of Sec. 207 of his Executive Order 14008, giving it a stronger chance of being prioritized in Congress (Friedman & Plumer, 2021).

These three cases of bipartisan coral reef conservation bills are interesting and worthy of study because they were introduced during the presidency of Donald Trump, a presidential administration hostile to federal climate policy (Gentile, 2020; Gross, 2020). Despite that hostility, these three policies were able to be placed on the policy agenda in Congress, with support from both political parties in both houses of Congress. This suggests that conservation policy specifically targeting climate vulnerable ecosystems like coral reefs may be a type of climate policy that is more palatable to policy-makers from both major parties. My research examines policy-maker rationale for support for these policies. I use the multiple streams framework developed by Kingdon (2003) and Zahariadis (2007) to help us analyze how this narrow type of climate policy has been promoted by political actors to allow an opportunity for legislative action on climate change to materialize.

THEORY AND LITERATURE REVIEW

Polarization in American Climate Policy-making

Climate change is a specific topic in environmental policy characterized by high levels of polarization. Not all issues in environmental policy are polarized, however. In the U.S. context, conservation, specifically The North American Model of Wildlife Conservation, sees wildlife resources in "public trust" or ownership by the people, with access and extraction rules for wildlife being dictated by the law, and science as the proper tool for creating conservation policy for game and nongame species (Organ, 2018, p. 127). Conservation issues are some of the least polarizing policy issues on the American policy agenda (Baldassarri & Gelman, 2008;

Harbridge, 2009). Both Democrats and Republicans support a wide range of conservation policies such as the Great American Outdoors Act, which created The National Parks and Public Lands Restoration Fund for restoring infrastructure and maintaining public lands in the U.S. (Dunning, 2021).

Polarization in Congress specifically

Environmental problems became highly polarized in the 1980's beginning with the perceived anti-environmentalism from the Reagan administration (Smith, 2004). Since the 1980s, the partisan gap over climate policy has widened over each year examined in the House of Representatives (Gershtenson et al., 2006). Even when other factors (e.g. constituency demographics, district population distribution, polarization between chambers) were considered, political party was still one of the most important reasons congressional members in either chamber voted a certain way on environmental legislation (with Democrats voting yes and Republicans voting no) (Gershtenson et al., 2006). Guber et al. (2020) found that Democrats and Republicans in Congress were heavily different in their messaging on climate change, where Democrats focused on evidence-based messages on the impacts to human society and Republicans focused on anecdotal denial of the threats from climate change. McCright & Dunlap (2010) identified fmy key non-decision-making techniques the Republican movement used to keep climate change off the policy agenda: they "(1) obfuscated, misrepresented, manipulated and suppressed the results of scientific research; (2) intimidated or threatened to sanction individual scientists; (3) invoked existing rules or created new procedures in the political system; and (4) invoked an existing bias of the media" (McCright & Dunlap, 2010, p. 111). Polarization has led to gridlock characterized by a lack of policy-making on climate change. Gridlock occurs

in multiple levels of government, with groups of legislators from the U.S. Congress and state legislatures working together to delay climate policy (Fisher & Leifeld, 2019).

Klyza and Sousa (2013) identified five pathways for maneuvering away from environmental policy gridlock. These include 1) "appropriations politics" where Congress funds programs to address climate change when it lacks the support to pass laws; 2) the use of executive authority; 3) the role of the courts; 4) collaboration between interest groups; and 5) policy-making at the state and local levels (Klyza & Sousa, 2013). My research proposes a novel theoretical framework for a sixth: enact legislation on conservation of climate vulnerable ecosystems, leveraging the popularity of conservation, and in my case reef ecosystems, to enact necessary policy that would otherwise be controversial.

Potential reasons climate vulnerable ecosystems may now be taking a central spot on the U.S. policy agenda are increasing risk perceptions (Heazle et al., 2013; O'Connor et al., 1999) and increased media coverage of related hazards (Carmichael & Brulle, 2016; Liu et al., 2011; Mccright & Dunlap, 2011). While these studies focus on the rationale behind members of the American public supporting climate policy, there have been few studies on how states are addressing climate change or keeping it off the policy agenda (Fisher, 2006; Romsdahl et al., 2015; Yusuf et al., 2016) and even fewer looking at how national decision-making is taking place (Fisher, 2006). Fisher (2006) attributes the efforts to keep climate change off the policy agenda in state and the federal legislature due to natural resource extractions and dependence throughout the nation. Romsdahl et al. (2015) found that states who were initiating climate change mitigation planning were those who had experienced natural disasters associated with climate change firsthand. States with Republican representation in the Senate opposed climate policy (such as the Climate Stewardship Act) but similar opposition is not necessarily present in

state legislature legislatures (Yusuf et al., 2016). Previous opponents of climate change policy in the Republican party may be facing pressure from the increase in voters who want to see their representatives address these issues (Krosnick & MacInnis, 2020). Republican legislators may be open to compromise with older constituents who are anti-climate and newer constituents who want to see climate acknowledged by their policy-makers (Van Boven et al., 2018).

My research's contribution is theorizing the rationale behind policy-makers from the Democratic and Republican parties supporting climate policy. This rationale requires a wider theoretical foundation, specifically the multiple streams framework, to showcase its role in the policy-making process. This framework is reviewed below.

Theoretical Framework

I aim to study policy-maker rationale and agreement over key themes in their statements on policy for conservation of climate vulnerable ecosystems. I do this by deploying the framework of John Kingdon's multiple streams framework, which places *policy entrepreneurs* as key actors who advocate for a policy idea by investing their resources to see it enacted (Kingdon, 2003). In my study, *policy* entrepreneurs include actors such as members of civil society who dedicated time and resources to bipartisan coral reef legislation, whereas *political* entrepreneurs also dedicated time and resources to bipartisan coral reef conservation policy, but they have additional political power to advocate for these policies (lawmakers are included here) (Herweg et al., 2015). Issues are added to the policy agenda when these policy and political entrepreneurs hear about them in the news media, have a personal experience tied to that issue, or in popular culture, a process shaped by the ways that issues are subsequently seen as problems in these messages.

Kingdon suggests that for policy to be enacted, three streams must unite. These streams include 1) the *problem stream*, which includes how problems become prevalent in the views of lawmakers; 2) the *policy stream*, or how a policy is described or framed in messaging to address pressing problems; and 3) the *politics stream*, which includes how political processes and partisan dynamics play out to add or remove the topic on the policy agenda. The joining of these three streams occurs during a *policy window*, defined as an opportunity for a policy to materialize on the policy agenda (Zahariadis, 2007). I specifically study the multiple streams framework's problem stream, using mixed methods to analyze how decision-makers are messaging on conservation policies of climate vulnerable ecosystems. Where there is overlap in these messaging strategies, points of agreement can be determined, and theories on how contentious policies on climate can be added to future policy agendas.

I focus specifically on policy entrepreneurs in the problem stream, and the way that they use narrative stories and symbols to communicate on the issues they champion to get them onto the policy agenda (Stone, 2011). Symbols are ideas with an emotional impact that allow people to highlight one dimension of a problem while downplaying others (in my research, I construe reefs as a symbol which allows policy-makers to emphasize popular actions like conservation and downplay contentious ideas like climate change) (Zahariadis, 2007).

Policy-makers may use *ambiguity* in polarizing areas of policy to receive general acceptance (Walker et al., 2008). Kingdon defines ambiguity in policy-making processes as the way in which there are multiple ways to think about a problem. Deborah Stone defines ambiguity as a trait that enables skillful political actors to "clothe their behavior in different meanings" when placing policies on the policy agenda (Stone, 2011; 180). Ambiguity is found in the language in these coral reef bills, which describe climate change, while making the conservation

of climate vulnerable ecosystems an action that is more palatable to lawmakers who might reject more general climate mitigation policy outright. Others have found that words detached from their original definitions can be used in policy-making and political debate; such relevant words for climate policy have included resilience, human-accelerated changes, sustainability, among others (Ainsworth, 2020).

The use of symbols and ambiguity has been observed to be used to construct different interpretations about climate change, conservation, and environmental disasters (Bergquist, 2020; Floor et al., 2018). Bergquist examined how policy entrepreneurs used the ambiguity of affordability and feasibility for the National Flood Insurance Program to influence lawmakers to pass related legislation. Floor and colleagues found the ambiguity around the success of seagrass restoration was an observation rather than a source of conflict for lawmakers to direct funds to restoration and did not hinder policy action when policy entrepreneur stories were persuasive. These two studies are related to an idea I explore in this research: that there must be a level of *feasibility* to address a problem through policy (Pralle, 2009). I ask whether coral reef conservation (conservation of a climate vulnerable ecosystem) is the pathway that lawmakers perceive as feasible (facilitated through the use of symbols and ambiguity).

Previous studies have used the multiple streams framework to examine how policy entrepreneurs have successfully advocated for polarizing policies, such as government spending on climate change adaptation and mitigation (Ackrill et al., 2013; Brunner, 2008; Dolan, 2021; Garcia Hernandez & Bolwig, 2020; Goncalves & De Santo, 2021; Goyal, 2021; Jones, 2014; Llamosas et al., 2018; Messham & Sheard, 2020; Mintrom & Luetjens, 2017; Storch & Winkel, 2013; Yusuf et al., 2016). Beginning with the studies focused on policy windows, Ackrill and others (2013) outlined the importance for a policy window for policy change in complex

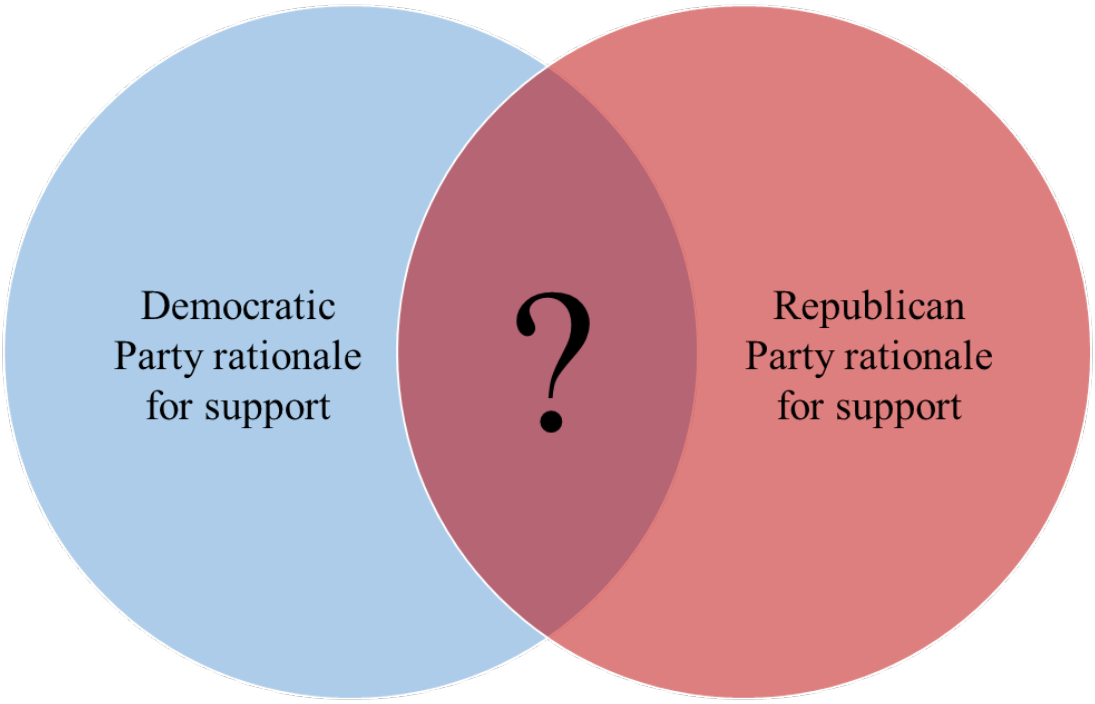
governance systems. Brunner (2008) employed the multiple streams framework to analyze the change in German emissions policy and identify a policy window. Jones (2014) examined why policy windows open for subnational governments in developed countries decided to implement climate change policies when their federal levels of government had failed to do so and what led to this policy change. Mintrom and Luetjens (2017) found that policy entrepreneurs for climate change policy often focus on problem-framing in effort to open a policy window, a focus which informs my own focus on the problem stream. The absence of a policy window, or gridlock, has been studied using the multiple streams framework to understand energy reform in Paraguay and the absence of variables in the three streams for a policy window to occur (Llamosas et al., 2018). Likewise, Yusuf et al. (2016) examined the lack of policy action regarding sea level rise in Virginia due to diverging perspectives from state level actors on the problem and disagreement on possible policy solutions.

Studies focused on policy entrepreneurs' roles in policy change include Dolan (2021), which refined the multiple stream framework to show that policy entrepreneurs could join the three streams over multiple opportunities to get a policy change in the context of a long-term extreme weather event. Garcia Hernandez and Bolwig (2020) used the multiple streams framework to show how policy entrepreneurs integrate climate change policy with other sectors and policies in the global South. Also on the issue of integration of policy, Storch and Winkel (2013) looked at two different regions of Germany to understand the extent that climate change was integrated into the regional forest policy and uncovered that policy entrepreneurs used scientific information to help with agenda-setting. Goncalves and De Santo (2021) provide guidance from their findings on how policy entrepreneurs can shift the policy agenda in the context of designating Marine Protected Areas. Goyal (2021) uses the multiple streams

framework to explain the lack of sustainable energy policy implementation in India and how a policy entrepreneur was able to use the three streams to open a policy window. Messham and Sheard (2020) examined the passage of a policy outlining actions for the whole federal government to achieve sustainability goals in Wales, showcasing the important work that policy entrepreneurs and local happenings play in the policy's passing.

Based on the extant literature, I have several expectations for the variation in rationale underpinning lawmakers supporting coral reef conservation policy in the Problem Stream of the multiple streams framework (Figure 1). I expect (1) Democrats and Republicans to have unique rationale that is to be expected due to party differences, but also I expect to find (2) some similarities in their rationale for supporting coral conservation policy. My research also examines alternative explanations for rationale underlying support for coral reef conservation bills including (1) the location of reefs and coastlines within the policy-maker's jurisdiction, (2) political party affiliation, (3) ideology, and (4) district competitiveness.

Figure 1: Expectations for similar and dissimilar messaging about bipartisan coral reef legislation by policy entrepreneurs varying by party identification



Methods and Data Collection

I have selected three cases of bipartisan coral reef conservation and I home in on the problem stream to see where there is overlap between Democrats and Republicans on rationale for support of these policies. According to Kingdon's work, understanding the problem stream enables us to understand how issues like coral reef conservation are added to and remain on the policy agenda. My research focuses on how policy entrepreneurs and political entrepreneurs are enacting a process called *problem definition*, or the process where they define the problem for a policy to address. For example, the media (policy entrepreneurs) may cover declining coral reef health and describe warnings from scientists on the impacts of climate change. These news

stories may influence legislators (political entrepreneurs) to prioritize policy aimed at coral reef conservation (Kingdon, 2003).

In addition to my inductive work to theorize rationale for bipartisan lawmakers support for conservation policy on climate vulnerable ecosystems, I are also testing several alternative explanations for this rationale/support. My quantitative analysis tests whether geography (e.g. legislators who represent jurisdictions with adjacent coral reefs), political party identification, ideology, and district competitiveness are determinants of support for coral reef conservation policy. Kingdon (2003) explains that there can be a geographical distribution in support for a policy decision due to incentives to satisfy constituents.

Research Design

This case study uses an exploratory sequential research design, where qualitative data is collected first, followed by quantitative analysis to further my understanding of qualitative results (Yin, 2009). The purpose behind exploratory sequential-design studies is that the qualitative findings can inform the quantitative model and in my case become a new theoretical framework for why lawmakers support coral conservation policy (Creswell & Plano Clark, 2018). I used qualitative methods to characterize the messages and themes that political entrepreneurs used to describe their rationale for supporting bipartisan coral reef conservation bills. Quantitative analysis of these statements examines 1) whether there were significant differences between Republicans and Democrats over the ways they framed the problem; and 2) whether support for these bills (i.e. cosponsorship and “yea” roll call votes) could be predicted by representatives’ jurisdictions being located in coastal zones and/or adjacent to coral reefs. Roll call votes occur when a representative or senator votes "yea" or "nay," so that the names of

members voting on each side are recorded, compared to voice votes which do not record the stance taken by individual members (U.S. Senate, 2021). Thus, the qualitative findings (how lawmakers defined the problem) informs the quantitative analysis (differences in message content across political parties and spatial/political party variables of interest). I added the spatial variables after recognizing that a compelling alternative explanation for support for coral reef legislation may come from the fact that congressional political entrepreneurs may live next to and therefore care more about coral reef ecosystems, regardless of political party or political ideology. Overall, I are theorizing why lawmakers cross party lines to support conservation legislation for climate vulnerable ecosystems. Understanding this rationale may help enact future bipartisan climate policy.

Qualitative Sampling Logic

To understand how policy entrepreneurs and political entrepreneurs discussed their rationale for supporting these bills (a process that I conceptualize as "defining the problem in the problem stream"), I collected all statements made on The Restoring Resilient Reefs Act, the Tropical Forest and Coral Reef Conservation Reauthorization Act, and the Offshore Wind for Territories Act. Statements were collected from the NexisUni Database, Congressional Record archive on congress.gov, and on the social media platform Twitter for statements made by relevant legislators, NGOs, and other members of civil society. I decided to include Tweets because it has been found that politicians use Twitter to advocate their political positions (Hemphill et al., 2013).

The final count of statements made by political entrepreneurs for the Restoring Resilient Reefs Act was *n=40*. When policy entrepreneurs were included, such as civil society, scientists, agency employees, private industry representatives, and NGO representatives, the total number of statements to *n=70*. I began this NexisUni search on February 24, 2020 by searching "restoring resilient reefs act" that yielded *n=53* results. Ten of these results contained multiple statements from congressional members, totaling 26 individual statements on the Restoring Resilient Reefs Act from 2019-2021. I checked the Congressional Record on congress.gov but there were not any statements made about the Restoring Resilient Reefs Act in the results. Coding began with Tweets made by legislators who cosponsored the bill, found with an advanced Twitter search for "restoring resilient reefs act" from all the Twitter accounts of the primary sponsors and original cosponsors.[35] This resulted in 13 Tweets to code using the same codes developed from the NexisUni database results and iteratively including any new codes into my codebook. A legislative committee hearing on the Restoring Resilient Reefs Act of 2021 was incorporated into the same dataset.[36]

The total number of statements for the Tropical Forest and Coral Reef Conservation Reauthorization Act for policy and political entrepreneurs was *n=32*. Using similar methods to code the Tropical Forest and Conservation Reauthorization Act, 17 documents containing *n=41* statements were collected from NexisUni for this bipartisan legislation.[37] Of these results, 31 were from political entrepreneurs with the remaining 10 being from policy entrepreneurs. Of these, nine documents contained direct statements about the policy, producing 28 individual

[35] Darren Soto, Charlie Crist, Tulsi Gabbard, Jenniffer González-Colón, Brian Mast, Stephanie Murphy, Aumua Amata Radewagen, Marco Rubio, Mazie Hirono, Brian Schatz, and Rick Scott.
[36] This hearing was held in the House Natural Resources Subcommittee on Water, Oceans and Wildlife Hearing on May 5, 2021. Statements were found on NexisUni for both congressional members and expert testimony.
[37] On April 26, 2021, I searched for ["tropical forest and coral reef conservation act"] on Nexis Uni.

statements on the Tropical Forest and Coral Reef Conservation Reauthorization Act from 2009-2021. I found one additional statement in the Congressional Record and three Tweets to include from the original cosponsors of all past bills.[38]

The Offshore Wind for Territories had a total of *n=35* results, with *n=33* statements from political entrepreneurs and *n=2* from a policy entrepreneur in the private sector. The same method was used for coding the Offshore Wind for Territories Act statements from relevant policy entrepreneurs.[39] I searched Twitter to find Tweets from all of the past cosponsors of this bill.[40] I searched congress.gov and added one document of statements from the Congressional Record for this policy.[41]

The combination of all of these messages from policy entrepreneurs brought the total number of messages to *n=235*. The total number of messages from political entrepreneurs in Congress was *n=697*. Both sets are mutually exclusive and analyzed separately to understand the difference in how policy and political entrepreneurs framed their messages.

[38] Representative Steve Chabot, Rep. Brad Sherman, Rep. Jeff Fortenberry, Rep. Eliot Engel, Rep. Christopher H. Smith, Rep. Raul M. Grijalva, Rep. Betty McCollum, Senator Rob Portman, Senator Richard Burr, Senator Sheldon Whitehouse, Senator Tom Udall, and Senator Brian Schatz.

[39] On May 10, 2021, I searched for "offshore wind for territories act" on Nexis Uni.

[40] Representative Darren Soto, Resident Commissioner Jenniffer González-Colón, Delegate Aumua Amata Coleman Radewagen, Delegate Gregorio Kilili Camacho Sablan, Delegate Stacey E. Plaskett, Senator Brian Schatz, and Senator Bill Cassidy.

[41] I used the terms "offshore wind for territories act", refined by searching "'offshore wind' for territories act", and finally searched for the H.R. bill identifier number in the Congress was introduced to find relevant results in the Congressional Record.

Qualitative Coding

For the initial round of qualitative coding, I employed what is known as *in vivo grounded theory coding*, a type of coding that draws on the speaker's own language to develop codes (Saldaña, 2016). This technique was important for understanding how respondents were defining the problem in the problem stream. My research's main interest lies in when and how policy entrepreneurs use the same language or focus on the same characteristics of the problem and propose how to address it through policy-making. Thus, in vivo grounded theory coding assures that the researcher has grasped these most important meanings (Charmaz, 2014). I completed three rounds of coding to (1) initially understand the perspectives of different speakers, (2) categorize those initial codes into discrete categories of the different ways policy entrepreneurs were advocating for these policies, and (3) break these categories down further into specific themes being used to frame these bills on either sides of the aisle. Each individual statement from each speaker received its own entry in the data sheet for each bill. I define an individual statement as those being offset by an indentation, and I chose to code those separately if the individual statements contained opinions with different meanings/emphases or were made at different points in time.

The initial round of coding took place in a word document via bolding important parts of the text (example in Table 1). Codes and their meaning were inventoried in an excel codebook after a process of iterative reviewing of the in vivo codes and an assembly of the initial language into a code of what the root of the statement's meaning was for all respondents (example in Table 2). The codebook included the name of the code, a 1–3 sentence description of the coded datum's qualities or properties, inclusion criteria, an example of data that best represented the

code, and possible categories for that code (Bernard & Ryan, 2010). All statements were coded across all three policies.

Following Cresswell's (2013) methods for "lean coding", the 23 initial codes were condensed into eight categories and five final themes. In instances of "fuzzy sets" where categories are discretely separate and some codes overlapped, initial codes were included in the counts and statistics for the categories and themes where overlap occurred (Saldaña, 2016). An example is the initial code for the "economic reality in developed countries" described as an issue of human security and economics in the transcript from policy entrepreneurs. Information saturation was reached for each policy, where I discovered no new information during analysis (Saunders et al., 2018).

Descriptive statistics were employed to analyze these qualitative findings. Frequency tables were constructed to observe the frequency/percentage each theme received for each case policy. One table includes all speakers in civil society (policy entrepreneurs) and the other includes messaging solely from legislators (political entrepreneurs). I examined the aggregate use of the major themes first, ascertaining patterns in use (e.g. most frequently used terms) by calculating population proportion divided by the total number of statements. Then to measure differences in thematic usage between parties, I used an independent, two-tailed, unpaired t-test to determine whether there were significant differences. I used an unpaired independent test since party identification variables are independent of each other and a two-tailed test to look at the differences between the two groups' messaging because no directionality was assumed.

Table 1: Initial in vivo grounded theory coding

Speaker	Party	State	Year	Statement	Codes
Marco Rubio	R	FL	2021	"I saw **the devastated condition** of my coral reefs firsthand when touring the **Florida Keys National Marine Sanctuary**, and I promised a comprehensive response," said Senator Marco Rubio.	Deteriorating quality/health of reefs; important location (FKNMS)
Darren Soto	D	FL	2021	"My Florida coral reefs are a **national treasure** that contain part of **the most diverse ecosystems on earth**," said Rep. Darren Soto. "We've witnessed how the effects of **climate change, overfishing, pollution and development** have threatened the vitality of coral reefs around my coasts.	National treasure; diverse ecosystem; climate change; stressors

Table 2: Initial codebook of in vivo codes for Restoring Resilient Reefs Act

Codes	Description	Inclusion	Example	Possible Category
Deteriorating quality/health of reefs	how reef ecosystems are faring, good and bad	how their vitality/health is viewed	"the devastated condition of my coral reefs firsthand"	Ecology; symbol
Importance of federal programs	highlighting how federal programs are being implemented or enhanced for restoration	mention of federal programs, funding, investments	"additional federal resources"	governance
Bipartisan	both parties support bill	any mention of bipartisanship or both parties	"important bipartisan bill"	governance
Bicameral	both chambers introduce companion bills	any mention of bicameral or both chambers	"I am hopeful that both the House and Senate can quickly pass this"	governance

Cross Scale collaboration	federal agencies working with state or local governments	any mention of cooperation between different levels of government	"ensure federal agencies are partnering effectively with state and local governments"	governance
Ecosystem services/green infrastructure	how reefs are contributing to human well-being and safety	any mention of ecosystem services, green infrastructure, coastal protection	"vital natural infrastructure that safeguards my coastal and island communities"	Ecosystem services; human wellbeing; social
Important location that holds meaning	a local or national location/monument	any kind of historical, cultural, or ecological location that holds meaning to humans	"blue Pacific from Hawaii Island to Midway Atoll"	Social; symbol
Ecological Importance	ecological function of reefs for supporting ocean life	mention of marine habitat, specific species, marine life, biodiversity, etc.	"protect aquatic habitats and support my marine life"	Ecology; symbol
State culture/identity	how legislators connect coral reefs to their home states/communities	any mention of state, way of life, quality of life	"Protecting coral reefs is inherent to protecting my way of life in Hawaii"	human wellbeing; social; symbol
National Treasure	if legislators view coral reefs as symbols for the nation	any mention of national treasure/symbol/icon	"My Florida coral reefs are a national treasure"	human wellbeing; social; symbol
Climate change	if climate change or its impacts are mentioned	any mention of climate change, global warming, increasing ocean temperatures, or ocean acidification	"Americans, particularly Floridians, are right to be concerned about the changing climate"	Ecology; hazards; human wellbeing
Stressors (other than climate)	if any natural or anthropogenic stressors other than climate change are mentioned	fishing, pollution, runoff, invasive species, development, etc.	"disease outbreaks, invasive species, coral bleaching, natural disasters, vessel groundings, hazardous spills"	Ecology; hazards

Large size/scale	coral reefs can cover large areas and have a large geographic scale in US waters	any mention of coral cover, large coral reef size, or the large spatial scale of US coral reefs	"in the Pacific to....the Atlantic"	Ecology; symbol
Extinction or Discovery of new species	coral reefs are endangered but there are still new discoveries of species being made; paradox	any mention of endangered, extinction, or threatened and the mention of new species or discoveries about reefs	“Ocean warming and acidification have pushed my corals to the brink of extinction” "scientists are finding new species regularly"	Ecology; symbol
Hazards	hazards relate to human related disasters and recovery	mention of destruction of communities or risks relating to human wellbeing	"prolonged effort to increase resiliency and mitigate risk"	human wellbeing; social; symbol; hazards
Economy	how preserving coral reefs relates to my nation's economy	any mention of the economy	"to increase investments in my environment"	Economy; ecosystem services
Research	scientific research on conservation/restoration or preservation of reefs	any mention of scientific research	"This bill supports the programs that lead this exciting research"	Ecology; human wellbeing
Urgency	legislators use strong language to promote the urgency for protection	any emotional words that convey the urgency of the threat to coral reefs	"I can save them if I act now"	human wellbeing; social; symbol
Community-based management programs	some legislators emphasize the need to give resources for the states/local organizations to do the work	any mention of giving money to the local organizers without any indication of working with the feds	"local governments and community organizations that are in the water right now"	governance
Legacy	legislators use emotional language to talk about future generations and passing down these symbols	any mention of future generations, passing down this monument, the fact preservation should never expire	"make sure future generations can enjoy"	human wellbeing; social; symbol

Tourism	tourism is one of the largest uses of coral reefs in the US and supports local communities directly	any mention of tourism or people visiting reefs	"People from across the world come to Florida because of the state's natural beauty"	Economy; ecosystem services; human wellbeing
Coral reef emergencies	there is a specific provision in the bill for "coral reef emergency" funds in face of a disaster	any mention of coral reef disaster or emergency, or a rapid response to them	"emergency funds to address coral reef emergencies"	Urgency; human wellbeing
Ambiguity	ambiguity in terms used to describe restoration	resilient, adaptation, mitigation, innovation, modernization, restoration, preservation, etc.	"support for reef resilience"	Ambiguity; social; symbols

Quantitative logistic model

The overall goal of my research is to theorize rationale for decision-maker support for climate policy, using policy for conservation of climate vulnerable ecosystems as a multiple case example. To account for alternative explanations for rationale behind lawmaker support, a quantitative model was necessary to analyze competing explanations for support of coral reef policies. I compiled a dataset focused on whether a legislator supported any bipartisan coral reef legislation by cosponsorship or voting in the House of Representatives for all history. I chose to focus on the House of Representatives for my logistic regression analysis because of their higher dependence on messaging due to their shorter election cycles than the Senate (Lee, 2016).

The first bipartisan bill meeting the criteria for inclusion was introduced in the 101st Congress and the last in the 117th Congress; thus the time frame for the model included 1988-2021. Using an excel spreadsheet of each member of the House from 1988 to 2021, I coded whether they represent a *coastal state* or a state with coral reefs adjacent to its shoreline (*coral*

reef state) as binary variables (Table 3). I created a second variable covering which *political party* the lawmaker belonged to, either Democratic or Republican.[42]

Variables for the political *ideology* of congressional representatives were included based on NOMINATE scores. NOMINATE scores are a measure of ideology based on roll call votes in Congress with lower scores denoting more liberal ideologies and higher scores denoting more conservative ideologies, thus assuming members' preferences are fixed throughout the course of their career (Lewis et al., 2019). The first dimension (*Ideology 1*) captures economic issues and the second dimension (*Ideology 2*) captures social issues.

Following Harbridge's (2009) rationale for not relying solely on roll call votes to measure bipartisanship, I also measure *cosponsorship,* a concept that allows us to see whether a lawmaker attached their name to a piece of legislation. This is also important to include because some of these coral reef policies never move forward through committees or pass without a recorded roll call vote. Without a vote, cosponsorship is the only opportunity members have to officially document their position on the issue. Cosponsorship data has previously been used by other researchers to measure ideological positions on bills (Goodliffe et al., 2005; Koger, 2003; Krehbiel, 1995).

Another potential reason why a previous opponent to climate policy is supporting conservation bills for a climate vulnerable ecosystem is because they're politically vulnerable. To tease these patterns out, I included a variable called *competitiveness*, which measures a lawmaker's vulnerability by looking at the Democratic share of the two-party vote in each of the

[42] For the purposes of this research, Rep. Bernie Sanders (VT-I) was coded as a Democrat given his history of caucusing with the party, his seeking the party's nomination for the presidency, and current leadership position within the party..

last three presidential elections. I chose to use the presidential vote instead of the individual member's votes to measure electoral competitiveness of the district. The member's vote share is more reflective of their popularity in the district than the underlying partisan distribution (Fair, 2009). Since House elections occur twice as often as presidential elections, I entered the value for vote share for the most recent past election (i.e. 2016 presidential vote share for members elected in 2018). Mayhew (1974) conceives of members of Congress as single-minded seekers of reelection. Regardless of other goals they may have (such as crafting good policy or accruing power and prestige), none can be realized without first winning reelection. As such, members engage in advertising, position taking, and credit claiming. With respect to bipartisan coral reef policy, I expect legislators to cosponsor and vote in favor of these policies when they facilitate the member's reelection goals. In more competitive districts, members will want to distance themselves from leadership and cross the aisle in order to present themselves as more acceptable to constituents from the opposite party (Mayhew, 1974).

To build the dataset for my model, I used congress.gov and used the search term "coral reef" and went through each bill; I chose to exclude resolutions, concurrent resolutions, joint resolutions, and amendments since there is less political significance to supporting these types of legislation. After this filter, a total of 183 results were presented, 55 fit the five-part criteria I developed for the model. Bills were included if they 1) enabled the federal government to do something on the coral reef resource itself for conservation, 2) further a federal program, 3) further ideas or science for reef conservation as a main component, 4) address stressors that directly affect reef ecosystems, and (5) had at least one cosponsor each from each political party. An example of this is H.R. 4900 Oceans Conservation, Education, and National Strategy for the 21st Century Act that would maintain programs for the restoration of marine and freshwater

resources through ecosystem-based management. All three cases I focused on for the qualitative analysis are included. These bills, their purpose, and their latest status are in Appendix D. All data included all original sponsors, cosponsors, and roll call votes for final passage on bills related to reefs from 1988-2021.[43]

Analysis was conducted in RStudio (code is included in Appendix E) to determine whether (1) a vote for reef-related bill(s) or (2) (co)sponsorship for reef-related bill(s) could be predicted by the x-variables coastal state, coral reef state, political party, ideology, and competitiveness (more detail on these variables in Table 3).

Table 3: X-variables to predict roll call votes or cosponsorship for coral reef conservation bills

X-variable	Type	Description
Political Party	factor	Whether representative is a Democrat (1) or Republican (0)
Ideology 1	number	Nominate score; these are fixed across people and completely independent of district. The measure is based on the votes a member takes. The first dimension captures economic issues.
Ideology 2	number	Nominate score; these are fixed across people and completely independent of district. The measure is based on the votes a member takes. The second dimension captures social issues.
Coastal State	factor	Whether member represents a coastal state (1) or not (0)
Coral Reef State	factor	Whether member represents a state with coral reefs (1) or not (0)
Competitiveness	number	Measures their competitiveness by looking at the Democratic share of the two-party vote in their respective previous presidential elections

[43] Data collection ended July 1, 2021 and does not include any subsequent bills that would fit the criteria that were introduced after this date.

FINDINGS

Qualitative results from grounded theory

This section examines qualitative data on lawmaker messaging for their rationale for placing coral reef legislation on the policy agenda within the problem stream. My results show that policy entrepreneurs focus on five major themes: governance, human well-being, economics, ecosystem function, and symbolism (Table 4).[44] Using inductive reasoning and grounded theory enabled us to understand how respondents were talking about the problems that underpin the solution: coral reef conservation policies. These five themes are the concepts that policy entrepreneurs found to be the most important. I use them as a proxy for their rationale for support, which may not be stated directly but implied through messaging.

Rationale for decision-maker support for coral reef policy begins with the theme of governance, which has two types of messages or subcodes (as seen in Table 4). The first subcode, public administration, focuses on the political processes of enacting and implementing coral conservation legislation. This includes federal agencies' authority to protect reefs and implement policies such as Republican Florida Senator Marco Rubio announcing the Restoring Resilient Reefs Act is a "comprehensive response" from the federal government to attend to the deteriorating condition of reefs in Florida (Targeted News Service, 2020). An example statement of the need for bipartisan and bicameral congressional lawmaking in Congress within the public administration subcode is as follows: "this bipartisan, bicameral legislation is key to reauthorizing existing federal programs and continuing the desperately needed programs halting

[44] Before unpacking this data, it is important to remind the reader of the distinction I draw between policy entrepreneurs and political entrepreneurs. Policy entrepreneurs were members of civil society who dedicated time and resources to bipartisan coral reef legislation, whereas political entrepreneurs dedicated time and resources to bipartisan coral reef conservation policy, but they have additional political power to advocate for these policies as decision makers in government (Herweg et al., 2015).

the deterioration of coral reef[s]," by Democratic Florida Representative Darren Soto (U.S. Representative Darren Soto, 2021). This demonstrates the importance within American coral reef conservation policy of the process of congressional authorization to fund the federal agencies that enact coral reef conservation. The public administration subcode also provides evidence that to enact reauthorization of coral conservation legislation, there is some rationale whereby decision-makers are looking for opportunities to be involved in cross-party work in the House and the Senate. In other words, bipartisan, bicameral policy is a type of action that some legislators seek out as a political accomplishment.

The second subcode within the theme of governance focused more on the specific institutional framework for managing coral reef resources at different scales. An example of this from the data is decision-makers emphasizing the prioritization of community-based institutions for conservation versus centralized institutions with all involvement and mandates coming from the federal government. An example from the Offshore Wind for Territories Act, which Republican Puerto Rico Congresswoman Jenniffer González-Colón champions, is the fact that the "dedicated fund for coral reef conservation and a direct portion of this offshore wind revenue [would return to] the local community" to determine how it should be used for coral reef conservation activities locally (House Natural Resources Subcommittee on Water, Oceans and Wildlife Hearing; The Transformation of the Puerto Rico Electric Power Authority (PREPA), 2020). Congresswoman González-Colón highlights the significant amount of attention paid to empowering local-scale institutions to manage coral reefs at the community level, signaling community-based coral reef management as a policy priority for Congress. The subcode of institutions was present in the statements emphasizing the importance of coral reef conservation in international conservation agreements. Republican Ohio Congressman Steve Chabot, one of

the original cosponsors of the Tropical Forest Conservation Act, argued "it is in the interest of the whole world to protect and responsibly manage both tropical rainforests and coral reefs," which shows the importance of not just financing coral reef conservation at home, but also in an international setting (*Congressional Record*, 2021). This shows that Congress sees domestic and international financing of coral reef conservation projects as falling within its wheelhouse.

The second major theme is that of human well-being, defined as ensuring communities have equitable access to the building blocks for a "good life" in terms of health, societal, ecological and monetary needs (Millennium Ecosystem Assessment, 2003). This theme had two subcodes, human security and natural hazards (Table 4).[45][46] A representative quote for the human security code is as follows: "The Restoring Resilient Reefs Act will provide us access to additional federal resources to restore and protect my coral reefs, which will in turn strengthen ongoing recovery and reconstruction efforts" in Puerto Rico after the landfall of Hurricanes Maria and Irma in 2017 (U.S. Representative Darren Soto, 2021). These two catastrophic storms hit Puerto Rico within weeks and destroyed the entire island's power grid, leading to many residents without access to electricity or water for months after the storms (RAND, n.d.). This quote was representative of the way that decision-makers saw coral reef conservation as a strategy for climate adaptation to climate impacts such as the ever-increasing intensity of tropical storms. Another quote by Congresswoman Jenniffer González-Colón emphasizes the issue of natural hazards on Puerto Rico because the "The Restoring Resilient Reefs Act would provide the necessary assessment, reporting, and funding needed to ensure rapid response to help protect

[45] The safety of individual possessions and access to resources from disasters (Millennium Ecosystem Assessment, 2003).
[46] Natural processes that may negatively impact societies and natural ecosystems (Millennium Ecosystem Assessment, 2003).

vulnerable coral reefs in the event of another natural disaster" such as the past few disastrous hurricane seasons (United States Senator Marco Rubio, 2019).

The third theme from my data was economics, which had the two subcodes of economic development of communities and how ecosystem services of coral reefs benefited communities financially (Table 4). A representative example of the economic development subcode includes statements made by lawmakers in support of the Tropical Forest and Coral Reef Conservation Act to aid target countries by "[helping] reduce the debt in these developing countries, lessening fiscal pressures, promoting capital market reforms, and stimulating economic growth while helping to protect the environment" according to Democratic Texas Congressman Joaquin Castro (*Congressional Record*, 2021). Lawmakers saw benefits to combining economic growth policies (debt restructuring) with conservation. Messages using the ecosystem services subcode emphasize the benefits humans receive from reefs, focusing mainly on the way they protect human settlement. This focus can be seen in this representative quote by Republican Delegate Stacey E. Plaskett from the U.S. Virgin Islands who emphasizes that "healthy, resilient coral reefs safeguard against severe weather, shoreline erosion and coastal flooding" in nearby communities (U.S. Representative Darren Soto, 2021). Ecosystem services have some overlap with the natural hazards subcode for human well-being. It is important to note that my data shows that lawmakers perceive the wide array of benefits humans draw from ecosystems, ranging from protecting us from extreme weather to other services such as tourism revenue.

The theme of ecosystem function was coded for in statements that focused on conserving coral reefs for ecological reasons only. The ecosystem function theme coded statements focused on the intrinsic value of reefs, rather than the benefits that they provide to humans encapsulated by the ecosystem services subcode (Landell-Mills & Prorras, 2002). One important emphasis

here was on the importance of “conserving biodiversity in coral reef ecosystems” highlighted by Lynn Scarlett, Chief External Affairs Officer for The Nature Conservancy (Impact News Service, 2020). Biodiversity is defined as the variability among living organisms in the terrestrial and marine realms, including diversity within species, between species, and of ecosystems" (CBD, 2006). Another important emphasis within this theme was placed on potential scientific research outcomes, such as “discoveries have shown that coral resilience can depend on the tiny microbes that live within corals, helping them to stay healthy in response to stress” in the face of their climate vulnerability (House Natural Resources Subcommittee on Water, Oceans and Wildlife Hearing; H.R.160, the "Restoring Resilient Reefs Act of 2021.", 2021a). In sum, science and biodiversity conservation are two concepts contained within the rationale, distinguishable from other benefits of reefs which accrue to humans.

The symbolism theme included any use of coral reefs as symbols, defined as when policy-makers use coral reefs to highlight one dimension of a problem, such as a changing climate, while downplaying others (such as the need to act on climate change mitigation) (Stone, 2011). The symbolic nature of coral reefs, and their popularity, are an ideal point of focus for lawmakers who, because of partisan politics, may be unable to speak directly about climate change and may instead opt to focus on climate vulnerable ecosystems. Most speakers who employed the theme of symbols did so in order to use coral reefs as a symbol of a particular U.S. state. Additionally, speakers mentioned local places of high cultural importance and meaning. For example, Senator Marco Rubio provides a description of the Florida Reef Tract as “an integral component of the economic and ecological character of Florida” (United States Senator Marco Rubio, 2019). Rubio’s statements were representative, saying that reefs are, in effect, synonymous with the state of Florida. This is referencing the importance of the diving and

snorkeling tourism in Florida, which has been estimated to generate billions of dollars annually from thousands of visitors a year (Wynveen et al., 2013). Other lawmakers saw reefs as a symbol of the obligation that I have to bequeath nature to future generations, such as Republican Florida Senator Rick Scott's statement that the significance of legislation is to "make sure future generations can enjoy all that Florida has to offer" in terms of coral reef resources (United States Senator Marco Rubio, 2019).

The theme of ambiguity was coded in legislator statements whenever a legislator used rhetoric to make it hard to understand their true position when advocating for policies (Stone, 2011). Instances of ambiguity were coded for in situations where climate change is described as a problem, but without the explicit mention of the term "climate change". This code often appeared as reference to the "importance of decreasing carbon emissions" and in reference to the "human impacts on coral reefs" (Rubio, 2019; Congressional Record, 2021).

Table 4: Steps of evolving in vivo codes into core themes

Initial Codes	Description	Category	Theme
Importance of reauthorizing federal programs, Bipartisanship, Bicameral, Cross scale collaboration in government, Partisan values, Support from the Treasury and State Departments, Bureaucratic processes, International government collaboration, U.S. foreign policy, U.S. Territory political status, Self-determination of U.S. Territories in U.S. policy, Territory inclusion in federal laws, "Win-win" bill	Mention of political atmosphere, partisanship, government actions, political processes, or political jargon	Public administration	Governance

Community-based management, Proven results of federal programs for ecosystem restoration, Size/spatial success of federal programs, Federal management of natural resources, Global responsibility to protect natural resources, Global conservation efforts	Mention of actual management strategies or actions, conservation actions, or success in management	Institutions	Governance
Global Responsibility to Protect Natural Resources, Modernized Energy Infrastructure, Energy Security, Energy Independence, Limited on-island Development of U.S. Territories, Economic Realities of Developing Countries, Creating Jobs, Affordable Energy	Mention of management for the sake of human communities other than ecosystem services	Human Security	Human Well-being
Climate Change, Stressors (Other Than Climate), Coastal Hazards, Urgency, Coral Reef Emergencies, Coastal Resiliency, Reducing Environmental Impacts	Mention of hazards related to coral reef ecosystems and the communities they support	Natural Hazards	Human Well-being
Ecosystem services, Green infrastructure, Critical ecosystem, Renewable energy, Coastal resiliency	Mention of direct services coastal ecosystems provide	Ecosystem Services	Economics
Economy, Tourism, Local economic development, Economic realities of developing countries, Creating jobs, Affordable energy, Private investment participation, Revenue sharing, No additional costs to taxpayers, Energy independence, Energy development, Limited on-island development of U.S. Territories, Proven monetary results of Federal Programs, Coral reef conservation funding	Mention of any economic developments or success through these programs, including funds for coral reef conservation	Economic Development	Economics

Ecological importance (marine life, biodiverse habitat, critical ecosystem, endemism), Size/scale of reefs, Extinction/new species discovered, Protecting coral reefs, Research, Deteriorating quality/health of reefs, Vulnerable reefs, Reducing environmental impacts	Mention of the ecosystem functions of reefs or their physical characteristics and how these are impacted by hazards above or programs mentioned	Ecosystem Function	Ecosystem Function
Deteriorating Quality/Health of Reefs, Vulnerable Coral Reefs, Important Locations, State Culture/Identity, National or Natural Treasures, Legacy to pass down to future generations	Mention of coral reefs as symbols for ecosystem health or national landmarks	Symbolism	Symbolism
Ambiguity	When political actors "clothe their behavior in different meanings" and don't offer clear definitions of what the problem the policy addresses (Stone, 2011; 180).	Ambiguity	Ambiguity

Aggregate Analysis of Qualitative Themes

Of the five themes, the three most commonly used were governance (in 30.5% of statements), economics (in 21.7% of statements), and human well-being (in 17.8% of statements) (Table 5). Broken down between the different types of speakers, the same pattern emerged among political entrepreneurs (e.g. lawmakers with decision making power) where the three most commonly used themes were governance (26.3% of statements), economics (21.3% of statements), and human-wellbeing (15.5% of statements) (Table 6). Among policy entrepreneurs (those who influence policy but do not have decision making powers) the three most commonly used themes were governance (29.4% of statements), ecosystem function (22.1% of statements), and a near tie for the third with economics (at 18.0%) and human well-being (at 18.3%) (Table 7). This suggests that lawmakers themselves are not using ecosystem function in their messages on policy rationale, but members of civil society are. This also suggests that science and biodiversity conservation are more important to civil society and less important to lawmakers, who construct their rationale for policy support differently. For the other themes (governance, economics, and human well-being) these concepts are used frequently by all speakers, suggesting these themes are the common rationale for policy-makers supporting coral reef conservation policy (Table 5).

The most common way that the governance theme was used in my data is on the need to foster grassroots management institutions, specifically community-based coral reef management. A representative statement includes the idea that "federal resources to the local governments and community organizations that are in the water right now working to restore my reefs" are needed, according to a statement by Democratic Hawaii Senator Brian Schatz about the importance of funding community-based management for reefs in the U.S. (United States

Senator Marco Rubio, 2019). The most common way that the economics theme is represented in my data is in the following statement from Senator Marco Rubio on the importance of the tourism economy in Florida: “A resilient Keys coastal environment will continue to be an international destination for those seeking world-class fishing, diving, boating, snorkeling and swimming” (Rubio, 2019). The most common way that the human well-being theme is seen in my data is the following statement from Democratic Representative Ed Case from Hawaii: “Healthy coral reefs serve as vital natural infrastructure that safeguards my coastal and island communities by acting as a buffer against severe weather and shoreline erosion and serve as natural breakwaters for maritime ports and harbors” (U.S. Representative Darren Soto, 2021).

An important theoretical difference was found in how policy entrepreneurs and political entrepreneurs employed the theme of ecosystem functions, whereby lawmakers used ecosystem functions (e.g. ideas of biodiversity, scientific research potential, and intrinsic value of nature) less in their rationale than NGOs and others (Table 7 and 8). An example of the way that policy entrepreneurs used ecosystem function can be seen in the following statement: “coral reef ecosystems play an outsized role in the health of my ocean; they occupy less than one percent of the planet's surface area but support an estimated 25 percent of all marine species” (House Natural Resources Subcommittee on Water, Oceans and Wildlife Hearing; H.R.160, the "Restoring Resilient Reefs Act of 2021.", 2021b). In my data, policy entrepreneurs came from NGOs such as the Ocean Conservancy, World Wildlife Fund, and universities. These organizations’ focus on ocean science and research may explain why their focus was on ecosystem functions.

The theme utilized the least was ambiguity, but that may be due to the fact that ambiguity entails the coder inferring and understanding the intentions of the speaker, meaning there needs to be some intention to obscure meaning that may not come out using secondary data (Table 8). As a reminder, ambiguity means using obscure and ill-defined language, which allows political actors to cover up their true policy preferences (Stone, 2011). Perhaps my definition of ambiguity was too narrow, and the data source not reliable for counting and analyzing ambiguity in messaging. This often included legislators referring to the need to address carbon emissions, but not defining why they were a problem (human-made causes) or what they impacted (global ecosystems under climate change) (*Congressional Record*, 2021).

Table 5: Frequency of themes for all policy and political entrepreneurs

Theme	Count	Total Statements (*n*)	Frequency
Ecosystem Function	111	932	11.9%
Economics	202	932	21.7%
Governance	284	932	30.5%
Human Well-being	166	932	17.8%
Symbolism	146	932	15.7%
Ambiguity	23	697	3.3%

Table 6: Frequency of themes for all political entrepreneurs in public statements with difference of proportions p value for a difference of proportions test between the sample proportion and true population proportions

Bill	Ecosystem Function	Economics	Governance	Human Well-being	Symbolism	Ambiguity
Frequency of theme across all 3 case policies (total statements coded *n=697*)	7.6% *n*=53	21.3% *n*=149	26.3% *n*=183	15.5% *n*=108	14.6% *n*=102	2.8% *n*=20
Frequency of theme in Offshore Wind for Territories Act Data (total statements coded *n=697*)	2.6% *n*=18	16.1% *n*=112	7.7% *n*=54	8.2% *n*=57	3.0% *n*=21	0.6% *n*=4
Frequency of theme in Tropical Forest and Coral Reef Conservation Act Data (total statements coded *n=697*)	8% *n*=5	1.1% *n*=8	1.0% *n*=68	1.9% *n*=13	2.0% *n*=14	0.9% *n*=6
Frequency of theme in Restoring Resilient Reefs Act Data (total statements coded *n=697*)	4.3% *n*=30	4.2% *n*=29	8.8% *n*=61	5.5% *n*=38	9.6% *n*=67	1.4% *n*=10

Table 7: Frequency of themes for all policy entrepreneurs in public statements with difference of proportions p value for a difference of proportions test between the sample proportion and true population proportions

Bill	Ecosystem Function	Economics	Governance	Human Well-being	Symbolism
Frequency of theme across all 3 case policies (total statements coded *n=235*)	22.1% *n*=52	18.0% *n*=42	29.4% *n*=69	18.3% *n*=43	16.2% *n*=38
Frequency of theme in Offshore Wind for Territories Act Data (total statements coded *n=235*)	0.0% *n*=0	1.7% *n*=4	1.7% *n*=4	1.3% *n*=3	0% *n*=0
Frequency of theme in Tropical Forest and Coral Reef Conservation Act Data (total statements coded *n=235*)	3.8% (p=.921) *n*=9	2.6% *n*=6	14.0% *n*=33	2.1% *n*=5	1.7% *n*=4
Frequency of theme in Restoring Resilient Reefs Act Data (total statements coded *n=235*)	18.3% *n*=43	13.6% *n*=32	13.6% *n*=32	14.9% *n*=35	14.5% *n*=34

Differences in themes between political parties

I also analyzed the significant differences between thematic use between Democrats and Republicans (Table 8). I found there to be statistically significant differences between the frequency with which political entrepreneurs used the theme of economics in their messaging (Democrats 9.7% of messaging, Republicans in 13.3% of messaging, p-value 0.02). Republican messages used economics more to justify rationale behind policy support. Republican Ohio Senator Rob Portman provides an example of this when he focuses on American jobs and markets, saying: "I haven't lost a single American job through [the Tropical Forest and Coral Reef Conservation Act]. In fact, we've helped developing countries by improving their balance sheet through these debt-for-nature swaps" (At Committee Meeting, Portman Highlights Effectiveness of Tropical Forest and Coral Reef Conservation Program, 2021). This shows that economic benefits are an important rationale for Republicans to support a given policy.

I also found there to be significant differences between the frequency with which political entrepreneurs used the theme of human well-being in their messaging (Democrats 11.4% of messaging, Republicans in 8.1% of messaging, p-value 0.03) (Table 8). Democrats used human well-being more than their Republican counterparts to communicate their rationale behind their support of coral reef conservation policy. Representative statements focused on human communities benefiting from healthy ocean environments. An example is found in the way that Democratic Hawaii Senator Mazie Hirono affirmed the Restoring Resilient Reefs Act as " a step in the right direction to ensuring that communities that depend on healthy oceans, like those in Hawaii, have the resources they need for protecting coral reefs" (United States Senator Marco Rubio, 2019). This shows that linking ecosystems and human well-being is an important rationale for Democratic lawmakers.

Several themes did not have significant differences between their frequency of use between Democrats and Republicans, themes that I argue are points of agreement between the two parties (Table 8). The themes of governance, symbolism, ecosystem function, and ambiguity saw no significant differences in frequencies of use. The theme of governance was the theme used most frequently among the themes and is therefore the most important point of agreement. Governance did not have a significant difference in its use between Democrats and Republicans (Democrats 16.7% of messaging, Republicans 15.9% of messaging, p-value 0.34). Representative statements from Democrats and Republicans tout their ability to work with members of the opposition party as a legislative accomplishment. Both Republican Steve Chabot and Democrat Joaquin Castro for instance affirm the importance of bipartisanship in the context of the Tropical Forest and Coral Reef Conservation Act (*Congressional Record*, 2021). Representative Chabot asserted that it was "bipartisan legislation that really [did] benefit the whole world" while Representative Castro highlighted the bipartisan support behind the bill, with the hope that his "colleagues, both Republican and Democrat, [would] join [him] in supporting this bill" (*Congressional Record*, 2021).

Another aspect of governance that contained shared messaging focused on the importance of policies that provide federal funding for local-scale communities to enact their own conservation efforts through community-based coral reef management institutions. A representative statement from Republican Senator Marco Rubio includes: "[These policies exist] so states and impacted communities can drive priorities and management of coral reef ecosystems" (Rubio, 2019). Democratic Senator Brian Schatz from Hawaii also emphasized the importance of "participatory community-based management" (United States Senator Brian

Schatz, 2019). This suggests that the bipartisan vision of the future of coral reef conservation policy in the U.S. is focused on community-based coral reef management.

Less frequently used themes on aggregate without significant differences between political parties include symbolism, ecosystem functions, and ambiguity (Table 8). The theme of symbolism did not have a significant difference in the frequency of its use between Democrats and Republicans (Democrats 7.1% of messaging, Republicans 6.4% of messaging, p-value 0.62). This is highlighted in the importance of conserving coral reef ecosystems as iconic national symbols to safeguard for future generations, as was said by Republican Senator Marco Rubio, Republican Senator Rick Scott, Democrat Representative Darren Soto and Democrat Representative Mazie Hirono (United States Senator Marco Rubio, 2019). The theme of ecosystem functions did not have a significant difference in the frequency of its use between Democrats and Republicans (Democrats 4.5% of messaging, Republicans in 4.4% of messaging, p-value 0.46). This is likely due to the fact it was not used frequently overall by political entrepreneurs, but when in use, focused solely on the broad importance of "the need to restore and preserve my natural resources, including reef ecosystems" (United States Senator Marco Rubio, 2019). The theme of ambiguity was rarely utilized, and it did not have a significant difference in the frequency of its use between Democrats and Republicans (Democrats 1.3% of messaging, Republicans in 1.9% of messaging, p-value 0.42).

In sum, the rationale for coral reef conservation policy-making includes governance (or the political processes for enacting legislation and the actual agencies responsible for subsequent conservation); economics (or the financial and monetary benefits that accompany coral reef conservation); and human well-being (or the improvements to quality of life that come with coral reef conservation efforts). Of these themes, Republicans use economics more than Democrats to

communicate on policy rationale for coral reef conservation. In contrast, Democrats use human well-being more than republicans. Democrats and Republicans use the theme of governance equally frequently, suggesting that communicating the details of how coral reef conservation happens (agencies, programs, etc.) are important to both parties, and that coral reef conservation is an issue that they claim as a bipartisan victory to their constituents. Lawmakers' major focus in terms of governance focused their concerns on bipartisan activity, public administration (e.g. reauthorizing federal programs and bipartisan actions for their own sake), and institutions (e.g. implementing new community-based or federal conservation programs). Coral reefs give lawmakers from both parties the ability to claim that they work well together, by collaborating on conservation policy. Lawmakers also share a vision on the rising importance of community-based management efforts.

I found one key difference between the themes used by policy entrepreneurs (no lawmaking authority) vs. political entrepreneurs (lawmakers). Policy entrepreneurs used the idea of ecosystem functions more, suggesting that they are able to focus on the science (e.g. biodiversity, habitat conservation, coral diseases, and vulnerability) more than lawmakers.

Table 8: Differences in use of themes between Democrats (blue) and Republicans (red)

	Ecosystem Function		Economics		Governance		Human Well-being		Ambiguity		Symbolism	
Number of times party used code	21	38	45	115	78	137	53	70	6	16	33	55
Total messages using this code	59	59	160	160	215	215	123	123	22	22	88	88

% Code used in all party messages	4.5%	4.4%	9.7%	13.3%	16.7%	15.9%	11.4%	8.1%	1.3%	1.9%	7.1%	6.4%
t-score	-0.09		2.04		-0.41		-1.88		0.81		-0.49	
p-value	0.46		0.02**		0.34		0.03**		0.42		0.62	

****Significance at the α=0.01*
***Significance at the α=0.05*
**Significance at the α=0.01*

Quantitative results from logit model

Beyond policy and political entrepreneur rationale, there may be alternative explanations for rationale/support of coral reef conservation policy. This subsection tests several competing explanations to provide a more thorough theory of why policy and political entrepreneurs place coral reef conservation policy on the agenda. I implemented a logistic regression model to understand what variables could explain why legislators in the House of Representatives cosponsor or vote for bipartisan coral reef legislation.

My first model predicts the likelihood of a lawmaker cosponsoring coral reef legislation. As a reminder, cosponsorship is when legislators publicly support a bill by adding their name to it. Statistically significant variables predicting cosponsorship for bipartisan coral reef legislation in the House of Representatives included: (1) whether a lawmaker was from a coastal state (*coastal state*), (2) whether a lawmaker was from a coral reef state (*coral reef state*), (3) political party identification (*political party*), (4) a measure of ideology (*ideology*), and (5) competitiveness of elections in that district (*competitiveness*) (Table 9). In terms of geography, lawmakers from districts with coastlines and lawmakers from districts with coral reefs in their waters were more likely to cosponsor legislation, which stands to reason as these issues are more salient to their jurisdiction and constituents. Democrats were the party more likely to cosponsor

coral reef legislation. Ideology (measured based on nominate scores based on the votes a member takes) were also significant, meaning liberal representatives were more likely to cosponsor coral reef legislation. Likewise, competitiveness, (measured by democratic share based on previous presidential elections) meant that a lawmaker was more likely to cosponsor coral reef conservation policy.

Table 9: Results of logistic regression for cosponsorship

Coefficients	β	SE	Z-value	P-value
Political Party	-0.632	0.239	-2.646	0.008***
Ideology 1	-2.540	0.322	-7.898	0.002***
Ideology 2	-0.690	0.126	-5.485	4.13e-08***
Coastal State	0.335	0.080	4.169	3.06e-05***
Coral Reef State	1.828	0.113	16.214	< 2e-16***
Competitiveness	-0.011	0.004	-2.814	0.005***
Intercept	-1.451	0.259	-5.611	2.01e-08***

****Significance at the α=0.01*
***Significance at the α=0.05*
**Significance at the α=0.1*

My second model predicts the likelihood of a lawmaker engaging in a roll call vote for coral reef legislation. As a reminder, a roll call vote in Congress is when the names of congressional members voting "yea" or "nay" are recorded, which provides evidence of the

policies representatives support even if they are not eventually passed and become laws compared to voice votes which do not record the stance taken by individual members (U.S. Senate, 2021). Variables that predict roll call votes for bipartisan coral reef legislation in the House of Representatives include (1) political party identification, (2) long-term ideology, and (3) competitiveness as statistically significant variables (Table 10). For political parties, Democrats were more likely to cosponsor legislation. Likewise, Democratic share, defined as a measure of competitiveness, also meant that a lawmaker was more likely to cosponsor coral reef conservation policy. This finding shows that competitiveness within a legislator's district is a reason they are more likely to vote for conservation policies for climate vulnerable ecosystems. Competitiveness in a district could also be why some of these conservative legislators turn to ambiguity to hide the meanings of their rationale for supporting coral reef conservation policies. Liberal representatives were more likely to vote in favor of coral reef legislation. Geography (coastal and/or coral states) was not a significant predictor for a representative in the House voting yes for bipartisan coral reef legislation. This suggests that coral reefs may be of broad interest to lawmakers beyond those in the coastal states, and the states that have reefs in their waters.

Table 10: Results of logistic regression for roll call votes

Coefficients	β	SE	Z-value	P-value
Party	-0.499	0.185	-2.702	0.006***
Ideology 1	-1.535	0.247	-6.218	5.03e-10***

Ideology 2	-0.122	0.099	-1.232	0.218
Coastal State	-0.026	0.061	-0.417	0.677
Coral Reef State	0.028	0.125	0.226	0.821
Competitiveness	-0.014	0.003	-4.483	7.37e-06***
Intercept	-0.338	0.210	-1.607	0.108

****Significance at the α=0.01*
***Significance at the α=0.05*
**Significance at the α=0.1*

In the first cosponsorship model, the largest coefficients were ideology β=-2.5 and coral reef state (i.e., whether a state had reefs) β=1.8. In the second roll call model, the largest coefficients were ideology β=-1.53 and political party β=-0.49. This suggests that the two most important pieces of rationale for supporting coral reef conservation policy are party membership (with Democrats more likely to support) and ideological scores (with liberals more likely to support).

In my table, The beta term "β" represents the coefficient for the intercept in the model and the standard error around this coefficient is "SE" in the regression output. The Z-value represents the sampling distribution and the p-value provides significance at the alpha levels listed beneath the table. Two states returned the "NA" value in both models: Hawaii and Wyoming. This meant that they had perfect multicollinearity with other variable(s) within the set. After further inspection, Hawaii Representatives had cosponsored and voted for all possible pieces of legislation throughout the time frame, while Wyoming Representatives voted against

every coral reef policy studied in this research. This means that Hawaii representatives always vote for coral reef conservation legislation, while Wyoming representatives never do.

Differences between political parties

Comparing both political parties in the House of Representatives from 1988-2021, Democrats supported coral reef legislation by cosponsorship, roll call votes, and both simultaneous actions more than Republicans (Table 11). Democrats were nearly twice as likely to cosponsor coral reef conservation legislation compared to Republicans. Both parties voted more often than cosponsoring bipartisan coral reef legislation. Although there were fmy bills that were passed through the house with a roll call vote, this high number of legislators that voted for these bills is likely due to the fact that everyone has to submit a vote whereas cosponsorship is much more of a choice and reflects more about legislators' particular policy agenda priorities.

Table 11: Support for bipartisan coral reef legislation in the House based on party (1988-2021)

Party	**Cosponsorship**	**Roll call vote "yea"**	**Both**
Democrat *n*= 3809	753	901	264
Republican *n*=3705	299	620	141

Differences between states

This section analyzes how each state supported coral reef conservation by examining the number of representatives that (1) cosponsored, (2) voted for,[47] or (3) both simultaneously (e.g.

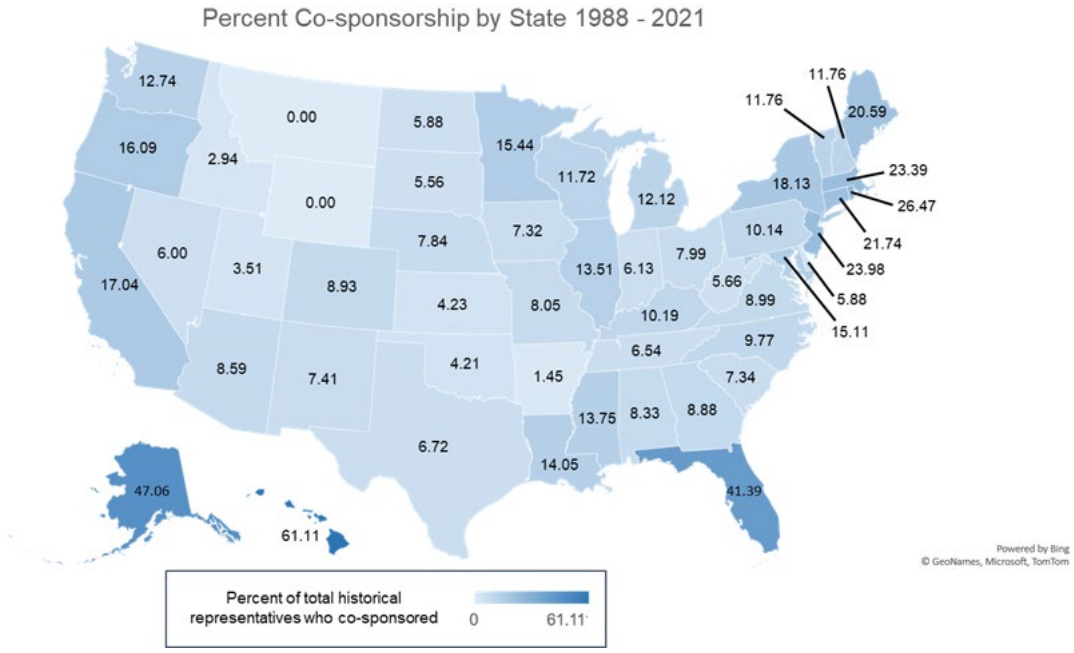
[47] If a legislator votes yes on legislation, this means they want it to pass and become a law.

cosponsored *and* voted for bipartisan coral reef legislation). I standardized the number of representatives for each state to calculate how support varied by each state according to the total number of representatives that each state has ever had. Without standardizing, the most populous states would have the highest frequencies of votes due to raw numbers because of how the House of Representatives delegate counts are determined by population. Standardization helped to address vacancies between election cycles in the House of Representatives.

First, for cosponsorship, representatives from Hawaii were the most likely to sponsor or cosponsor bipartisan coral reef legislation, followed by Alaska and Florida (Figure 2). Hawaii and Florida are the two U.S. states with adjacent coral reefs. In Hawaii, coral reefs provide ecosystem services valued at $863 million per year, underpinning the importance placed on these reefs by Hawaii's lawmakers (State of Hawaii, 2019). It is estimated that coral reefs contribute approximately $8.5 billion to Florida's local economy annually (Florida Keys National Marine Sanctuary, 2011). Somewhat perplexing was Alaskan support for coral reef conservation policy. Alaska does not have coral reefs, but it has the longest coastline of any U.S. state, which suggests its rationale. Alaska does not have tropical coral reefs, but it does have widespread deep-sea coral reefs with high levels of biodiversity and the most abundant, deep-water non-reef building corals in the world (NOAA Fisheries, n.d.). Likewise, Alaska Representative Don Young has served in the House of Representatives for the entire thirty-two-year period in which coral reef policies have been introduced. He is prominent on issues involving ocean conservation, and currently serves as the co-chair of the House Oceans Caucus, a bipartisan cohort of members of the House of Representatives who prioritize policies related to the health of the ocean. Although Representative Young has not made any public statements on coral reefs since 1997, Representative Young submitted a report in support of a concurrent resolution (H.

Con. Res. 8) "expressing the sense of Congress with respect to the significance of maintaining the health and stability of coral reef ecosystems" (House of Representatives Report No. 105-69, 1997).[48] He has also had a long track record of supporting ocean conservation policies.[49] Representatives from Montana, Idaho, Wyoming, and Kansas have never cosponsored and voted for coral reef conservation legislation. Montana, Idaho, Wyoming, and Kansas are landlocked states, meaning they have no coasts or ties to coastal states other than political party and ideology.

Figure 2: Percent Cosponsorship by state for bipartisan coral reef legislation

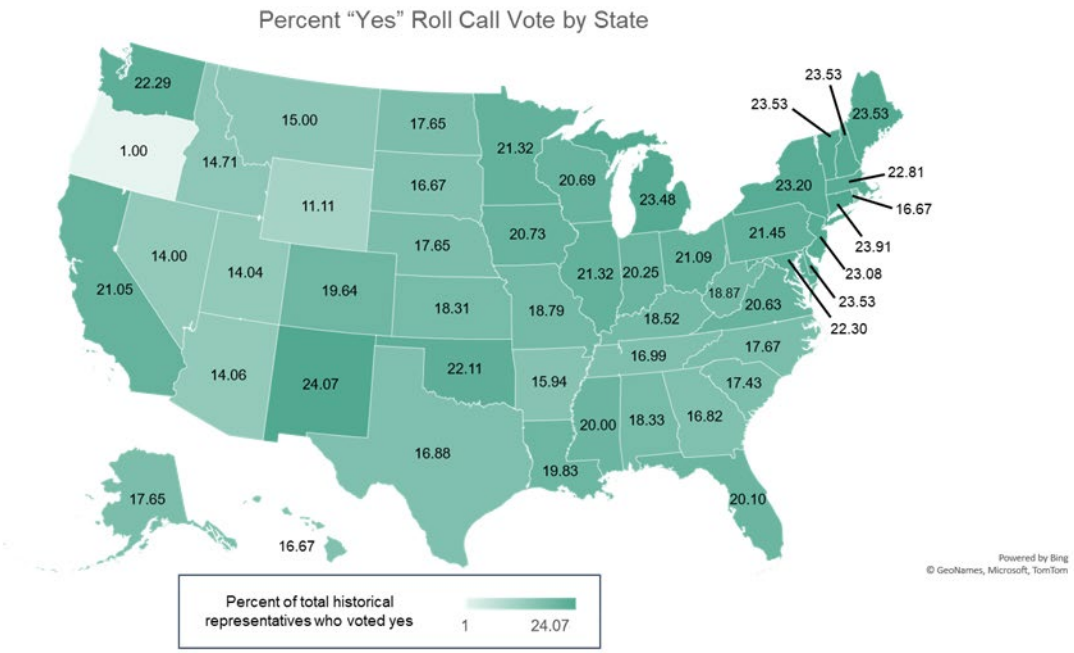


[48] A concurrent resolution is a bill in the House of Representatives and Senate that has no law-making powers, but instead makes a statement about what Congress cares about (U.S. Capitol, n.d.).

[49] Representative Young cosponsored the Coastal and Great Lakes Communities Enhancement Act, Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Conservation and Reinvestment Act, Coastal Pollution Reduction Act of 1997, and the Oceans Act of 1992.

Second, for voting for coral reef legislation, representatives from New Mexico were most likely to vote for bipartisan coral reef legislation, followed by Maine, Vermont, New Hampshire, and Delaware (Figure 3). All of these states have a large number of representatives who have historically been members of the Democratic party and have typically voted for the Democratic nominee in the past five presidential elections (Electoral Ventures LLC, n.d.; Monkovic, 2016). During this time period, according to my data, 65% of legislators from New Mexico were Democrats, 80% of legislators from Maine were Democrats, 66% of legislators from Vermont were Democrats, 42% of legislators from New Hampshire were Democrats, and 75% of legislators from Delaware were Democrats. Representatives from Montana and Wyoming never cosponsored bipartisan coral reef legislation. Montana and Wyoming are landlocked states, meaning they have no coasts or ties to coastal states other than political party and ideology.

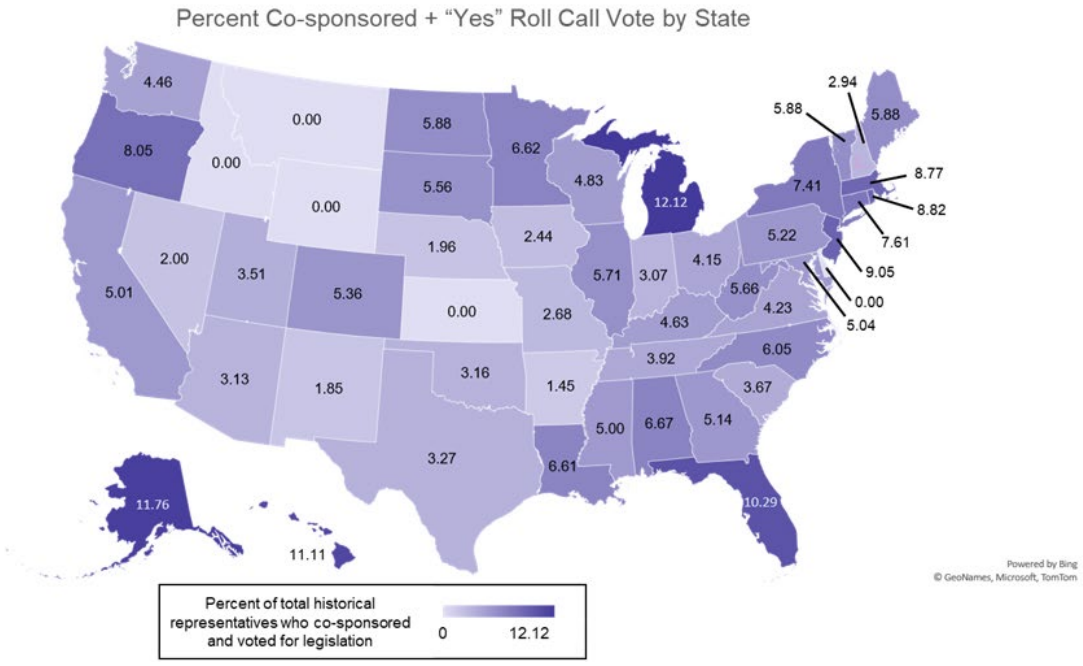
Figure 3: Percent Roll Call Votes by state for bipartisan coral reef legislation



Third, where lawmakers both cosponsor *and* vote for legislation, representatives from Michigan and Alaska had the highest number of past cosponsors and votes for bipartisan bills supporting coral reef conservation, followed by states with coral reefs, Hawaii and Florida. Michigan has a political reputation for being a Democratic leaning "blue wall state",[50] a trend which is supported by the states' past legislators voting for and cosponsoring the following coral reef conservation bills: Coastal and Great Lakes Communities Enhancement Act, Coral Reef and Coastal Marine Conservation Act of 2006, Conservation and Reinvestment Act, and Coastal Zone Act Reauthorization Amendments of 1990. As noted previously, Alaska has the largest coastline in the country and is likely affected by some of these coral reef policies due to their impact on the coastal zone or deep-sea corals. Alaska's representative Don Young cosponsored and voted for the Coastal and Great Lakes Communities Enhancement Act (2018) and the Conservation Reinvestment Act (1998).

Figure 4: Percent Cosponsorship and Roll Call Votes for bipartisan coral reef legislation

[50] A blue wall state is the collection of Midwestern states, including Michigan, that have historically been important for supporting Democratic nominees for president (Agnew & Shin, 2021).



Novel Theoretical Framework for Lawmaker Support of Coral Reef Conservation Policy

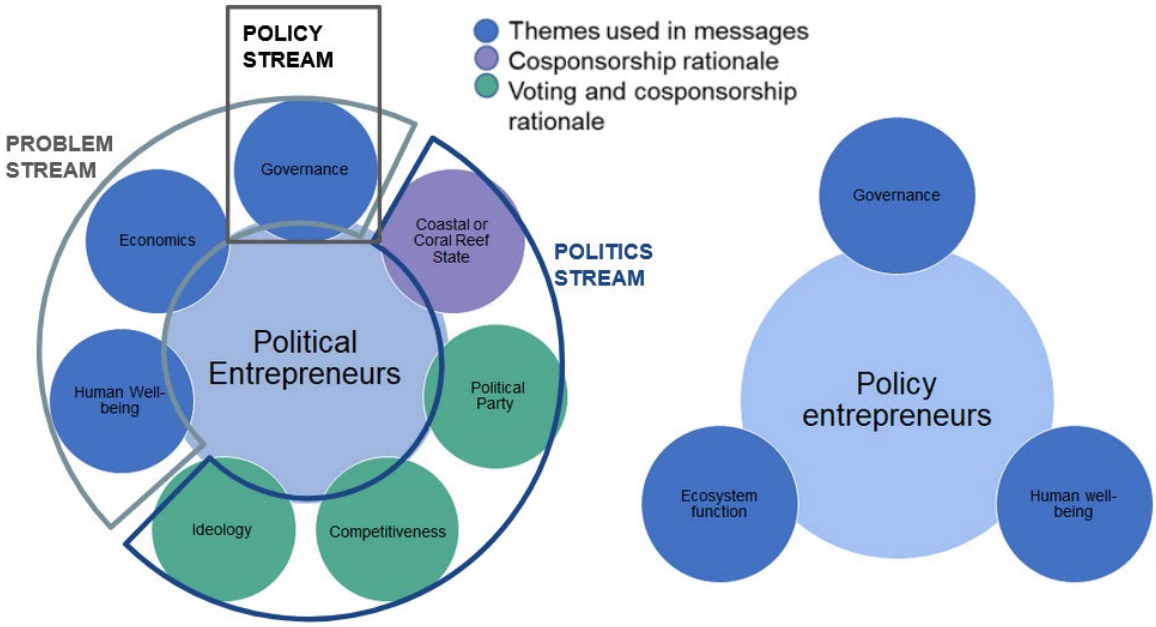
My research allows us to propose a novel theoretical framework or a model of how and why bipartisan support for coral reef conservation policy is placed on the agenda (Figure 5). First, bipartisan support of coral reef conservation policy is related to a policy-maker rationale, focused on governance, economics, and human well-being. Policy Entrepreneurs, who are not lawmakers, but rather those who *influence* lawmakers (e.g. NGOs), use ecosystem functions more frequently in their messaging when defining the problem in the problem stream. Policy entrepreneurs focus more on science and intrinsic value of ecosystems, a difference which merits further study on whether this focus influences lawmaker thinking during agenda setting. This finding may suggest that NGOs and lawmakers place different levels of importance on science and biodiversity, which has implications for the way NGOs seek to influence lawmakers.

The three most common themes contained in policy-maker rationale included governance, economics, and human well-being. These concepts characterize the problem stream, or the way that policy-makers define the challenges or issues facing coral reefs. Understanding the problem stream is critical because problems are necessary for creating conservation policy solutions. Other variables also explain why policy-makers add coral reef conservation policy to the agenda. These include (1) identification with the Democratic Party, (2) where their representative districts are located (e.g. whether a state has reefs and coastlines), (3) ideology, and (4) electoral competitiveness. These variables characterize the politics stream, defined as how political processes and partisan dynamics play out to add or remove a topic on the policy agenda. In other words, Democrats and those with a liberal ideology are more likely to support coral reef conservation policy in general. This means that partisanship will impact whether and how coral reef conservation policy makes it on the agenda. This makes the points of agreement (governance, economics, human well-being) more important points of emphasis for those trying to win support for their ideas during agenda setting.

The policy stream, or the technical ideas for policy, can also be found in policy-maker rationale in the problem stream. The theme of governance gives very specific ideas for the structure and function of policy for coral reef conservation (e.g. appropriations, community-based reef management programs, etc.). The economics concept was expected to be a main source of rationale for Republicans who place high value on the economic value of coral reefs (e.g. economic development, tourism, fisheries, etc.). The concept of human well-being is the main rationale for Democratic party members who support these policies. Human well-being is underpinned by the notion that coral reef conservation directly affects and benefits coastal communities without direct economic returns (e.g. shoreline protection, wave buffering,

increasing resilience,[51] etc.). It can be argued that there is a link between the concepts of human well-being and economics, meaning this is a divide that can be bridged somewhat easily between lawmakers.

Figure 5: Model for why political and policy entrepreneurs support coral reef conservation policy



DISCUSSION

My research allows us to propose a novel theoretical framework of how and why bipartisan support for coral reef conservation policy gets placed on the agenda. The literature shows that political entrepreneurs (lawmakers) are significant actors for creating policy change (Bergquist, 2020; Foss et al., 2011; Goyal et al., 2020; López, 2002; Martin & Thomas, 2013; Schneider & Teske, 1992; Zohlnhöfer, 2016). Specifically, in Congress it has been found that political entrepreneurs strategically frame problems to advance their policy preferences (Bergquist, 2020; López, 2002; Martin & Thomas, 2013; Schneider & Teske, 1992). My research

[51] Defined as hazard mitigation along shorelines to increasingly defend communities from coastal hazards (Ferrario et al., 2014).

adds to theory by finding that strategic framing of bipartisan support of coral reef conservation policy focuses on three concepts: economics, human well-being, and governance.

My expectation was that there would be key differences and similarities between political entrepreneurs, Republicans and Democrats, over strategic framing of these policies. I found evidence that this expectation was true. Republicans prioritized economics and Democrats prioritized human well-being in their respective rationale. The economics theme focused on the economic returns for coral reef conservation (e.g. economic development, tourism, fisheries, etc.). Although Democrats would mention economic benefits, Republicans often focused on how the economies and ecosystem services benefitted the coastal communities with coral reefs through tourism, fisheries, recreation, and job creation. Republicans also tended to emphasize the importance of bills "paying for themselves" as opposed to being paid for by U.S. taxpayers or taking potential jobs away from Americans (Congressional Record, 2021). Democrats can transcend partisan differences by emphasizing the economic development ideas that underpin human well-being when trying to collaborate with Republicans. The literature shows pathways for Democrats and Republicans to forge agreement through messaging. Pralle (2009) outlined strategies for keeping climate change on the policy agenda given polarization, including emphasizing the potential for economic gains from policy actions. Dunning (2021) also suggests that Democrats use economics in their messaging to appeal to their Republican colleagues and constituents on conservation issues.

The concept of human well-being involved the idea that coral reef conservation directly affects and benefits coastal human communities independent from economic considerations (e.g. shoreline protection, wave buffering, increasing resilience,[52] etc.). While both parties did

[52] Defined as hazard mitigation along shorelines to increasingly defend communities from coastal hazards (Ferrario et al., 2014).

mention hazards and security threats to coastal communities, Democrats mentioned the theme more than republicans. There is some evidence that Republicans are beginning to transcend partisan differences by emphasizing the risks of natural hazards– risks worsening with climate change. Kingdon (2003) refers to natural disasters as focusing events, which are situations that allow a policy problem, in my case the need for climate legislation, to be seen in the public eye and provide more rationale for policy entrepreneurs to address the issue. The literature suggests that partisan ideology in lawmakers appear to be lessened regarding climate change when they experience extreme events such as intensified wildfires, tropical storms, or drought (Cain et al., 2020; Eckersley & Lakoma, 2021; Huber-Stearns et al., 2019; Liu et al., 2010, 2011). This partisan gap has persisted historically despite lawmakers having personal experiences with climate change related hazards that could be included in federal funding for natural disasters (Cain et al., 2020). Gagliarducci et al. (2019) also saw similar effects whereas natural disasters associated with climate change increase, cosponsorship and voting for these policies may increase. Polarization associated with climate policy may diminish as natural hazards increasingly impact coral reefs, such as recurring bleaching and disease mortality events in the U.S. My study also adds to the conversation on the differences between Republican and Democratic messaging on climate or conservation policy. For example, Democrats and Republicans in Congress have different styles of messaging for climate change, where Democrats focus on evidence-based messages on the impacts to human society and Republicans focus on decreasing the perception of natural threats from climate change (Guber et al. 2020). A Republican majority in Congress also decreases the amount of discussion from either party on climate change and its impacts (Liu et al., 2011). My research finds Democrats and Republicans both using conservation policy as an adaptation strategy to buffer the impacts of climate change

and shelter human settlements from increasing storms. It may be that Republicans find it easier to discuss adapting to natural hazards through win-win conservation policies compared to directly addressing the drivers of global climate change.

The most important similarity in rationale between Republicans and Democrats was found in the concept of governance. Lawmakers could agree that bipartisan cooperation and performing essential functions of congress (like reauthorization of legislation) were important. Because the concept of governance gave very specific ideas for the structure and function of policy for coral reef conservation (e.g. appropriations, community-based reef management programs, etc.), my findings go beyond the problem stream, applying additionally to the policy stream, or the technical ideas for policy.

The most important shared idea between Democrats and Republicans in the governance theme was the necessity for coral reef conservation bills to have bipartisan and bicameral support. This finding is noteworthy, as it contradicts conventional wisdom in the literature, where legislators have claimed that "'bipartisan deals are dangerous, more often than not'" because "'pressures from the [party] bases get in the way'" (Lee, 2016; p. 50). Lee also describes how polarization and party politics in Congress that lead to bipartisan cooperation are seen as a weak point for the majority party and a power play by the minority party. However, the majority party would be more likely to cooperate to successfully pass legislation, even at the cost of agreeing with the opposing party which reflects badly on their reputation (Lee, 2016). It's worthy to note that the conservation policies studied here emphasize institutions for stakeholder inclusion versus the historical top-down institutions used for conservation in the past. For this reason, both parties often mentioned the importance of community-based frameworks and institutions for implementing these policies if passed.

Policy entrepreneurs, who are not lawmakers but those who influence lawmakers, use ecosystem functions more in their rationale focusing more on science and the intrinsic value of ecosystems. This demonstrates how civil society is framing the problem that necessitates coral reef conservation. Perhaps aligning their message more with political entrepreneurs in Congress who have more lawmaking powers yield larger policy returns as other studies have found (Hogan & Feeney, 2012; Martin & Thomas, 2013). Political entrepreneurs are recognized for their ability to play the important role for crossing barriers within their position that policy entrepreneurs outside of government cannot access (Hogan & Feeney, 2012). In this case, political entrepreneurs in Congress enact coral reef conservation policy while using differing rationale that may sometimes come from NGOs and other policy entrepreneurs. More research is needed on the implications of these differences. Are policy entrepreneurs tuning out the science? Or do they find it less useful when communicating to their constituents?

Competing variables can also explain why policy-makers support coral reef conservation policy. Cosponsoring coral reef policy is predicted by whether lawmakers come from coastal and/or coral reef states, identification with the Democratic Party, possessing a liberal ideology, and competitiveness. Voting for coral reef conservation policies can be predicted by identification with the Democratic Party, possessing a liberal ideology, and competitiveness. This may have additionally been because when extremists win elections, such as the polarizing figure of Donald Trump, the legislative Congress tends to become more moderate away from that figure; in this case, Congress became more liberal (Hall, 2015).

The goal with my model was to suggest additional variables to explain why a legislator would support coral reef conservation policy. It was expected that legislators who represented a state with coral reefs or a coastline would support bipartisan coral reef legislation. It was also

expected that Democratic legislators would support these policies more than their Republican peers. While my inductive qualitative research was used to provide detail for the problem stream, the variables of my quantitative model (coastal district, coral reef district, political party, ideology, and competitiveness) characterize the politics stream, defined as how political processes and partisan dynamics play out to add or remove a topic on the policy agenda. The literature suggests that both policy and political entrepreneurs support policies from their own party and are actively against policies from the opposing party (Van Boven et al., 2018). My model suggests that in general, coral reef conservation policies are supported by Democrats or lawmakers from a liberal ideological background. That said, important Republican supporters were present in my dataset. These included Florida Senator Marco Rubio, Florida Representative Brian Mast, and previous Governor of Florida and current Senator Rick Scott from Florida, Republican representatives from coral reef adjacent U.S. territories including Jenniffer González-Colón, Aumua Amata Coleman Radewagen, and Stacey E. Plaskett, and other Republicans from around the country including Representative Rob Bishop of Utah, Representative Steve Chabot of Ohio, and Senator Rob Portman of Ohio.

I expected that having a coral reef in state waters would lead lawmakers to support coral reef conservation policy. This is not such a straightforward relationship, however. My model showed that 1) whether a representative hailed from a coastal or reef state mattered for *cosponsoring* coral reef bills, but 2) it did not matter for whether *they would vote in support of* the bills represented in this case study. Harbridge (2009) suggested that polarization should not significantly influence the rate of bipartisanship cosponsorship on policy topics with a high rate of agreement, such as conservation. Other studies have found that if the cosponsors of a bill are less extreme and more moderate in political ideology and from both sides of the aisle, then it is

easier to pass and will likely receive a voice vote (Harbridge, 2009). Olzak et al. (2016) argues that this phenomenon applies to environmental policy as well, and that it is harder to garner wider support when environmental legislation is supported by extreme members of either party. Gagliarducci et al. (2019) proposes that as natural disasters associated with climate change increase, cosponsorship and voting for these policies may increase.

This ambiguous outcome of support based on the geography of which states legislators represent can be visually seen in the geographic spread of cosponsorship, voting, and both actions taken throughout each state's legislative history for coral reef conservation legislation. State representatives most likely to vote for bipartisan coral reef conservation bills included those from New Mexico, Maine, Vermont, New Hampshire, and Delaware. As mentioned, these states all have a historical record of legislators belonging to the Democratic party and have typically voted for the Democratic nominee in the past five presidential elections (Electoral Ventures LLC, n.d.; Monkovic, 2016). The literature offers some explanations for support from states without reefs. Democratic majority states would already be supportive of policies to spend federal dollars for conservation activities, regardless of where the conservation activities were in relation to their representative state (Dotto & Oakes, 2019; Kraft 2017; Yen & Zampelli, 2021). This research supports this finding that liberal ideologies or identification with the Democratic Party in the U.S. are more likely to support federal policies with spending for the management of environmental ecosystems, including coral reefs. I also found that Republicans prioritize conservation policies that pay for themselves within the economics theme. This is also supported in the literature, where Dunning (2021) found that Republicans favor policies that pay for themselves without relying on taxpayer dollars.

My novel theoretical framework suggests that coral reefs and their degradation can be seen as a symbol for worsening climate change (Stone, 2011). As the problem of coral degradation continues to become more circulated through popular media, the more important it may become on the policy agenda forcing Congress' hand. In my study, political entrepreneurs also used coral reefs as symbols for various states regardless of political party. For example, Florida Representative Darren Soto and Hawaii Senator Mazie Hirono described coral reefs as essential to the "way of life" in Florida and Hawaii (Targeted News Service, 2020; U.S. Representative Darren Soto, 2021). Senator Marco Rubio described coral reefs as characters of Florida and highlighted their important legacy to future generations of Americans (Targeted News Service, 2020). This suggests that coral reefs carry high degrees of meaning and popularity that transcend political party identification. Some lawmakers used coral reefs as a symbol for the nature that I want to pass down to future generations. For example, Republicans like South Carolina Representative Joe Wilson and Florida Senator Rick Scott highlighted the importance of coral reefs for future generations to enjoy and have access to, regardless of direct economic value (United States Senator Marco Rubio, 2019; *Congressional Record*, 2021). The strategic framing of coral reefs as symbols allowed these notable Republicans to publicly support conservation policies without contradicting the ideals of their political party.

CONCLUSION

My research provides insight on how the case of coral reef conservation can relate to the acceptance of more controversial climate policies. Some of my data shows that lawmakers can agree on three themes surrounding climate vulnerable ecosystems on the policy agenda: human well-being, economics, and certain types of governance. This finding ties into Mason's (2018)

work on understanding how a superordinate (or greater goal such as limiting the effects of global climate change) can influence both Democrats and Republicans policy interests, leading to greater compromise and acceptance of cooperation. Other aspects of my research suggest there are still instances where Democrats support these policies more than Republicans and the partisan divide persists. However, coral reefs and coastal geography can change this dynamic of choosing party over local perspective. This is exhibited by the high amount of cosponsorship from Representative Young from Alaska on the bipartisan coral reef bills selected for this study, even though he is Republican. Gershtenson and colleagues (2006) also found that although political party mattered when debating climate change policy, sometimes it was not the most important factor when constituency demographics were taken into account. Understanding what motivates policies for the conservation of climate vulnerable systems like reefs is key for the future of climate policy. This is especially crucial as more lawmakers of both political parties are supporting these kinds of policies in ways not observed with polarizing policies like the Green New Deal.

Kingdon's multiple stream framework was sufficient for examining how controversial policies for climate vulnerable ecosystems received bipartisan support in a time of party polarization. Political entrepreneurs from both sides of the aisle were able to work through their partisan biases in the problem stream to get these cases of coral reef conservation onto the policy agenda in Congress, although the three streams have not been brought together to provide a policy window for successful passage through Congress. At the point of this research, only the Tropical Forest and Coral Reef Conservation Act of 2021 has passed the House of Representatives, and the other two cases are still stalled in the House.

Analyzing the problem of coral reef degradation through the messages publicized by policy and political entrepreneurs provided insight on how the problem stream was used to promote coral reef conservation in Congress. Messages on governance also gave insight to the policy stream. My logit models provide insight on how the political stream could be incorporated due to the political party, state voting, and cosponsorship history for these policies. This research provides further evidence of the validity of using the multiple streams framework to analyze how controversial policy can arise on the policy agenda. My results show that with the right support from a variety of policy and political entrepreneurs in the problem stream of policy agenda-setting, controversial and climate change-related issues can be placed on the policy agenda, even in times of intense party polarization.

Following these results and their discussion, there appears to be a shift from a virtual stalemate to a more nuanced and ambiguous support from both political parties for legislation on conservation of climate vulnerable ecosystems. This also holds policy implications for climate policy in the U.S.. As focusing events such as mass coral mortality events and bleaching episodes are highlighted more in the media, politicians may be pressured to address these issues without betraying their partisan reputation. The next step to enhance this type of research would be to survey or interview partisan constituents and legislators for a clearer picture of stated preferences for coral reef and climate change policies. This step was not able to be accomplished in this project due to limitations from the COVID-19 pandemic. Despite these limitations, these findings have improved the understanding of the relationship between partisan polarization and climate change policy in the U.S. I hope that my findings help lay the foundation to promote further investigation of this important topic of public policy research.

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Appendix 1: History of efforts to reauthorize the Tropical Forest Conservation Act of 1998

Name of Bill	Congress	Bipartisan	Senate	House	Vote
Tropical Forest and Coral Reef Conservation Reauthorization Act	117th	Yes	Yes	Yes	No
Tropical Forest and Coral Reef Conservation Reauthorization Act	116th	Yes	Yes	Yes	No
Tropical Forest Conservation Reauthorization Act	115th	Yes	Yes	Yes	Became Law
Tropical Forest Conservation Reauthorization Act	114th	Yes	Yes	No	No
H.Amdt.71 Amends HR1	112th				Yes
Tropical Forest and Coral Conservation Reauthorization Act	111th	Yes	Yes	Yes	No
Tropical Forest and Coral Conservation Reauthorization Act	110th	Yes	Yes	No	No
H.R.2185 - To amend the Tropical Forest Conservation Act of 1998 to provide debt relief to developing countries that take action to protect tropical forests and coral reefs and associated coastal marine ecosystems, to reauthorize such Act through fiscal year 2010, and for other purposes.	110th	Yes	No	Yes	Passed House
To Reauthorize The Tropical Forest Conservation Act Through Fiscal Year 2007 and For Other Purposes	108th	Yes	Yes	Yes	Became Law
To Reauthorize The Tropical Forest Conservation Act Through Fiscal Year 2004 and For Other Purposes	107th	Yes	Yes	Yes	Became Law
Tropical Forest Conservation Act	105th	Yes	Yes	Yes	Became Law

Appendix 2: History of efforts to reauthorize the Coral Reef Conservation Act of 2000

Name of Bill	Congress	Bipartisan	Senate	House	Vote
Restoring Resilient Reefs Act of 2021	117th	Yes	No	Yes	No
Coral Reef Conservation Reauthorization Act of 2020	116th	Yes	Yes	Yes	No
The Restoring Resilient Reefs Act of 2019 and the Restoring Resilient Reefs Act of 2020	116th	Yes	Yes	Yes	Passed Senate
Coral Reef Sustainability Through Innovation Act of 2019	116th	Yes	Yes	Yes	No
Coral Reef Conservation Reauthorization Act of 2018	115th	Yes	No	Yes	No
Coral Reef Sustainability Through Innovation Act of 2017	115th	D	Yes	Yes	No
Coral Reef Sustainability Through Innovation Act of 2016 (2)	114th	D	Yes	Yes	No
Coral Reef Conservation Act Reauthorization and Enhancement Amendments of 2016	114th	D	No	Yes	No
Conserving My Reefs and Livelihoods act	114th	R	No	Yes	No
Coral Reef Conservation Amendments Act of 2013	113th	D	Yes	No	No
Coral Reef Conservation Act Reauthorization and Enhancement Amendments of 2013	113th	D	No	Yes	No
Coral Reef Conservation Amendments Act of 2011	112th	D	Yes	No	No
Coral Reef Conservation Act Reauthorization and Enhancement Amendments of 2011	112th	D	No	Yes	No
Coral Reef Conservation Amendments Act of 2009	111th	D	Yes	No	No

Coral Reef Conservation Act Reauthorization and Enhancement Amendments of 2009	111th	D	No	Yes	Passed House
Coral Reef Ecosystem Conservation Amendments Act of 2007	110th	D	Yes	No	No
Coral Reef Conservation Amendments Act of 2007	110th	Yes	Yes	Yes	Passed House
Coral Reef Conservation Amendments Act of 2006	109th	D	No	Yes	No
Coral Reef Conservation Legacy Act of 2006	109th	R	No	Yes	No
Coral Reef Conservation Amendments Act of 2005	109th	D	Yes	No	Passed Senate
Coral Reef Conservation And Protection Act of 2004	108th	D	No	Yes	No
Coral Reef Conservation Act of 2000		Executive Order 13089			

Appendix 3: History of the Offshore Wind for Territories Act

Name of Bill	Congress	Bipartisan	Senate	House	Vote
Offshore Wind for Territories Act	117th	Yes	No	Yes	No
Offshore Wind for Territories Act	116th	Yes	Yes	Yes	No
Offshore Wind for Territories Act	115th	Yes	No	Yes	Passed House

Appendix 4: All historical bipartisan coral reef bills included for cosponsorship or roll call votes in model

Bill Name	Congress	Year	Purpose	Status
H.R. 241 Tropical Forest and Coral Reef Conservation Reauthorization Act 2021	117	2021-2022	To reauthorize the Tropical Forest and Coral Reef Conservation Act of 1998.	Passed House
H.R. 160 Restoring Resilient Reefs Act Of 2021	117	2021-2022	To reauthorize the coral reef conservation act of 2000, among other purposes.	Introduced
H.R. 1689 Offshore Wind for Territories Act	117	2021-2022	To amend the Outer Continental Shelf Lands Act to apply to territories of the United States, to establish offshore wind lease sale requirements, to provide dedicated funding for coral reef conservation, and for other purposes.	Introduced
H.R. 3384 Coral Reef Sustainability Through Innovation Act Of 2019	117	2021-2022	To authorize Federal agencies to establish prize competitions for innovation or adaptation management development relating to coral reef ecosystems, and for other purposes.	Introduced
H.R. 7954 Tropical Forest and Coral Reef Conservation Reauthorization Act Of 2020	116	2019-2020	To reauthorize the Tropical Forest and Coral Reef Conservation Act of 1998.	Passed House
H.R. 6738 Coral Reef Conservation Reauthorization Act Of 2020	116	2019-2020	To reauthorize the coral reef conservation act of 2000, among other purposes.	Introduced
H.R. 4160 Restoring Resilient Reefs Act Of 2019	116	2019-2020	To reauthorize the coral reef conservation act of 2000, among other purposes.	Introduced

H.R. 1014 Offshore Wind for Territories Act	116	2019-2020	To amend the Outer Continental Shelf Lands Act to apply to territories of the United States, to establish offshore wind lease sale requirements, to provide dedicated funding for coral reef conservation, and for other purposes.	Introduced
H.R. 729 Coastal and Great Lakes Communities Enhancement Act	116	2019-2020	To amend the Coastal Zone Management Act of 1972 to authorize grants to Indian Tribes to further achievement of Tribal coastal zone objectives, and for other purposes.	Passed House
H.R. 5996 Coral Reef Conservation and Reauthorization Act Of 2018	115	2017-2018	To reauthorize the coral reef conservation act of 2000, among other purposes	Introduced
H.R. 6665 Offshore Wind for Territories Act	115	2017-2018	To amend the Outer Continental Shelf Lands Act to apply to territories of the United States, to establish offshore wind lease sale requirements, to provide dedicated funding for coral reef conservation, and for other purposes.	Passed House
H.R. 6982 Tropical Forest Conservation Reauthorization Act Of 2018	115	2017-2018	To reauthorize the Tropical Forest and Coral Reef Conservation Act of 1998.	Introduced
H.R. 4811 Coral Reef Sustainability Through Innovation Act Of 2016	114	2015-2016	To authorize Federal agencies to establish prize competitions for innovation or adaptation management development relating to coral reef ecosystems, and for other purposes.	Introduced

H.R. Conserving My Reefs and Livelihoods Act Of 2016	114	2015-2016	To reauthorize the coral reef conservation act of 2000, among other purposes.	Introduced
H.R. 2258 Hurricane Research Initiative Act Of 2011	112	2011-2012	To establish the National Hurricane Research Initiative to improve hurricane preparedness, and for other purposes.	Introduced
H.R. 860 Coral Reef Conservation Act Reauthorization and Enhancement Amendments Of 2009	111	2009-2010	To reauthorize the coral reef conservation act of 2000, among other purposes.	Passed House
H.R. 52 Tropical Forest and Coral Conservation Act	111	2009-2010	To reauthorize the Tropical Forest and Coral Reef Conservation Act of 1998.	Introduced
H.R. 4493 Bunitan Tasi Act	111	2009-2010	To provide for the enhancement of visitor services, fish and wildlife research, and marine and coastal resource management on Guam related to the Marianas Trench Marine National Monument, and for other purposes.	Introduced
H.R. 327 National Hurricane Research Initiative Act Of 2009	111	2009-2010	To establish the National Hurricane Research Initiative to improve hurricane preparedness, and for other purposes.	Introduced
H.R. 3888 Clean Cruise Ship Act Of 2009	111	2009-2010	To amend the Federal Water Pollution Control Act to establish national standards for discharges from cruise vessels.	Introduced

H.R. 2685 Climate and Ocean Research and Coordination Act Of 2009	111	2009-2010	To establish a National Oceanic and Atmospheric Administration and a National Climate Enterprise, and for other purposes.	Introduced
H.R. 1205 Coral Reef Conservation Amendments Act of 2007	110	2007-2008	To reauthorize the coral reef conservation act of 2000, among other purposes.	Passed House
H.R. 2185 To Amend the Tropical Forest Conservation Act of 1998 To Provide Debt Relief To Developing Countries That Take Action To Protect Tropical Forests And Coral Reefs And Associated Coastal Marine Ecosystems, To Reauthorize Such Act Through Fiscal Year 2010, And For Other Purposes.	110	2007-2008	To amend the Tropical Forest Conservation Act of 1998 to provide debt relief to developing countries that take action to protect tropical forests and coral reefs and associated coastal marine ecosystems, to reauthorize such Act through fiscal year 2010, and for other purposes	Passed House
H.R. 2407 National Hurricane Research Initiative Act Of 2007	110	2007-2008	To establish the National Hurricane Research Initiative to improve hurricane preparedness, and for other purposes.	Introduced
H.R. 1091 Save My Shores Act	110	2007-2008	Amends the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 to extend the authorization of appropriations for research, education, and monitoring activities related to the prevention, reduction, and control of harmful algal blooms and hypoxia.	Introduced

H.R. 1590 Safe Climate Act Of 2007	110	2007-2008	To reduce greenhouse gas emissions and protect the climate.	Introduced
H.R. 4174 FOARAM Act	110	2007-2008	To establish an interagency committee to develop an ocean acidification research and monitoring plan and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration.	Passed House
H.R. 6434 Clean Cruise Ship Act Of 2008	110	2007-2008	To amend the Federal Water Pollution Control Act to establish national standards for discharges from cruise vessels.	Introduced
H.R. 21 Oceans Conservation, Education, and National Strategy for the 21st Century Act	110	2007-2008	To establish a national policy for my oceans, to strengthen the National Oceanic and Atmospheric Administration, to establish a national and regional ocean governance structure, and for other purposes.	Introduced
H.R. 4788 Coral Reef Conservation Amendments Act of 2006	109	2005-2006	To reauthorize the coral reef conservation act of 2000, among other purposes.	Introduced
H.R. 1996 Coral Reef and Coastal Marine Conservation Act Of 2005	109	2005-2006	To amend the Foreign Assistance Act of 1961 to provide for debt relief to developing countries that take action to protect critical coral reef habitats.	Introduced
H.R. 2376 Northwestern Hawaiian Islands National Marine Refuge Act Of 2005	109	2005-2006	To designate the Northwestern Hawaiian Islands National Marine Refuge, and for other purposes.	Introduced

H.R. 3778 Bottom Trawl and Deep-Sea Coral Habitat Act	109	2005-2006	To establish ocean bottom trawl areas in which trawling is permitted, to protect deep sea corals and sponges, and for other purposes.	Introduced
H.R. 5642 Safe Climate Act of 2006	109	2005-2006	To reduce greenhouse gas emissions and protect the climate.	Introduced
H.R. 5946 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006	109	2005-2006	To amend the Magnuson-Stevens Fishery Conservation and Management Act to authorize activities to promote improved monitoring and compliance for high seas fisheries, or fisheries governed by international fishery management agreements, and for other purposes.	Became Law
H.R. 1636 Clean Cruise Ship Act Of 2005	109	2005-2006	To amend the Federal Water Pollution Control Act to establish national standards for discharges from cruise vessels.	Introduced
H.R. 2939 Oceans Conservation, Education, and National Strategy for the 21st Century Act	109	2005-2006	To establish a national policy for my oceans, to strengthen the National Oceanic and Atmospheric Administration, to establish a Committee on Ocean Policy, and for other purposes.	Introduced
H.R. 5051 Magnuson-Stevens Fishery Conservation and Management Amendments Act of 2006	109	2005-2006	To authorize appropriations to the Secretary of Commerce for the Magnuson-Stevens Fishery Conservation and Management Act for fiscal years 2007 through 2012, and for other purposes.	Introduced

H.R. 1721 Coral Reef and Coastal Marine Conservation Act of 2003	108	2003-2004	To amend the Foreign Assistance Act of 1961 to provide for debt relief to developing countries who take action to protect critical coral reef habitats.	Introduced
H.R. 4897 Deep Sea Coral Protection Act	108	2003-2004	To protect deep sea corals and sponges, and for other purposes.	Introduced
H.R. 2654 Rigs to Reefs Act of 2003	108	2003-2004	To amend the Outer Continental Shelf Lands Act to direct the Secretary of the Interior to issue regulations under which the Secretary may authorize use of a decommissioned offshore oil and gas platform for culture of marine organisms, an artificial reef, or scientific research, and for other purposes.	Introduced
H.R. 4101 Clean Cruise Ship Act Of 2004	108	2003-2004	To amend the Federal Water Pollution Control Act to establish national standards for discharges from cruise vessels.	Introduced
H.R. 4900 Oceans Conservation, Education, and National Strategy for the 21st Century Act	108	2003-2004	To establish a national policy for my oceans, to strengthen the National Oceanic and Atmospheric Administration, to establish a National Oceans Council, and for other purposes.	Introduced
H.R. 2272 Coral Reef and Coastal Marine Conservation Act of 2001	107	1991-2002	To amend the Foreign Assistance Act of 1961 to provide for debt relief to developing countries who take action to protect critical coral reef habitats.	Passed House

H.R. 3919 Coral Reef Conservation and Restoration Partnership Act Of 2000	106	1999-2000	To provide assistance for the conservation of coral reefs, to coordinate Federal coral reef conservation activities, and for other purposes.	Introduced
H.R. 701 Conservation and Reinvestment Act	106	1999-2000	To provide Outer Continental Shelf Impact Assistance to State and local governments, to amend the Land and Water Conservation Fund Act of 1965, the Urban Park and Recreation Recovery Act of 1978, and the Federal Aid in Wildlife Restoration Act commonly referred to as the Pittman-Robertson Act) to establish a fund to meet the outdoor conservation and recreation needs of the American people, and for other purposes.	Passed House
H.R. 2233 Coral Reef Conservation Act Of 1997	105	1997-1998	To assist in the conservation of coral reefs.	Passed House
H.R. 2207 Coastal Pollution Reduction Act Of 1997	105	1997-1998	To amend the Federal Water Pollution Control Act concerning a proposal to construct a deep ocean outfall off the coast of Mayaguez, Puerto Rico.	Passed House

H.R. 73 To Protect the Ecologically Fragile Coastal Resources Of South Florida By Prohibiting Offshore Oil And Gas Activities And By Canceling Federal Leases In The Area Of The Outer Continental Shelf Adjacent To The South Florida Coast.	104	1995-1996	To protect the ecologically fragile coastal resources of south Florida by prohibiting offshore oil and gas activities and by canceling Federal leases in the area of the Outer Continental Shelf adjacent to the south Florida coast.	Introduced
H.R. 4613 To Protect the Ecologically Fragile Coastal Resources Of South Florida By Prohibiting Offshore Oil And Gas Activities And By Canceling Federal Leases In The Area Of The Outer Continental Shelf Adjacent To The South Florida Coast.	103	1993-1994	To protect the ecologically fragile coastal resources of south Florida by prohibiting offshore oil and gas activities and by canceling Federal leases in the area of the Outer Continental Shelf adjacent to the south Florida coast.	Introduced
H.R. 4483 Coral Reef Stewardship Act	102	1991-1992	To protect and promote stewardship of coral reef ecosystems.	Introduced
H.R. 4537 Coral Reef Environmental Act	102	1991-1992	The purpose of this Act is to promote the sustainable use of coral reef ecosystems and the conservation of the biological resources contained within them.	Introduced
H.R. 5617 Oceans Act of 1992	102	1991-1992	To provide congressional approval of a Governing International Fishery Agreement, and for other purposes.	Became Law

H.R. 3719 Florida Keys Protection Act	101	1988-1990	To establish the Florida Keys National Marine Sanctuary, and for other purposes.	Passed House
H.R. 4450 Coastal Zone Act Reauthorization Amendments of 1990	101	1988-1990	To improve management of the coastal zone and enhance environmental protection of coastal zone resources, by re-authorizing and amending the Coastal Zone Management Act of 1972, and for other purposes.	Introduced