

Before discussing environmental policymaking, the three models of federalism are essential to discuss to understand the United States government. Inman and Rubinfeld (1997) outlined the three principles/models of federalism: (1) economic federalism, in which a centralized government is "assigned responsibility for... public activities distinguished by significant externalities involving spatially dispersed populations" whereas the local governments are responsible for providing "public activities for which spillovers are limited or absent" (Inman and Rubinfeld, 1997, pg. 45); (2) cooperative federalism, in which "all central government policies [are] to be unanimously approved by the elected representatives from... the lower-tier governments" (Inman and Rubinfeld, 1997, pg. 49); (3) democratic (majority-rule) federalism, which "seeks to balance the potential efficiency gains of a greater centralization... against the inefficiencies which might arise when a democratic central legislature sets policies" (Inman and Rubinfeld, 1997, pg. 51), the key feature of democratic federalism is where a simple majority approves legislature (51-percent). An important note from Inman and Rubinfeld is that most institutions will try and strike a balance of "competing social goals of economic efficiency, political participation, and the protection of individual rights and liberties" (Inman and Rubinfeld, 1997, pg. 61). Although the United States has seen shifting types of federalism over the years, the most appropriate type of federalism would be democratic (majority-rule) federalism. This is important as this creates the foundation for public policy, policymaking, and agenda-setting in the United States. Policies must be passed with a simple majority (51-percent).

To understand policymaking, specifically environmental policymaking, in the United States, definitions of terms are fundamental to understand. According to Pielke (2014), (1) policy

is simply a decision; (2) politics "is bargaining, negotiation, and compromise in pursuit of desired ends"; (3) science "is the systematic pursuit of knowledge" (Pielke, 2014, pg. 37). In comparison, "science policy involves all decision-making relation to the systematic pursuit of knowledge" (Pielke, 2014, pg. 79). Klyza and Sousa (2013) explained the background of environmental policies. Klyza and Sousa (2013) explain during the "golden era" of environmental policymaking (1964 and 1980), there was many environmental policies passed, compared to post-1980 environmental policy stalemate – "yet their efforts to expand on legislative gains of the golden era in Congress have, with a few important exceptions, been fruitless" (Klyza and Sousa, 2013, pg. 3). Klyza and Sousa (2013) explain that legislative gridlock on environmental policies complicates current environmental policymaking. However, during the "golden-era" of environmental policymaking, "the crucial wave of environmental law-making occurred in the late 1960s and the 1970s, a period of divided party control... [where] there was remarkable bipartisanship on the environment during this period". This is shown through the passage of the Endangered Species Act of 1973 was unanimously "passed by the Senate and only four dissenters in the House of Representatives" (Klyza and Sousa, 2013, pg. 19). Through this, challenges to environmental policymaking exist; however, there have been periods in US legislative history where gridlock and challenges were not as big of a challenge.

Gilens and Page (2014) outlined four theoretical traditions for policymaking: (1) Majoritarian Electoral Democracy, which is described as "positive or empirical theories, which is where US government policies chiefly to the collective will of average citizens, who are seen as empowered by democratic elections" (Gilens and Page, 2014, pg. 565); (2) Economic-Elite Domination, which "argues that US policy making is dominated by individuals who have substantial economic resources" (Gilens and Page, 2014, pg. 566), in which this policy has been

argued to be dated back to the US Constitution where framers were protecting economic interests of the wealthy; (3) Majoritarian Pluralism, as defined by Gilens and Page (2014), is organized around "majoritarian" interest groups, business firms, and industrial sectors; (4) Biased Pluralism, "which posit struggles among an unrepresentative universe of interest groups, characterized by E.E. Schattschneider as heavenly chorus with an 'upper-class accent'" (Gilens and Page, 2014, pg. 567). These traditions for policymaking show the complexity and dynamics of US policymaking. These traditions are important to acknowledge as they lay the foundation for understanding policymaking and the avenues that can be taken to pass policies.

The Multiple Streams Framework, hereafter MSF, is a framework modeling "how policies are made by national governments under conditions of ambiguity" (Zahariadis, 2019, pg. 65). The foundation for the MSF, as outlined by Zahariadis (2019), is that there are three main streams: (1) problem stream, where environmental scientists are very involved, this stream is pushed by indicators (data), focusing events, feedback, and load; (2) politics stream, where political scientists are very involved, this stream is pushed by national mood, pressure-group campaigns, and administrative/legislative turnover; (3) policy stream, which is pushed through value acceptability, technical feasibility, and integration. Zahariadis (2019) outlines that policy entrepreneurs "attempt to couple the three streams" and strategically manipulate the policy process through framing, salami tactics, symbols, and affect priming. A critical opening within the MSF is a policy window. A policy window, as defined by Zahariadis (2019), occurs when the "three streams are coupled or joined together at critical moments in time" and "opportunit[ies] for advocates of proposals to push their best solutions, or push attention to their special problems." Factors that predict why governing bodies address some environmental problems are determined by the timing of the policy's passing. In the problem stream in the MSF, if a focusing

event has not occurred, there may not be as much public support for a passage of an environmental policy. Likewise, with the load factor within the problem stream, if policymakers have many issues and policies vying for their attention, then a policy may be less likely to pass. In the politics stream, the national mood can significantly affect whether or not a policy is passed. Suppose the public opinion is majorly against a specific environmental policy. In that case, likely, a politician would not vote to pass that policy due to their constituents not believing in the policy. In the policy stream, technical feasibility can significantly affect whether or not the legislation adopts a policy. An important factor in getting a policy on the legislative agenda is timing with the policy window. If a policy window is not open, it will be challenging to pass a policy. Therefore, policy entrepreneurs should understand the political and policymaking system to time the best time to introduce a policy.

The Punctuated-Equilibrium Theory, hereafter PET, is a model aiming to understand the political process better. True et al. (2007) convey that the PET attempts to understand a "simple observation: political processes are generally characterized by stability and incrementalism, but occasionally they produce large-scale departures from the past" (True et al., 2007, pg. 155). True et al. (2007) convey that American political institutions were designed to "resist many efforts at change" – meaning that there is a required "mobilization" for change (True et al., 2007, pg. 157). The key fabric of the PET defines the factors that predict why governing bodies address some environmental problems. Policymakers are likely to pass small policies and less likely to pass significant policy changes. With this, major federal policy – similar to the Clean Air Act (CAA), Clean Water Act (CWA), Endangered Species Act (ESA) – is less and less likely to be passed by a legislative body. In contrast, small environmental policies that introduce minimal policy change would be more likely to pass. The key in getting an issue on the legislative agenda is

timing. The PET outlined that policies are more likely to be passed during "bursts of change after long periods without change"; therefore, timing a policy introduction with lull periods in policymaking may be the key in getting a policy adopted.

The Advocacy Coalition Framework, hereafter ACF, outlines policymaking that the policy subsystem, where most policies are passed, is culminated with two coalitions who have varying policy beliefs to pass policy. In the ACF, the two coalitions have outside effects such as external (system) events, relatively small parameters, and short-term constraints of resources of subsystem actors (Sabatier and Weible, 2007). An essential difference between ACF and other policy frameworks is that the ACF is more interested in "policy change over a decade or more" (Sabatier and Weible, 2007, pg. 192). Factors that may predict whether or not a policy is adopted within the ACF are outside events. As defined by Sabatier and Weible (2007), external (system) events, which are similar to the characteristics from the MSF [focusing event (problem stream)], where changes in socio-economic conditions, public opinion, systemic governing coalition, and policy decisions is important to pass a policy. If an external (system) event occurs, a policy may be more likely to be passed. As Sabatier and Weible (2007) defined, long-term coalition opportunity structures, which require a "degree of consensus needed for major policy change" and there needs to be openness of the system, are important in determining whether or not a policy is passed. According to the ACF, the important factor in getting an issue on the legislative agenda is whether or not the coalition is for a specific policy. If a coalition has more resources than the other, this can greatly affect whether or not a policy is passed, similar to challenges in the policy tradition: Majoritarian Pluralism. An important note about ACF is that this framework "has developed into one of the most promising public policy frameworks" (Sabatier and Weible, 2007, pg. 207). Weible (2006), in an analysis of California Marine Protected Area policy, found

that "ACF can be used as a policy analysis tool" while conveying that his research "highlight[s] the underutilized components of ACF," and "adds to the growing number of ACF applications that use network data to identify coalitions" (Weible, 2006, pg. 113).

The Clean Water Act, henceforth CWA, is a federal policy that aims at regulating the Waters of the United States (WOTUS). The 1972 amendments of the CWA outlined clear goals: "restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters"... where goals of zero discharge of pollutants by 1985 and water quality in the US that is to be both "fishable" and swimmable" by mid-1983 (Copeland, 2016, pg. 2). To achieve the goals of the 1972 amendments, the CWA appointed the Environmental Protection Agency (EPA) for implementation and enforcement of the CWA. To meet the CWA goals, the EPA implemented the National Pollutant Discharge Elimination System program (NPDES) to regulate point pollution sources that discharge in the WOTUS. In addition to the permitting, the EPA conducts compliance monitoring and water enforcement to ensure that the goals of the CWA are being met. The EPA also enforces regulations in wastewater management, pretreatment, stormwater pollution, animal waste from concentrated animal feeding operations (CAFOs), spills (oil and hazardous substances), and wetlands (EPA, Water Enforcement).

The key mechanisms that ensure water is protected are monitoring, permitting, enforcement, and fines. The CWA outlines fines associated with breaking the CWA; therefore, these fines can act as a deterrent against breaking the CWA. The EPA, and state-level water boards, enforce strict water regulations to ensure that the WOTUS are "fishable and swimmable."

A multitude of data sources are available to determine the effectiveness of the CWA. Keiser and Shapiro, who are both assistant professors in economics, analyzed "50 million water

pollution readings from more than 240,000 sites in the continental US, from 1962 to 2001" and used "detailed records [of the] 35,000 grants the federal government gave cities to improve the treatment of municipal wastewater" (Keiser and Shapiro, 2018). Keiser and Shapiro (2018) convey that the CWA has decreased US water pollution – declining between 1962 and 2001 – however, the economic change in housing values did not overweight the costs associated with the environmental grants' costs.

Researchers have analyzed policy frameworks related to water policy. Floress et al. (2017) analyzed vernal pool experts' opinions on approaches to vernal pool protection through the lens of MSF. Floress et al. (2017) explain that the MSF was "useful for contextualizing the experts' perceptions with terms that are well-defined and applied across disciplines" (Floress et al., 2017, pg. 1059). Floress et al.'s (2017) main findings are that "a top-down and bottom-up, hybrid approach" may be the best way to protect vernal pools. This analysis of vernal pools through the lens of the MSF conveys the usefulness of the frameworks to understand not only the policy system but how researchers look at related policies. Zafonte and Sabatier (1998) analyzed San Francisco Bay-Delta Water Policy through the lens of ACF. In analyzing water policy, Zafonte and Sabatier (1998) found that "different territorial subsystems will interact with either (a) the actions of one affect the other or (b) the two are part of a larger system which has the authority to set rules affecting geographic subunits" (Zafonte and Sabatier, 1998, pg. 501). This is important in looking at the ACF as there are territorial differences in policymaking. Another finding from Zafonte and Sabatier (1998) found that policy core scales seem to be important for explaining political coordination.

Environmental justice, equity, and racism are important when considering an environmental policy. Bullard and Johnson (2000) explained environmental justice in the US and provided examples of environmental injustice communities faced. Examples from Bullard and Johnson (2000) of communities where environmental justice took place was highlighted by childhood lead poisoning, where African American children were found to be "lead-poisoned at more than twice the rate of White children at every income level" (Bullard and Johnson, 2000, pg. 562). Specifically related to the CWA, in an EPA environmental justice analysis of the CWA, public comments were considered when analyzing the CWA. The public voiced their concerns associated with the CWA associated with environmental justice: "make [the CWA] less complicated, easier to understand, and more predictable to implement," "consider developing guidance to further assist states and tribal nations in implementing the final rule," and "ensure the final rule maintains tribal sovereignty on waters bordering state and tribal lands" (US Environmental Protection Agency, & Department of the Army, 2015). Instances environmental justice issues related to clean water are ever-present in the US. For example, the Flint, MI water crisis conveys the issues associated with the CWA. The socio-economic disadvantaged community of Flint was exposed to contaminated water due to a breakdown in governance related to water treatment and access (CBS Sunday Morning, 2018). The Flint community is still facing health, environmental, and economic effects due to this environmental justice issue. Under the CWA, socio-economic disadvantaged and minority communities are unjustly affected by the CWA. Socio-economic disadvantaged and minority communities are more likely to have polluted drinking water, water sources, and environments (Bullard and Johnson, 2000).

Improvements to the CWA would be surrounding environmental justice. Regardless of economic status or race, all communities in the United States should have access to clean water,



pollution-free environments, and communities. Time and time again, communities are faced with environmental challenges that are unjustly placed. Bullard and Johnson (2000) outlined instances where waste facilities are placed in Black communities. These waste facilities can greatly affect surface water, groundwater, and overall environmental quality. Additionally, Bullard and Johnson (2000) convey that "all communities do not receive equal protection" (Bullard and Johnson, 2000, pg. 559).

A sound strategy for getting a policy adopted into the legislative agenda would combine strategies from the policy frameworks. With the MSF, ensuring that a policy window is open would ensure that a policy is more likely to pass. With the ACF, combining with related interest coalitions can assist in passing a policy. Suggestions from Pralle (2009) related the MSF is to "take advantage of focusing events, offer 'predigested' policies to overcome gridlock, and venue shopping" (Pralle, 2009, pgs 796-797). These suggestions from Pralle are vital in passing a policy. An important factor in science policy, specifically environmental policy, as described by Pielke (2014) is that "for the protection of science and the constructive role that it can play in policy, we desperately need organizations and individuals who are willing to expand on the range of options available to policymakers by serving as Honest Brokers of Policy Alternatives" (Pielke, 2014, pg. 141). This is an important factor in policy making as scientists and political scientists must join together to produce sound, science-based environmental policies.

**References** (Note: references from outside source are marked in **BLUE** text color)

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