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THE WORLD'S MOST INTERNATIONAL WATERSHED IS IMPERILED BY A MAMMOTH HYDROPOWER DAM EXPANSION, AND EUROPE'S DANUBE SALMON IS THE "CANARY IN THE COAL MINE."

Bryan Maddan[1]

I. Introduction

The massive Danube watershed crosses 19 countries and is home to the apex predator, the Danube Salmon.[2] These species are the "canaries in the coal mine." Their decline can release a cascade of wildlife extinctions in Europe's largest remaining natural wetland.[3] "[E]ffects the loss of 'apex consumers' have had not only on immediate prey species, but also on the dynamics of fire, disease, vegetation growth, and soil and water quality."[4] Their extinction indicates a dramatic decline in a watershed's environment which provides free gifts of carbon storage, erosion & sedimentation control, increased biodiversity, soil formation, wildlife movement corridors, water storage & filtration, flood control, and food.[5]

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[1] Bryan Maddan is a lawyer and academic researcher working on various topics such as criminal justice reform and international water law, and he is grateful for the contributions and feedback given to this article from the Professors Helen Hartnell, Stephen Stec, Steven Weiss & Paul Kibel.

[2] International Commission for the Protection of the Danube River, https://www.icpdr.org/main/publications/danube-river-basin-overview-map

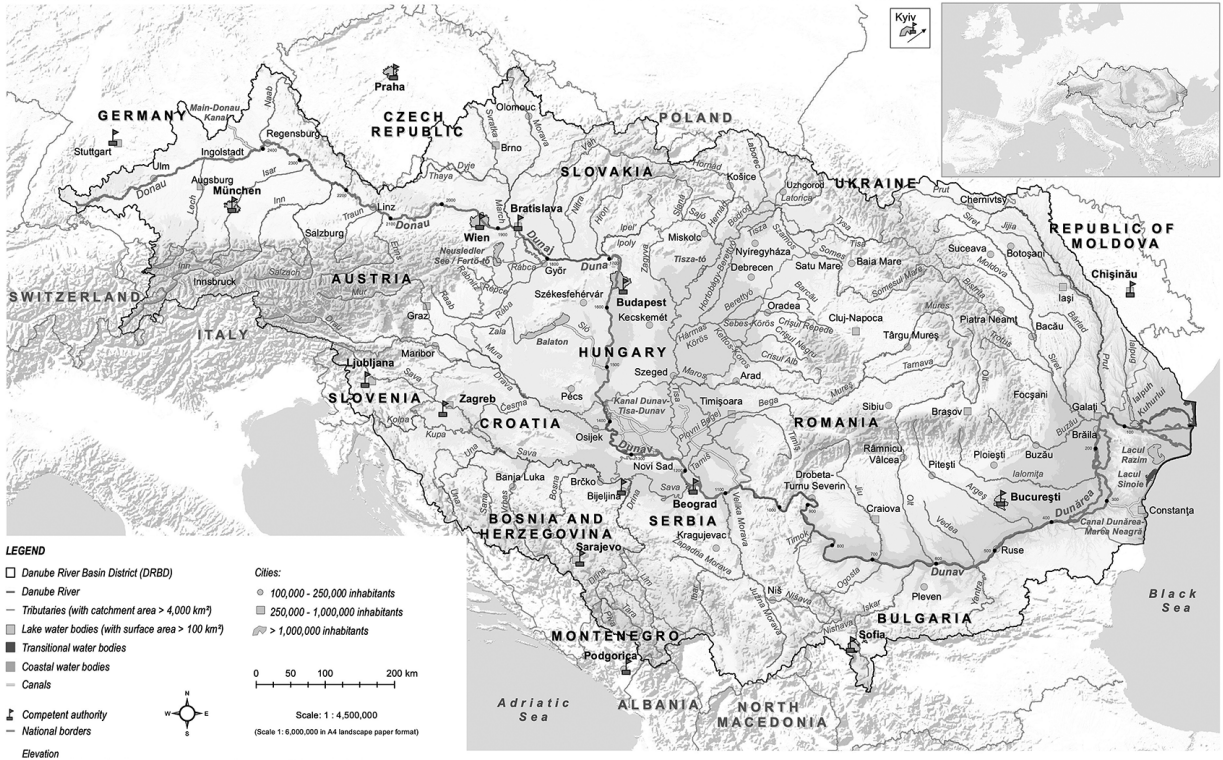
[3] National Science Foundation, *Loss of Large Predators Caused Widespread Disruption of Ecosystems*, https://www.nsf.gov/news/news_summ.jsp?cntn_id=121020

[4] Sarah Yang and Robert Sanders, *Ecosystems take hard hit from loss of top predators,* July 14, 2011, ESPM UC Berkeley, https://ourenvironment.berkeley.edu/ecosystems-take-hard-hit-loss-top-predators

[5] US EPA, *Benefits of Healthy Watersheds*, (last visited Apr. 4, 2023), https://www.epa.gov/hwp/benefits-healthy-watersheds

Danube River Basin District Overview

DRBMP Update 2021 - MAP 1



www.icpdr.org

ICPDR IKSD
International Commission for the Protection of the Danube River

This ICPDR product is based on national information provided by the Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU, MD, ME, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRI World Countries was used; Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as elevation data layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

Vienna, November 2021

The WATER FRAMEWORK DIRECTIVE (WFD) incorporates protecting endangered aquatic species. However, the EU has struggled with its WFD environmental enforcement.[6] The chaotic dam expansion threatens the watershed partly because of an WFD loophole.[7] Additionally, the watershed's governing body (ICPDR) has significant oversights in its spawning migratory data.[8] In summation: do EU founding treaties and the WFD require that the EU takes the lead role in a coordinated effort to save the international Danube watershed under the EU's principle of subsidiarity?

II. THE DANUBE SALMON — APEX PREDATOR AND INDICATOR SPECIES

Over 1,100 miles of river in the Danube watershed in the Balkans are home to self-sustaining populations of the Danube Salmon, also known as Huchen.[9] Huchen is a freshwater salmonoid with a maximum size of about 4.5 feet and a maximum weight of about 100 pounds.[10] Huchen habitat is shared by 16 other threatened species.[11] Historically Huchen were spread across the Danube River basin until approximately 100 years ago, but now hydropower dams are a fundamental cause in

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[6] *See*, *Commission Staff Working Document, The EU Environmental Implementation Review 2019, Country Report – Croatia* at 11, SWD (2019) 114 final/2 (Apr. 4, 2019), https://op.europa.eu/en/publication-detail/-/publication/071677c9-06ed-11ea-8c1f-01aa75ed71a1/language-en/format-PDF/source-261568670; See*, Commission Staff Working Document,* Environmental Implementation Review 2022 Country Report – Croatia, at 17, SWD (2022) 258 final (Sep. 8, 2022), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0258_FIN; *See*, Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015), https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf; *Commission Staff Working Document, European Overview-River Basin Management Plans 2019*, SWD (2019) 30 final (Feb. 26, 2019), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:30:FIN

[7] *See*, *Report from the commission to the European Parliament and the council on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC) Second River Basin Management Plans, First Flood Risk Management Plans*, at 4.1 *Assessment at national or sub-national level*, COM (2019) 95 final (Feb. 26, 2019) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A095%3AFIN;

[8] International Commission for the Protection of the Danube River, the Danube River Basin Management Plan, (DRBMP) 2021, at 238, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp_update_2021_final_lores.pdf; Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf

[9] Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf

[10] *Id*.

[11] All of these species as well as regionally threatened or economically important species, e.g. brown trout Salmo trutta and grayling Thymallus thymallus, benefit from conserving Huchen habitats. *Id.* at 14.

their possible looming extinction.[12] Huchen habitat is endangered by at least 70 dam projects which will render uninhabitable over 600 miles downstream by drowning and/or degrading their downstream habitat with hydropeaking.[13]

Dams often destroy the necessary conditions for Huchen reproduction, which include spawning ground "gravel beds [and] well oxygenated, fast-flowing water" with temperatures rarely above a mean July temperature of 60°F.[14] The currently planned habitat destruction would result in Huchen populations becoming so small and fragmented that their extinction would likely be inevitable.[15] Some International Union for Conservation of Nature (IUCN) scientists urge the following: 1) Implement Huchen historical habitat restoration, and 2) Mandate that Huchen habitat remains undammed.[16] The IUCN's partnership of governmental and civil bodies is not legally binding in its assessments, but it develops policy initiatives and "is the global authority on the status of the natural world and the measures needed to safeguard it."[17]

III. Water Framework Directive's Protected Species Include the Danube Salmon

The WFD implements the EU's obligations under international water treaties, which includes most notably the United Nations 1992, Convention on the Protection and Use of Transboundary Watercourses and International Lakes (PTWIL).[18] The WFD delegates river management to River Basin Districts (RBDs).[19] The WFD mandates that RBDs develop River Basin Management Plans (RBMP) reports every 6 years to ensure accountability and policy integration for water resources management.[20] EU enforcement of WFD violations occur when the European Commission (EC) identifies gaps in an EU Member State's (MS) WFD

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[12] *Id.*

[13] *Id.* at 28. Note: I subtracted 23 dams, because those appear to be double counted transboundary dams.

[14] *Id.* at 5.

[15] *Id.* at 4.

[16] *Id.*

[17] International Union for Conservation of Nature, https://www.iucn.org/

[18] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Preamble 35, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060; 2 UNTS XXVII-5, https://treaties.un.org/doc/Treaties/1992/03/19920317%2005-46%20AM/Ch_XXVII_05p.pdf

[19] *Id*. at Article 3.1, *Coordination of administrative arrangements within river basin districts.*

[20] *Commission Staff Working Document, European Overview-River Basin Management Plans 2019,* at 20, SWD (2019) 30 final (Feb. 26, 2019), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:30:FIN

integration into their national laws.[21] The EC will subsequently do the following: 1) The EC will make recommendations to MSs; 2) the EC will next follow with bilateral dialogues with MSs; and 3) Finally, the EC (if MSs maintain noncompliance) can open investigations and/or infringement procedures against MSs.[22] The European Court of Justice (ECJ) may mandate financial penalties to end an infringing MS's noncompliance.[23]

A. WFD's Wide-Ranging Impacts

The ECJ has clearly articulated how the WFD is a robust environmental law impacting all MSs. The ECJ ruled in a preliminary ruling, in the *Folk* case, C-529/15 (2015), that the environmental damage that occurred after the WFD's enactment from operations in a facility authorized before the WFD's enactment, is still liable for their current pollution.[24] Moreover, the *Weser* case, C-461/13 (2015), was an ECJ preliminary ruling that ruled, under the WFD's Article 4.1, that water quality deterioration occurs as soon as the status of at least one of the quality elements falls by one class, even if the classification of the waterbody as a whole does not deteriorate.[25] If the quality element concerned is already in the lowest class, any deterioration of that element constitutes a 'deterioration of the status' of the entire waterbody.[26]

Thus, WFD noncompliance would violate the WFD, even if the polluting facility were previously authorized by a MS. Additionally, the ECJ ruled, under the WFD, that all MSs need to actually improve their watersheds.[27] In apparent violation of the WFD, the multiple MSs Danube dam expansion is specifically inhibiting the improvement of the

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[21] *Communication from the Commission, Financial sanctions in infringement proceedings*, at 1, C (2022) 9973 final (Dec. 22, 2022), https://commission.europa.eu/system/files/2022-12/communication-on-financial-sanctions-c-2022-9973_en.pdf

[22] *See*, *supra* note 19 at 27.

[23] *See*, *supra* note 20, at 1.

[24] *Folk*, C-529/15 (2015), Request for a preliminary ruling from the Verwaltungsgerichtshof (Austria) Gert Folk, http://curia.europa.eu/juris/liste.jsf?num=C-529/15; *See*, ELD, Directive 2004/35/CE, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0035; https://ec.europa.eu/environment/legal/liability/index.htm

[25] *See*, *supra* note 17, at Annex V, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060; *Weser* C-461/13 (2015) Judgment of the Court (Grand Chamber) of 1 July 2015 (request for a preliminary ruling from the Bundesverwaltungsgericht — Germany) — Bund für Umwelt und Naturschutz Deutschland e.V. v Bundesrepublik Deutschland http://curia.europa.eu/juris/liste.jsf?num=C-461/13; Tiina Paloniitty, The *Weser* Case, Oxford Journal of Environmental Law (2016) at 28, 151–158.

[26] *See*, *supra* note 23 at line 70.

[27] ". . .[MSs] are to protect, enhance and restore all bodies of surface water with the aim of achieving good status by the end of 2015 (obligation to enhance)." *See*, *supra* note 18 at line 39.

Danube watershed.[28] Furthermore, because of the *Folk* case, an older dam whose water body is impacted by a new dam might spread liability to the old dam.[29] Thus, investors and national builders of dams should be weary of the liability of new dam projects that might cause a WFD violation of an older dam that was originally in compliance with the WFD.

IV. The EU's Environmental Shortcomings: Case Study Croatia

Croatia is not yet providing adequate information necessary to determine its conformity with the WFD.[30] The WFD Article 6 requires MSs to register protected areas mandating special protection of their surface water for the conservation of habitats.[31] The WFD highlights applying the Habitat Directions[32] (HD) to aquatic ecosystems by designating Natura 2000 (N2) sites as "special areas of conservation."[33] In 2016, the EU initiated infringement proceedings against Croatia for non-conformity of its national legislation with the HD.[34] Croatia was informed in 2019 by the EU to complete the designation of the HD's N2 "special areas of conservation," and to implement clear conservation objectives & measures and provide funding for their N2s by 2020. Croatia's 2022 EIR country report still indicates significant shortcomings under the HD

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[28] *See*, Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf; *See*, Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Preamble 35, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060

[29] *See*, *Folk*, C-529/15 (2015), Request for a preliminary ruling from the Verwaltungsgerichtshof (Austria) Gert Folk, http://curia.europa.eu/juris/liste.jsf?num=C-529/15;

[30] *See, Commission Staff Working Document, The EU Environmental Implementation Review 2019, Country Report – Croatia* at 11, SWD (2019) 114 final/2 (Apr. 4, 2019), https://op.europa.eu/en/publication-detail/-/publication/071677c9-06ed-11ea-8c1f-01aa75ed71a1/language-en/format-PDF/source-261568670; *See*, *Commission Staff Working Document,* Environmental Implementation Review 2022 Country Report – Croatia, at 17, SWD (2022) 258 final (Sep. 8, 2022), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=Comnat%3ASWD_2022_0258_FIN

[31] *See*, *supra* note 17 at Annex IV.

[32] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, 1992 OJ (L 206) 7–50, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043

[33] *See*, *supra* note 17 at Annex VI.

[34] *Commission Staff Working Document, The EU Environmental Implementation Review 2019, Country Report – Croatia* at 11, SWD (2019) 114 final/2 (Apr. 4, 2019), https://op.europa.eu/en/publication-detail/-/publication/071677c9-06ed-11ea-8c1f-01aa75ed71a1/language-en/format-PDF/source-261568670

and noted that Croatia still needs to implement measures for N2 sites.[35] Thus, it is impossible for the EU to know if Croatia's planned hydropower projects are WFD compliant, without obtaining this HD data.

Under Croatia's Nature Protection Act (CNPA), the blocking of a dam's construction for habitat protection would require compensation, even though a dam project might violate the WFD.[36] Under the Environmental Liability Directive (ELD), the European Parliament and the EC established a framework based on the 'polluter pays' principle to prevent and remedy environmental damage.[37] Thus, the CNPA seemingly violates the EU's polluter pays principle, because a facility which destroys protected habitat is "paid-for," instead of "paying-for," their pollution.[38] In one of the EU's founding treaties, Treaty on the Functioning of the European Union (TFEU), Article 267 provides for a preliminary reference from a MS court to the ECJ, which could challenge a MS's laws that conflict or inhibit any EU directive (*i.e.* WFD).[39] Consequentially, the CNPA would likely violate the WFD, if a challenge were brought to the ECJ.[40]

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[35] *Commission Staff Working Document,* Environmental Implementation Review 2022 Country Report – Croatia, at 17, SWD (2022) 258 final (Sep. 8, 2022), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=Comnat%3ASWD_2022_0258_FIN

[36] Croatia's Nature Protection Act, Article 17(4) at 14, Class: 351-01/03-01/02, Zagreb, 25 September 2003, Croatian Parliament, Chairman Zlatko Tomèiæ, m.p. https://www.hah.hr/pdf/Nature_Protection_Act.pdf.

[37] Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage 2004 OJ (L 143) 56, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02004L0035-20190626

[38] Croatia's Nature Protection Act, Article 17(4) at 14, Class: 351-01/03-01/02, Zagreb, 25 September 2003, Croatian Parliament, Chairman Zlatko Tomèiæ, m.p. https://www.hah.hr/pdf/Nature_Protection_Act.pdf.

[39] Another Legal Remedy: complaint to Croatia's Ombudsmen; Ombudsperson – a) Investigates, informing the institution concerned; b) Recommendations to the institution; c) special report to the European Parliament, which must take action, (last visited March 27, 2023) https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/institutions-and-bodies-profiles/european-ombudsman_en

[40] "As set out in Article 174 of the Treaty, the Community policy on the environment is to contribute to pursuit of the objectives of preserving, protecting and improving the quality of the environment, in prudent and rational utilisation of natural resources, and to be based on the precautionary principle and on the principles that preventive action should be taken, environmental damage should, as a priority, be rectified at source and that the polluter should pay." Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Preamble 11, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060

V. The International Commission for the Protection of the Danube River's (ICPDR) Permitted Dam Expansion Could Spell Disaster for the Danube Salmon

The ICPDR manages a vast majority of Huchen habitat.[41] The ICPDR was initially founded by the Danube River Protection Convention (DRPC), but the ICPDR is also now involved with WFD implementation for the European Union MSs.[42] ICPDR RBMP 2015 Annex only mentions four out of the 70 planned hydropower dams in 2015, and the ICPDR listed only 28 dam projects in 2021.[43] This is a direct contradiction to the NGO Riverwatch's findings that in Serbia alone, 824 dams were planned, and 14 were under construction in 2020.[44]

A. ICPDR Lapses: Migratory Misunderstandings, and Habitat Miscalculations

In the ICPDR's RBMP 2015 report, and ICPDR's RBMP 2021 report, the ICPDR directly contradicts scientific observations of the Huchen's inability to access migratory spawning routes due to the dams.[45] "At the moment, barriers within LDM (Long distance migrants) habitats which are equipped with fish migration aids are passable for MDM species. . ."[46] Huchen is classified as an MDM (medium distance migrants) species.[47] Some IUCN scientists observe that Huchen have enormous difficulty with utilizing fish pass facilities due to their large

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[41] International Commission for the Protection of the Danube River, the Danube River Basin Management Plan, (DRBMP) 2015, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp-update2015.pdf

[42] *Commission Staff Working Document, European Overview-River Basin Management Plans 2019,* at 284 *1.18.Overview of International Cooperation*, SWD (2019) 30 final (Feb. 26, 2019), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:30:FIN

[43] Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention) Vienna, Oct. 1998, DRPC founded the ICPDR which includes most of the 19 countries whose territories include parts of the Danube watershed , https://www.icpdr.org/main/sites/default/files/DRPC%20English%20ver.pdf; *See*, *supra* note 29 at Annex 7, at 8, https://rowater.ro/wp-content/uploads/2020/12/DRBM-Plan-Update-2015-Annexes.pdf; *See*, *supra* note 5 at 28, Note: I subtracted the double count for 23 of the transboundary dams.

[44] Ulrich Schwarz, *Hydropower projects on Balkan Rivers* (2020), Riverwatch, https://balkanrivers.net/uploads/files/3/Balkan_HPP_Update_2020.pdf

[45] *See*, *supra* note 40; International Commission for the Protection of the Danube River, the Danube River Basin Management Plan, (DRBMP) 2021, at 238, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp_update_2021_final_lores.pdf;

[46] International Commission for the Protection of the Danube River, the Danube River Basin Management Plan, (DRBMP) 2015, at 129, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp-update2015.pdf; Protection of the Danube River, the Danube River Basin Management Plan, (DRBMP) 2021, at 238, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp_update_2021_final_lores.pdf

[47] *See*, *supra* note 45 at 128.

size, in direct contradiction to the ICPDR's data.[48] Furthermore, the ICPDR declared with LDMs that "[s]ince there are no standardised fish pass solutions for LDM-species, individual measures have to be taken."[49] Why has the ICPDR failed to mention in the RBMP reports of any individual measures that "have to be taken" as well for the Huchen as an MDM species?

Some IUCN scientists also contradicted the ICPDR's analysis for an inconsistent application of historical habitat:

> "Key migration routes for . . . LDMs is based on historical information going back centuries. The historical information serves the definition and use as reference conditions corresponding to entirely or almost entirely undisturbed natural conditions. The distribution of MDMs is based on modelled data that has been calibrated with current information."[50]

Unlike LDMs, the ICPDR did not consider the MDMs' (*e.g*. Huchen) historical habitat in its overall assessments. This MDM data (*e.g*. Huchen) is based on "current information" despite the fact that the ICPDR in a separate part of the same document acknowledges that the historical range of MDMs (*e.g*. Huchen) is blocked by dams; the "[Danube watershed] is a key migration route and connects all tributaries for migration.. . . the chains of hydropower plants in [including Germany, Austria] represent significant migration barriers for fish. Migratory fish, such as sturgeon and [MDMs], are particularly affected, being unable to move up or downstream between their spawning grounds. . ."[51] While the ICPDR RBMP 2021 report eliminated this historical habitat analysis distinction between MDM/LDM, the ICPDR has now proceeded to ignore smaller Danube tributaries in habitat evaluations even while acknowledging that it likely is habitat for MDMs (*e.g*. Huchen).[52] In direct contradiction, some IUCN scientists found that Huchen often spawned in small Danube tributaries in spite of the ICPDR's omission of including these potential spawning grounds in their habitat assessment.[53] The ICPDR's changing metrics continue to exclude the Huchen.[54]

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[48] Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 16, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf

[49] *See*, *supra* note 45 at 129; *See*, *supra* note 45 at 238.

[50] *See*, *supra* note 45 at 129.

[51] *See*, *supra* note 45 at 130.

[52] *See*, *supra* note 45 Annex 17 at 4, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp_update_2021_final_annexes_1-21.pdf

[53] *Id*.

[54] *Id*.

B. Ignorance Might Be Bliss, but WFD Defined "Pollution" Kills Huchen

Dams are responsible for considerable Huchen habitat loss in the Balkans (*i.e*. Croatia's Dobra/Drava Rivers).[55] Dams negatively impact river morphology, spawning ground gravel beds, water temperature and most of the components that are required for Huchen reproduction and survival.[56] Nevertheless, in 2015 the ICPDR saw no need for Croatia to improve its river morphology.[57]

Further dam expansion creates pollution under the WFD.[58] The WFD's primary purpose, explained in Article 1(a), the WFD "prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems."[59] WFD Article 2 Definition 33 defines "Pollution" to includes the direct or indirect introduction, as a result of human activity, of substances or heat into the air, water or land which may be harmful to the quality of aquatic ecosystems which result in damage to material property, or which impair or interfere with amenities and other legitimate uses of the environment (*e.g*. protecting HD habitat such as the Huchen).[60] WFD's Article 2's Definitions 31 defines "Pollutant" to mean any substance liable to cause pollution, in particular those listed in Annex VIII. WFD Annex VIII's "Indicative List of the Main Pollutants," number 12 is "[s]ubstances which have an unfavourable influence on the oxygen balance."[61] Dams greatly impact water temperature rises in rivers, which will affect the oxygen balance that is so crucial for Huchen survival.[62] Unrestrained Dam development on the Danube causes the "indirect introduction" of warmer water and unfavorably influences "the oxygen balance," seemingly violating the WFD and imperiling the Huchen as the aquatic canary in the coal the mine.[63]

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[55] *See*, *supra* note 47, at 15.

[56] *See*, *supra* note 47 at 13, 20.

[57] *See*, *supra* note 45 at 133.

[58] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Article 2.33, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060; Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf

[59] *Id.* at Article 1.a.

[60] *Id.* at Article 2.

[61] *Id.* at Article 2.

[62] *See*, *supra* note 47, at 4.

[63] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Article 2.33, 2000

VI. Dam Reservoirs Contribute Over 1% of the World Wide Total of Green House Gasses Emissions

In addition to the "pollution" of water heating, and unfavorably influencing the oxygen balance, dams add a significant amount of the world's total green house gases (GHG), ". . .1.3% of global anthropogenic CO2-equivalent emissions from well mixed GHGs overall. . . "despite aspirations of offering green energy.[64] The pollution dams create is multifactored because,

> ". . .the flooding of large stocks of terrestrial organic matter may fuel microbial decomposition, converting the organic matter stored in above and below ground biomass to carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Second, reservoirs often experience greater fluctuations in water level than natural lakes. Drops in hydrostatic pressure during water level drawdowns can enhance CH4 bubbling (e.g., ebullition) rates at least over the short term (Maeck et al. 2014). This enhanced ebullition may then decrease the fraction of CH4 that is oxidized to CO2, a less potent GHG, by methane oxidizing microbes (Kiene 1991)."[65]

Thus, dams surprisingly create significant amount of the CHG methane, which is more than 25 times as potent as CO^2.[66] This information should be considered if and where to place a dam due to methane reservoir releases because, "dams on river systems with fewer nutrients to feed algae growth could produce less methane, for instance, than dams on higher nutrient streams."[67]

VII. EU'S Principle of Sustidarity Can Save the Danube Watershed

Direct EU enforcement in the Danube watershed is likely mandated due to the Huchen's migratory nature and the vast downstream impacts

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O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060; Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf

[64] *See*, Bridget R. Deemer, *et. al*., *Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis*, Vol. 66 No. 11. BioScience 949, Overview Articles, November 2016, https://academic.oup.com/bioscience/article/66/11/949/2754271?login=False

[65] *Id*.

[66] US EPA, *Importance of Methane*, (last visited Apr. 4, 2023), https://www.epa.gov/gmi/importance-methane

[67] *See*, Warren Cornwall, Hundreds of new dams could mean trouble for our climate, Science.Org September 28, 2016, https://www.science.org/content/article/hundreds-new-dams-could-mean-trouble-our-climate

of the myriads of dams on the international Danube watershed.[68] Understandably, Croatia alone is unable to save the Danube watershed. The EU's principle of subsidiarity with shared competences requires that the EU shall act in so far as the objectives cannot be sufficiently achieved by MSs, but rather can be better achieved by broader EU legislation.[69] In other words, the broader EU is required to act when the national MSs' legislative powers are ineffective. As cited in the WFD, the TFEU (One of the two EU founding treaties) Article 191 states that the EU's environmental policy encompasses preserving, protecting and improving environmental quality while balancing the EU's economic & social development.[70] EU environmental policy is subject to international treaties and rooted in the precautionary principle, preventive action and the polluter pays principle.[71] The WFD aims for further integration of protection and sustainable water management into other EU policy areas (energy, fisheries, etc.) to be in accordance with the principle of subsidiarity.[72]

VIII. The WFD Will Apply to Future EU Member States

While non-EU countries are not bound by the WFD, non-EU countries who wish to enter the EU would eventually need to implement the WFD. Transitional measures can be granted investment-heavy directives (within waste, water, industrial pollution and air quality), if they are limited in both time and scope, and the transitional measures do not distort competition for the EU single market.[73] The EU Candidates and Huchen habitat countries Montenegro, Serbia and Ukraine are contracting parties of the ICPDR, and these countries are currently bound by the ICPDR's commitments and disputes resolutions explained in Article 24 of the ICPDR's foundational DRPC.[74] Remedies are initially sought by bilat-

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[68] *See,* Treaty of the European Union (TEU) Article 5.3-4, https://eur-lex.europa.eu/resource.html?uri=Cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF;

[69] *See,* Treaty of the European Union (TEU) Article 5.3-4, https://eur-lex.europa.eu/resource.html?uri=Cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF;TEU & TFEU are the two founding EU treaties.

[70] *See*, *supra* note 62 at *preamble* 11-12.

[71] *See*, *supra* note 62 at *preamble* 11-12

[72] *See*, *supra* note 62 at *preamble* 16-18.

[73] EC Environment, *Candidate Countries and Potential Candidates,* (last visited March 14, 2023) https://ec.europa.eu/environment/enlarg/candidates.htm

[74] Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention) Vienna, Oct. 1998, DRPC founded the ICPDR which includes most of the 19 countries whose territories include parts of the Danube watershed , https://www.icpdr.org/main/sites/default/files/DRPC%20English%20ver.pdf

eral negotiations or dispute resolutions.[75] However, if this fails, disputes are to be resolved at the International Court of Justice (ICJ) or arbitration that is determined under international law and the rules of the DRPC.[76]

Another enforcement mechanism for non-EU countries is the aforementioned United Nations 1992 PTWIL. The PTWIL became a global instrument in 2016.[77] Austria, Croatia, Hungary, Bosnia and Herzegovina, Germany, Romania, Slovakia, Ukraine, Montenegro, Serbia, are Huchen habitat countries that are bound by the PTWIL.[78] PTWIL Article 2.2(d) states that the Parties shall take all appropriate measures to ensure conservation and restoration of ecosystems.[79] Article 2.5(a) incorporates the precautionary principle to stop potential transboundary impacts of hazardous substances (which by definition can be warm water impacts in the WFD) even without definite scientific certainty; and the polluter-pays principle protects the present generation without hurting future generation's own water needs.[80]

Non-EU Countries bound by the PTWIL (*i.e*. Bosnia & Herzegovina) are still held to essentially many of the environmental policy protections provided by the WFD to protect the Danube's ecosystems and Huchen habitat.[81] However non-EU disputes would be settled by PTWIL Article 22.1 dispute resolutions and include the following options in chronological order: 1) Negotiation; 2) Dispute resolutions acceptable to the parties to the dispute; or 3) If declared in writing a compulsory submission to the ICJ; or 4) Arbitration that is elaborated upon in PTWIL Annex IV.[82]

IX. The WFD Loophole

The EC reported that WFD Article 4.7 exemptions covered about half of Europe's water bodies in 2019, and this extensive use of 4.7 exemptions is an indicator of the significant efforts are still needed to

[75] Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention) Vienna, Oct. 1998, DRPC founded the ICPDR which includes most of the 19 countries whose territories include parts of the Danube watershed , https://www.icpdr.org/main/sites/default/files/DRPC%20English%20ver.pdf;

[76] *Id.*

[77] *Frequently Asked Questions on the 1992 Water Convention*, 21 December, 2020, https://www.unwater.org/frequently-asked-questions-on-the-1992-water-convention/

[78] 2 UNTS XXVII-12, https://treaties.un.org/doc/Treaties/1998/09/19980925%2006-30%20PM/Ch_XXVII_12p.pdf

[79] *Id.*

[80] *Id.*

[81] *Id*

[82] *Id*. at Article 22.

achieve good water status by 2027.[83] The EC found that MSs need to "better ensure that the exemptions applied for one water body do not permanently exclude or compromise the achievement of the environmental objectives in other water bodies (Article 4(8)), and guarantee at least the level of protection provided for in other EU environmental law (Article 4(9))."[84]

Many MS's WFD Article 4.7 exemptions were applied at a national level without international coordination, despite the cumulative impact of many chains of dams.[85] Nevertheless, MSs will not violate the WFD's environmental laws if their projects are the result of new sustainable human development activities and if the following are met: (a) all practicable mitigation steps are taken against adverse impacts; (b) the reasons are specifically explained and reviewed every six years; (c) the reasons are of overriding public interest and/or the benefits to the environment and to society are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development, and (d) the beneficial objectives cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.

However, a significantly better environmental option for energy might not be to build a dam at all, but instead could entail wind or solar farms with much less environmentally destructive impacts.[86] Consequently, most current Article 4.7 exemptions appear to violate the WFD.[87] The application of WFD Article 4.7 exemption has increased

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[83] *Report from the commission to the European Parliament and the council on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC) Second River Basin Management Plans, First Flood Risk Management Plans*, at 4.1 *Assessment at national or sub-national level*, COM (2019) 95 final (Feb. 26, 2019) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A095%3AFIN; *See, Commission Staff Working Document, European Overview - River Basin Management Plans*, at 15, *Environmental objectives and exemptions,* SWD (2021) 253 final (Sep. 13, 2021), https://circabc.europa.eu/ui/group/1c566741-ee2f-41e7-a915-7bd88bae7c03/library/6d317d1a-2dfe-4942-a536-d3489056a777/details

[84] *Id*.

[85] *Commission Staff Working Document, European Overview-River Basin Management Plans 2019,* at 290, SWD (2019) 30 final (Feb. 26, 2019), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:30:FIN

[86] "Those means or alternatives solutions could involve alternative locations, different scales or designs of development, or *alternative processes*." (emphasis added.) *Common Implementation Strategy for the Water Framework Directive (2000/60/EC) Technical Report - 2009 – 027, Guidance Document No. 20, Guidance Document on Exemptions to the Environmental Objectives, Key issues in the Process of Justifying Exemptions,* 3.2.6 at 16, https://circabc.europa.eu/sd/a/2a3ec00a-d0e6-405f-bf66-60e212555db1/Guidance_documentN%C3%82%C2%B020_Mars09.pdf

[87] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Article 2.33, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060; Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*,

with "more projects in the pipeline . . .."[88] Some progress has been made with methodologies, but the assessment of cumulative effects remains a challenge.[89] How to determine overriding public interest is limited, and it is unclear to what extent that there exists public consultation.[90] Nevertheless, the ICPDR RBMP 2021 report lists 20 out of 28 dam projects claiming an WFD exemption.[91]

If a MS's planned dams compromise the other areas of the Danube's watershed's water quality or biodiversity, it would nullify a WFD exemption.[92] WFD Article 4.8 introduced principles to exemptions, such as exemptions for one water body must not permanently compromise environmental objectives in other water bodies.[93] However, new dams often damage habitat further down the river. Furthermore, WFD Article 4.8 states that exemptions shall not "compromise the achievement of the objectives of this Directive in other bodies of water within the same river basin district" and exemptions must be consistent with WFD, HD, etc.[94]

The EC's 2021 report expressed continued concern of a pending failure to implement the WFD noting that it "is clear, however, that the distance to be covered to full compliance with the [WFD]'s objectives is still considerable."[95] Furthermore, the EC noted, "[there] is not much time left to 2027, when most possibilities for exemption from the obligations of the Water Framework Directive run out, and water bodies have to be in good status."[96] The WFD 4.7 exemption appears to still be at the crux of inhibiting MSs compliance with the WFD and the PTWIL.[97]

Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf

[88] *See*, *supra* note 84 at 178.

[89] *See*, *supra* note 84 at 178.

[90] *See*, *supra* note 84 at 178.

[91] International Commission for the Protection of the Danube River, the Danube River Basin Management Plan, (DRBMP) 2015, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp-update2015.pdf; *See*, Annex 7, List of future infrastructure projects, 2021, https://www.icpdr.org/main/sites/default/files/nodes/documents/drbmp_update_2021_final_annex_7_-_list_of_fips.pdf

[92] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Article 4.8, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060;

[93] *Id.*

[94] *Id.*

[95] *Report from the Commission to the Council and the European Parliament, on the implementation of the Water Framework Directive (2000/60/EC), the Environmental Quality Standards Directive (2008/105/EC amended by Directive 2013/39/EU) and the Floods Directive (2007/60/EC) Implementation of planned Programmes of Measures New Priority Substances Preliminary Flood Risk Assessments and Areas of Potential Significant Flood Risk*, at 6. *Conclusion*, COM (2021) 970 final (Dec. 15, 2021), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2021:0970:FIN

[96] *Id*.

[97] *Id.*

X. The EU Acknowledges These Problems and Is Recommending Viable Solutions

EU RBD recommendations: 1) A joint methodology for setting exemptions on transboundary water bodies should be developed; 2) MSs should ensure that the register of WFD's HD Protected Areas are complete and kept up to date; 3) MSs should reduce exemptions while meeting WFD objectives with transparency and clear criteria in their exemption justifications; 4) MSs should include an overview of all current and planned developments, including "particularly new hydropower"; and 5) MSs should "particularly" continue watershed habitat restoration and improve river continuity with all MSs needing a widespread application of authorization and permitting systems.[98] If the EU took more of a lead to implement its own recommendations, most MSs could attain full WFD compliance.[99]

XI. Conclusion

Collaboration is the solution. The EU's founding treaties, international law, EU case law and the WFD appear to mandate an EU lead watershed assessment with all Danube countries coordinating their individual hydropower development to guarantee the protection of habitats for threatened species and safeguard our vital watersheds.[100] The current uncoordinated hydropower expansion is likely to be illegal and threatening the Danube watershed's vitality and its apex predators such as the Huchen.[101] Time is of the essence, while a trophic cascade can still be avoided.[102]

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[98] *See*, *supra* note 84 at 294-95, 270, 178-79, 179 (*emphasis added*), 245.

[99] *Id.*

[100] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, at Article 2.33, 2000 O.J. (L 327) 0001 - 0073, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060; Jörg Freyhof, *et. al*., *The Huchen Hucho hucho in the Balkan region*, Riverwatch (2015) at 4, https://ecoalbania.org/wp-content/uploads/2015/03/Huchen_Study_2015_RAPORT.pdf; Treaty of the European Union (TEU) Article 5.3-4, https://eur-lex.europa.eu/resource.html?uri=Cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF

[101] *Id.*

[102] National Science Foundation, *Loss of Large Predators Caused Widespread Disruption of Ecosystems*, https://www.nsf.gov/news/news_summ.jsp?cntn_id=121020; Sarah Yang and Robert Sanders, *Ecosystems take hard hit from loss of top predators,* July 14, 2011, ESPM UC Berkeley, https://ourenvironment.berkeley.edu/ecosystems-take-hard-hit-loss-top-predators; James Estes *et al*., Trophic Downgrading of Planet Earth, Science.org (2011).

FISHING AND FISHERIES UNDER INTERNATIONAL WATER LAW: A DIALOGUE BETWEEN PROFESSOR GABRIEL ECKSTEIN AND PROFESSOR PAUL STANTON KIBEL

Gabriel Eckstein & Paul Stanton Kibel

I. Introduction

On April 10 and 11, 2023, the Center on Urban Environmental Law (CUEL) at Golden Gate University School of Law hosted a two-day webinar on *International Law Aspects of Fisheries and Hydropower in Europe*. To open the webinar, Professor Gabriel Eckstein[1] (of Texas A&M University School of Law) and Professor Paul Stanton Kibel[2] (of Golden Gate University School of Law) participated in a keynote dialogue titled *Fishing and Fisheries under International Water Law*. What follows is a transcription of this dialogue between Professor Eckstein and Professor Kibel.

II. Dialogue

Professor Kibel: In setting up our keynote dialogue this morning with Gabriel, I wanted to start by focusing on one of the words in the title

[1] Gabriel Eckstein, an expert on international water law, is a law professor at Texas A&M University and Director of the university's Energy, Environmental & Natural Resources Systems Law Program and its Environmental & Natural Resources Systems Law Clinic. He is the Immediate Past President of the International Water Resources Association, and forthcoming Chair of the Executive Council of the International Association for Water Law. His scholarship is available at: https://works.bepress.com/gabriel_eckstein/.

[2] Professor Kibel teaches water law and international law at Golden Gate University School of Law and is the author of the book *Riverflow: The Right to Keep Water Instream* (Cambridge University Press 2021). He is also the author of the article *Damage to Fisheries by Dams: The Interplay Between International Water Law and International Fisheries Law*, UCLA Journal of International Law and Foreign Affairs (2017).

that we have selected for the keynote dialogue. The word I want to focus in on is not the noun fisheries but the verb fishing. And I'll explain why.

Under the 1997 United Nations Convention on Transboundary Watercourses there are provisions in that convention that focus on the principle of equitable utilization.[3] This is a bedrock foundational principle in international water law. The provisions of the 1997 Watercourse Convention[4] that focus on usage and on utilization deal with issues such as out-of-stream diversions of water for municipal or agricultural use or for certain instream uses such as the generation of hydropower.

But under the 1997 Transboundary Watercourse Convention there are separate provisions that deal with the protection of the environment and aquatic biodiversity, and that deal with the avoidance of environmental harm.

To date in dealing with this topic, of fishing and fisheries under the 1997 Transboundary Watercourse Convention, the focus has been on those provisions relating to avoidance of significant environmental harm or those provisions dealing with the protection of freshwater aquatic biodiversity. But when we talk about fishing as a verb, as an act – whether it is subsistence fishing, commercial fishing or recreational fishing – it's somewhat different from talking about fisheries. Fishing is different from fisheries in that it is a human activity. It is a human activity that is reliant on certain instream conditions. These include conditions that relate to fisheries such as instream temperature, such as salinity, such as turbidity, such as the condition of the bed and banks of the river in terms of spawning habitat, such as whether or not there's adequate passage upstream and downstream for migratory fish.

When one shifts the focus from fisheries to fishing, to the activity of fishing, what we are talking about is a use of water, the utilization of water and of transboundary rivers. And when we focus on fishing as a use, this shift moves some of the concerns about fisheries back into the foundational principle of equitable utilization of rivers.

As we consider fishing as a use of water, not simply a natural resource that is impacted by the use of water, I want to briefly mention two situations in the United States, one under California law and one under federal law, to give a sense of how fishing as a use of water for fisheries has been dealt with under domestic law and how it may relate to the broader international law principle of equitable utilization of water.

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[3] U.N. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *opened for signature* March 17, 1992, 1936 U.N.T.S. 269 (entered into force Oct. 6, 1996).

[4] *Id*.

First example. Pursuant to the California Water Code[5], the California State Water Resources Control Board recognizes several "beneficial uses" of water. I'm not going to go through all of these uses, just the ones that seem most pertinent to our webinar today. In California, beneficial uses of water include the following: uses of water that support cold water ecosystems, including, but not limited to preservation or enhancement of fish; uses of water that support estuaries and ecosystems, including, but not limited to preservation and enhancement of fish, and, finally, uses of water that support estuaries and ecosystems, including but not limited to fish and the propagation, sustenance, and migration of estuary organisms. So when we think about dams that often block passage of fish upstream and downstream, it's interesting to note that, at least under California law, a beneficial use of water includes the use of water by fisheries and fisherman.

The second example I wanted to give is under federal law in the United States. In the United States many Native American tribes, and this is particularly true in the Northwest where salmon are present, have legal rights under treaties with the federal government to fish for certain fisheries and at certain locations.[6] The federal courts in the United States, in interpreting these Native American indigenous fishing rights, have held that these fishing rights can give rise to Native American tribes having enforceable rights to keep sufficient water flowing in stream to maintain these fisheries. The instream water rights are ancillary to the fishery rights.

So once again, in this example which is focused specifically on indigenous fishing rights, we see fishing rights – the activity of fishing – providing the basis for certain instream water rights. Enforceable rights, to keep water instream.

I'm highlighting these examples at the outset, before the dialogue with Gabriel, to highlight that although the concept of fishing as a utilization and a use of water may be an emerging idea within the framework of international water law such as the 1997 Transboundary Watercourse Convention, this concept of fishing as a use of water is more established under certain domestic legal systems, such as the two examples I provided related to the California Water Code and beneficial uses and related to Native American fishing rights.

With that framing I would like to welcome Professor Eckstein and invite him to offer some opening remarks before we get into the dialogue.

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[5] Cal. Water Code § 100, et seq.

[6] *U.S. v. Tribes of Colville Indian*, 606 F.3d 698 (9th Cir. 2010).

Professor Eckstein: Thank you Paul. I appreciate the opportunity to be part of this program and thank Golden Gate Law School and CUEL for the kind invitation. I'll keep this fairly short so we can get into the dialogue itself.

I think your point about uses such as fishing are particularly relevant because the notion of uses under the UN Watercourses Convention, and I think more broadly under customary international law, has been evolving. What we used the watercourses for 50 or 100 years ago has changed over time and I think that there has been a lot of flexibility, but also modification in the process. You're also arguing, though, that some of these uses actually predated and have existed in the past, such as fishing as a use. And this is something that I think that we haven't really explored perhaps as much as we should have.

There are other types of uses that need to be considered as societies develop, as new technologies are developed, and as new uses come to bear. I think that these kinds of discussions are valuable to consider what exactly do we mean by "uses" or "utilization" when we talk about equitable and reasonable utilization. What kind of uses are included, or not included, and fishing certainly is one of them. You could trace fishing uses back thousands and thousands of years. These are activities we take for granted. We take them for granted because we've done them for so long and we don't consider them as an official or actual type of use activity, and maybe we don't need to always mention it. I think that there's a lot of value here in raising these kinds of discussions. I'll just keep my introductory comments short and maybe we'll just dive right in.

Professor Kibel: Sounds great and to respond to some of the points Gabriel just made, at least in the United States, as we consider appropriative water rights, which are the dominant type of water right in the Western United States, in general the appropriative water rights doctrine has also been reluctant to recognize instream water rights. There are instream water concerns and interests, but in general one of the essential elements of an appropriative water right in most States has been the out-of-stream diversion of water.

So domestic water rights systems have also struggled with instream uses and how to capture them as rights, as water rights, and that's an evolving piece as well. Okay, you ready Gabriel? I have some prompts for you and we'll see where this all goes.

The first question I had and would be interested in hearing from you on is, there are water cases that have come before the International Court of Justice (ICJ), such as the 2010 River Uruguay case between Argentina

and Uruguay.[7] And, at least in that case, the issue of transboundary environmental impact assessment (EIA) was recognized as an international law norm. I'm curious what your view of the significance of recognizing transboundary EIA as an international law norm is, and whether the ICJ decisions on this question tell us much about the content or substance of that norm.

Professor Eckstein: In reference to the *Pulp Mills* case, it is important here because it was the first case, or one of the earliest cases, to recognize that an environmental impact assessment has become so well accepted, and part of our transboundary water management system, that it has become part of customary international law. Part of the problem is that we quite know what the content of that norm should be.

What exactly is an environmental impact assessment? Well, we know what such an assessment means in our own countries. We have rules and regulations within our particular national laws, but not in an international context. This has not been well defined. We do have the Espoo Convention[8], and we do have good experience in Europe, but I do think Europe tends to be quite a bit ahead of the rest of the world when we talk about transboundary rules and regulations and principles of water law, in terms of how water resources should be managed, and structured, and so on. So in the context of *Pulp Mills* and customary international law, there is the notion that some kind of environmental impact assessment needs to be done.

But, what does that mean? When environmental impacts may result from an activity or use that is about to be undertaken, the acting country is supposed to initiate an impact assessment to see exactly (1) whether there will be any harm, (2) what that harm will be, and (3) the extent of any harm. But this is still so broad in terms of what types of research are needed to address these questions, what types of investigations should be hired, and who should be involved in that research? Moreover, is it one sided, or should both countries be involved, meaning the country that is acting and the potentially affected country? Should they both be involved in the process of impact assessment? In addition, in looking at impact assessments, we have to consider whether we should only look at the human environment, or whether the assessment should include impacts on species, impacts on ecosystems, impacts on habitats, and/or impacts on the broader environment?

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[7] *Argentina v. Uruguay*, No. 135, 113, Holding that since Uruguay did not pollute the river, closing the pulp mill would be unjustified, 977, (International Court of Justice April 20, 2010).

[8] U.N. Convention on Environmental Impact Assessment in a Transboundary Context, *opened for signature* Sept. 2, 1991, 1989 U.N.T.S. 309 (entered into force Sept. 10, 1997).

There are also a lot of issues that we can talk about in terms of non-economic impacts. Whether it be aesthetics or the destruction of some ecosystem or species, it can be hard to quantify, in economic terms, what that impact may be for society and the rest of us.

I should note that we are so dependent on economics to tell us how to gauge our lives, in terms of whether we having a good life or bad life. This includes standard of living, cost of living, GDP, and so on. Everything in our society is set up in economic terms, and so when we have an impact that has a non-economic effect, we're not always sure if we need to take it into account for purpose of determining whether the water use should be undertaken. And most times when you consider hydropower, irrigation, or any kind of typical use from a transboundary river, or even a domestic river, there are both economic and non-economic impacts.

So the point here is that we don't have good guidelines. Not yet. Maybe we will in the future. But we currently don't have good guidelines for what should be included in an environmental impact assessment in a transboundary context. All we know is that we're supposed to do one.

Professor Kibel: For those of you that are a little less familiar with this area of law, Gabriel referenced the *Pulp Mill* case. The 2010 decision by the International Court of Justice on the River Uruguay is often referred to as the *Pulp Mill* case. And in that case the ICJ said, which many view positively, that transboundary environmental impact assessment is now a part of customary international law and is required. The challenges in that case were not to whether an environmental assessment was done but whether the assessment done was adequate. In the *Pulp Mill* case the ICJ did not have much to say on that point other than that that Uruguay was required to do an EIA and they did one.

There is an entire convention that is devoted to nothing but transboundary environmental impact assessment, the Espoo Convention. Yet when you go to the definition of environmental impact assessment in the Espoo Convention, it's defined as "a national mechanism to assess the impacts on the environment of a project." I'm not sure what the term "national mechanism" means in terms of content or substance. Something regulatory, right? But not very helpful in terms of guidance.

Okay, next question. And this relates, again, to environmental impact assessment. We have the 1997 Transboundary Watercourse Convention and other conventions related to the rights of countries to the equitable utilization of water in a transboundary context. And then we have 1991 United Nations Espoo Convention on environmental impact assessment.

My question for you Gabriel is what are your thoughts on the relationship between the provisions of the 1997 Watercourse Convention relating to the equitable utilization of water, and the Espoo Convention, which deals with transboundary environmental impact assessment. The reason I'm framing the question this way is that it seems in many instances EIA is where the rubber hits the road, it is often in the EIA context that equitable utilization concerns and conflicts are identified and initially addressed. So it seems that there is a connection between the two. I'm interested in your thoughts about whether you view them as mutually reinforcing or potentially at odds.

Professor Eckstein: I don't necessarily see them as at odds but I'm not sure I agree with you that they are so connected. In my mind, the no significant harm rule is more connected to environmental impact assessments than the equitable and reasonable use rule. When you consider equitable and reasonable use you are talking about the countries, the riparians to a particular waterbody that is transboundary, and how they can use that water in an equitable and reasonable manner. Equitable can refer to the apportioning the water, but can also refer to apportioning the benefits in some fair manner. And reasonableness pertains to the water use being reasonable under the circumstances. These concepts, however, are not well connected to impact assessment or how the use affects another riparian. Such effects are more in the realm of the no significant harm rule.

In addition, the equitable and reasonable use provision in the UN Watercourses Convention references adequate protection of the watercourse. So it suggests some kind of environmental consideration but its not quite clear what "adequate" protection of the watercourse might mean. In addition, that provision also refers to "a view" to attain optimal and sustainable utilization of watercourses, and the benefits thereof. So, the focus on equitable and reasonable utilization seems to be more focused on the uses and the benefits that are derived from those various uses, and making sure that the benefits are allocated equitably. In contrast, environmental concerns and concerns are left to other provisions under customary international law and in the UN Watercourses Convention, such as the no significant harm rule.

Professor Kibel: Just to respond a little, since this is a dialogue. I think Gabriel's characterization is accurate, in that if you're focused on the provisions of the 1997 Transboundary Watercourse on avoidance of harm, there seems to be a more obvious logical connection between environmental impact assessment, which is itself an exercise for identifying

significant environmental impacts or harms, and avoiding or mitigating them.

What I was hinting at is that if you view fishing, this gets back to my opening remarks, as also related to uses and utilization of water, that is why there may be more of a link with environmental impact assessment and equitable utilization principles than would initially be apparent. In that, if in an EIA you identify significant impacts on fisheries, then that's affecting fishing as a use, as we go through this reasonable and equitable balancing. But I think your point, if I'm understanding you correctly Gabriel, is that this had not traditionally, historically, been the way it's been done.

Professor Eckstein: It's not just that. You may have a completely valid use and utilization of the watercourse for fishing purposes. But the point of the principle of equitable and reasonable utilization is that you are allocating the benefits derived from all of the different uses in the competing uses. So, you may have fishing, agriculture, hydropower, and other uses that are taking place on that river, which can result in potentially conflicting uses. And if the uses do conflict, we have to figure out how best to allocate, not the water, but the benefits derived from all those different uses in an equitable manner. And equity is not equivalent to equality; and it does not create some kind of prioritization. Rather, it is a system that is supposed to be based on fairness and justice.

Article 10 of the UN Watercourses Convention does have a provision that states: "In the absence of an agreement or custom to the contrary, no use. . .enjoys inherent priority."[9] So, while all of the uses I mentioned earlier are considered equal, you now have to determine what are the equities in terms of the allocation of the benefits derived from those uses. And so yes, I do think that the impact on fishing from some of the uses are going to be part of the analysis, but I see that more as an impact on the no significant harm principle rather than a balancing of equities.

Professor Kibel: One last thought before we move on to the next question. When we think about instream uses of water for fish, like what level of instream flow is necessary to support a healthy fishery, that is sometimes a more difficult scientific and technical question to answer than quantifying the amount of water for municipal use, irrigation or hydropower generation.

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[9] U.N. Convention on the Protection and Use of Transboundary Watercourses and International Lakes art. 10, *opened for signature* March 17, 1992, 1936 U.N.T.S. 269 (entered into force Oct. 6, 1996).

Professor Eckstein: Yes.

Professor Kibel: It's a very scientific inquiry related to fisheries biology. Let's say you're going to be reducing or altering normal instream flow patterns, with effects on water quality from a project like a hydropower project. The EIA is a mechanism where you can actually quantify those impacts and quantify what levels of flows are needed to support healthy fisheries below the dam. EIAs can give us some of the information that would be helpful when engaging in the kind of broad based balancing that is involved with equitable and reasonable utilization.

Professor Eckstein: Building on that, I think what may be missing for us is an equities assessment. I think that one of the problems that people always seem to complain about with regard to the principle of equitable and reasonable utilization is: how do you implement it? It sounds so vague—the idea of how to assess what are the benefits that are derived from one use versus another use; and whether it's hydropower, fishing, irrigation, or manufacturing, how do you balance those uses and benefits? It's not articulated very well in the UN Watercourse Convention or in customary international law in terms of how to analyze the benefits derived from those different uses.

Additionally, analyzing the impact of the uses is one thing, but analyzing the benefits, which is more the focus of equitable and reasonable utilization, is something different. Whether you can do that type of analysis in an environmental impact assessment is not fully clear and may be beyond the scope of such assessments.

Professor Kibel: Alright, let's move on to another question. And this was prompted by some of my preparatory discussions with Gabriel in advance of this dialogue. Focusing in on those principles of international water law that relate to avoidance of significant harm, we have the 1997 Transboundary Watercourse Convention, but we also have the UNECE Helsinki Convention.[10]

One of the things you have noted, Gabriel, is that, point one, over time the number of signatories and parties adopting the Helsinki Convention seems to be gaining steam while we seem to be hitting a bit of a plateau with the UN Watercourse Convention. Why is that? That's probably a much broader conversation. This suggests that on a practical level the Helsinki Convention may be taking on a more prominent role going

[10] U.N. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *opened for signature* March 17, 1992, 1936 U.N.T.S. 269 (entered into force Oct. 6, 1996).

forward as the signatories expand. But, as a second point, it's my understanding that, and I don't want to misstate your views on this Gabriel, when it comes to the general principle of avoidance of environmental harm, your take is that the Helsinki Convention perhaps gives more weight to that principle than the UN Watercourse Convention.

For the rest of us that have not focused on this issue, perhaps you can explain why you believe that's the case. But two, if that is your view, what are the implications in terms of looking at fisheries and fishing, and how they might be dealt with differently under the Helsinki Convention?

Professor Eckstein: When looking at the Helsinki Convention and the UN Watercourses Convention, I think it's pretty clear that the Helsinki Convention is much more sophisticated. It just seems to be at another level. The UN Watercourses Convention is much more of a framework treaty in the sense that it gives you very general ideas of what the norms are, whereas the Helsinki Convention goes a step further in providing more details.

Now when you look at the two and compare them, you don't see as much of an emphasis on equitable and reasonable use in the Helsinki Convention. While that Convention does reference equitable use, it's in one minor provision. Of course, you could read into the Helsinki Convention that it is really based on equity amongst the parties, but that perspective is certainly not emphasized as the principle of equitable and reasonable utilization that we understand, that is part of customary international law, and that is articulated in the UN Watercourses Convention. You also don't have the no significant harm principle, in such terms, evident in the Helsinki Convention, as you do in the Watercourses Convention. What you have is the concept of adverse effects.

When you think about the threshold of these two ideas—adverse effects and no significant harm— you have to question what they might mean. With significant harm, you have to reach the threshold of "significant" before the impact becomes actionable. In contrast, an "adverse" effect has a lower threshold in terms of what activities can be allowed to continue before they have to be reconsidered because of the impact they may have on another riparian state or on the watercourse. To that extent I do think that the Helsinki Convention has taken the concept of what impacts are permitted or not permitted on a transboundary watercourse to that next level in terms of ensuring that we are integrating uses and impacts in a more comprehensive analysis. This is something which, as I said previously, has not been done as well under customary international law and certainly not in the UN Watercourses Convention.

Professor Kibel: To tie this back with some of our earlier discussion about the ICJ *Pulp Mill* case, there were some claims in that case related to air pollution but the bulk of them were related to discharges into the river of pollutants associated with the pulp mill's operation. And there was evidence submitted by Argentina related to the "significance" of the adverse impacts on water quality and its effect on fisheries. For whatever reason, the ICJ, at least in its opinion in this case, was not willing to engage in much of a scientific inquiry as to adversity, and essentially accepted Uruguay's position that, yeah, there's some impacts, but they don't seem to be that much. But the bar that case seemed to set for what significance meant seemed quite high.

So as a follow-up question Gabriel, if you look at the facts of the *Pulp Mill* case, there certainly was evidence of adverse effects of water pollution from the pulp mills related to fisheries, although the court found, at least under the Watercourse Convention, that it didn't rise to the level of significant. Do you think if you were focused on the provisions of the Helsinki Convention that analysis might come out different?

Professor Eckstein: I think it's definitely possible because when you're comparing significant harm with adverse effects, significant harm has a higher threshold that must be achieved before the impact becomes actionable. So what is significant? Well, that analysis will be very fact-specific and may be somewhat subjective in a courts' eyes. But adverse effect simply says that it has some kind of negative impact, and it's not necessarily requiring us to say how much of a negative impact. It just requires an adverse effect. This means that the threshold is lower and, if had been applied to the *Pulp Mills* case, may have resulted in a different outcome. However, most customary norms of cross-border impacts have been structured around the no significant harm rule, as articulated in the UN Watercourses Convention, and not on the adverse effects norm, which is found in the Helsinki Convention.

I must note, however, that the Helsinki Convention is certainly relevant and applicable in Europe. It started as a UNECE convention, and now has become open for global membership. And now you do see more countries joining that instrument. So, it appears interest in the Helsinki Convention's formulation seems to be broadening; maybe at some point, we will see a change in customary international law from a focus on the no significant harm rule to this lower threshold of adverse effects. But we're not quite there yet.

Professor Kibel: To circle back to how this links to some of our earlier discussion, the language in the Espoo Convention on transboundary envi-

ronmental impact assessment, the triggers for actually doing an EIA, once again, comes back to that language of significance and what is or is not significant environmental harm. The Espoo Convention doesn't say that you need to do an environmental impact assessment in any and all instances. The Espoo Convention provides that you need to do an EIA when there's the potential or evidence of a significant environmental impact.

We are going to have a presentation tomorrow from Maja Kostic-Mandic[11] on the current controversy between Montenegro and Bosnia and Herzegovina over a hydropower project under the Espoo Convention. But if you were briefing that type of a complaint, I think you would need to get into the question of significance. Because they don't really define it very well in the Espoo Convention. So then you're left to flesh it out in reference to either Helsinki or the UN Watercourse Convention.

Professor Eckstein: Let me take it one step further, because this actually became an issue in the in the *Silala* case that I was recently involved in.[12]

Professor Kibel: You might want to explain the *Silala* case a bit for our attendees.

Professor Eckstein: The *Silala* case was a dispute between Chile and Bolivia over a waterbody that Bolivia originally claimed was entirely domestic and Chile argued was transboundary. Eventually, Bolivia changed its position and the questions that ultimately went to the Court focused on determining what rights the parties have to that waterbody.

One of the issues in the case questioned whether Bolivia, which had taken certain actions in the upper reaches of the river, should have prepared an environmental impact assessment or provide notification to Chile, the downstream riparian, because of potential significant environmental harm to Chile. A corollary questions that then arose was: who would determine whether an impact was significant? As you read the UN Watercourses Convention, which is arguably the codification of at least some of the customary norms of international water law, it does say that nations have to take action to prevent significant harm. But who decides when a potential cross-border impact rises to the level of significant harm? And then, when you bring in the Espoo Convention, which is

[11] Professor Maja Kostic-Mandic, University of Montenegro Law Faculty, *Montenegro's Complaint Against Bosnia & Herzegovina under the Espoo Convention Regarding the Buk Bijela Project on the Drina River*, April 11, 2023.

[12] *Chile v. Bolivia*, No. 2022/62, Unofficial, Dispute over the Status and Use of the Waters of the Silala (International Court of Justice Dec. 1, 2022).

based on significant harm, at what point do you have to implement an impact assessment when its been determined that significant harm is a possibility? Under customary international law, the burden seems to be on the acting state, the state embarking on the activity that may have a cross-border impact. However, if the acting state decide that its activity will not have any cross-border impact that rises to the level significant, then there is no obligation to implement an environmental impact assessment, under Espoo or under customary international law. And, as a result, that state does not have to provide notification to other riparians. This may seem odd, and is something that I think will have to be reconsidered as nations continue to engage on transboundary water resources, at least in their treaty and cross-border project negotiations. Ultimately, I don't think it's been made fully clear who has or should have the obligation to determine the significance of potential cross-border impacts such that the EIA and notification obligations are triggered.

Arguably, the way it is currently understood, the obligation is in the hands of the acting state, not the state that may be affected. There is some language suggesting that the potentially affected state should have some say in the assessment process, but I think we are far from clearly understanding when these obligations are triggered.

Professor Kibel: The *Pulp Mill* and *Silala* cases reveal that confusion and uncertainty.

Professor Eckstein: Yes.

Professor Kibel: In California we have an environmental impact assessment law called the California Environmental Quality Act, CEQA.[13] And this issue of how to deal with significant versus not significant impacts has come up a number of times under CEQA.

The way it's been dealt with in California under CEQA relates to burdens of proof. The rule in California is that the agency preparing the EIA, we call it an EIR but it's an EIA, must present substantial evidence to support a finding that an impact is less than significant.[14] The burden is on the acting agency to develop substantial evidence that it's less than significant. That's important because if it goes before a court the burden is not on the party alleging significant harm to prove that it's more than significant. So it's burden shifting,with a substantial evidence standard.

[13] Cal. Pub. Res. Code §§ 21000 et seq.

[14] *Friends of "B" St. v. City of Hayward*, 106 Cal. App. 3d 988, 165 Cal. Rptr. 514 (Ct. App. 1980).

But we don't have the type of clarity under the Espoo Convention or international water law, that explains even what the standard is and who has the burden. At this point it is left open.

Professor Eckstein: I think that prioritization under international water law is still being developed. Economic development, I still believe, is the chief priority when considering equitable and reasonable utilization. Any kind of potential impact becomes secondary in that sense. So, if you try to put the obligation on the acting state to prove that its activity will not result in significant transboundary harm, I think that's an idealized future world. We are nowhere near that ideal yet.

Professor Kibel: We have time for one more question. This question relates to hydropower and, particularly, hydropower generated by in-stream impoundments and facilities and dams.

So you had mentioned that with equitable and reasonable utilization we generally don't have priorities. But as we think about the use of in-stream waters for hydropower generation, my question is: In light of climate change and the need to transition from carbon intensive sources of energy to low carbon sources, and hydropower tends to fall into the latter category, does that change the balancing in terms of water used for hydropower, does it give hydropower enhanced balancing considerations?

Where I'm going with this is whether there may be a kind of a subprinciple emerging within equitable utilization related to this concept of vital human needs, and that, however we define what vital human needs are, that those needs should be given extra consideration. Maybe vital human needs are more equal than others. I'm thinking of George Orwell's *Animal Farm*[15] – that all uses of water may be equal but that some uses are more equal than others.

What my question amounts to is, in light of climate change concerns, and the urgency of shifting to low carbon sources of energy, does that somehow suggest that hydropower as a use starts becoming something akin to a vital human need?

Professor Eckstein: The short answer is that we are starting to move in the direction you're suggesting, but we haven't quite achieved that goal. The longer answer is, I don't agree that we do not have prioritization of uses in international law. We would like to say there it doesn't exist, and we would even point to Article 10 of the UN Watercourses Convention, which says that no use has a priority over other uses. But, the fact is 100 years ago, the environment had no recognition under international water

[15] Orwell, George. 2021. *Animal Farm*. Collins Classics. London, England: William Collins.

law, let alone international law. Nobody cared about the environment. Yet, today, the environment has become a prominent priority in domestic and international water law. There are various social factors and concerns that that we have woven into our legal norms, into our legal systems, that have effectively created a *de facto* priority system.

I would even say that up until a 100 years ago human lives probably weren't prioritized like they are today. In World War I, for example, we saw the massive destruction that people can inflict on one another, . At that point people started to question whether we should start protecting human lives and peoples during armed conflict, which developed into the Geneva Conventions on the laws of war.[16] As a result, I do think that there always has been some prioritization. And while it hasn't always been clearly articulated, economic development has been, and still is, considered a top priority when utilizing natural resources like water. And when you consider the benefits that can be derived from equitable and reasonable utilization, we're primarily focused on economic benefits.

Over the decades, there has been a slow shift, since the environmental movements of the sixties and seventies, where today, we are seeing more emphasis being placed on environmental priorities. But we're not there yet. When comparing potential hydropower and electrification needs against the environmental impacts, most societies, certainly the developing world, will still go with the hydropower over any potential negative environmental impacts.

Now, bringing in climate change, if you talked about climate change 20-30 years ago, you had a lot of what I would call healthy skepticism. Today there really is no such thing as healthy skepticism when it comes to the subject. The facts are the facts. Climate change is a massive, huge boulder on our backs. And yes, we have started to internalize it into our regulatory systems, and into our economic systems, and to quantify the economic impacts of climate change.

So I think we're going towards the direction of what you're suggesting, of a more holistic approach to assessing not only the economic impacts of proposed activities, but also their social impacts, human impacts, and environmental impacts. We are beginning to take all of this into the evaluation process of equitable and reasonable utilization, but, it is a slow transition. And while we are moving forward with that transition, we continue to hold on to our priorities. It's part of the way we live in terms of deciding what we want right now, and what is more beneficial to us right now. Many countries, possibly most of the world, still

[16] U.N. GENEVA CONVENTION RELATIVE TO THE PROTECTION OF CIVILIAN PERSONS IN TIME OF WAR, *opened for signature* April 21, 1949, 973 U.N.T.S. 287 (entered into force Oct. 21, 1950).

regards economic development as the chief priority. But we are definitely seeing the impact from climate change starting to creep into that analysis and decision-making.

Professor Kibel: Just to clarify, I wasn't necessarily recommending or suggesting that climate change consideration should tilt the balance in favor of hydropower use. I was simply noting that problems like climate change present a difficult fit given traditional notions of what vital human needs are, but there is a lot of language out there in the political arena about the vital human need to move away from carbon intensive energy sources.

So at some point those issues come into play. Our experience here in the United States has been that opposition to and concerns about on-stream dams were the genesis of the birth of the United States environmental movement. Opposition to dams was a critical part of the rise of Sierra Club and John Muir's status as an environmental icon.

What we have seen in recent decades, and I work with a group called the Hydropower Reform Coalition (HRC) that is concerned about hydropower expansion, is that climate change has been a great gift politically for the hydropower industry. Because whereas before the hydropower industry was the bane of the environmental movement for literally a century, they've now rebranded themselves as part of the climate solution and there is some truth to that. There is some truth to that but the environmental impacts of hydropower and dams haven't gone away because of that truth.

So in the United States the hydropower sector has made excellent political use of climate change to justify maintaining and expanding hydropower. Some of that, I think, is genuine and responsive to the real concerns of climate change, and some of it seems like good strategic marketing. I'm noting the connection between the two and putting it out there for discussion.

Let's put it this way: if I were a fish, just work with me Gabriel, if I were a fish, I would be very concerned about hydropower interests being able to use climate change as justification for any and all hydropower projects, because that would present acute problems with fisheries.

Professor Eckstein: As clean as hydropower may be, you still have some significant challenges, like methane emissions from the reservoirs. So, I am not sure that hydropower is the "be all and end all" to deal with climate change. I think it could be part of a series of possible solutions, but in terms of a use of water, international water law allocates the equities, the benefits, between all the riparians. I do think that climate change

is starting to come into the analysis in terms of how we identify and evaluate the benefits that are being derived from the uses, as well as the harms suffered from dams and hydropower facilities, and how those benefits and harm should be balanced.

FROM NATURE TO NUISANCE: A HISTORICAL OBSERVATION ON THE TRAJECTORY OF ENVIRONMENTAL LAW

MADISON MACLEOD[1]

I. INTRODUCTION

Environmental law and policy in the United States has had a wavering trajectory, ebbing and flowing with the tides of societal awareness, technological advancements, and political leadership. Although many of the early roots of Western environmental policy stem from a combination of resource depletion and public outrage in Europe, these notions were quick to follow suit in the United States.

This project examines the development of environmental policies by tracing the progression and of resource-protecting laws in western Europe and studies how these policies influenced the United States. Further, this project will compare the development of nuisance law in England and the United States and how it expanded from the medieval to the Industrial era. Moreover, it is important to note that although this paper focuses on environmental law from an Anglo-perspective, environmental policies have been developing in cultures and nations around the world for centuries.

[1] Madison received her Juris Doctor degree from Golden Gate University School of Law in May 2023, graduating with honors. Prior to law school, Madison graduated summa cum laude from the University of California Santa Cruz with a B.A. in History. While in law school, Madison received the Witkin Award for Academic Excellence in Lawyering: Estate Plans; the CALI Award in Civil Procedure I; and the CALI Award for Criminal Procedure II. Madison was also the chair of the Women's Law Association and the owner of Zero Waste California. Madison is currently interested in various areas of law such as environment and estate planning.

A. Background

1. Tragedy of the Commons

A prominent theory behind the cause of modern environmental issues stems from an economic concept known as the "tragedy of the commons," a term coined by economist Garrett Hardin in 1968.[2] Although this economic theory had been conceptualized for centuries, the "tragedy of the commons" illustrates the dilemmas that arise from free use of natural resources.[3] In his narrative, Garrett examines the history of feudal England and how "the commons" were simply uncultivated areas of land designated for citizens (generally the peasantry class) in the surrounding village to use for water, cattle grazing, and collecting firewood.[4] In the commons, there was no set limit as to how much of a resource or resources could be extracted by one individual, family, or group.[5] This almost always resulted in overgrazing and overuse of the natural resources, depleting them for everyone.[6] Thus the "tragedy" of the commons resulted from the depletion and eventual lack of natural resources in an area that likely once had a natural equilibrium.[7]

Hardin asserted that the "tragedy of the commons" concept could be traced to Aristotle's teachings. In his work, *Politics*, Aristotle states:

> What is common to the greatest number gets the least amount of care. Men pay most attention to what is their own; they care less for what is common; or at any rate they care for it only to the extent to which each is individually concerned. Even when there is no other cause for inattention, men are more prone to neglect their duty when they think that another is attending to it.[8]

In 1833, William Foster Lloyd echoed Aristotle's argument in *Two Lectures on the Checks to Population,* which states, "[w]hy are the cattle on a common so puny and stunted? Why is the common itself so bare-

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[2] Hardin, Garrett. *The Tragedy of the Commons*. Science, vol. 162, no. 3859, 1243 (1968). In this work, Hardin describes economist Willaim Forster Lloyd who in 1833 asserted a hypothetical situation in which natural resources were overused (pastureland by grazing cattle) in his work "Two Lectures on the Checks on Population." In this pamphlet, Lloyd recognized that if each cattle-owner took more than their share of grass from the commons, resource depletion for all would result.

[3] *Id.*

[4] *Id.*

[5] *Id.*

[6] *Id.*

[7] *Id.* at 1235.

[8] Aristotle, Politics (Oxford: Clarendon Press, 1946), 1261b.

worn, and cropped so differently from the adjoining inclosures."[9] Lloyd asserts that the answer was due to collectively poor management of the commons which resulted in "poverty" and "misery."[10] Lloyd's solution was to apportion resources to the world's "existing occupants."[11] Lloyd states, "those who are already seated and have but just elbow-room, may limit the admissions and exclude the crowd which is pressing at the doors."[12] Although both were strong believers in popular control, Hardin had a more inclusive solution for the commons in the form of stronger government control.[13] Hardin had little faith that humans would ever be able to cooperate to meaningfully solve ecological issues and asserted that total privatization and dispossession was the only way to manage resources.[14][15]

According to author and expert on environmental and natural resource law Dr Shi-Ling Hsu, the tragedy of the commons concept is an important tool for "illustrating the human propensity not simply to spoil something for everybody, but to spoil something for themselves."[16] True to form, by the sixteenth century, natural resources such as timber, a primary fuel source, began to dwindle throughout England and foraging was often a primary means of survival.[17] Although foraging did help put food on the table, it was unreliable and uncontrollable, as the abundance of forageable products such as berries, game, and mushrooms were affected by the elements of nature, like weather, not man.[18]

The tragedy of the commons as a concept is similar to gangrene. When blood flow to a large area of tissue is depleted, the tissue breaks down and "dies" and results in a disease called gangrene[19] Overtime, without treatment, the disease spreads to the next area on the body, often

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[9] Lloyd, W. F., *Two Lectures on the Checks to Population: Delivered Before the University of Oxford, in Michaelmas* Term, 31 (1832).

[10] *Id*. at 22.

[11] *Id*. at 60.

[12] *Id.*

[13] Wall, Derek, *The Commons: From Tragedy to Triumph*, In Elinor Ostrom's Rules for Radicals: Cooperative Alternatives beyond Markets and States, Pluto Press, 21–34, 21 (2017).

[14] *Id.*

[15] Nixon, Rob, *Neoliberalism, Genre, and 'The Tragedy of the Commons*, PMLA 127, no. 3, 593–99, 593 (2012).

[16] Shi-Ling Hsu, *What Is A Tragedy of the Commons? Overfishing and the Campaign Spending Problem*, (2006) at 81, Florida State University College of Law. It is important to note that the "tragedy of the commons" in terms of resource depletion was not limited to England. Indeed this was an issue in most feudal societies throughout europe/asia.

[17] Woodward, *Donald. Straw, Bracken and the Wicklow Whale: The Exploitation of Natural Resources in England Since 1500*, Past & Present, no. 159, at 43 (1998).

[18] *Id*. at 44.

[19] *Acute Dermal Gangrene*, The British Medical Journal 3, no. 5984 (1975): 607- 608.

extremities like fingers, toes, and the nose.[20] Gangrene is a terrible and painful disease, but fortunately there is now a treatment.[21] The Earth is not quite as fortunate. Like gangrene, humans choose an area and cut off its blood flow: we dam rivers and interrupt aquatic life, cut down the trees that provide oxygen, and pollute. Once that area is "dead" we move on to the next area or the next resource. Timber is a perfect example.

2. Timber: *La Felicissima Recurso* (the Most Fortunate Resource)

To truly understand the transitions in natural resource exploitation into modern times, as well as the environmental acts and laws that resulted, it is imperative to examine the value of timber beyond a simple source of heat. Although timber is just one resource, it has a multitude of uses from constructing buildings to creating fuel (by burning) for warmth and cooking.[22] Long before the advent of coal and oil, timber was used to not only fuel homes and small shops (blacksmiths, bakers, etc.) but was also burnt on industrial levels for salt production in the Worcestershire and Chesire salt mines as early as the 1st Century CE.[23] Published in 1086, a document known as the "Little Doomsday Book" (which examines more English counties than the Doomsday or Domesday Book), describes that "a reduction of the woodland between 1066 and 1086 was noted in 112 villages."[24] Indeed, what would become England's first national census already described the beginnings of the English timber crisis.

Prior to the Industrial Revolution, access to timber meant the success of a country. Timber built ships, and ships were the lifeline of the English colony, an island nation.[25] From a military aspect, England was almost constantly at war with one or more foreign nations from the fifteenth through nineteenth centuries.[26] Before the advent of airplanes, ships were the only way England could transport soldiers, launch an at-

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[20] *Id.*

[21] Simmons, Richard L., *Wound Infection: A Review of Diagnosis and Treatment*, INFECTION CONTROL 3, NO. 1 44–51, 44 (1982).

[22] Darby, H. C., *The Clearing of the English Woodlands*, GEOGRAPHY 36, no. 2 (1951) at 75.

[23] *Id.*

[24] *Id.*

[25] Smith, Robert J., *Bureaucracy in Elizabethan England: The Office of Naval Ordnance as a Case Study*, ALBION: A QUARTERLY JOURNAL CONCERNED WITH BRITISH STUDIES 6, NO. 1 (1974) at 47. . Ships were imperative to the success of any leading European nation during this era. However, as England was an island, it relied on ships for security, trade, and colonial expansion.

[26] Conrad S. R. Russell, *Monarchies, Wars, and Estates in England, France, and Spain, c. 1580 - c. 1640*, LEGISLATIVE STUDIES QUARTERLY 7, NO. 2, 205 (1982). The first invasion of the territory of England was recorded in 55 BCE when the Romans conquered the country up to the Scottish (Pict) border. Known as the Picts, the Scottish people were considered too unruly and the land too moorish to be worth conquering. Under Emperor Hadrian, a wall was built to separate

tack, and defend itself from its opponents, like the Spanish Armada.[27] Moreover, ships were the only way England could expand its colony and conduct trade.[28]

However, once England broke from the Catholic Church in the sixteenth century, a deep hatred rooted in religious opposition manifested between England (Church of England) and Catholic Spain.[29] By the seventeenth century, King Felipe II (r. 1556-1598) held the Spanish throne, and Queen Elizabeth I (r. 1558-1603) ruled over England and Ireland. Felipe II, in an attempt to invade and usurp the English monarch, notoriously clear cut Spain's timber supply in order to build the ships that would become the Spanish Armada.[30] It required an average of 2,000 oak trees to build one Spanish galleon (warship).[31] In 1588, approximately 150 ships called *La Felicissima Armada*, or "the most fortunate fleet," would set sail to invade England.[32] Only sixty-five ships would return.[33]

Surprisingly, what would turn out to be one of the most devastating blows to Spanish military history would simultaneously spawn one of the earliest moves toward environmental protection.[34] The mass loss of forests inspired the early stages of what we modernly call forest management.[35] According to environmental historian John T. Wing in his article "Keeping Spain Afloat: State Forestry and Imperial Defense in the Sixteenth Century," Wing explains that the need for timber as a military resource "connects forest conservation and the replanting of species valued by the navy, such as oaks and pines, with the militarization and expansion of bureaucratic state power."[36] In other words, now that timber was scarce and desperately needed, a shift in the collective mentality began to manifest. The consequences of mass resource exploitation were

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between Roman Britannia and unconquered Caledonia (Scotland) to the north. England would be conquered again by William the Conqueror during the Norman Invasion of 1066.

[27] *Id.*

[28] *Id.*

[29] Dahmus, John W., *Henry IV of England: An Example of Royal Control of the Church in the Fifteenth Century*, JOURNAL OF CHURCH AND STATE 23, NO. 1 35–46 (1981). During this era, King Henry VIII (r. 1509 - 1547) wanted a divorce from his wife Catherine d'Aragon but was not granted one by the Catholic Church. Desiring to divorce and remarry, King Henry VIII broke England away from the Catholic religion, placing himself as head of England's new religion: Church of England.

[30] Wing, John T., *Keeping Spain Afloat: State Forestry and Imperial Defense in the Sixteenth Century*, ENVIRONMENTAL HISTORY 17, NO. 1, at 116. (2012).

[31] *Id.*

[32] *Id.*

[33] *Id.* English naval weaponry was much more effective than that of the Spanish Armada.

[34] Wing at 116-117.

[35] *Id.*

[36] *Id.*

proving to have dire results on massive scales, large enough to impact the success of a nation.

After the significant loss of the armada and timber supply, the Spanish crown "shifted from its traditional role of defending against municipal common law abuses"[37] to a position that dominated control over the timber resource. What was once arguably a free resource for all Spaniards was now considered royal, a possession of the monarchy.[38] Although in modern times, the notion of a government taking full control of a natural resource sounds like the beginnings of a George Orwell novel, this shift was one of the first positive changes toward environmental protection.

Prior to the Armada, the Spanish monarchy "acted as an arbiter to quell disputes between different socioeconomic sectors over access to natural resources."[39] As populations increased throughout Europe, more laws pertaining to resource access developed ad hoc.[40] In Spain specifically, the monarchy employed researchers to inspect and study forests and to expand and improve forestland after the devastating loss under Felipe II.[41] However, it was not just Spain that was struggling to balance the current need for a resource with the need to protect it for future use. Back across the channel, Spain's rival England had begun to expand forestry codes in its own desperate attempt at timber conservation.[42] However, there was one notable difference between the two forestry systems during the century. Unlike Spain, England already knew where its forests were located.[43]

a. The Differences Between English and Spanish Forestry History

Until recently, the historiography of early modern Spanish forestry had long been overshadowed by English history and many aspects of early Spanish forest conditions remain less understood.[44] Early modern imperial Spanish environmental history is a newly developing field for

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[37] *Id.*

[38] *Id.*

[39] *Id.*

[40] *Id.*

[41] *Id.* at 122.

[42] Birrell, Jean, R., *The Medieval English Forest*, JOURNAL OF FOREST HISTORY 24, NO. 2, 78 (1980).

[43] Johnson, Tom, *The Redistribution of Forest Law and Administration in Fifteenth-Century England*, BOYDELL & BREWER, 106-107 (2017); see also Schumer, Beryl, *Oxfordshire Forests,* 1246–1609, ed., Oxfordshire Record Society, lxiv, (2004); Stagg, David, *A Calendar of New Forest Documents: The Fifteenth to the Seventeenth Centuries*, ed, HAMPSHIRE RECORD SERIES (1983).

[44] Wing, John T., *Keeping Spain Afloat: State Forestry and Imperial Defense in the Sixteenth Century*, ENVIRONMENTAL HISTORY 17, NO. 1, 116–45, 117 (2012).

historians and is in relative infancy compared to English forestry historiography.[45] The difference between the two countries' historiographies in this respect comes down to two issues: maps and forest depletion.

By the sixteenth century, England had depleted so much of its forestland that what remained was not only well-controlled, but was well-documented.[46] A royal forest needed to be maintained enough so that a group of nobles going for a hunt could easily ride their horses through open trails, not dense brush.[47] Timber was so rare and valuable by this century the English developed a way to both cut and regrow a tree via a method called pollarding.[48] A pollard was a person who cut a tree at a certain height which would not kill the tree, but instead, would allow it to continue to grow branch-like sticks from the trunk that could then be cut, wound, and used to build houses.[49] The tree itself never regrew to its full glory, but it would continue to produce usable stick-like growths.[50] However, most significantly, by the sixteenth century, the majority, if not all, of English forests were mapped. Roman maps of England date back to the first century CE.[51] The Gough map which is estimated to have been created as early as the 1370s up until the late fifteenth century is one of the earliest maps to show Britain in a geographically recognizable form.[52] Forest lands, especially royal forests, often had their own maps.[53] For example, the Belvoir map dates back to the fourteenth century and depicts the boundaries of Sherwood Forest from the thirteenth century.[54] The Belvoir map also describes the administration of the forest and how forest law was applied during that period.[55] In short, the English knew where to get their wood and had been implementing timber-conserving methods for centuries.

On the other hand, the location of Spanish forests was not nearly as well-documented during this era, even by the Spanish monarchy.[56] Until

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[45] *Id*. at 116-117.

[46] *Id.* Johnson, at 107.

[47] Howes, Laura L., *Chaucer's Forests, Parks, and Groves*, The Chaucer Review 49, no. 1, 125–33, 125 (2014).

[48] *Id*. at 125-126.

[49] *Id*.

[50] *Id.*

[51] Strang, Alastair, *Explaining Ptolemy's Roman Britain*, Britannia 28, 1–30, 30 (1997).

[52] Lloyd, Christopher D., *Cartographic Veracity in Medieval Mapping: Analyzing Geographical Variation in the Gough Map of Great Britain*, Annals of the Association of American Geographers 99, no. 1, 27–48, 28 (2009).

[53] Sutton, T., *A Note on Medieval Local Maps and Their Readers*, Imago Mundi 71, no. 2, 196–200.(2019).

[54] *Id.*

[55] *Id.*

[56] *Id*. Wing, *Keeping Spain Afloat: State Forestry and Imperial Defense in the Sixteenth Century*, at 130.

the reign of Felipe II, Spain was largely lacking efficient maps.[57] In the 1550s, Felipe II had spent time in the Netherlands and had acquired an interest in Dutch mapmaking.[58] A decade later, Felipe II commissioned Dutch cartographers Jacob van Deventer and Anton van den Wyngaerde to map not only the Spanish provinces but actual natural features like rivers, lakes, and frontiers.[59] Further, in 1575, Felipe II arranged for his authorities to send questionnaires to hundreds of Spanish villages and cities.[60] Several of the fifty-seven articles included in the questionnaire pertained to forests, asking if the land was "abundant or lacking in firewood;" and what materials were used to build structures in those locations.[61] The questionnaire also asked about ownership of local forestland and the town's perceived monetary value of the land.[62]

Although these questionnaires did provide Felipe II with valuable information, there was still a desperate scramble to secure a timber supply to build the Spanish armada that would occur a couple decades later in 1588.[63] Felipe II assigned scouts to locate specific types of timber across the Spanish countryside extending all the way to Catalan, further indicating a lack of well-documented forests compared to England.[64]

Across the channel, England was also mass-cutting its timber supply to enhance its naval fleet.[65] However, England had another trick up its sleeve: Thomas Allen, a merchant of the English Muscovy Company.[66] From 1561 until his death in 1592, Allen maintained a monopoly on the Baltic trade and managed to supply the majority of English naval ships with Russian cordage.[67] Russian cordage was made of Russian hemp which is considered to be some of the best quality material for rope-making.[68] The ability to outsource these materials not only put less pressure on English forests, but also less pressure on manufacturing.[69] Ultimately however, both countries would be forced to implement stronger methods of timber conservation to support a growing population.

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[57] *Id*.

[58] *Id*. at 131.

[59] *Id*.

[60] *Id.*

[61] *Id. at 130.*

[62] *Id*.

[63] *Id*. Wing, *Keeping Spain Afloat: State Forestry and Imperial Defense in the Sixteenth Century*, at 131.

[64] *Id.*

[65] Pollitt, Ronald L., *Wooden Walls: English Seapower and the World's Forests*, Forest History Newsletter 15, no. 1, 6–15, 11 (1971).

[66] *Id.*

[67] *Id.*

[68] Davey, James., *Securing the Sinews of Sea Power: British Intervention in the Baltic 1780–1815*, The International History Review 33, no. 2, 161-184, 162 (2011).

[69] *Id.* Pollit, *Wooden Walls: English Seapower and the World's Forests*, at 11.

b. The Accidental Birth of Timber Conservation

It is important to note that forest-protecting laws did exist in England throughout the Middle Ages, but they were not designed purely for the sake of timber-conservation.[70] Forest laws had been introduced by the Norman kings as early as the 1st Century CE.[71] During this time, forests were given "royal" status as a means of protecting deer, a highly prized game animal.[72] Less than three centuries after the Norman invasion of England, the English population had nearly doubled by 1300 CE.[73] As populations increased, forestland decreased.[74] In her article, "The Medieval English Forest," Jean R. Birrell examines how forest lands were desirable as arable.[75] Land was considered "arable" if it was suitable for growing crops.[76] According to Birrell, practices for obtaining arable woodland were performed both legally (through licensing) and illegally.[77] To obtain licensure, forest eyres were held periodically by visiting royal justices "to hear and determine local pleas for the forest."[78] An "eyre" (derived from the Old French word for "journey") was essentially a traveling court.[79] Similar to the court systems today, during the Medieval era, eyres could be both general or specialized, such as a specialized forest eyre.[80]

During this period, royal justices would travel the English countryside, "bringing the King's government with [them]."[81] In his work *An Introduction to English Legal History,* J. H. Baker describes eyres as not only courts of law, but as ". . . a way of supervising local government through itinerant central government."[82] During general eyres, "large throngs of people attended, to account for themselves or to seek justice"[83] for issues ranging from private disputes, to negligence, to unexplained deaths.[84] One common issue that often arose during this time was

[70] *Id.* Birrell, *The Medieval English Forest*, at 78.
[71] *Id.*
[72] *Id.*
[73] *Id.*
[74] *Id.* at 79.
[75] *Id.* at 80.
[76] *Id.*
[77] *Id.*
[78] *Id.*
[79] BAKER, J. H., AN INTRODUCTION TO ENGLISH LEGAL HISTORY (2000) AT 15.
[80] *Id.* Birrell at 80.
[81] *Id.* BAKER at 15.
[82] *Id*. at 17. Baker goes on to state that the Royal Justices dominating the general eyre system "begat fear and awe in the whole population." So not too dissimilar from judges today.
[83] *Id.*
[84] *Id.*

the concept of assart.[85] "Assarting" is the digging up of vegetation and clearing forests for agriculture and other land uses.[86]

During one described eyre, one local Lord purchased twenty acres of forestland for assart, whereas thirty peasants were amerced for illegal assarting of land for areas that ranged from half an acre to three acres.[87] Birrell explains that although this is one small example, this eyre was a typical example of the eyres occurring throughout the country in "every forest with even remotely suitable soil."[88] Acre by acre, England was destroying its forestland as well as the ecosystems and animals that relied on it for their habitat.[89]

Subsequently, forest protecting laws in England had increased significantly throughout the Middle Ages.[90] During this period, not only was taking deer from forests illegal, for many English citizens "it was forbidden even to remove a branch from a tree."[91] Yet despite these protections, the consequences of centuries of deforestation had already begun to manifest. Animals like the eurasian beaver, an animal prized for its pelt and the flavor from its anal sacs, lost their habitat and would eventually go extinct in England, Scotland and Wales by the sixteenth century.[92] Obtaining these resources was one of the many appeals of colonizing the west, as the Americas were rich in timber and beavers.[93]

After the Norman Invasion and throughout the Middle Ages, a development in the societal collective shifts from sheer resource exploitation to a notion that resources should at the very least be conserved so they can continue to be used.[94] However, the concept of genuine preservation (maintaining an ecosystem to be as close to pristine condition as possible) was still largely foreign. Further, nature was still viewed as

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[85] Birrell at 80.

[86] *Id.*

[87] *Id.*

[88] *Id.*

[89] *Id.* Again, deforestation was not chiefly limited to England. Deforestation was happening throughout what we consider the modern United Kingdom.

[90] Manning, Roger B., *Unlawful Hunting in England, 1500-1640*, FOREST & CONSERVATION HISTORY 38, NO. 1, 16–17 (1994).

[91] *Id.* Birrell at 80.

[92] From 1603 until 1707, the territories under the English Monarchy were called Great Britain. However, Great Britain would then become the Kingdom of Great Britain (1707-1801), the United Kingdom of Great Britain and Ireland (1801-1921) and finally the United Kingdom of Great Britain and North Ireland (1921-present). For simplicity, I am using the term "England" to avoid confusion with the title changes as territories merged throughout centuries. Additionally, the flavor from beaver anal sacs was often (and still sometimes is) used as a flavoring agent for foods, such as artificial vanilla. "Castoreum" is the ingredient to look out for.

[93] *Id.*

[94] *Id.*

wild, uncontrollable, and in many ways, something that was "bad."[95] The developing concept of the "environment," however, was something that could be controlled, dominated, and even profited from.

3. Nature Versus the Environment

Although Environmental Law as a subject originated in Europe (chiefly Great Britain) during the Industrial Revolution, environmentally-protective notions existed as early as 500 BCE.[96] Religions of the ancient world, including Chinese-Confucism, Indian Hinduism, and Greek Holism all displayed teachings that humans should live harmoniously with nature, and that nature was "morally good."[97] Although this paper focuses on the Anglo history of environmentalism, nature-protecting philosophies have existed in most cultures throughout antiquity.[98] However, the meanings of the terms "nature" and "environment" have experienced quite different and interesting developments over time.

The English term "nature" dates back to the fourteenth century but was originally used to describe a person's propensities (i.e., "he had a wicked nature.")[99] However, by the seventeenth century, the usage of "nature" had evolved into a term used to describe wilderness: the untamed world, the world that needed to be conquered by man.[100] While aboard the Mayflower off the coast of Plymouth Rock, English Puritan Separatist William Bradford described nature in his journal as a "hideous and desolate wilderness, full of wild beasts and wild men."[101] The colonial mentality not only attempted to place man above nature, but also to place white men above all others.[102] This mentality is evident in this passage as Native Americans are compared to wild beasts, and their undeveloped habitat is described as "hideous" and "desolate" when in fact

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[95] Schwartz, Robert M., *Teaching Environmental History: Environmental Thinking and Practice in Europe, 1500 to the Present*, THE HISTORY TEACHER, VOL. 39, NO. 3, (2006) at 327.

[96] *Id.*

[97] *Id*. Giving moral constructs such as "good" and "bad" to nature (or the environment) is something society has done since antiquity, witnessed through art, poetry, literature.

[98] *Id.*

[99] ??"*Nature*." *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/nature. Accessed 11 Sep. 2022.

[100] Stone, Alison., *Alienation from Nature and Early German Romanticism*, ETHICAL THEORY AND MORAL PRACTICE, VOL. 17, NO. 1, (2014) at 41. Interestingly, Romanticism as a movement focused on the idealization of nature and personal expression. Paintings often depict a human juxtaposed against a massive and overwhelming natural scene, illustrating the mysterious and unknown natural elements.

[101] Bradford,William. *History of Plimoth Plantation*, THE PURITANS (1938) at 100–101.

[102] Wenska, Walter P., *Bradford's Two Histories: Pattern and Paradigm in 'Of Plymouth Plantation*, EARLY AMERICAN LITERATURE, VOL. 13, NO. 2, 151–64 (1978).

it was rich with natural resources like timber, fresh water, and wild animals like the ever-sought-after beaver pelt.[103]

During the long 19th century, the term "environment" increasingly began to replace "nature."[104] Nature was wild and untamable. But through technology, humans could travel farther, by land or sea; travel faster; and produce more.[105] Massive supplies of raw materials (foodstuffs, metals, coal) could be transported on a large scale as trains connected parts of the country that were previously only reachable by coach or sometimes ship.[106] Advancements in cargo and ship technology, such as improved steel manufacturing, also increased greatly and connected foreign nations through trade.[107] What was once considered wild and unreachable had now, in theory, been dominated by man. In many ways, man had dominated nature, and nature was now man's environment.

Alternatively, the term "environment" as it is used today did not exist until 1828 when Thomas Carlyle translated the word 'Umgebung' in a work by Goethe.[108] Many historians do not believe this was simply a translational error, but an assertion on behalf of Carlyle.[109] According to historian Dr. Ralph Jessop, this translation illustrates "humanity's relation with nature, our continuing struggles with . . . the expansive, plural, and potentially evolving character of the notion of environment – but also to the later emergence of environmentalism."[110] Jessop argues that the use of "environment" in Carlyle's context should be viewed as a "response to a large number of intersecting social, political, economic, and agrarian changes associated with the Enlightenment, the Industrial Revolution."[111]

So what catalyzed the shift from "nature" to "environment?" The answer is a sense of control that was amplified by the Industrial Revolution.[112] Nature was a vast, wild and dangerous place to man: an area to be conquered. An environment was something man could control and

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[103] *Id.* at 156.

[104] *Id*. Stone at 41.

[105] Chansigaud, Valérie, *The Construction of Thinking on the Environment: The Words, Their Meanings, and Their Uses from 1790 to 1970*, Making Sense of Health, Disease, and the Environment in Cross-Cultural History: The Arabic-Islamic World, China, Europe, and North America, 117 (2019).

[106] *Id.*

[107] Usher, Peter., *Let's Build a Ship*, RSA Journal 144, no. 5466, 46 (1996).

[108] *Id*. Chansigaud at 117. Interestingly, 'Umgebung' translates to "vicinity" on Google translate.

[109] Jessop, Ralph, *Coinage of the Term Environment: A Word Without Authority and Carlyle's Displacement of the Mechanical Metaphor*, Vol. 9, Issue 11. Special Issue: Literature and Philosophy in Nineteenth Century Britain, 708 (2012).

[110] *Id.*

[111] *Id.* at 709.

[112] *Id.*

exploit. By the eighteenth century, English forestlands were largely under the control of the monarchy.[113] These areas that were once "natural" and part of the public commons were now controlled environments.[114] By the 1800s, timber cutting and assarting were heavily regulated by the Crown.[115] Consequently, timber as a resource for fuel became increasingly more impractical as it was becoming significantly less available, more protected, and too costly to utilize.[116] Society needed a new resource to exploit. Enter: fossil fuels.

II. The Industrial Revolution: A Real Environmental Nuisance

The Industrial Revolution was an era that expanded throughout and defined the long nineteenth century.[117] Catalyzed by the scientific advances developed during the Enlightenment Era, factories, large-scale production, and urbanization expanded on an explosive level.[118] However, these industries needed fuel to power its production. Fortunately for factories, advancements in coal mining technology also improved, and coal deposits were vast in northeast England.[119] The expansion of steam locomotive trains (trains powered by coal) enabled northeast England to supply coal to the growing cities throughout the country, like London and Manchester.[120] By the mid-nineteenth century, coal could now be used as a fuel source and as a way to power combustion engines with a relatively simple formula: (1) coal is heated to generate steam; (2) the steam causes turbines to turn; (3) and the turning turbines generate electricity.[121]

It is difficult to overstate the significance of coal, one of the primary driving forces of the Industrial Revolution. Throughout the Industrial Revolution, the cost of coal in England not only decreased forty percent, but coal production increased eighteen-fold.[122] However, the rapid ex-

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[113] *Id.*

[114] *Id.* at 708

[115] *Id.*

[116] *Id.*

[117] The "long nineteenth century" is a term to define the period before and after the 1800s, often coinciding with the Victorian Era. For many historians, the " long nineteenth century" begins at the beginning of the French Revolution and ends at the beginning of World War I.

[118] Wrigley, E. A., *The Process of Modernization and the Industrial Revolution in England*, The Journal of Interdisciplinary History 3, no. 2, 227 (1972).

[119] Clark, Gregory and Sacks, David, *Coal and the Industrial Revolution, 1700-1869*, European Review of Economic History 11, (2007) 40.

[120] *Id.*

[121] *Id.* Wrigley at 227.

[122] *Id.*

pansion of industrial factories in developing cities and burning of coal resulted in a new threat to human and ecological health: air pollution, largely in the form of smog.[123] Non-anthropogenic pollution on global scales have existed throughout history, generally resulting from massive volcanic eruptions.[124] However, this was the first time in history humans, on a measurable scale, emitted chemicals (soot, carbon, methane, and more) that would pollute the air and affect the health of city inhabitants.[125]

Even before the adverse effects to human health became a widespread public concern, air pollution was noticeably beginning to damage property.[126] Air pollution not only made structures filthy, the acidic nature of carbon and other air polluting chemicals decayed stone buildings and statues.[127] Property owners wanted redress.[128] Soon, proprietors found themselves looking back to an old law that historically protected property owners' ability to use and enjoy their land, at least from stinky animals.[129]

A. Air Pollution: A New Nuisance

Common law nuisance, derived from the French word for "annoyance" has existed in England since antiquity.[130] A legal term of art, a nuisance can be either private or public, but are distinctly different actions. Private nuisance is an "actionable annoyance which interferes with the ability of another to use or enjoy his land."[131] Under this doctrine, the maxim *sic utere tuo ut alienum non laedas* (use your own property in such a way that you do not injure other people's) describes the basis of the law. Alternatively, common law public nuisance occurs when a person "does an act not warranted by law, or omits to discharge a legal duty, if the effect of the act or omission is to endanger the life, health, property, morals, or comfort of the public, or to obstruct the public in the

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[123] *Id.*

[124] Uglietti, Chiara, et al., *Widespread Pollution of the South American Atmosphere Predates the Industrial Revolution by 240 y*, Proceedings of the National Academy of Sciences of the United States of America 112, no. 8 (2015) at 2349.

[125] *Id.*

[126] Small, *Kenneth A., Air Pollution and Property Values: Further Comment*, The Review of Economics and Statistics 57, no. 1 (1975) at 105.

[127] *Id.* at 106.

[128] *Id.* at 106-107.

[129] Brenner, Joel Franklin, *Nuisance Law and the Industrial Revolution*, The Journal of Legal Studies 3, no. 2, 404 (1974). Brenner cites a nuisance case dating back to 1201 CE concerning a property owner taking action against a mill who flooded the property owner's lands.

[130] *Id.*

[131] *Id.*

exercise or enjoyment of rights common to all Her Majesty's subjects."[132] Historically, public nuisance claims were often brought by municipal entities, however a private individual can sue for public nuisance when a defendant "interfered with, or caused damage to the public in the exercise of rights common to all."[133]

One of the earliest cases concerning public nuisance involved purprestures, or "encroachments upon the royal domain or the public highway" which occurred as early as the first century. However, by medieval times, *per se* nuisance in England would expand to include stenches emitted by animal-rendering facilities that are notoriously malodorous.[134] According to historian Christine Rosen, "The courts had a tradition that dated back to the late Middle Ages in England of treating slaughterhouses, bone-boiling establishments and the like as per se or prima facie presumptive nuisances."[135] To prove nuisance, a plaintiff merely had to show that they suffered "discomfort or inconvenience" as a result of the stench, often an easy burden to meet.[136]

By the mid-nineteenth century, nuisance actions stemming from air pollution were now becoming commonplace in the English court systems on both a private and public level. Urban factory smoke resulting from industrialization spawned a massive need for social relief.[137] Yet legal historians have asserted that it was not just property owners who created the demand for policy change.[138] Instead, it was an amalgam of politicians, landlords, and even industrialists demanding redress after witnessing the damage caused by air pollution.[139] Buildings were decaying, cities were covered in a blanket of smog, and structures were covered in a blanket of soot.[140] Interestingly, legal historians note that manufacturers during this era did not view smoke-prevention techniques as a negative.[141] Instead, these techniques were viewed as a potential source for

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[132] Spencer, J. R., *Public Nuisance. A Critical Examination*, The Cambridge Law Journal 48, no. 1, 55 (1989); Citing *Archibold's Criminal Pleading and Practice.*

[133] *Nuisance. Public Nuisance. Suit by Private Citizen*, Columbia Law Review 24, no. 7, 806-807 (1924).

[134] Rosen, Christine Meisner, *Knowing Industrial Pollution: Nuisance Law and the Power of Tradition in a Time of Rapid Economic Chan*ge, 1840-1864, Environmental History 8, no. 4, 577 (2003).

[135] *Id.*

[136] *Id*. at 568.

[137] Akatsu, Masahiko*, The Problem of Air Pollution During the Industrial Revolution: A Reconsideration of the Enactment of the Smoke Nuisance Abatement Act of 1821*, Economic History of Energy and Environment (2003).

[138] *Id.*

[139] Stradling, David, and Thorsheim, Peter, *The Smoke of Great Cities: British and American Efforts to Control Air Pollution, 1860-1914*, Environmental History 4, no. 1, 6 (1999).

[140] *Id.*

[141] *Id.* Akatsu at 85.

income: a lucrative new industry that profited from cleaning up the pollution of the current industries.[142]

On some level, smoke abatement laws resulting from coal burning existed in England as early as the twelfth century.[143] Under Edward I (r. 1239 - 1307), "smoke nuisances" resulting from workshops and hearths burning coal were denounced in London.[144] As the English population increased between the eleventh and twelfth centuries, smoke nuisance actions started to grow in frequency, but were quashed by the Bubonic Plague.[145] Between 1348 and 1351 CE, England would lose one-third of its population to the plague.[146] This massive population loss subsequently resulted in substantially less frequent private litigation, especially regarding nuisance actions.[147] Simply put, humans were facing extinction and had much bigger issues than suing because they could no longer enjoy or use their land. By the time the plague era ended in the seventeenth century, property owners had time to get annoyed again.[148]

However, by the mid-nineteenth century, cities throughout Great Britain such as Manchester, Leeds, and Birmingham, as well as smaller communities, were blighted with industrial pollution.[149] In response to public outcry, a bill was introduced to the British Parliament that would "facilitate local prosecution of owners of steam engines by parties suffering damage from their smoke."[150] Further, the bill allowed courts to order action to remedy the nuisance and impose court fees on convicted defendants.[151] Passed in 1821, the Act on Smoke Abatement triggered both smoke and noise actions in London.[152] However, due to a multitude of factors, this Act would be largely ineffective.[153] First, private property

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[142] *Id.*

[143] Flick, Carlos, *The Movement for Smoke Abatement in 19th-Century Britain*, TECHNOLOGY AND CULTURE 21, NO. 1, 29 (1980).

[144] *Id.*

[145] *Id*. Another series of "smoke nuisance" actions would rise in the sixteenth century as well.

[146] Hatcher, John, *England in the Aftermath of the Black Death*, PAST & PRESENT, NO. 144, 3 (1994).

[147] Kaeuper, Richard W., *Law and Order in Fourteenth-Century England: The Evidence of Special Commissions of Oyer and Terminer*, SPECULUM 54, NO. 4, 734 (1979).

[148] I say this a bit tongue-in-cheek, but it is arguably true. When one's entire village is dying a horrible death at a rapid pace, one probably is not as concerned with the odors of the bone boiling facility. For centuries, people believed in the "miasma" theory. "Miasma" was believed to be an odor that could carry disease like the plague, resulting from decomposition or other noxious stenches. However, I found it incredibly interesting that I could not find any early nuisance cases that specifically cite or mention "miasma."

[149] Flick at 29.

[150] *Id*. at 29-30.

[151] *Id.* at 30.

[152] Kasuga, Ayuka, *The Introduction of the Steam Press: A Court Case on Smoke and Noise Nuisances in a London Mansion, 1824*, URBAN HISTORY 42, NO. 3, (2015) at 405.

[153] *Id.*

owners were often unwilling to attempt to take on large industrial corporations.[154] Moreover there was notable judicial sympathy for industry during this era; laws relating to smoke abatement were unenforced, and violators who were convicted faced minimal fines.[155] However, one unexpected factor hindering the effectiveness of the Act was the common use of the word "smoke" during this period.

According to historian David Stradling, during the early Industrial era, "smoke" was used to describe the "dark particulate emissions of fires."[156] Visibility was the quintessential aspect that defined the common conception of "smoke."[157] This definition initially caused interpretation issues within the courts.[158] Stradling writes, "Although persons who complained about smoke rarely bothered to define it precisely, they did generally use adjectives like "dark," "black," and "gloomy" to describe it."[159] This interpretation would eventually be codified in municipal law.[160] By the end of the nineteenth century, anti-smoke laws in England were defined by the shade of smoke using the Ringelmann scale. According to the Ringelmann scale, only the darkest shades of smoke were considered actionable nuisances.[161]

These factors in tandem limited the effectiveness of the plaintiff in civil nuisance litigation both in Britain and the United States.[162] Colonized by English settlers, early nuisance laws in America during the colonial period similarly pertained to animal-processing related odors.[163] However, during the War of 1812, England stopped shipping goods to the United States, requiring America to Industrialize.[164] Considered by many historians to be the "Second Industrial Revolution," the American Industrial Revolution did not begin until the 1870s, nearly forty years after it began in England. However, although the Industrial Revolution occurred almost half a century later in the United States, nuisance laws developed with similar difficulties.

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[154] Flick at 30

[155] Stradling at 7.

[156] *Id.* Stradling's article explains that the use of the word "smoke" was similar in Britain and the United States. Stradling writes,"The Chicago Association of Commerce . . . defined smoke in 1915 as 'the visible effluvium or sooty exha- lation of anything burning.'"

[157] *Id.*

[158] *Id.*

[159] *Id.*

[160] *Id*.

[161] *Id.* at 8.

[162] *Id.*

[163] *Id.*

[164] Pershey, Edward Jay, *Lowell and the Industrial City in Nineteenth-Century America*, OAH Magazine of History 5, no. 2 (1990) at 5.

B. America: A Brave New Stink

Historically, in the United States, the private nuisance doctrine gave property owners "the right to sue for monetary compensation for the injuries they personally suffered as a consequence of another property holder's activities" as well as the right to enjoin the defendant from continuing to engage in the activity that created the nuisance.[165] Alternatively, states arguably had even greater authority under the public nuisance doctrine, which authorized states to enact "police powers to fine or imprison property holders for or enjoin them from using their property in ways that injured the rights of many people in a community or neighborhood."[166] Moreover, per the nuisance doctrine, a plaintiff had an actionable injury "so long as the plaintiff could prove that he or she had suffered a 'material' harm as a result of the defendant's activity."[167] A material harm was generally defined as physical damage to the property's features that were "necessary to the owner's physical and economic enjoyment of the property."[168] However, like England, American property owners during the early-Industrial era faced an uphill battle convincing the courts that air pollution should be an actionable nuisance.[169]

Legal historians argue that during the pre-Industrial era, specifically 1840-1865, the courts would only apply the *sic utere tuo* doctrine to one exclusive group: the "traditional nuisance industries."[170] The concept of the "traditional nuisance industry" manifested from England and chiefly included any facility that processes or renders animals, including slaughterhouses; soap and candle making factories; meat packing facilities; and animal waste processing facilities.[171] Carried over by English colonists, these facilities are deeply embedded in American history and initiated some of the earliest traces of zoning laws.[172]

During the colonial period, colonists imposed early land-use regulations in method to lessen human exposure to the odors emitted from animal processing facilities. During the seventeenth century, colonial governments in the United States used their police powers to order traditional nuisance businesses to maintain a certain level of cleanliness and

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[165] *Id*. Rosen at 577.

[166] *Id*.

[167] *Id* at 568.

[168] *Id*.

[169] *Id*. at 577.

[170] *Id* at 568.

[171] *Id.* Traditional nuisance facilities also include "breweries and distilleries, slaughterhouses, bone-boiling and fat-melting establishments.".

[172] *Id.*

prohibited dumping waste into streets or streams.[173] Colonial governments also used their police powers to regulate the location of traditional nuisance industries away from densely populated areas.[174] Through public nuisance actions, colonial governments could "force businesses that violated the norm of separation to shut down and relocate to less densely populated areas."[175] These regulations were early examples of what would become land-use zoning.[176]

From the colonial era into the nineteenth century, nuisance actions against traditional nuisance businesses often favored the plaintiff. In *Catlin v. Valentine* (1842), a group of property owners sought an injunction against the construction of a slaughterhouse in their New York City neighborhood.[177] There, the court, relying on English precedent, used language rooted from the *sic utere tuo* doctrine, "[t]o constitute a nuisance. . .[i]t is sufficient if it produces that which is offensive to the senses, and which renders the enjoyment of life and property uncomfortable."[178] The New York court therefore held that there was "no real necessity" in building a slaughterhouse in an area of the city that was being developed for housing.[179] Instead, such traditional nuisance facilities should be designated to undeveloped or sparsely populated districts.[180] Similar to England, in order to be awarded damages, all plaintiffs had to show was that the stenches emitted by the factory caused inconvenience or discomfort: a generally easy burden to meet.[181]

C. American Property Owners: Alone in the New Pollution

In the United States, the Industrial Revolution was also in full force by the end of the nineteenth century, with factories expanding in cities throughout the country.[182] Like England, urban Americans during the Industrial Revolution found themselves in a similar predicament: increased industrialization created air pollution, and air pollution damaged property.[183] American courts continued to follow the precedent against

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[173] *Id.* at 568.
[174] *Id*. at 569.
[175] *Id.* at 569.
[176] *Id.*
[177] *Catlin v. Valentine*, 1842 WL 4492 (N.Y. Ch., 1842) at 575. Although the defendant appealed, winning a modification of the injunction allowing him to continue constructing his building, the new injunction still forbade him to use the building for the operation of a slaughterhouse.
[178] *Id.*
[179] *Id*. *Caitlin* at 575.
[180] *Id*. Rosen at 570.
[181] *Id.*
[182] *Id*. at 577.
[183] *Id.*

traditional nuisance factories, often ruling in favor of the plaintiff.[184] However, this did not initially apply to industrial air pollution until the late nineteenth century.

In a burst of private litigation that spanned the mid-nineteenth century (specifically between 1840 to 1865), Americans increasingly began to sue industrial polluters under nuisance actions.[185] However, during the initial phases, property owners seeking redress for air pollution under a nuisance claim faced a new challenge. Like in England, judges and juries traditionally identified nuisance with odors historically emitted from rendering plants and slaughterhouses, not smog, smoke or soot.[186] Now, property owners had to convince the court that although distinct from traditional nuisance industries, the "smoke, loud noises, toxic fumes, and water pollution emitted by businesses" should also qualify as actionable nuisances.[187] These emissions did not fall under the traditional nuisance industry category, these issues constituted a "new" industrial pollution.[188]

Unfortunately, the lack of legal precedent would impact the way cases were adjudicated, as judges had "virtually no experience" in dealing with these new areas of pollution or the factories and mills that created it.[189] Further, courts during this era began to take on a pro-corporation, pro-industrial stance.[190] As a result, the paradigm that once favored the plaintiff rapidly shifted, giving preference to the corporate defendant.[191] Historian Christine Meisner Rosen examined forty-six nuisance actions spanning the 1845 to 1864 era.[192] Rosen notes that when the action was against the emerging industries (the industries emitting "new" industrial pollution) nineteenth century courts "rarely ignored or rejected the arguments defendants made to justify their right to continue to operate and pollute."[193] Instead, Rosen argues that judges had a tendency to adopt such defenses and incorporate them as their own "operative legal rules."[194] This shift in preference for defendants for nuisance actions crushed plaintiff rights that had been "carefully and deliberately

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[184] *Id.*

[185] *Id.* at 568.

[186] *Id*.

[187] *Id.*

[188] *Id.* at 573.

[189] *Id.* at 577.

[190] *Id.* at 573.

[191] *Id.*

[192] *Id.*

[193] *Id.*

[194] *Id.*

protected in decisions involving stenches from traditional nuisance businesses" for centuries.[195]

Concerning traditional nuisance industries, a plaintiff in this era need only prove that the nuisance (odor) caused "discomfort or inconvenience."[196] Arguably, a plaintiff had an easier time convincing a court that a stench did indeed come from a slaughterhouse, bone boiling facility, or animal waste facility. Air pollution, on the other hand, is more difficult to trace back to one source. Coal-burning factories were emitting air pollution in cities around the industrialized world.[197] How could a plaintiff prove that one factory in a city of thousands was the cause of their property damage?[198] In a seeming display of preference for industry, by 1849, the courts now required that the plaintiff now prove they suffered "irreparable" damage, instead of simple inconvenience and discomfort as was precedent.[199]

In *Tichenor v. Wilson* (1849), a farmer sued a chemical factory claiming that the air pollution being emitted was killing his crops, decaying his tools, and causing his neighborhood to feel ill.[200] There, the New Jersey Court of Chancery held that "an injunction should not be allowed unless a clear case of nuisance and of irreparable injury be made out."[201] Unable to meet this burden, the court ruled in favor of the chemical factory and granted no injunction to the farmer.[202] This case is just one of many examples of the new challenges a nuisance plaintiff now faced.

One of the many arguments for the dichotomy in treatment between traditional nuisance industries versus "new" nuisance industries is theorized to be an amalgam of a pro-industrial mentality within the judiciary (and society generally) combined with a general lack of understanding in what we modernly would call environmental science.[203] The early mentality that an "environment" was something to be conquered was beginning to manifest beyond what humans initially thought was possible. The world was vast, and to many in the industrial era, polluting the water and air on a global scale was incomprehensible.[204] However, by the turn

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[195] *Id.*

[196] *Id.* at 574.

[197] Owen, Anthony D., *Burning Up: Energy Usage and the Environment*, HARVARD INTERNATIONAL REVIEW 26, NO. 4 (2005) at 62.

[198] This issue will repeat itself for environmentalists in modern times, as courts are similarly unlikely to place the blame on individual corporations for pollution generally. Discussed below.

[199] Rosen it at 575.

[200] *Tichenor v. Wilson*, 8 N.J. Eq. 197, 1849 (1849).

[201] *Id.*

[202] *Id.*

[203] Rosen at 587.

[204] *Id.*

of the twentieth century, the impact of anthropogenic pollution would become increasingly hard to ignore.

III. World Wars, Oil, and Plastic

Shortly into the twentieth century, World War I broke out with over thirty nations declaring war.[205] Technological advancements of the industrial era had made crude oil extraction and subsequently transportation more accessible, more affordable, and foreign nations were now more easily reachable.[206] In the late 1920s, the English developed the jet engine.[207] In 1930, the Germans started working on their own jet design.[208] Spoiler alert: this had bad results. Nine years later, World War II broke out in Europe. Military technology over the past three decades had grown exponentially.[209] Whereas World War I was chiefly fought on horses or in trenches, by 1940, battling nations in both the European and Pacific theater were operating jeeps, armored cars, tanks, cargo planes, paratrooper planes, and fighter jets.[210] Further, oil was used for weaponry, as lubrication for machinery, and most significantly, as a way to defeat the enemy. Between 1940-1945, U.S. oil production alone would increase by thirty percent, rising from 3.7 million barrels per day to 4.7 million barrels per day.[211] Oil reserves became a prized target for enemy ambush; to destroy the literal fuel of the opponent's war machines.[212] By the time Hitler invaded Russia, Germany had exhausted all of its oil reserves.[213] Without fuel, and fighting a war on multiple fronts, Germany would inevitably lose the war.[214]

By the conclusion of World War II, the oil industry continued to develop new methods for oil extraction, production, and usage. Through refining, crude oil could be heated under various conditions to create chemicals ranging from diesel fuel, to petroleum, and toward the very top of the refining tower, propane.[215] However, in between petroleum

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[205] Painter, David S., *Oil and the American Century*, The Journal of American History. 99, no. 1, 25 (2012).

[206] So of course, we should celebrate by fighting each other.

[207] Connor, Sara Witter, *Wisconsin's Flying Trees: The Plywood Industry's Contribution to World War II*, The Wisconsin Magazine of History 92, no. 3, (2009) at 16.

[208] *Id.*

[209] Meierding, Emily, *Oil Campaigns: World War II*, In The Oil Wars Myth: Petroleum and the Causes of International Conflict, Cornell University Press. 117, 121 (2020).

[210] *Id.*

[211] *Texas Oil and World War II, Black Mountain Sand*, Nov 2, 2022. https://www.blackmountainsand.com/blog/texas-oil-and-world-war-ii.

[212] *Id*. at 117.

[213] *Id.* at 131-132.

[214] *Id.* at 131.

[215] *Refining Oil. How It Is Done*, Scientific American 21, no. 21 (1869) at 324.

and propane, oil products called "petrochemicals" were being refined in an effort to manufacture a new product.[216] This novel and malleable product could be used for packaging, as a clothing fiber, or often as a substitute for glass and metal.[217] A material that would over the next century become the biggest global polluter known to man.[218] This substance would come to be known as plastic. All plastic is made from oil.

IV. Legislation and the Judiciary: The Modern Environmental Bandaid

During the nineteenth century, a pro-industrial mentality likely influenced the court systems, often providing little redress for nuisance plaintiffs against industrial polluters. nineteenth century society did not favor the underdog, much less the environment. By the 1960s, what is referred to as "second wave environmentalism" began to take hold of the American spotlight.[219] Second wave environmentalism began in the 1960s and extends into modern times.[220] Now, societal influence was shifting in favor of the environment. The ill-effects of largely unregulated chemical production was beginning to show its ugly face.

In the 1940s, a chemical called DDT (dichloro-diphenyl-trichloroethane) was developed as the world's first synthetic insecticide.[221] Insect-borne diseases like typhoid were common during WWII and could be combated by spraying DDT.[222] By the 1950s, DDT was being sprayed across the United States, in homes, gardens, and crop dusting fields.[223] During this decade, biologists and ecologists began to notice that bird eggs exposed to DDT were too thin to be viable.[224] This discovery inspired Rachel Carson's 1962 work *Silent Spring*, in which a fictional town experiences what would occur if we lost our bird populations.[225] This book was a massive success and sparked societal outrage in the United States.[226] As the Environmental Protection Agency (EPA) did

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[216] *Id*.

[217] *Id.*

[218] Angus, Ian, *More Plastic than Fish*, In A Redder Shade of Green: Intersections of Science and Socialism, NYU Press, 131–38, 136-137 (2017).

[219] Rudel, Thomas K., J. Timmons Roberts, and JoAnn Carmin. *Political Economy of the Environment*, Annual Review of Sociology 37 (2011) at 222.

[220] *Id.*

[221] Dritschilo, William, *Rachel Carson and Mid-Twentieth Century Ecology*, Bulletin of the Ecological Society of America 87, no. 4 (2006): at 357.

[222] *Id.*

[223] *Id.* at 358.

[224] *Id.*

[225] *Id.* at 357.

[226] *Id.*

not yet exist, the United States Department of Agriculture (USDA), the federal agency in charge of regulating pesticides, began to ban many of the uses of DDT toward the end of the 1960s.[227] In 1972, two years after the EPA was formed, DDT would be banned outright.

During the 1970s, a series of new environmental protections began to follow suit.[228] The same year the EPA issued cancellation orders against DDT, the Clean Water Act (CWA) was enacted. Water rights (and water law) can be as difficult to grasp as water itself. The CWA was a manifestation of two "fundamentally different regulatory philosophies" with one side viewing water pollution as an absolute right, and the other attempting to restrict water pollution to ultimately achieve cleaner water.[229] Ultimately, these competing theories spawned two regulatory strategies: implementing water quality standards and effluent limitations.[230] Prior to this Act, factories were free to dump chemical waste (and all waste) into any local water source.[231] Factories, such as mills, were often positioned along rivers for proximate waste dumping.[232] Throughout antiquity into modern times, moving water has always been a method of waste removal. In Roman times, toilet rooms were built over running streams which acted as a natural "flushing agent" in the sense that it washed away human waste into a stream which was a marked improvement from defecating into a pit.[233] The Clean Water Act was essentially changing the way humans had treated water since the dawn of man.

In an attempt to eliminate the widespread practice of treating rivers, lakes and the ocean like liquid landfills, the Clean Water Act somewhat banned direct source pollution from factories into water sources.[234] Additionally, water quality standards were left to the states for determina-

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[227] *Id.*

[228] Charles A. Foster, and Marty D. Matlock, *History of the Clean Water Act*, WATER RESOURCES IMPACT, VOL. 3, NO. 5, 26 (2001). As early as 1948, the Federal Water Pollution Control Act began to implement control measures to mitigate pollution such as wastewater.

[229] *Id*. at 26.

[230] *Id*. at 27; "effluent" is liquid waste.

[231] Paavola, Jouni, *Interstate Water Pollution Problems and Elusive Federal Water Pollution Policy in the United States, 1900-1948*, ENVIRONMENT AND HISTORY, VOL. 12, NO. 4, 2006, pp. 435–65. *JSTOR*, http://www.jstor.org/stable/20723591. Accessed 1 Nov. 2022.

[232] Id. Foster at 27; I grew up in a town called Framingham which was alongside the Sudbury River. Framingham was once a mill town and had a carpet factory by my elementary school. The factory dumped excess dyes into the river for decades. Although the factory stopped operating before I was born, the river is still contaminated with mercury and lead and we were warned never to swim in it or eat the fish. The factory is now a carpet store.

[233] Olson, Kelly, Review of *Roman Toilets: Their Archaeology and Cultural History*, by Gemma C. M. Jansen, Ann Olga Koloski-Ostrow, and Eric M. Moorman]. 2003, *Phoenix*, *67*(3/4), 428. https://doi.org/10.7834/phoenix.67.3-4.0427

[234] *Id*, at 27.

tion.[235] Although a significant step toward environmental protection, the early Act still allowed factories to directly pollute water sources with federal permit approval.[236] Further, leaving quality standards to the states was largely ineffective for multiple reasons. One of the most concerning of those reasons is that water is mobile: it flows. So if a state with low quarter quality standards pollutes a river which flows into another state, their water quality standards are now negatively impacted and they have an even greater challenge to mitigate the pollution.

We can see this playing out with the Mississippi River. The Mississippi River begins just shy of the Canadian border in Minnesota and flows south passing through Iowa, Missouri, Arkansas, Mississippi, Louisiana before dumping into the Gulf of Mexico. Factories from each state have been dumping chemicals into this river for over a century.[237] Further, agricultural runoff from the unfathomably large amount of farmland that covers this region all makes its way into the river. This includes fertilizers, pesticides, and animal waste. Louisiana is now the last line of defense before the Mississippi reaches the Gulf of Mexico. However, there is no defense. The accumulated pollutants flow freely into the ocean creating deadly hypoxic zones.[238]

Water rights and subsequently water law are innately convoluted areas both nationally and internationally. However, the fundamental issues that inspired the ultimate push for a legislative act to address water concerns would perpetuate the Industrial Era pattern for future environmental battles, with one side wanting to protect, conserve or preserve natural resources and physical areas, and the other side perpetuating a longstanding notion that people, even corporations, have a right to take from and pollute the global commons.[239]

A. CFCs: A Global Ban

Since 1928, a chemical compound called chlorofluorocarbons (CFCs) had been used as both an aerosol agent and refrigerant.[240] By the end of the 1960s, and largely a result of the Space Race, technology had

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[235] *Id.*

[236] *Id.*

[237] *Id.*

[238] Rabalais, Nancy N., et al., *Gulf of Mexico Hypoxia, a.k.a. 'The Dead Zone*," Annual Review of Ecology and Systematics 33 (2002) at 235.

[239] Vittor, Jose Luis, *Keeping the Well From Running Dry: The Future of US Water Infrastructure*, Journal (American Water Works Association), vol. 102, no. 7 (2010) at 30; See Also MacDonald, Rhona, *Providing The World With Clean Water: Remains A Complex Problem, But Time Is Running Out*, BMJ: British Medical Journal, vol. 327, no. 7429 (2003) at 1416.

[240] *DDT - A Brief History and Status*, Environmental Protection Agency, November 9, 2022. https://www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status.

advanced enough for scientists to be able to detect chemical changes in the atmosphere.[241] In the stratospheric layer, ozone, a highly unstable triatomic molecule that protects the planet from ultraviolet radiation was being depleted on a measurable level.[242] Scientists soon discovered that when released into the atmosphere, CFCs were exposed to solar radiation, which caused them to break down and release chlorine atoms.[243] When chlorine comes into contact with the ozone molecules, they destroy the ozone molecule (O2) and create a chlorine monoxide molecule (CL0). Essentially, the chlorine molecules destroy ozone and create more chlorine, creating a snowball effect that ultimately depletes the ozone layer.[244]

In 1985, three scientists discovered a hole in the ozone layer over the South Pole.[245] Soon, researchers around the world concluded the cause was anthropogenic: pollution from CFCs.[246] The tragedy of the commons was now a global issue, as ozone depletion had depleted three percent worldwide since CFCs were first manufactured in the 1920s.[247] Alarmed by ozone statistics that had made their way into national news headlines, citizens in countries around demanded redress.[248] However, governing an invisible, global commons had never been done before. To be effective, widespread international cooperation was imperative.[249]

The Montreal Protocol is a treaty written by the United Nations that was largely spawned by societal pressures across the globe.[250] By the end of 1987, all 197 members of the United Nations ratified the treaty.[251] a year later, Ronald Reagan ratified the Montreal Protocol in the United States.[252] The Montreal Protocol is the only treaty to have been universally ratified by every country on Earth and is regarded as the most

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[241] *Id.*

[242] *Id.*

[243] *Id.*

[244] Epstein, Graham, Irene Pérez, et al., *Governing the Invisible Commons: Ozone Regulation and the Montreal Protocol*, International Journal of the Commons 8, no. 2 (2014) at 340.

[245] Stolarski, Richard S., *The Antarctic Ozone Hole*, Scientific American 258, no. 1 (1988) at 30.

[246] *Id.*

[247] *Id.*

[248] Epstein at 340.

[249] *Id.* at 344.

[250] *Id.*

[251] *United Nations: Montreal Protocol on Substances that Deplete the Ozone Layer - Adjustments and Amendment*, International Legal Materials 32, no. 3 (1993): 874–87.

[252] Turner, James Morton, and Andrew C. Isenberg, *American Exceptionalism in a Warming World*, *The Republican Reversal: Conservatives and the Environment from Nixon to Trump*, Harvard University Press (2018) at 145.

successful example of international environmental cooperation to date.[253] It was the first time the global community addressed an issue and imposed controls before the "actual damages to human health and ecology were registered."[254] Since the global banning of CFCs, the ozone has significantly improved over the past few decades.[255]

In the span of just a few decades, human access to information increased exponentially. Even before the internet, news media was reaching wider markets through radio and television. When news of ozone depletion made its way into news headlines around the world, it was the public demanded redress which manifested action. No longer was the individual property owner up against the corporation. Now, society was against corporations at large. However, unlike the individual property owner standing alone crying "nuisance!" a virtual global army of citizens was now demanding action. An army of consumers.

B. One Step Forward, Two Steps Back

Even after the success of the Montreal Protocol, the prognosis of the environment was still grim. Further international treaties like the Kyoto Protocol as well as the Paris Agreement both attempted to corral nations into reducing carbon emissions.[256] Largely responsible for global carbon emissions, the fossil fuel (and subsequently automobile) industry have extortionate capital and are able to pay incredible amounts for lobbying. In California alone, the fossil fuel industry spent approximately $77.5 million between 2018 and 2021 to advocate for the industry's interests in Sacramento.[257]

Ultimately, the fossil fuel industry has proven to be too powerful and too necessary for society to stand up and successfully achieve any action. Humanity relies on cars, planes, and ships as a way of life. Further, the majority of electricity is still generated using Industrial Era methods: burn fossil fuels, create steam, turn a turbine, generate electricity. Although solar and wind technology could theoretically replace a significant amount of fossil fuel-derived electricity, the fossil fuel indus-

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[253] *The Montreal Protocol on Substances That Deplete the Ozone Layer*, Office of Environmental Quality, U.S. Department of State, November 9, 2002. *https://www.state.gov/*. Although other international environmental treaties like the Kyoto Protocol and Paris Agreement would have success, the Montreal Protocol is still regarded as the most successful international environmental treaty to date.

[254] Benedick, *A Landmark Global Treaty at Montrea*l, 2 Transboundary Resources Rep. 3 (1988).

[255] Epstein at 337.

[256] *Id.*

[257] Slowiczek, Josh, *Oil and Gas Heavily Outspends Clean Energy, Environmental Groups on California Lobbying*, Energy News Network (March 17, 2022).

try has made efforts to stifle the progress of these industries, through the spreading of misinformation, and using financial resources to destroy bill proposals aiming to regulate fossil fuel regulations.[258] For example, in 2015, big oil spent $11 million to kill a provision in California Senate Bill 350 to reduce petroleum use by half by 2030.[259]

In the 1980s, the world embraced scientific research and made measurable changes to ban a substance on a global level. Today, society is armed with even more advanced technology and although researchers have been spreading warnings about the consequences of continuing to emit carbon into the atmosphere, we have not done enough to attenuate these emissions.

V. Conclusion: The Modern Commons

Today, the tragedy of the commons can be extrapolated as a metaphor for the entire planet. No longer are the commons a simple plot of undeveloped land to be used freely, without regulation, by anyone. Now the global commons embodies the same issue: overuse by anyone means depletion for everyone. The tragedy of the commons is everpresent today with pollution. Corporations still feel they have a right to take and a right to pollute. Legislation and the judiciary continue to go back and forth between the two sides, sometimes favoring the environment, sometimes industry. Garret states, "Here it is not a question of taking something out of the commons, but of putting something in. . ."[260] Indeed, depletion from resources like freshwater is still a growing issue, but as Garret asserts, we have put too much in: carbon in the air, plastics in our ocean and landfill, radioactive matter in our lands and waters, the list goes on.

Although Garret's notions for conservation are necessary for a thriving environment, they are not enough. When the sink overflows, we do not reach for a towel, we turn off the tap. This is what society must do if it wants to make any significant impact in mitigating climate change. We have unsuccessfully relied on politicians and the court system to save the environment. Private parties often do not have the funds to take on corporations. States enforcing police powers face the same obstacles.

Perhaps therefore the only way to effect any positive environmental change is through societal influence: voting with the almighty dollar. If

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[258] Benshoff Laura, *Renewable Energy is Maligned by Misinformation. It's a Distraction, Experts Say*, NPR.org (2022). https://www.npr.org/2022/08/24/1110850169/misinformation-renewable-energy-gop-climate.

[259] Chabria, Anita, *Oil Giants Derail California Bill to Reduce Gasoline Use by 50%*, The Guardian, (September 2015).

[260] Garret at 1245.

consumers on a large enough scale demanded change from the corporations, the corporations would abide. Rachel Carson almost single handedly convinced the nation to ban a widely used chemical. When the world's ozone layer faced peril, global pressures united an invisible commons and actually made substantial change that can be witnessed to this day. However, until society realizes its unified power, environmental causes will continue to face uphill battles, taking on powerful corporations one lawsuit at a time.

MAJOR QUESTION DOCTRINE: AN UPSET IN ENVIRONMENTAL LAW

Alejandro Jesus Bottenberg[1]

I. Introduction

In 1984 in *Chevron v. NRDC* the Supreme Court introduced the Chevron Deference Doctrine which for the next forty years guided the Federal Judiciary in resolving issues of agency statutory interpretation.[2] However, the validity of *Chevron* has fallen into doubt with the announcement of the Major Question Doctrine by the Supreme Court in *West Virginia v. EPA*. Once a minor exception to Chevron Deference, the Court has elevated the Major Question Doctrine to become the overall rule in administrative policy cases.[3] However, Chevron Deference must remain in its position as the overarching constitutional rule. The Major Question Doctrine establishes a per se ban on all uses of ambiguous legislation, as the Court will strike down any rule based on any "broad" or "general" statutory text.[4] It also establishes a jurisdictional boundary where agencies must not create policies that have "vast economic and political significance," without clarifying when an issue would reach sufficient significance to be off limits to an agency regulation.[5]

This article will argue that the Court should maintain Chevron Deference as the constitutional rule for agency statutory interpretation, as it allows the Courts to rein in the powers of administrative agencies. Yet, it also gives Congress the flexibility to enact comprehensive legislation

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[2] Timothy A. Roth, *Major Question Doctrine: Implications for Separation of Powers and the Clean Power Plan,* 29 Geo. Env't. L. Rev. 555, 556 (2017).

[3] *Id.*

[4] West Virginia v. EPA, 142 S. Ct. 2587, 2622-23 (2022).

[5] *Id.* at 2620-21.

that allows the experts in these agencies to have the tools they need to do their jobs. In order to make this argument, this article will first discuss the background of the Major Question Doctrine, by showing its thirty to forty years of development from a mere exception in Chevron Deference to a now full constitutional rule. Second, this article will provide an argument against the Major Question Doctrine, by showing how it will prevent the proper function of government and why Chevron Deference should remain the rule and the Major Question Doctrine should not.

II. Background

A. The Chevron Deference Doctrine

In 1984 the Supreme Court was presented with the case *Chevron, U.S.A., Inc. v. National Resource Defense Council, Inc.* (1984), the Court was asked to overturn an Environmental Protection Agency (EPA) rule, based on an unreasonable construction of the statutory term "stationary source."[6] Justice Stevens, writing for the majority, crafted a constitutional analysis for the Federal Judiciary for use when analyzing the statutory construction for an agencies policy determinations.[7] The established test now commonly known as the Chevron Deference Doctrine has two prongs.[8] The first prong asks whether Congress has directly spoken to the precise issue that is before the Court and if the intent of Congress is clear then the test ends there.[9] When this occurs the Court and the agency must allow Congress's "unambiguous expressed intent" take effect.[10] However, in the second prong if the intent of Congress is ambiguous, then the Court "does not simply impose its own construction of the statute."[11] Instead the Court must look to the agency's regulation, and ask whether the agency's regulation is based on a "permissible construction of the statute."[12]

Reasonableness is the basis behind Chevron Deference, as long as an agencies construction of a statute is reasonably made it will be upheld by the Court.[13] The Court acknowledges that if Congress has "explicitly left a gap for the agency to fill, that is an express delegation."[14] The

[6] Chevron, U.S.A., Inc. v. NRDC Inc., 467 U.S. 837, 840 1984).
[7] *Id.* at 842.
[8] *Id.* at 842-43.
[9] *Id.* at 842.
[10] *Id.* at 843.
[11] *Id.* at 843.
[12] *Id.* at 843.
[13] *Id.* at 843-44.
[14] *Id.* at 843-44.

Court recognizes that the matters being left to these administrative agencies are ones that require more than "ordinary knowledge."[15] Meaning that the Court recognizes that Congress had explicit intent when it left these sections of its legislation ambiguous, as it allows the "experts" in these agencies to have some leeway when they craft their rules.[16] By establishing a standard of reasonableness the Court is able to prevent these administrative agencies from usurping to much power, thereby respecting the separation of powers and allowing increased cooperation between the two political branches.

B. The Major Question Exception

In the aftermath of *Chevron*, the Court and the legal world developed two opposing ideologies that would dominate agency statutory interpretation for more that thirty years. On one side there were those that followed the ideology that if the intent of Congress was ambiguous then that was a delegation of authority by Congress to the agency, and the judiciary should reserve deference.[17] While the other side believed that deference gave administrative agencies to much power, thereby wishing to restrict this power they advocated that these agencies needed "clear congressional authorization" in order to implement their regulations.[18] This ideology would eventually develop into the "Major Question Exception."[19] The Major Question Exception first appears in the case of *MCI Telecomms. Corp. v. AT&T Co.* (1994), where the Court strikes down a regulation scheme by the Federal Communication Commission (FCC) to regulate telephone carriers.[20]

Here, the FCC attempted to use the word "modify" in the statute to allow exemptions from their regulations on specific carriers in order to promote competition in parts of the market where there wasn't any.[21] The Court struck down the agencies policy because, "It is highly unlikely that Congress would leave the determination of whether an industry will be entirely, or even substantially, rate-regulated to agency discretion.", it then goes on to say that the interpretation is a "fundamental revision of the statute."[22] This case inadvertently established the Major Question Ex-

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[15] *Id.* at 844.

[16] *Id.* at 844.

[17] Timothy A. Roth, *Major Question Doctrine: Implications for Separation of Powers and the Clean Power Plan*, 29 Geo. Env't. Rev. 555, 557-58 (2017).

[18] *Id.*

[19] *Id.*

[20] MCI Telecomms. Corp. v. AT&T Co., 512 U.S. 218, 221-22 (1994).

[21] *Id.* at 231-32.

[22] *Id.*

ception by just simply applying Chevron Deference. The Court saw that in step one of the Chevron test the statute was ambiguous on the issue, therefore making Congress's intent uncertain, then they moved on to the second prong and saw that this interpretation of the word "modify" in the statute was unreasonable.[23] It was unreasonable because of the impact that the resulting regulation would have on the industry.[24] The impact would have been so great that the Court believed that Congress would have legislated the issue if it had wanted to.[25] This is the essence of what the Court would later describe as a "Major Question".[26]

The Court further expanded this exception in the case of *FDA v. Brown & Williamson Tobacco Corp.* (2000). It applied Chevron Deference to the question of whether or not the Federal Drug and Food Administration (FDA) had the authority to regulate tobacco products.[27] The Court applied the first prong of the Chevron Deference test, as it attempted to see if Congress had spoken directly to the issue.[28] It determined that in order to establish this it must look at the "overall statutory scheme", by attempting to see how the statute fits into it.[29] The reason the Court needed to look at other pieces of legislation is because many pieces of legislation influence each other, but it also has to look at whether "Congress is likely to delegate a policy decision of such economic and political magnitude to an administrative agency."[30] This case is where the Court for the first time states that when it comes to "extraordinary cases" or "important questions" the Court should not assume that Congress has delegated authority when it has left the statute ambiguous.[31]

The Court eventually determined that the FDA did not have the authority to regulate tobacco products.[32] The Court found that Congress had debated this issue several times over the years and had consistently refused to adopt legislation regarding tobacco regulation.[33] It also found that the FDA's assumption that it may regulate an entire industry through an ambiguous piece of the statute to be unreasonable.[34] Therefore, the

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[23] *Id.*

[24] *Id.* at 230-31.

[25] *Id.* at 233-34.

[26] *Id.* at 230-31.

[27] Timothy A. Roth, *Major Question Doctrine: Implications for Separation of Powers and the Clean Power Plan*, 29 Geo. Env't. L. Rev. 555, 560 (2017).

[28] FDA v. Brown & Williamson Tobacco Corp., 529 U.S. 120, 132-33 (2000).

[29] *Id.*

[30] *Id.*

[31] *Id.* at 159.

[32] *Id.* at 161.

[33] *Id.* at 160-61.

[34] *Id.* at 160-61.

Court did not believe that the Congress would have, "delegated a decision of such economic and political significance to an agency in such a cryptic fashion."[35] The holding in *Brown & Williamson* establishes the basic parameters of the Major Question Exception, that the Court finds it unreasonable that an agency would attempt to use an ambiguous piece of legislation to regulate an "important question" that would have a significant political and economic impact.[36]

In *Massachusetts v. EPA* the Court ruled that the EPA had the authority under the Clean Air Act to regulate carbon dioxide, and that the EPA used *Brown & Williamson* incorrectly as a justification for not regulating carbon dioxide.[37] The EPA made the argument that if it were to regulate carbon dioxide, then it would have a more significant economic and political impact than the FDA's potential ban on cigarettes.[38] However, the Court points out two important issues. First in *Brown & Williamson* the FDA was more extreme because it involved a complete ban, while here the EPA would only be "regulating" the emissions.[39] Second, in *Brown & Williamson* the FDA had admitted before that it could not ban or regulate tobacco products, while in this case the EPA could not provide such congressional action and it had admitted before that it had the power to regulate these types of emissions from motor vehicles.[40] It seemed to the Court that the EPA was attempting to instill "ambiguity into a clear statute."[41] There was much confusion that formed after this case, as it seemed quite clear that this was an "important question" of "vast economic and political significance", yet the Court choose not to invoke the Major Question Exception.[42]

After *Massachusetts* many wondered if the Major Question Exception was no longer valid, that is until the Court took up the issue in *City of Arlington v. FCC* (2013).[43] The Court's decision in this case seemed to throw out the Major Question Exception.[44] Here, the Court deals with the "jurisdictional" issue of the Major Question Exception.[45] As it seems that anything with "vast economic or political consequences" established a boundary upon these agencies, yet it is not clear what those boundaries

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[35] *Id.* at 160.

[36] *Id.*

[37] Massachusetts v. EPA, 549 U.S. 497, 531(2007).

[38] *Id.*

[39] *Id.*

[40] *Id.*

[41] *Id.*

[42] Timothy A. Roth, *Major Question Doctrine: Implications for Separation of Powers and the Clean Power Plan,* 29 GEO. ENV'T. L. REV. 555, 561 (2017).

[43] *Id.*

[44] *Id.*

[45] City of Arlington v. FCC., 569 U.S. 290, 293 (2013).

are.[46] This jurisdictional premise is seen as a "mirage" or false to the Court as, the question with Chevron Deference always is, "whether the agency has stayed within the bounds of their statutory authority."[47] It is stressed here that agencies receive their jurisdictional bounds from Congress, and it is for the Court to decide whether or not the agency has remained in those bounds.[48] An agencies policy determinations are only bounded by the statutory text, if it is clear then that is the limit and if it is ambiguous then the limit is one of a reasonable interpretation.[49]

After *City of Arlington,* it seemed that all the teeth had been taken out of the Major Question Exception because it looked as if there was no "inherent limit" for a agency just as long as their actions were in the bounds of the statute.[50] However, only a year later the Major Question Exception came back into the picture in *Util. Air Regulatory Group v. EPA* (2014). The Court reasserted the Major Question Exception by stating that the. . .

> EPA's interpretation is also unreasonable because it would bring about an enormous and transformative expansion in EPA's regulatory authority without clear congressional authorization. When an agency claims to discover in a long extant statute an unheralded power to regulate "a significant portion of the American Economy" . . . we typically great its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decision of "vast economic and political significance."[51]

Util. Air Regulatory Group v. EPA struck down a new EPA regulation using the Major Question Exception, finding that using ambiguous language of a statute in the crafting of its policies that would affect "a significant portion of the American Economy" is never warranted.[52] For over thirty years the Court has struggled with this ideological battle between the Major Question Exception and the Chevron Deference Doctrine so much so that in the span of less than a year the Court both threw out and reimplemented the rule bringing it back stronger than it was before. A couple of years after *Util. Air Regulatory Group v. EPA* the case of *West Virginia v. EPA (2022)* began its litigation, the difference is instead of the government preparing to argue Chevron Deference, it di-

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[46] *Id.* at 296-97.
[47] *Id.* at 297.
[48] *Id.* at 297.
[49] *Id.* at 296.
[50] Timothy A. Roth, *Major Question Doctrine: Implications for Separation of Powers and the Clean Power Plan,* 29 GEO. ENV'T. L. REV. 555, 561-62 (2017).
[51] Util. Air Regulatory Group v. EPA 134 573 U.S. 302, 324 (2014).
[52] *Id.*

rectly asked the Courts to apply the "rule" called the Major Question Doctrine.

C. The Clean Power Plan

The Clean Power Plan is the centerpiece of the litigation in *West Virginia v. EPA (2022).* The Clean Power Plan was a federal program instituted by the EPA to regulate Greenhouse Gases emissions (GHG) such as Carbon Dioxide from stationary sources of fossil fuels.[53] The Clean Power Plan was projected to reduce GHG's by about 30 percent by 2030, this would be done on a state by state level in which the EPA would evaluate how much each state could reduce their GHG emissions and then have the states craft their own plans.[54] The EPA introduced four different guidelines called building blocks were each state has the choice to issue "all, some, or none of them", the EPA touted that these would allow a flexible transition for the states preventing interruptions in the power grid.[55] The states are meant to implement these guidelines allowing for the existing fossil fuel facilities to generate power and cap it at a certain level, so the state can transition successfully to renewable energy.[56] This was supposed to allow a smooth transition for each states electric grid from fossil fuels to renewable energy, without dramatic interruptions in power.[57]

D. West Virginia v. EPA

The issue presented to the Court in *West Virginia* is whether the Clean Air Act gives the EPA the broad authority to implement the Clean Power Plan.[58] The rule that the Court uses to decide this case is called the "Major Question Doctrine" which states that an administrative agency cannot without "clear congressional authorization" assume broad authority to implement a rule that would have "vast economic and political significance".[59] The Court claims that if Congress wished to grant an agency broad authority to affect a "significant portion of the American economy" it would have clearly stated so.[60] When an administrative

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[53] Philip F. Fargotstein and Rhett A. Billingsley, *Clean Power Plan: Testing the Limits of EPA's Clean Air Act Authority*, 30 Nat. Resources Env't, 19, 19-20 (2015).

[54] Philip F. Fargotstein and Rhett A. Billingsley, *Clean Power Plan: Testing the Limits of EPA's Clean Air Act Authority,* 30 Nat. Resources Env't, 19, 19 – 20 (2015).

[55] *Id.*

[56] *Id.* at 20.

[57] *Id.*

[58] *West Virginia v. EPA,* 142 S. Ct. 2587, 2600 (2022).

[59] *Id*. at 2609.

[60] *Id.* at 2609.

agency attempts to claim a substantial amount of power, the Court becomes skeptical and is hesitant to assume that Congress would have reasonably granted that power.[61] The biggest concern for the Court in this case is if there is a violation of the principle of separation of powers and its desire to respect the legislative intent of the Congress.[62]

In order for the Court to determine if the EPA had "clear congressional authorization" to implement the Clean Power Plan, they must first look to the construction of the statute.[63] However, when the Court uses statutory construction in terms of the "Major Question Doctrine" it means that the "words of the statute" must be viewed in the "overall statutory scheme", which had occurred in *Brown & Williamson*.[64] The Court acknowledges that it adopts a different form of statutory interpretation when analyzing under the "Major Question Doctrine" when it comes to cases involving agency policy determinations, yet it states that it is necessary.[65] When it comes to "extraordinary cases" the Court explains that the extent of power claimed by an agency would make the Court hesitate and be "skeptical" of that agency's construction of the statute.[66] In order to satisfy the element of "clear congressional authorization" the Court needs more than an ordinary construction of the statute "making the 'Major Question Doctrine' distinct."[67]

Using this form of statutory construction, the Court focuses on the main part of Section 111 the government is using which is, "the application of the best system of emissions reduction . . . adequately demonstrated."[68] More specifically what the word "system" is supposed to mean in concert with the legislation.[69] The government presents that argument that "generational shifting" can be considered as a type of system, because a system can be "an aggregation or assemblage of objects united by some form of regular interaction."[70] The Court first looks at take the word as is in the sentence, if this is done then "system" could permissibly be seen as allowing "generational shifting."[71] However, the Court sees this type of analysis as using the word "system as an "empty vessel" that could be filled with multiple different definitions.[72] This is

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[61] *Id.* at 2609.
[62] *Id.* at 2609.
[63] *Id.* at 2607.
[64] *Id.* at 2607.
[65] *Id.* at 2609.
[66] *Id.* at 2609.
[67] *Id.*
[68] *Id.* at 2614.
[69] *Id.* at 2614.
[70] *Id.* at 2614.
[71] *Id.* at 2614.
[72] *Id.* at 2614.

seen as being too vague for the Court and does not correspond with the Court's understanding of what is meant as "clear congressional authorization."[73]

Therefore, the word "system" must be looked at in terms of the whole statute in order to determine the intention of congress.[74] The government makes the argument that when looking at the rest of the Clean Air Act, Congress did enact programs that use "system" to refer to other programs that are similar to the ones that they are trying to implement in the Clean Power Plan, such as cap-and-trade and the other emission reduction programs.[75] The government points to the Acid Rain program and the National Ambient Air Quality Standards program (NAAQS), as "clear congressional authorization" to implement programs similar to these ones.[76] The Court responds to this argument by stating that just because a cap-and-trade system is used in other parts of the statute does not mean that this applies to section 111.[77]

The issue for the Court here is that Congress was the one who set the limits for those other programs and specifically authorized the EPA to use a cap-and-trade system in those instances.[78] For each of these programs Congress not only authorized the programs specifically targeting certain pollutants, but also created them to work with emission limits that had already been established directly by Congress.[79] The Court sees that the system the EPA is using with section 111 is that they are creating an emissions limit that they deem to be sufficient.[80] It seems doubtful to the Court that Congress would allow the EPA such great leeway to make their own emissions limits with whatever "system" available to them on any industry, when in the rest of the Clean Air Act Congress created these limitations in other programs.[81]

It is also pointed out that when the Clean Air Act was amended in 1990, Congress introduced cap-and-trade schemes for the first time with the Acid Rain program, and then specifically added that this could be used in the NAAQS system.[82] The Court notes that it is quite significant that Congress would add those sections, but not add it in section 111.[83]

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[73] *Id.* at 2614.
[74] *Id.* at 2614.
[75] *Id.* at 2615.
[76] *Id.*
[77] *Id.*
[78] *Id.*
[79] *Id.*
[80] *Id.*
[81] *Id.*
[82] *Id.*
[83] *Id.*

The Court sees that it is not "plausible" to conclude that Congress meant to give "clear congressional authorization" to the EPA to implement the Clean Power Plan using section 111.[84]

The second element of the "Major Question Doctrine" is to look at whether the regulation being implemented seeks to have "vast economic and political significance."[85] The Court determines this by looking to see if that new rule seeks to control "a significant portion of the American economy."[86] The Court finds this by looking at the history of how the agency used that section and the intend effects and views of how that agency wishes to implement the new rule.[87] The Court first states that Section 111 is a "ancillary provision" of the Clean Air Act that was designed by congress as a "gap-filler", that had rarely been used in the past.[88] The Court sees that the best way to show that "power was actually conferred" is to look at how the agency interpreted the rule in the past, noting that a sudden shift away from that interpretation should cause the Court to take notice.[89] Therefore, when the Court saw that the EPA rarely used this rule in the past and had only considered it a "gap-filler", it questioned whether the EPA actually has this power when it states that its new rule under this section, "seeks to substantially restructure the American energy market."[90]

The government makes the argument that in the past the EPA has used section 111, to implement cap-and-trade systems, pointing to the "Mercury Rule."[91] However, the Court believes that this does not support the government's argument, because the emissions cap was based upon a system of technologies rather than a system based on "the application of specific controls."[92] The Court sees this rule and the previous statements about section 111, as the EPA stating that it interpreted the section to refer to a technology based standard.[93] Then the EPA stated that when introducing the Clean Power Plan that it had taken a " 'broader, forward thinking approach to the design' of section 111 regulations."[94] As the EPA noted before that it had used "more traditional air pollution control measures" in the past when it came to section 111, but to only use that in

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[84] *Id.* at 2616.
[85] *Id.* at 2605.
[86] *Id.* at 2608.
[87] *Id.* at 2610.
[88] *Id.* at 2610.
[89] *Id.* at 2610.
[90] *Id.* at 2610.
[91] *Id.* at 2610.
[92] *Id.* at 2611.
[93] *Id.*
[94] *Id.*

the Clean Power Plan would have created results that were to small.[95] The Court states that the EPA determined that in order to obtain significant results it would attempt to shift the overall system from one energy source to another energy source.[96]

The Court stated that the EPA had taken it upon itself to revise the statute moving from one type of regulatory scheme to another.[97] The regulatory scheme that the EPA used under section 111 was to ensure "efficient pollution performance from each individual source."[98] This means that the EPA has used this section to establish achievable emission limits for each source.[99] Instead the Court saw the new EPA regulations under this rule as establishing unachievable emission limits in order to close down the existing coal plants.[100] The Court states that in doing this the EPA is not making the decision that this is what the emission limits should be at, instead they are making the decision that coal should not be part of the American energy market.[101] By making the emission standards impossible to meet for coal, the Court saw that the EPA is trying to push these companies to invest in clean energy systems instead.[102] The Court sees this "generational shifting" as being outside of the bounds of the EPA's authority.[103]

Finally, the Court looked at the history of congressional action when it came to dealing with GHGs.[104] It saw that Congress has known about the threat of GHGs for decades now and has chosen not to act.[105] In fact, the Court notes several instances in which an amendment for the Clean Air Act involving a cap-and-trade system centered on GHGs, which Congress has consistently refused to enact.[106] Taking in all these considerations the Court has seen that this issue, "one of most profound debate across the country", is to important and extraordinary for an agency to make on its own.[107] The Court believes that "the basic and consequential tradeoffs" that are involved with a decision such as this one could not possibly be one that Congress intends for the agency to

[95] *Id.*
[96] *Id.*
[97] *Id.* at 2612.
[98] *Id.* at 2612.
[99] *Id.* at 2612.
[100] *Id.* at 2612.
[101] *Id.* at 2612.
[102] *Id.* at 2612.
[103] *Id.* at 2612.
[104] *Id.* at 2614.
[105] *Id.* at 2614.
[106] *Id.* at 2614.
[107] *Id.* at 2614.

make for itself.[108] A decision of "vast economic and political significance" would be one that "congress would have intend for itself to make".[109]

The concurrence written by Justice Gorsuch first attempts to state with clarity the rule set down by Court, that "Under the doctrines terms, administrative agencies must be able to point to 'clear congressional authorization' when they claim the power to make decision of vast 'economic and political significance.'"[110] Justice Gorsuch saw this doctrine as being necessary for the protection of the separation of powers, as he explained that the Court cannot allow Congress to delegate its powers to the executive.[111] That giving agencies this vast power would allow the executive to create laws whenever they wish and to change them from administration to administration, thereby destroying the very constitutional framework the Court is meant to protect.[112]

Justice Gorsuch then goes into more detail on how to analyze using the Major Question Doctrine, as he noted previously there are two elements present "clear congressional authorization" and the claim of power to make decisions of "vast economic and political significance." He provides four different factors in order to define what clear congressional authorization is, the first is that "courts must look to the legislative provisions on which the agency seeks to rely, 'with a view to their place in the overall statutory scheme.'"[113] He states that "oblique" or "elliptical" language will not be a clear statement, nor language that appears to be subtle, he states that the provision the agency seeks to rely on must not come from provisions that are viewed as "gap fillers", the provision must be clear on what it needs and cannot be cryptic.[114] The second factor is that, "courts must examine the age and focus of the statute the agency invokes in relation to the problem the agency seeks to address."[115] Basically, Justice Gorsuch is saying that the courts must note when an agency attempts to use a piece of legislation that was passed decades ago to attempt to deal with a more modern problem, this is because it is unlikely that Congress would have wanted the legislation to be used for this specific issue.[116]

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[108] *Id.* at 2613.
[109] *Id.* at 2613.
[110] *Id.* at 2616.
[111] *Id.* at 2618.
[112] *Id.*
[113] *Id.* at 2622.
[114] *Id.*
[115] *Id.* at 2623.
[116] *Id.* at 2623.

The third factor is that "the courts may examine the past interpretations of the relevant statute.", this is because the Court views long settled interpretations of a statute by the executive branch to hold some weight.[117] He is saying that if a piece of legislation has been seen for decades as not relevant and then attempts to use that statute to effect "vast economic and political significance" upon the national economy, that is an alarming sign the lower courts must look at.[118] The fourth and final factor is that the courts should take note, "when there is a mismatch between an agency's challenged action and its congressionally assigned mission and expertise."[119] What Justice Gorsuch refers to here is that if an agency attempts to regulate a large industry that is going to have a wide impact on the national economy, it is important to note if that agency is actually within their own designated mission.[120]

Justice Gorsuch sets out three important factors that the lower courts must use in order to decide upon what a "vast economic and political significance" would look like.[121] The first factor Justice Gorsuch discusses is on what "political significance" is supposed to mean, to which he points out that it would be one that seeks to "end an earnest and profound debate across the country."[122] He describes it as when an agency works around the Congress to attempt to address an important political issue.[123] The second factor Justice Gorsuch describes is the one that deals with an agency attempting "to regulate a significant portion of the American economy."[124] Justice Gorsuch does not expand as much on this point, but does describe it as a decision that "requires billions of dollars in spending by private persons or entities."[125] The third and final factor in this element that Justice Gorsuch describes is the possibility that this doctrine could be used when an agency, "intrudes into an area that is the particular domain of state law."[126]

Justice Gorsuch sees this factor being used when agencies attempt to change "vast swaths of American life", that when doing this the possibility that the agency may intrude on areas of state law is extremely high.[127] The second element is best described in the case as by looking just at the policy that is trying to be instituted, to which here the Court

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[117] *Id.*
[118] *Id.* at 2623.
[119] *Id.*
[120] *Id.* at 2623.
[121] *Id.* at 2620.
[122] *Id.*
[123] *Id.* at 2620.
[124] *Id.* at 2621.
[125] *Id.*
[126] *Id.* at 2621.
[127] *Id.*

sees that the EPA is attempting to regulate the "Nations Power Supply", going on again later to say "if this case does not implicate a question of "deep economic and political significance", it is unclear what might."[128]In his concurrence Justice Gorsuch seeks to further explain the structure of how the lower courts should use the Major Question Doctrine, this clarification he provides is likely to be used by the lower courts as it gives a clear and concise outline of the factors in an analysis using the Major Question Doctrine.

E. Aftermath

Since the decision in *West Virginia v. EPA* was decided in the summer of 2022, the validity of the Chevron Deference Doctrine has already been questioned by the lower courts. Seemingly, the lower courts are beginning to see a changing of the winds in agency statutory interpretation. Only two months later in the case of *Texas v. Becerra* (2022) in the Federal District Court of Northern Texas that court described how they applied the Chevron Deference Doctrine "out of an abundance of caution" as they seem to recognize that *Chevron* has fallen out of favor with the Supreme Court.[129] The district court here states that the Court "crystalized the long developing Major Question Doctrine.", yet the district court did not have the confidence to move away from *Chevron* as they leave the validity of that up to the Supreme Court.[130] The district court mentions this in a footnote of this case when they apply *Chevron*, they are unsure whether *Chevron* is overturned and refer back to *West Virginia* for their reasoning.[131]

In the footnotes of another case called *Itserve All., v. United States* (2022) in the Court of Federal Claims it applied Chevron Deference, yet have reservations about its validity, noting that "the Supreme Court may be distancing itself from Chevron."[132] In both of the two cases when the district courts analyzed the cases before them, just barely two months after the decision in *West Virginia* Chevron Deference was only applied out of caution, but it is clear enough to recognize that the Supreme Court is moving away from Chevron Deference and moving towards the Major Question Doctrine. Yet, since these two decisions in August of 2022 there have been dozens of cases in which the Major Question Doctrine from *West Virginia* has been used.

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[128] *Id.* at 2624-26.

[129] *Texas v. Becerra,* No. 5:22-CV-185-H, 2022 LEXIS 151142, 1, 55., n 11 (N.D.T. Aug. 32, 2022).

[130] *Id.*

[131] *Id*. at 55., n 11.

[132] Itserve v. All., v. United States, 161 Fed. Cl. 276, 282., n 3 (2022).

In the case of *Louisiana v. Becerra* (2022) in the Western District Court of Louisiana that court uses the Major Question Doctrine to find a Head Start Mandate, instituted by the Department of Health and Human Services, to be not within the department's powers under their "enabling legislation" as it used Justice Gorsuch's concurrence factors.[133] Using Justice Gorsuch factors the district court rules against the agency's interpretation of their statute, without even applying or mentioning Chevron Deference.[134] There seems to be a split among the lower courts on whether or not to apply either test, with some choosing the Chevron Doctrine and others choosing the Major Question Doctrine, due to this conflict it seems that the Supreme Court will soon have to decide upon these issues, as all the cases mentioned are appealing.

The country does not have to wait too long as the Court is likely to use the Major Question Doctrine again this term. Two cases before the Court called *Biden v. Nebraska* and *Brown v. Department of Education* involve a student loan forgiveness program proposed by the Biden Administration.[135] The Biden Administration is attempting to use the HEROS Act to implement this program.[136] According to the HEROS Act the Department of Education has the power to "'waive or modify' federal loan parameters during any national emergency declared by the president, in order to make sure that borrowers aren't worse off than they were before the emergency."[137] The Biden Administration is attempting to use the national emergency that was declared for the COVID-19 pandemic in order to forgive between $10,000 to $20,000 of student loans for millions of Americans.[138] These two cases were debated by the Court on February 28th, 2023 and it seemed that the Justices were leaning toward the Major Question Doctrine.[139]

The Court is focusing on the meaning behind the words "waive or modify," as during the oral arguments Justice Thomas pointed out that he is doubtful that these words mean an "outright cancellation."[140] Chief Justice Robert's seemed to focus on how this would affect over 43 mil-

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[133] Louisiana v. Becerra, No. 3:21-CV-04370, 2022 LEXIS 170714, 1, 30 (W.D.L. Sep. 21, 2022).

[134] *Id.*

[135] Steven Ellison, *Will Biden's Student Loan Program Survive the Supreme Court?,* FindLaw.com, (March 23, 2023), https://www.findlaw.com/legalblogs/supreme-court/will-bidens-student-loan-program-survive-the-supreme-court/.

[136] *Id.*

[137] *Id.*

[138] *Id.*

[139] Adam Liptak, *Supreme Court Appears Skeptical of Biden's Student Loan Forgiveness Plan,* New York Times Company, (February 28th, 2023), https://www.nytimes.com/2023/02/28/us/politics/student-loan-supreme-court-biden.html.

[140] *Id.*

lion Americans and involved half a trillion dollars' worth of debt, seemingly trying to point out the vast economic and political significance of such a policy.[141] Justice Kavanaugh seemed to believe that the word "waive" was to broad, and Justice Alito stated that this issue seems to suggest that this is in fact a "major question."[142] This case almost certainly, if not by the facts but by the comments of the justices, would seem to invoke a decision using the Major Question Doctrine. It is extremely likely that the Court will use the Major Question Doctrine in both of these cases, it is yet to be seen whether they will officially use the Justice Gorsuch's concurrence as their analysis.

III. Argument

A. Introduction

For the last forty years Chevron Deference has been the cornerstone of analyzing agency statutory interpretation. When it comes to environmental law it has had an enormous impact, both good and bad but it should remain the constitutional rule here. The fight of environmental law is the history of Chevron Deference, it has both upheld and struck down environmental initiatives from both sides of the aisle. It has created enemies and friends everywhere for itself. As one second it pushes forward environmental law such as in *Massachusetts v. EPA*, which used Chevron Deference to uphold the EPA's ability to regulate GHGs.[143] While it has also stepped in the way of environmental law, as in *Util. Air Regulatory Group v. EPA*, when the Court used Chevron Deference to strike down an EPA rule that attempted to use their ability to regulate GHGs being emitted from motor vehicles.[144] This shows that Chevron Deference does have its ups and downs, yet it is imperative that it remain. The Major Question Doctrine will prevent regulatory agencies from implementing regulations to deal with ongoing issues, this is because much of the legislation these agencies depend on are ambiguous and if Congress must be specific then it is likely that they will constrain these agencies too much and leave them helpless.

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[141] *Id.*

[142] *Id.*

[143] Massachusetts v. EPA, 549 U.S. 497, 527 (2007).

[144] Util. Air Regulatory Group v. EPA, 573 U.S. 302, 315 (2014).

B. The Case Against the Major Questions Doctrine

This is the rule that the majority and the concurrence states is the Major Question Doctrine. Administrative agencies must point to, 1) "Clear Congressional Authorization", when they attempt to institute new regulations that claim power of, 2) "Vast Economic and Political Significance".[145] For "clear congressional authorization" the Court has found four factors for this element to be used when analyzing agency statutory interpretation. First, the Court looks at the "overall statutory scheme" being used by the agency.[146] The Court will not allow agencies to use statutory language that is "oblique", "subtle", "elliptical", "broad", "general", or "gap filler provisions" of the congressional legislation.[147] Second, the Court looks to the "age" and "focus" of the legislation "in relation to" the issue that the agency is attempting to solve.[148] Third, the Court looks at the agencies past interpretation of the statutory provision that they intend to use.[149] Fourth, the Court looks to see if the agency has "no comparative expertise" in the policy area that they are attempting to effect.[150]

After you analyze those factors, you move into the second element of "vast economic and political consequence".[151] The Court and the concurrence recognize three factors that should be used when analyzing this element. First, the Court will look to see if the agency regulation is an attempt to "resolve for itself a great question of great political significant."[152] Second, the Court would look to see if that agencies regulation would seek to effect a "significant portion of the American Economy."[153] Third, is that the Courts look to federalism, specifically if the agency attempts to intrude into an area within the "domain of state law."[154]

With the elements and the factors of the Major Question Doctrine more clearly spelled out, it can be seen what the doctrine is trying to address. By requiring "clear congressional authorization" the Court is trying to prevent the usage of ambiguous legislation in any policy decisions of any agency. Hamstringing Congress when writing legislation as it could become unenforceable, leading to serious effects on environmen-

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[145] West Virginia v. EPA, 142 S. Ct. 2587, 2616 (2022).
[146] *Id.* at 2622.
[147] *Id.* at 2622-23.
[148] *Id.*
[149] *Id.* at 2622-23.
[150] *Id.* at 2623.
[151] *Id.*
[152] *Id* at 2620-21.
[153] *Id.* at 2621.
[154] *Id.*

tal law. By establishing that agencies must consider whether their policy decisions have "vast economic and political significance", while the Court provides general and no-specific standards, would prevent these agencies from implementing important regulations. It is unclear if Chevron Deference is overturned as it is not specifically stated that it is no longer valid, but as it is based on deference towards agencies when it comes to ambiguous legislation and now ambiguous legislation is no longer valid in the eyes of the Court, this brings forward many questions and even more consequences.

C. Separation of Powers

The doctrine of separation of powers is an essential component of any democracy as it creates separate branches of government in which it grants them their own specific powers and then uses a system of checks and balances between those branches so that way no one branch can accumulate too much power and dominate over the others.[155] Throughout the case the majority mentions, and Justice Gorsuch's concurrence clarifies that a big part of their reasoning in introducing the Major Question Doctrine is to preserve separation of powers by preventing administrative agencies from usurping too much power away from Congress.[156] Yet, the Chevron Deference Doctrine does exactly that, as it protects the separation of powers by preventing agencies from using "unreasonable" statutory interpretation to take more power than they were actually granted.[157]

While at the same time allowing Congress to retain the flexibility that is needed in order to deal with the most pressing issues before them. While the Major Question Doctrine not only restrains administrative agencies, but also the powers of Congress and the necessary ability for a democracy to function properly. The concurrence in *West Virginia* written by Justice Gorsuch lays out quite clearly the separation of powers concerns expressed by the majority as in a way he states that the Major Question Doctrine is a mix between the non-delegation doctrine and the clear statement rule.[158]

Justice Gorsuch in his concurrence references *ICC v. Cincinnati* (1897) were he explains the "clear statement rule" to which the Court stated that the Interstate Commerce Commission is a valid use of legislative authority, because Congress granted the commission power with lan-

[155] Jeremy Waldon, *Separation of Powers in Thought and Practice?,* 54 B.C. L. Rev. 433, 438 (2013).

[156] West Virginia v. EPA, 142 S. Ct. 2587, 2616-2168 (2022).

[157] Chevron, U.S.A. v. NRDC, Inc., 467 U.S. 837, 843-44 (1984).

[158] West Virginia v. EPA, 142 S. Ct. 2587, 2618-2619 (2022).

guage that is not "open to misconstruction" and is "open and direct".[159] The concurrence then references the non-delegation doctrine which means that Congress cannot delegate away its powers to another branch of government, this would be a violation of separation of powers and checks and balances.[160] The concurrence states that the reason for this rule is just like the reasons for the rules mentioned before, that it is to ". . . ensure the government does not, 'inadvertently cross constitutional lines.' "[161]

The concurrence states that because of this doctrine, agencies will "at least act with clear congressional authorization", and not "exploit some gap, ambiguity, or doubtful expression in Congress's statutes. . ."[162] The Court makes it clear that the Major Question Doctrine is a result of, "agencies asserting highly consequential power beyond what Congress could reasonably be understood to have granted."[163] However, the Chevron Deference Doctrine has the ability to both protect separation of powers and give the flexibility to Congress and administrative agencies. As has been said before Chevron Deference has a two-pronged test, first is whether Congress has spoken directly to that issue and second is whether the agency interpretation is a "permissible construction of the statute."[164] Determining whether an agency has gone beyond the bounds of its jurisdiction, is what *Chevron* is meant to do. For over thirty years the Court has been using Chevron Deference to uphold and strike down various agency actions. The Major Question Exception, now the doctrine, was used in certain circumstances when agencies had gone way beyond what the Court thought was reasonable for agency interpretation.

Agencies receive their power from statutes that grant their authority to act and are bound with in their prospective fields from that legislation. The Court seems to have become worried over the years with the grow of the administrative state and now it seeks to scale back as much as it can.[165] Even if that means a large swath of legislation is rendered invalid or prevented from being used to tackle real issues. Constitutional concerns such as separation of powers should always be taken seriously, and the Court must act when those situations present themselves.

Environmental law is built around these regulations created by the various agencies that protect and manage the United States many different ecosystems. Without ambiguous legislation giving the experts in

[159] *Id.* at 2619.
[160] *Id.*
[161] *Id.* at 2620.
[162] *Id.*
[163] *Id.* at 2609.
[164] Chevron, U.S.A., Inc. v. NRDC, Inc., 467 U.S. 837 (1984).
[165] West Virginia v. EPA, 142 S. Ct. 2587, 2620 (2022).

these agencies the ability to be flexible and tackle serious issues such as climate change, they would be seriously missing their mark. Chevron Deference allows that to be possible, while the Major Question Doctrine establishes serious obstacles not only in front of agencies like the EPA, but also Congress. It allows the Court to rein in rouge administrative agencies yet gives them the ability to use this principle of flexibility. Yet, it seems like the Court is on the path towards the Major Question Doctrine.

D. "Clear Congressional Authorization" and Ambiguous Legislation

Ambiguous legislation is important in the work of administrative agencies especially those that conduct themselves in the realm of environmental law such as the EPA and the Bureau of Fish and Wildlife. When it comes to ambiguity in legislation Chevron Deference and the Major Question Doctrine show the opposing viewpoints on this issue. *Chevron* has the view that when legislation is ambiguous, Congress wanted the agency to determine its meaning and not the Courts as they are not the experts in that field.[166] While the Major Question Doctrine will now not even allow agencies to consider ambiguous legislation in their policy decisions, with the view that if Congress wanted them to regulate that issue then they would have clearly stated it.[167] The Court in *West Virginia* has shown a hostile view towards these "gap filler provisions" in the Clean Air Act, which provides an interesting question in their analysis.[168]

Why would Congress add these "gap filler provisions" into their legislation in the first place? It seems strange that Congress would add something considered to be a "gap filler" in their legislation, as if Congress has some page limit to meet or decided one day that it should just add meaningless provisions into important pieces of legislation such as the Clean Air Act. *Chevron* reiterated that, "decision as to the meaning or reach of a statute has involved reconciling conflicting policies, and a full understanding of the force of the statutory policy in a given situation has depended more than ordinary knowledge respecting the matters subject to agency regulation."[169] This brings forward the idea that the Court has frequently acknowledged in *Chevron* that when it comes to statutory interpretation of ambiguous legislation involving the power of adminis-

[166] Chevron, U.S.A. v. NRDC Inc., 467 U.S. 837, 843-844 (1984).
[167] West Virginia v. EPA, 142 S. Ct. 2587, 2622 (2022).
[168] *Id.*
[169] Chevron, U.S.A., Inc. v. NRDC, Inc., 467 U.S. 837, 844 (1984).

trative agencies, it is recognized that Congress wishes the agencies who are the ones that are experts in that field should determine what the ambiguity means as long as it is reasonable and within the bounds of that legislation.[170]

This shows that Congress when writing this legislation intends for those "gap filler provisions" to not be a throw away section of legislation, but to "fill the gap" in the law in case, there is an issue that they have missed when writing this legislation. For the Court to recognize in *Chevron* that Congress has intend the experts to be the ones to determine what should be implemented, it does not seem that far of a leap to think that Congress themselves are also not the experts in these fields that they attempt to legislate in. When dealing with issues such as Air Pollution, Congress can hold conferences and hearings to attempt to understand the issue. Yet, at the end of the day they will not have as much experience and knowledge as one who has dedicated their life to this field. By giving these administrative agencies, like the EPA ambiguous terms in their legislation it allows them and the law to be flexible when dealing with issues that appear later on or are missed in the legislation. Take for example the issue in *West Virginia v. EPA* and *Massachusetts v. EPA*, each time the Court is dealing with ambiguous sections of the law which are attempting to be used to deal with the modern issue of climate change.

Massachusetts v. EPA (2007) is the landmark case in which the Court stated that the EPA has the authority under the Clean Air Act to regulate GHGs because they can be considered an air pollutant. The case deals with the section of the Clean Air Act that describes what an air pollutant is, to which it states that:

> The Act defines "air pollutant" to include "any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air." Welfare" is also defined broadly: among other things, it includes "effects on . . . weather . . . and climate."[171]

The Court eventually concluded by using Chevron Deference that GHGs should be considered an air pollutant according to this definition, after reviewing the statutory history of climate change legislation and the arguments presented by the EPA.[172] The issues that where brought up in discussing this was the history of Congressional action on GHGs and

[170] *Id.* at 866.

[171] Massachusetts v. EPA, 549 U.S. 497, 506 (2007).

[172] *Id.* at 511-14.

what was thought of GHGs at the time of the passing of the Clean Air Act.[173] By reading the definition it can be seen that the greenhouse gas of carbon dioxide is a "substance or matter" that is "emitted into the ambient air" by many different human activities.

Let's also take a look into the section that the Court deals with, in *West Virginia v. EPA* (2022), in which the Court, as was mentioned before, is attempting to determine the definition "best system of emissions reduction". The Court states that Section 111 of the Clean Air Act is:

> A "standard of performance" is one that "reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the [EPA] Administrator determines has been adequately demonstrated."[174]

As stated in the background section the Court here determines what is a reasonable interpretation of "BSER", to which it determined that it is a "gap filler provision" that cannot be used in the way the Administrator determined had been "adequately demonstrated.[175] Just as in *Massachusetts* the Court analyzed the history of congressional action when it comes to greenhouse gases and the energy market, the historical interpretation by the EPA, and the policy itself.[176] It is obvious that the issue at contention in both of these cases is the interpretation of specific broad wording of "air pollutant" and "best system of emission reduction", and the fact that these wordings are ambiguous decides the final conclusion of the analysis. This wording and the legislation that it is confined in seems to be more of a "catch all" than a "gap filler", if it is viewed as a "catch all" then this points to rather specific congressional intent. That Congress intend these sections of the law to give some flexibility to the legislation they have crafted and to the agencies that must enforce this legislation.

By reading the definition presented it seems that Congress by creating a very broad definition of "air pollutant" recognized that there would be other pollutants that are not imperative at the time of the enacting of this legislation that may be imperative later on. By looking at the construction of the statute discussed in *West Virginia*, it seems that Congress intend to give broad authority to the Administrator of the EPA to enact

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[173] *Id.*

[174] West Virginia v. EPA, 142 S. Ct. 2587, 2601 (2022).

[175] *Id.* at 2613-14.

[176] *Id.*

the "best system of emissions reduction" that they found to be acceptable, while the Court takes a look at the history of this section and other pieces of legislation to determine that Congress meant that this piece of legislation referred to the "best technological system."[177] The Court describes the word "system" as an empty vessel in which definitions can be added and removed even though the Court does admit that the Clean Power Plan can meet the definition of a system, yet is not clear enough for the Court to accept as "clear congressional authorization".[178] This statement is more of a critique on Congress than it is on the agency, when writing ambiguous legislation the addition of words that are not specifically defined leaves those sections now unenforceable.

In his concurrence Justice Gorsuch brings up a very valuable and correct feature of not only our democracy, but democracy in general. Justice Gorsuch states that:

> Admittedly, lawmaking under our Constitution can be difficult. But that is nothing particular to our time nor any accident. The framers believed that the power to make new laws regulating private conduct was a grave one that could, if not properly checked, pose a serious threat to individual liberty.[179]

He is correct that in a democracy the legislative process is meant to be difficult in order to prevent the creation of tyrannical laws, as the slow process provides time for extensive debate, revision, and public exposure in order to create laws that are sensible and just.[180] Yet, the main positive of this democratic principal is its main downfall, because even though this slow process prevents overly radical or tyrannical laws it makes it to slow to respond to fast acting emergencies. This is why there is this principal of flexibility when it comes to democracy. Because even though the legislative process must be slow, the world we live in is not and if democracy cannot keep up with it then it enters into perilous waters.

A democracy cannot function properly if it is not flexible, and if that flexibility is not there, instead of bending like it's supposed to then it will end up breaking. Ambiguous legislation is an expression of that principal, as it provides the experts of administrative agencies like the EPA to be able to address the many problems and emergencies that present themselves. This is most prevalent in the field of environmental law, as the environmental problems that effect out nation are far, wide, and

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[177] *Id.* at 2615-16.
[178] *Id.*
[179] *Id.* at 2618.
[180] *Id.* at 2618.

forever changing. With the ever-increasing polarization of our nation and the consistent deadlock in the Congress the hope for meaningful legislation to allow the administrative agencies to effectively combat these increasing environmental issues, such as climate change. This is exactly why we have ambiguous terms in our legislation, it allows the experts to be flexible when crafting their regulations, so they can address these new and unexpected issues, while Congress continues the process of debating and crafting better legislation to address the issues themselves.

This does not mean that the EPA or other agencies should take these ambiguous statutes, twist the meaning, and apply various loopholes. It means that they take these provisions and reasonable apply them to the issue at hand. It must be understood that agency action that goes beyond its own limits and attempts to claim more power for themselves to affect a wide policy area should not be allowed, but what the Major Question Doctrine does is it establishes a per se ban on the use of all ambiguous legislation.[181] Therefore, it makes any ambiguous legislation unenforceable by administrative agencies, because by requiring "clear congressional authorization" the Court will not accept "broad", "general", "vague", or "subtle" language to be used in creating this regulation.[182]

For example, if we took the question discussed in *Massachusetts v. EPA* and applied the Major Question Doctrine to whether or not definition of air pollutant in the Clean Air Act is "clear congressional authorization", it would be very difficult for the EPA to argue that it is "clear" that carbon dioxide meets the definition of an air pollutant. The court would look at the history of legislation behind regulating carbon dioxide emissions, how the agency has viewed the use of that section in the regard of carbon dioxide, whether or not it is in the realm of their jurisdiction and the vast "economic and political significance" of the interpretation.[183] The court admits in *Massachusetts* that at the time of the enactment of the Clean Air Act, the affect GHGs where having on the environment were just being understood, and that since it is only recently that GHGs have been found to be effecting the environment they cannot be considered within the definition in the act when it was considered during that time.

If we continue the analysis further and look at the two-pending case of *Biden v. Nebraska* and *Brown v. Department of Education,* it can be seen that the Court will make another mistake in these cases if it applies

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[181] *Id.* at 2622-23.

[182] *Id.*

[183] *Id.*

the Major Question Doctrine rather than Chevron Deference.[184] The Court in both of these cases is looking at the HEROS Act, and more specifically the terms "waive or modify."[185] Looking at the section as a whole it states that the act "gives secretary of education the power to 'waive or modify' any statutory or regulatory provision' to protect borrowers affected by 'a war or other military operation or national emergency.'"[186] If the Court were to find that "waive" or "modify" were to broad then the whole section would become unenforceable.[187] This whole section seems like it was meant to give flexibility to the executive branch in order to protect borrowers during times of emergency, which was the argument that the government presented.[188] Justice Thomas commented that he is skeptical that "waive" would mean "outright cancellation" mainly because it didn't specifically state "loan balances."[189] It seems overall that the conservative justices of the Court find this case to be a Major Questions Case.[190]

When this case is decided later this year the country will see a pattern where the Court will admonish Congress for creating a piece of legislation that does not show "clear congressional intent."[191] Since the Major Question Doctrine practically establishes a per se ban on any ambiguous language, it is likely that the policy will be struck down and in effect the law will become inactive and essentially useless.[192] It seems that a Major Question Doctrine analysis to discover "clear congressional authorization" the Court seems to view any term that is broad in any sense to be unusable, requiring pinpoint accuracy by Congress, to be as specific as possible in order to have any hope of having valid legislation.[193] When adding on the jurisdictional element of "vast economic and political consequences" in that analysis only creates more issues for these administrative agencies.

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[184] Steven Ellison, *Will Biden's Student Loan Program Survive the Supreme Court?,* FindLaw.com, (March 23, 2023), https://www.findlaw.com/legalblogs/supreme-court/will-bidens-student-loan-program-survive-the-supreme-

[185] Adam Liptak, *Supreme Court Appears Skeptical of Biden's Student Loan Forgiveness Plan,* New York Times Company, (February 28th, 2023), https://www.nytimes.com/2023/02/28/us/politics/student-loan-supreme-court-biden.html.

[186] *Id.*

[187] *Id.*

[188] *Id.*

[189] *Id.*

[190] *Id.*

[191] West Virginia v. EPA, 142 S. Ct. 2587, 2616 (2022).

[192] *Id.* at 2622-23.

[193] *Id.*

E. "Vast Economic and Political Consequences"

The second element of the Major Question Doctrine further restricts these agencies. As the regulations it introduces, if it is based on ambiguous legislation, must not claim the power to affect an issue of "vast economic and political consequences."[194] The Court essential establishes a jurisdictional boundary for any agency attempting to use ambiguous legislation. The concurrence clarifies that the analysis for the second element would be any regulation that, seeks to end an "earnest and profound debate across the country', require "billions of dollars in spending by private person or entities.", attempts to affect an entire or large portion of an industry or vast swaths of the American economy, or violates federalism and therefore attempts to regulate something in the "domain of state law."[195] These boundaries establish a significant barrier against administrative agencies, which could discourage them from enacting meaningful regulations to tackle serious issues.

It would discourage agencies, because the factors that the concurrence provides for this element are broad in themselves, causing the agency when it put out new regulations whether or not it affects to much of a particular industry, too much of the economy, or whether this is costing private individuals or entities too much money. The Court and the concurrence have created a boundary for these agencies to stay in, but it is up to the agencies to determine what those boundaries are. The Court also slightly hinted that even with "clear congressional authorization" when Congress has delegated part of their own authority to an agency, and if that power is about an issue is one of "vast economic and political significance.", it makes the Court skeptical of that delegation on whether or not it is constitutional.[196] The Court stated that "Judges would presume that Congress does not delegate its authority to settle or amend major social or economic matters."[197] With the direction in which the Court is going, it is likely that more cases will appear and the Court will become much firmer on their position that agency power needs to be scaled down and curtailed, as well as that Congress needs to be the ones to write stricter legislation that makes them the one that enacts policies on matters of "vast economic and political significance."[198]

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[194] *Id.* at 2616.

[195] *Id.* at 2620-22.

[196] *Id.* at 2613.

[197] *Id.* at 2613.

[198] *Id.* at 2620.

IV. Conclusion

The Major Question Doctrine is the incorrect constitutional rule for the Supreme Court to apply for agency statutory interpretation. By requiring "clear congressional authorization" and to restrict actions that claim powers of "vast economic and political significance" the Court has undercut not only administrative agencies, but Congress as well. Ambiguous legislation is necessary to solve the pressing issues that the government faces, as it allows Congress and the experts in these agencies to tackle complex problems with a wide range of flexibility. An agency claiming too much power, thereby violating the Separation of Powers is an issue, but the solution is not to invalidate swaths of ambiguous statutory provisions. Chevron Deference is the constitutional rule that should continue to be applied by the Court, as it can rein in the overreaching agencies, but it can also allow Congress to be flexible with its legislation as the overall view of the doctrine is reasonableness.

CALIFORNIA'S RISING SEA LEVELS RELATING TO DISADVANTAGED COMMUNITIES: A POSSIBLE SOLUTION

Christine Eidt[1]

I. Introduction

"Any attempt to properly address the threat of sea level rise must consider and prioritize low-income communities, communities of color, tribal communities, and other disproportionately affected communities and populations who bear, and have borne, the brunt of impacts from climate change." S. 1078, 2022, Reg. Sess. (Cal. 2022). This statement comes from the recently introduced California Senate Bill 1078, a pilot program that allows local governments to buy affected property through low-interest loans that would be paid back to the State. The bill was introduced by Senator Allen and recently passed in both the California Senate and State Assembly. In theory, local governments would be able to lease out that property to the previous owners or others at a market rate price. This would allow for the previous owners to cut out losses and responsibilities for future sea level rise and gives local governments the authority to deal with the changing landscapes of these coastal areas.

Sea level rise is an impending reality for Californians. Although this seems to only be a problem for the wealthy with ocean-front property, vulnerable and underserved communities will also bear consequences of the future destruction from rising sea levels. Many different approaches are being taken both in the public and private sector on how to mitigate and adapt to the changes that will take place from sea level rise. Senate

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bill 1078 seems to be a great option for Californians that own affected coastal property, but in practice, it is uncertain how these loan programs will prioritize underserved communities at the forefront of receiving these loans and meet their needs with these changes.

This article explores the application of Senate bill 1078 with a specific eye on how this bill will impact underserved and disproportionately affected communities in California. Section A of the argument discusses sea level rise in general and its overall impact on California. Section B examines the procedural history of legislation and case law that has shaped mitigation and adaptation measures of sea level rise. Section C explains Senate bill 1078 in its entirety. Section D takes a comparative look at sea level rise impacts on disadvantaged communities in New Jersey and subsequent legislation as a result of the impact. Section E analyzes the strengths and weaknesses of the bill and how the bill will be played out in actual practice versus in theory.

II. Background

Due to Earth's dangerously changing climate, the ocean has been rising at an increased rate. Sea level rise is a direct result of melting glaciers and the increasing temperatures the ocean faces.[2] These two issues make sea level rise because melted water from glaciers flow into and add to the ocean's water and warmer water takes up more space because it expands more than cold water.[3] This change is documented through satellite data and coastal tide gauges, also known as a water level monitoring station.[4] At a global stance, sea level rise has accelerated. From 1880 until around 2005 there was a 0.06-inch increase per year. From 2006 until 2015, sea level rise has more than doubled from 0.06 to 0.14 inches per year.[5] Scientists and the evidence they have presented shows that fossil-fuel driven human activities have warmed the Earth's atmosphere and subsequently, the ocean as well. [6]

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[2] Nat'l Aeronautics & Space Admin., *Understanding Sea Level, Sea Level Change Observations from Space*, https://sealevel.nasa.gov/understanding-sea-level/overview, (last visited Nov. 4, 2022).

[3] Smithsonian Institute, *Introduction: Sea Level Rise*, (Apr. 2015), https://ocean.si.edu/through-time/ancient-seas/sea-level-rise.

[4] Nat'l Oceanic & Atmospheric Admin., *What is a Tide Gauge?*, National Ocean Service, https://oceanservice.noaa.gov/facts/tide-gauge.html (last updated Sept. 6, 2022).

[5] Rebecca Lindsey, *Climate Change: Global Sea Level*, Nat'l Oceanic & Atmospheric Admin. (Apr. 19, 2022), https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level

[6] Nat'l Aeronautics & Space Admin., *Scientific Consensus: Earth's Climate is Warming*, https://climate.nasa.gov/scientific-consensus/ (last visited Mar. 25, 2023).

Historically, sea level started rising in the late 1800s, which coincides with the Industrial Revolution when humans started burning fossil fuels for power.[7] During the Industrial Revolution, fossil fuels such as the burning of coal started to be used to as a source of energy. Besides having a connection to sea level rise, fossil fuel emissions is the largest contributor to overall climate change.[8] Another transportation sector that will be vulnerable to sea level rise is the State Highway System in California. An assessment by Caltrans reached the conclusion that with a 5.5 feet of sea level rise, 130 miles of state highways will be vulnerable to sea level rise.[9] Specifically, Humboldt County and Orange County are expected to have the highest risk of affected highways.[10] Local highways like the Great Highway in San Francisco have already been effected and at risk of erosion while the City is currently developing a long-term solution for the issue.[11]

This seemingly minute increase of sea level rise is an issue that will have global impact. Rising sea levels are an issue because they lead to shoreline erosion and deadly, destructive storms and floods.[12] The first communities that will be affected by sea level rise in the United States are the coastal communities where, according to the U.S. Census, 94.7 million Americans live.[13] This means almost 30 percent of the U.S. will be directly impacted by the changes sea level rise brings.[14] The changes this will bring to the U.S. consist of destruction of coastal infrastructure, property, businesses, and population decreases.[15] In fact, sea level rise is already impacting communities in the United States. The western region of the Gulf of Mexico is seeing a faster rise than the global average due to the pumping of groundwater, oil, and natural gas and the strength of the Gulf's loop current.[16] The east coast is also already seeing sharp rises

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[7] Smithsonian Institute, *supra* note 2.

[8] United Nations, *Causes and Effects of Climate Change*, Climate Action, https://www.un.org/en/climatechange/science/causes-effects-climate-change (last visited Mar. 25, 2023).

[9] California Coastal Commission, *Critical Infrastructure at Risk Sea Level Rise Planning Guidance for California's Coastal Zone* (Nov. 2021), https://documents.coastal.ca.gov/assets/slr/guidance/SLR%20Guidance_Critical%20Infrastructure_11.3.2021_FINAL_FullPDF.pdf.

[10] Cal. Coastal Comm., *supra* note 8.

[11] Cal. Coastal Comm., *supra* note 8.

[12] Nat'l Oceanic & Atmospheric Admin., *Is sea level rising?*, Nat'l Ocean Serv., https://oceanservice.noaa.gov/facts/sealevel.html# (last updated Dec. 10, 2021).

[13] Darryl Cohen, *94.7M Live in Coastline Regions*, U.S. Census Bureau (Jul. 15, 2019), https://www.census.gov/library/stories/2019/07/millions-of-americans-live-coastline-regions.html.

[14] Lindsey, *supra* note 3.

[15] Legis. Analyst's Off., *What Threat Does Sea-Level Rise Pose to California?* (Aug. 10, 2020), https://lao.ca.gov/Publications/Report/4261.

[16] Rebecca Lindsey et al., *Interactive Map: How has local sea level in the United States changed over time?*, Nat'l Oceanic & Atmospheric Admin. (Dec. 20, 2021), https://www.climate.gov/news-features/features/interactive-map-how-has-local-sea-level-united-states-

in sea levels. A study from the Geophysical Research Letters shows that during a four-year period from 2011 to 2015, sea levels rose around five inches along the east coast in some areas from North Carolina to Florida.[17] Areas across the United States and the rest of the globe will not be affected equally by the rise due to the condition and quality of the area in question. For instance, this area, between Florida and North Carolina, is already a hot spot for sea level rise which researchers say is due to shifting weather patterns, the effects of the El Nino climate cycles, and the slowing Gulf stream.[18]

In California, approximately $9 billion of existing property is likely to be underwater by 2050 along with $6 to $10 billion at risk during high tides.[19] If sea level rises from three to six feet along the coast, the majority of Southern California beaches may be completely eroded by 2100.[20] Public infrastructure such as water treatment plants, roads and highways, marinas, and important California ports and airports that sit along the coast are threatened due to increased flooding, and damage from cliff erosion as a result of sea level change. A study published by Earth's Future, a scholarly environmental journal focused on the state of the planet and future predictions, from 2018 suggests that wastewater infrastructure will be exposed to flooding which risks potential sewage leaks and could cause these facilities to be inoperable.[21] Another study says that sea level rise is estimated to threaten at least 28 wastewater treatment plants and management infrastructure.[22] The risks of compromised infrastructure for waste and water quality will affect the entire state. Water treatment plants are essential for keeping pollutants from being discharged back into the environment. By allowing for toxic pollutants to be cycled back into our local ecosystems, people, animals, and the entire ecosystem can be threatened.

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changed-overtime#:~:text=IN%20many%20parts%20of%20the,processes%20can%20put%20it%20back.

[17] Dutton, et al., *Spatial and temporal variability of sea level rise hot spots over the eastern United States*, Geophysical Research Letters (Aug. 9, 2017), https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017GL073926.

[18] Jim Morrison, *Flooding Hot Spots: Why Seas are Rising Faster on the U.S. East Coast*, YALE ENVIRONMENT 360 (April 24, 2018), https://e360.yale.edu/features/flooding-hot-spots-why-seas-are-rising-faster-on-the-u.s.-east-coast.

[19] Legis. Analyst's Off., *What Threat Does Sea-Level Rise Pose to California?* (Aug. 10, 2020), https://lao.ca.gov/Publications/Report/4261.

[20] James Barba et al., *From Boom to Bust? Climate Risk in the Golden State*, Risky Business (April 2015), https://riskybusiness.org/site/assets/uploads/2015/09/California-Report-WEB-3-30-15.pdf.

[21] Michelle A. Hummel et al., *Sea Level Rise Impacts on Wastewater Treatment Systems Along the U.S. Coasts*, AGU EARTH'S FUTURE (Mar. 24, 2018), https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017EF000805.

[22] Cal. Coastal Comm., *supra* note 8.

Airports such as San Francisco International (SFO) and Los Angeles International Airport (LAX) are two of many California airports whose operations may be disrupted due to rising sea levels.[23] A study from Climate Risk Management found that 39 airports will have some risk of destruction from sea level rise, from the actual airport, surrounding roads, or other utility spaces.[24] The California train system is also already being affected by sea level rise. Amtrak's Pacific Surfliner passenger train and the Metrolink regional rail have been paused due to the threat of the rising seas and raging storms breach of the train tracks located near the city of San Clemente.[25] The threat that California faces from sea level rise will have an all-encompassing impact on the state.

Sea level rise threatens disadvantaged communities throughout the United States. A study from North Carolina Instituted of Climate Sciences states that in North Carolina, sea level rise of only two feet is "expected to increase low-lying flooding by 700% in the most economically disadvantaged Black communities."[26] Consequences the changing levels will have on disadvantaged, vulnerable, and low-income residents of California will not be unnoticed. Land use policies and systemic racism are huge reasons to why communities of color, indigenous communities, and other historically marginalized groups have experienced disproportionate environmental effects. On top of these issues, many of these said communities lack the access from local governments and lawmakers to be supported from the burden of climate issues like rising sea levels. Even if these communities are not directly on the coastal front, sea level rise's burden will travel to communities indirectly through redirecting traffic due to road closures, people moving residences and businesses further inland, and loss of wages from failing infrastructure that disrupts the day-to-day work routine.[27] The California Climate Change Center estimates that the combination of a four-inch flood due to sea level rise and a 100-year storm would affect 56,000 people who earn less than $30,000 a year, 45,000 renters, also there are 4,700 non-proficient English speakers that are of risk of having a diffi-

[23] S. Lindbergh, et al., *Cross-sectoral and multiscalar exposure assessment to advance climate adaptation policy: The case of future coastal flooding of California's airports*, CLIMATE RISK MANAGEMENT, VOL. 38, (2022), https://doi.org/10.1016/j.crm.2022.100462.

[24] S. Lindbergh, *supra* note 22.

[25] Cal. Coastal Comm., *supra* note 8.

[26] North Carolina Instituted of Climate Sciences, Sea Level Rise at the Intersection of Race and Poverty in the Carolinas (Sept. 2021), https://ncics.org/cics-news/sea-level-rise-at-the-intersection-of-race-and-poverty-in-the-carolinas/.

[27] Cal. Coastal Comm., *supra* note 8.

cult time understanding vital flood warnings.[28] In the San Francisco Bay Area region alone, 28,000 socially vulnerable residents would be impacted from a four feet increase of water levels, that would cause daily flooding.[29] These groups are predicted to find it harder to recover from any destruction or displacement that occurs due sea level rise.

The agencies of federal government of the United States have begun to prepare and address sea level rise. The Federal Emergency Management Agency and the Department of Housing and Urban Development offer grants to assist communities reduce the risk of rising sea levels, however some point out that these agencies usually base the grants on a response, not as a prelude to the destruction.[30] The Biden administration created the National Climate Task Force intending for the group to work on climate-led goals, mainly around reducing national energy and emissions rates.[31] The United States Congress has held hearings on the threat of sea level rise and put out reports on the issues concerning sea level rise, but has also enacted the Shoreline Health Oversight, Restoration, Resilience, and Enhancement Act (SHORRE). The SHORRE act is a pierce of legislation that would enhance the U.S. Army Corps of Engineers' program that manages the risk that sea level rise and climate change brings. The act also prioritizes underserved and vulnerable communities through reducing costs of their programs to manage issues like sea level rise.[32]

In California, there has been some action taken by the state government. The California Coastal Act was enacted in 1976, after a huge oil spill occurred off the coast of California and public access to the shore was cut off.[33] The act made the California Coastal Commission a permanent agency that had a wide range of authority to regulate coastal development. The act emphasizes the importance of the preservation of coastal lands along with regulating development along the coast.[34]

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[28] Cal. Climate Change Ctr., *The Impacts of Sea-Level Rise on the California Coast*, https://tamug-ir.tdl.org/bitstream/handle/1969.3/29130/sea-level-rise.pdf?sequence=1 (last visited Nov. 4, 2022).

[29] Legis. Analyst's Off., *supra* note 8.

[30] Hannah Northey, *Rising seas expose weakness in federal coastal strategy*, E&E News, (Feb. 17, 2022), https://www.eenews.net/articles/rising-seas-expose-weakness-in-federal-coastal-strategy/.

[31] The White House, *National Climate Task Force*, https://www.whitehouse.gov/climate/ (last visited Mar. 25, 2023).

[32] U.S. Senate Committee on Environment and Public Works, https://www.epw.senate.gov/public/_cache/files/a/c/ac2812ef-9619-406b-8ea2-710b913163a4/CBD0E3CEE36A1507C0C87FA88D2625AD.shorre-act-one-pgr-2-.pdf (last visited Mar. 25, 2023).

[33] California Coastal Voices, *An Introduction to the California Coastal Act*, California Coastal Commission, https://www.coastal.ca.gov/coastalvoices/IntroductionToCoastalAct.pdf (last visited Mar. 25, 2023).

[34] California Coastal Voices, *supra* note 31.

The California State Lands Commission, a state agency focused on managing tidelands and submerged lands, developed a comprehensive tool for other agencies and partners understand the risks associated with sea level rise that California faces.[35] On September 23, 2021, Governor Newsom signed the Sea Level Rise Mitigation and Adaptation Act of 2021, SB 1, into law.[36] This law is intended to provide tools for local communities that will be impacted by sea level rise.[37] Specifically, it will give the California Coastal Commission the ability to create mitigation efforts of sea level rise.[38]

The California Coastal Commission is a government agency involved in the battle against sea level rise. The commission offers guidance for local communities spanning from further coastal development permits to possible solutions to problems that sea level rise brings.[39] The commission also focuses on zoning and planning for the future of the California coast and the surrounding communities.

Another state agency, the Ocean Protection Council, has their own program which "seeks to build coastal resilience by working across scales and disciplines" to make sure California is prepared for the impacts of sea level rise.[40] The council is also continuing to research and monitor the impacts of sea level rise and advancing in strategies for adapting to the impacts.[41] The council also offers, along with the partnership of the Coastal Commission and the State Coastal Conservancy, local program planning grants for local governments.[42]

There are already options for solutions for sea level rise impacts. One core solution is to adapt to the rising sea levels but continue to protect affected areas through flood barriers like levees or seawalls. According to the Surfrider Foundation, in California, approximately 10.2% of California's coast is protected by sea walls to combat sea level rise.[43] However, these solutions are not airtight and can create issues of their

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[35] Nat'l Oceanic & Atmospheric Admin., *Understanding and Planning for Sea Level Rise in California*, https://coast.noaa.gov/digitalcoast/stories/ca-slr.html (last visited on Mar. 25, 2023).

[36] Website of Senator Toni G. Atkins, *Governor Newsom Signs Senate Leader Atkins' Historic SB 1 - the Sea Level Rise Mitigation and Adaptation Act of 2021 - Into Law* (Sept. 23, 2021), https://sd39.senate.ca.gov/news/20210923-governor-newsom-signs-senate-leader-atkins%E2%80%99-historic-sb-1-%E2%80%93-sea-level-rise-mitigation#:~:text=SB%201%20directs%20the%20California,sea%20level%20rise%20mitigation%20efforts.

[37] Website of Senator Toni G. Atkins, *supra* note 34.

[38] Website of Senator Toni G. Atkins, *supra* note 34.

[39] Informational Guidance on Sea Level Rise Planning, *Sea Level Rise*, California Coastal Commission, https://www.coastal.ca.gov/climate/slr/ (last visited Mar. 25, 2023).

[40] Informational Guidance on Sea Level Rise Planning, *supra* note 37.

[41] *Id.*

[42] *Id.*

[43] Surfrider Foundation, *Wall it or Work With it?,* https://www.surfrider.org/coastal-blog/entry/wall-it-or-work-with-it-responses-to-sea-level-rise-in-california (last visited Mar. 25, 2023).

own with warnings of endangering local ecosystems.[44] It is also seen as temporary fix to an ongoing issue that is not going to get better.[45] Like many states and other countries, the California government is still figuring out their attack plan to defend itself from the impacts of sea level rise.

A. Local Impacts on Areas With Disadvantaged Communities in California

On the California-Mexico coastal border sits the city of Imperial Beach. Due to the low-lying nature of the land, this City is already facing impacts of intense flooding, with sea level rise predicting even worse destruction to the city.[46] High tides and "King Tides" (even higher than high tides) have created large floods in the community; a direct result of the warming of the ocean.[47] Hazard maps predicting sea level rise and its effect on flooding show how the city of Imperial Beach is at risk of losing one-third of the town.[48] Currently, one-fifth of residents in Imperial Beach are lower income, and around 16% of persons in the area are below the poverty line.[4950] Due to the intense and frequent flooding and impending sea level rise, there are issues around private property rights and city infrastructure.[51]

The community is facing questions concerning the impact of sea level rise and the solutions to the problem, for example the debate on whether to combat the change with seawalls and sandbags or to look towards a "managed retreat" model. The City's current budget does not provide enough funding to adequately fix or alleviate the issues this community faces.[52] The City's budget for 2022 was approximately $24 million, which many argue does not give Imperial Beach the appropriate funds to deal with destruction sea level rise has caused and will continue

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[44] Joseph Bennington-Castro, *Walls Won't Save Our Cities from Rising Seas. Here's What will*, NBC News (Jul. 27, 2017), https://www.nbcnews.com/mach/science/walls-won-t-save-our-cities-rising-seas-here-s-ncna786811.

[45] Joseph Bennington-Castro, *supra* note 42.

[46] Rosanna Xia, *The California Coast is Disappearing under the Rising Sea. Our Choices are Grim*, Los Angeles Times (Jul. 7, 2019), https://www.latimes.com/projects/la-me-sea-level-rise-california-coast/.

[47] Rosanna Xia, *supra* note 13.

[48] *Id.*

[49] *Id.*

[50] U.S. Census Bureau, *Imperial Beach city California*, Quick Facts, https://www.census.gov/quickfacts/imperialbeachcitycalifornia (last visited Nov. 5, 2022).

[51] Rosanna Xia., *supra* note 13.

[52] *Id.*

to cause.[53] In fact, the Mayor of Imperial Beach, Serge Dedina, and the City, are suing Exxon and other "Big Oil" companies for compensation of the damage that sea level rise has caused.[54] The city claims that these companies knowingly contributed to the continuance of fossil fuels that have created the burden of sea level rise in the area.[55]

In the Bay Area, sea level rise will have an impact on lower-income communities. Around 20 miles away from San Francisco lies Foster City. The City voted to approve a $90 million bond for improvements to levees, which is an embankment to prevent overflow of water.[56] The need for this bond was due to a report that labeled Foster City as "highly vulnerable" to sea level rise with a significant flood risk due to unsecure levees.[57] One analysis of affordable housing's risk of coastal flooding and sea level rise found that around 90% of Foster City's affordable housing will be exposed to flooding.[58] Now with the current Levee Improvements Project implemented, the City may be able to save its infrastructure, housing, schools, and businesses from sea level rise.[59]

In San Mateo County, where there is the highest number of flooded buildings, the houses and people at most risk live in the floodplain. A study done by Stanford University found that the median income for a four-person household in this area is "about $30,000 lower than the 2017 County median of $115,300.. . . suggesting that lower-income census block groups in San Mateo County currently face disproportionate exposure to coastal flooding."[60]

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[53] Alessandra Selgi-Harrigan, *Fiscal Year 2021-2022 Annual Budget Approved by Imperial Beach City Council*, Eagle & Times (May 28, 2021), http://www.imperialbeachnewsca.com/news/article_d33fea5c-c7d7-11eb-b6f7-0bc9c62c72ed.html.

[54] David Hasemyer, *This Tiny California Beach Town is Suing Big Oil. It Sees This as a Fight for Survival*, KQED (Jun. 27, 2018), https://www.kqed.org/science/1926566/this-tiny-california-beach-town-is-suing-big-oil-it-sees-this-as-a-fight-for-survival#:~:text=there's%20no%20way%20Imperial%20Beach,of%20that%20sea%20level%20ris.

[55] Complaint, *The City of Imperial Beach v. Chevron Corp.* (Cal. 2018) (No. C17-01227). https://www.documentcloud.org/documents/4462950-Imperial-Beach-Lawsuit-July-2017.html.

[56] Julie Cart, Rising Seas: California's Affordable Housing Faces Worse Floods, Cal Matters (Dec. 3, 2020), https://calmatters.org/environment/2020/12/california-affordable-housing-floods/.

[57] Julie Cart, *supra* note 23.

[58] Maya K. Buchanan et al., *Sea Level rise and Coastal Flooding Threaten Affordable Housing*, Env'l Rsch. Letters (Dec. 1, 2020), https://iopscience.iop.org/article/10.1088/1748-9326/abb266.

[59] Foster City: Public Works, *Levee Improvements Project: Frequently Asked Questions*, https://www.fostercity.org/publicworks/page/levee-improvements-project-frequently-asked-questions.

[60] Avery Bick et al., *Rising Seas, Rising Inequity? Communities at Risk in the San Francisco Bay Area and Implications for Adoption Policy*, AGU Earth's Future (Jul. 12, 2021), https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2020EF001963.

Within Los Angeles County 720,000 people are expected to be affected by frequent floods that occur due to climate change.[61] One area at the center of concern is the City of Long Beach. Long Beach faces projections of at least two feet of sea level rise by 2050 and so much as six-and-a-half feet by 2100.[62] Maps calculating social vulnerability of the city shows the spreading of medium vulnerability risks, predicting to add to many areas of Long Beach.[63] Social vulnerability is measured through census tracts using variables like poverty rates, low percentage of vehicle access, and crowded households.[64]

III. Argument

A. California's Response to Sea Level Rise at the State Level

The Ocean Protection Council (OPC) is the California state agency lead for ocean and coastal resources.[65] On September 23, 2021, Senate Bill 1 was signed into law which created the California Sea Level Rise State and Regional Support Collaborative.[66] This bill gives the authority to OPC to educate the public, advise local governments on sea level rise adaptive measures, and direct California Coastal Commission (CCC) in their "planning, development, and mitigation efforts."[67] Before Senate Bill 1, other agency actions had focused on the issue of Sea Level Rise along the California coast. For example, the California Coastal Commission had created planning guidance on critical infrastructure and residential developments in 2019.[68]

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[61] Hayley Smith, *Dozens of L.A. County communities face growing peril from fire, heat, flooding*, Los Angeles Times (Nov. 12, 2021), https://www.latimes.com/california/story/2021-11-12/la-county-climate-report-highlights-worsening-crisis-and-dangerous-inequities.

[62] Jeffrey L. Rabin, *Special Report: Long Beach Faces Climate Change*, UCLA BluePrint, https://blueprint.ucla.edu/feature/special-report-long-beach-faces-climate-change/ (last visited Nov. 5, 2022).

[63] Surging Seas: Risk Zone Map, https://ss2.climatecentral.org/#12/33.7669/-118.1734?show=sovi&projections=0-K14_RCP85-SLR&level=4&unit=feet&pois=hide

[64] Ctr. for Disease Control & Prevention, *CDC SVI Documentation 2020*, Agency for Toxic Substances & Disease Registry, https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2020.html (last reviewed Oct. 28, 2022).

[65] About, *Ocean Protection Council,* https://www.opc.ca.gov/about/.

[66] Cal. Pub. Resources Code § 30972.

[67] Sea Level Rise Leadership Team, *State Agency Sea-Level Rise Action Plan For California*, Ocean Protection Council (Feb. 2022), https://www.opc.ca.gov/webmaster/_media_library/2022/08/SLR-Action-Plan-2022-508.pdf.

[68] Informational Guidance on Sea Level Rise Planning, *Sea Level Rise*, California Coastal Commission, https://www.coastal.ca.gov/climate/slr/ (last visited Mar. 25, 2023).

For the most part, local and regional agencies have been at the forefront of sea level rise solutions as they are the first responders in their community. For instance, in October 2018, the City of Del Mar's city council adopted a "Sea-Level Rise Adaptation Plan" that discussed different guidelines, planning, and addressing specific areas that would be affected by sea level rise in Del Mar.[69]

Senate Bill 1 however, gives the Ocean Protection Council the ability to oversee and encourage local and regional governments to combat the current and future destruction from sea level rise. The State Sea Level Rise Leadership Team of the OPC in February 2022 created an action plan for California to address the issue in terms of a five year roadmap. This action plan organizes and addresses a comprehensive list of areas that sea level rise will affect and has timelines for the different entities charged with creating solutions to follow.[70]

B. Proposed Senate Bill 1078 Holds a Possible Solution to Impacts of California Sea Level Rise

California State Senator Ben Allen of District 26 on February 15, 2022, introduced Senate Bill 1078. The bill, also referred to as "Sea Level Rise Revolving Loan Pilot Program," was brought forth to create a solution to the impact of sea level rise that will affect many citizens property. Senate bill 1078 would require the Ocean Protection Council to develop guidelines and criteria for the program under the directions of the bill.[71] The bill would allow local jurisdictions to request low interest loans "for the purchase of coastal properties in their jurisdictions identified as vulnerable coastal property located in low-income communities, communities of color, tribal communities, and other disproportionately affected communities and populations."[72]

The bill gives minimum criteria for the OPC to include in their eligibility of receiving the loan. Criteria to be included are the evaluation that the property's revenue will be able to pay off the loan, the cost-effectiveness of approving the loan, the evaluation of the public benefits

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[69] Environmental Science Associates, *City of Del Mar Sea-Level Rise Adaptation Plan,* City of Del Mar, https://www.delmar.ca.us/DocumentCenter/View/3580/Revised-Adaptation-Plan-?bidId= (Updated May 2018).

[70] Lily Momper, Ph.D. et al., New *State Agency Sea-Level Rise Action Plan for California*, Exponent Engineering and Scientific Consulting (Apr. 4, 2022), https://www.exponent.com/knowledge/alerts/2022/04/new-state-agency-sea-level-rise-action-plan/?pageSize=NaN&pageNum=0&loadAllByPageSize=true.

[71] S. 1078, 2022, Reg. Sess. (Cal. 2022), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB1078.

[72] S. 1078, *supra* note 37.

of approving the loan, and the criteria that equitably identifies a precise plan for disadvantaged communities and other populations that have been significantly impacted from climate change.[73]

Jurisdictions applying for loans from the Sea Level Rise Loan Pilot Program would also be required, at a minimum, to give OPC a plan for their vulnerable coastal property in their jurisdiction. This plan includes items like the timeline for the "local jurisdiction to acquire the vulnerable coastal property" and the lease agreement for the property to show that the city or county will be able to pay off the loan. The plan also asks for an analysis on potential impacts to nearby disadvantaged communities and a plan for addressing these inequalities made by the loan program.[74] If enacted, the bill enables the OPC to add more requirements that they deem fit to include.

Senate bill 1078 was introduced to the California Committee on Rules in February 2022.[75] The bill was then amended and passed in the California State Assembly and State Senate on August 31, 2022 during the Regular Session of 2021-2022.[76] On September 29, 2022, the bill was vetoed by Governor Gavin Newsom. Currently, the bill is still in the Senate and is pending the consideration of Governor Newsom's veto.[77] With the Governor's veto, there is only one option for bill to be passed into California legislature. In order for the bill to become a reality, the bill is sent back to the Assembly and Senate where it would need to pass with a two-thirds vote. If it does not gain enough votes in both house, then the bill would fail. When the bill was originally passed in the Assembly, it passed with 61 votes for it, 12 votes against, and 7 votes that were not recorded. Within the Senate, the bill originally passed with 30 votes for it, six votes against, and four votes that were not recorded. Considering the overwhelming votes for the bill's original passing in both the Assembly and Senate, there is still hope for Senate Bill 1078's passing.

C. California Courts Predicted Reaction to Senate Bill 1078

California Courts have yet to address issues concerning a managed retreat plan with state government intervention for rising sea levels, specified by Senate Bill 1078. The court decisions concerning sea level rise and the impending destruction to coastal property mainly focus around

[73] *Id.*
[74] *Id.*
[75] *Id.*
[76] *Id.*
[77] *Id.*

local governments trying to erect sea walls or other defensive solutions to the impact. This bill will present different legal questions for the court if this bill is passed. There will most likely be issues arising from property transactions between the local governments and parties such as property owners. Although it is unknown how California courts will view Senate bill 1078, it can be predicted from different Sea Level Rise litigations.

In *Greene v. California Coastal Commission*, property owners were adding 1,190 square feet to their already 2,000 square foot property that abutted the Los Angeles coast. [78] Following California Coastal Commission regulations, they applied for a permit to construct under coastal development.[79] Due to Commission concerns about the additions and the future risk of sea level rise, the Commission approved the permit with conditions.[80] The condition at issue in the case, was that the Plaintiffs must set their construction back by five feet from the seaward property line.[81] Plaintiffs and the Superior Court both claimed that the Commissioner made a "generalized speculation" about the concerns of sea level rise impact on the property.[82] In the end, the Court of Appeals held that it was sufficient for the Commissioner to explain that the condition was necessary for future effects of sea level rise because the Commissioner made these comments while the Commission was voting to remove the condition from the permit.[83]

The decision in *Greene* does not necessarily prove that the courts lean more on the side that prioritizes solutions to sea level rise, but it shows how California courts can be in favor of decisions that would prevent further destruction from sea level rise. Many sea level rise lawsuits in California involve property construction and disputes between agencies like the Coastal Commission and property owners. However, recently other sea level rise lawsuits have taken a new form and with new questions from them.

As previously mentioned, Californian cities like Imperial Beach have filed lawsuits against private "big oil" corporations on the basis that the contribution from their fossil fuel output heavily contributed to climate change and therefore, created the sea level rise that is starting to

[78] Greene v. Cal. Coastal Commission, 40 Cal.App.5th 1227, 1231.

[79] *Id*.

[80] *Id.* at 1232.

[81] *Id.* at 1231.

[82] *Id.* at 1233.

[83] *Id.* at 1237.

affect the coast.[84] Northern Californian local governments have also filed suit including the County of San Mateo, and San Francisco and Oakland.

The County of San Mateo filed suit against big oil companies such as Exxon and British Petroleum in the United States District Court Northern District of California, but the judge held that the federal court could not hear its case, deciding that it was a matter under state Torts law.[85] Together in one suit, the City of Oakland and the City of San Francisco, had a slightly different outcome with their case. The Cities also filed their case in federal court, but the Judge Alsup allowed the complaint to be heard within the federal court system. Ultimately, the motion to dismiss the case was granted because the judge questioned whether the "public nuisance" that fossil fuels created, was unreasonable due to the benefits it held.[86] Despite this ruling, the judge's conclusion shows how alarming climate change is and should be treated. The judge concluded that the claims from this case and others similar, should not be handled by the courts, but by the other political branches.[87]

The issues stemming from Senate bill 1078 would most likely bleed into the courts. From disputes over real estate or property to issues like program management, the courts would likely have to establish opinions based on the program with the law. Courts have not really swayed one way over the other in terms of sea level rise issues, but it can be expected and hoped that courts will likely follow the intentions of the bill.

D. A Comparative Look at New Jersey's Response to the Predicted Effect on Disadvantaged Communities from Sea Level Rise

Socially vulnerable groups from other areas of the U.S. will also see impacts from sea level rise. In New Jersey, it has been found that the State has the most affordable housing units exposed to sea level rise in the country.[88] Climate Central, a nonprofit news organization, reported a national assessment that found by 2050, New Jersey is expected to have 6,825 units exposed to coastal flooding.[89] Comparatively, states such as Massachusetts and New York, the next two highest states, have around

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[84] Complaint, *The City of Imperial Beach v. Chevron Corp.* (Cal. 2018) (No. C17-01227). https://www.documentcloud.org/documents/4462950-Imperial-Beach-Lawsuit-July-2017.html.

[85] County of San Mateo v. Chevron Corp., 294 F. Supp. 3d 934, 937.

[86] City of Oakland v. BP P.L.C., 325 F. Supp. 3d 1017, 1023-24.

[87] *Id.* at 1029.

[88] Jon Hurdle, *NJ has the most affordable-housing units exposed to sea-level rise, report says*, NJ Spotlight News (Dec. 1, 2020), https://www.njspotlightnews.org/2020/12/affordable-housing-sea-level-rise-flooding-poverty-climate-change-nj/.

[89] Jon Hurdle, *supra* note 45.

5,000 affordable housing units exposed.[90] The national assessment also calls for resiliency planning to protect the State from the impact of sea level rise.[91] Solutions such as building sea walls or elevating buildings are mentioned to protect affected communities.[92]

Although New Jersey has the highest risk in the U.S. when viewing the effect sea level rise has on affordable housing, there has been a lack of traction from State lawmakers to address this present and future problem. In February 2021, New Jersey enacted a law that requires each of the municipalities to include a "Climate Resilience Plan" in their Master Plan updates.[93] Although assessing the threat is a start to finding a solution, there has been minimal action from the state to start to address sea level rise, instead it has been placed into the hands of local governments and citizens. The local governments are required to include an analysis of future development and an assessment of threats the localities face considering sea level rise among other "natural hazards."[94]

The State's response at the moment, shifts the burden to cities and counties. However, the "Local Planning Toolkit" provided by the New Jersey Department of Environmental Protection does give guidance to municipalities on how to develop resilient land use development.[95] Under the section named "Understand Your Vulnerability," it expresses the concerns with rising sea levels in New Jersey and relays back to the "Sea-Level Rise Guidance" packet to assess different risks and strategies for sea level rise.[96] The Guidance asked municipalities to consider the risks of any activity with the protected sea level rise when planning a new activity or development.[97] It specifically calls for the consideration of the adverse impact on the "socially vulnerable" when assessing a likely risk of damage or loss, all considering rising sea levels.[98] The delegation of sea level rise impacts to local governments can be seen as a

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[90] *Id.*

[91] *Id.*

[92] *Id.*

[93] Office of Planning Advocacy, *Municipal Climate Resilience Planning Guide*, Department of State Business Action Center (May 2022), https://nj.gov/state/planning/assets/pdf/resilience-plan-guide.pdf.

[94] P.L. 1975, c291 § 19. https://pub.njleg.gov/bills/2020/PL21/6_.PDF.

[95] N.J. Dept. of Env't Prot., *Sea Level Rise in New Jersey*, https://dep.nj.gov/slr/ (last visited Nov. 20, 2022).

[96] N.J. Dept. of Env't Prot., *Resilient NJ Local Planning Toolkit*, State of N.J., https://experience.arcgis.com/experience/9daab51c2f5542969d50437522e012c4/page/ADVANCED-ASSESSMENTS/?views=MUNICIPAL-LAND-USE-PLANNING%2CDEVELOPING-A-RESILIENCE-%26-ADAPTATION-STRATEGY%2CIDENTIFY-%26-PRIORITIZE-ASSETS (last visited Nov. 20, 2022).

[97] N.J. Dept. of Env't. Prot., *Sea-Level Rise Guidance for New Jersey* (Jun. 2021), https://www.nj.gov/dep/bcrp/resilientnj/docs/dep-guidance-on-sea-level-rise-2021.pdf.

[98] N.J. Dept. of Env't Prot., *supra* note 52.

way for communities to be a larger part of the solution rather than putting faith into the State. However, the predictions of sea level rise impact in New Jersey, especially towards vulnerable populations such as communities in affordable housing units, could indicate that a more organized action should be pursued in terms of the State's response.

E. Senate Bill 1078 Is a Step Forward for Seal Level Rise Impact, but Is It Clear Enough in Its Ability

When discussing the effect of sea level rise in California, the main rhetoric focuses on the effect it will have on property. The type of property that comes to mind when discussing sea level rise's impact for many is beachfront mansions lining the coast of Southern California or along the cliffs of Carmel. It is important to acknowledge that the impact of climate change, globally, nationally, and locally will be first affected by low-income communities, people of color, indigenous groups, and other communities that have been taken advantage of. Sea level rise will not only affect the mansions of the ultra-wealthy but will have a direct and indirect impact on these disadvantaged communities in California as exemplified in the Background of this Comment.

Many groups such as the Surfrider Foundation, an environmental non-profit organization focused on ocean and coastline protection, support the passing and enacting of Senate bill 1078. The Surfrider Foundation states that the bill addresses the inequitable impacts of climate change by "serving low-income communities and avoids a scenario where the general public is buying out the state's highest priced properties."[99]

The Senate Natural Resources and Water Committee gave an analysis on the bill in favor of its passing pointing out that failing to have the state buy the land now will greaten the chance that coastal property affected by sea level rise will have little insurance options which in turn banks would not provide mortgages for.[100] In the end, the Committee says taxpayers in the future will be "further burdened" if options like this bill are not available.[101]

Other voices of support say that the Senate bill will help to encourage the protection and preservation of beaches and access to the

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[99] Surfrider Foundation, *Pass SB 1078 - Sea Level Rise Revolving Loan Pilot Program*, Surfrider Foundation, https://www.surfrider.org/campaigns/pass-sb-1078-sea-level-rise-revolving-loan-pilot-program (last visited Nov. 19, 2022).

[100] Emily Sawicki, *Local government representatives pen coastal bills*, Santa Monica Daily Press (May 23, 2022), https://smdp.com/2022/05/23/local-government-representatives-pen-coastal-bills/.

[101] Emily Sawick, *supra* Note 57.

coastline. By the local government being able to buy land that in the future would be negatively affected by sea level rise, they would have the ability now to implement strategies to protect and preserve the coastline for the public to enjoy until the inevitable destruction of the coast occurs. There are other supporters that see Senate bill 1078 as a bill that gradually adapts to the changing sea levels as it presents rather than a measure that would react or overreact to the issue.[102]

With debates surrounding managed retreat, this bill can be seen as a way that includes property owners in the conversation and allows them to reside on their property until the effect of sea level rise impacts the integrity of their dwellings. The prioritization of loans to disadvantaged groups allows these communities that have typically been heavily affected by different circumstances to stay on top of the disastrous effects that sea level rise brings.

Although the Senate bill gives the State more control through the OPC and the Coastal Commission in deciding and approving local authorities loans for buying these properties, it also creates a narrative between local governments and the State. Localities will have to apply, with a solid plan to how and where their proposed loans would be invested in. Although the OPC and Coastal Commission possess authority over who will and will not receive loans, it still leaves room for collaboration between the two tiers of local government.

The bill first declares that low-income communities, communities of color, tribal communities, and other groups that have been disproportionately affected by climate change should be prioritized over other communities due to the impact from climate change and other factors these groups have faced and will continue to face.[103] Although this bill is to support all affected communities in California, the language of Senate bill 1078 places disenfranchised groups at the forefront when speaking on how this bill will be utilized. When discussing the criteria for receiving a loan from the OPC, the bill charges the OPC to create a precise plan to include properties that are from low-income communities, communities of color, tribal communities, and other disproportionately affected communities that bear the burden of climate change.[104]

Although the bill does not list out specific areas or properties it intends to prioritize, the bill leaves it up to the OPC to lay out that exact plan. The bill would potentially relieve many property owners' worries

[102] Victor Carmichael, *SB 1078 represents promising approach to sea level rise*, Pacifica Tribune (Jul. 12, 2022), https://www.pacificatribune.com/opinion/sb-1078-represents-promising-approach-to-sea-level-rise/article_16a189ca-022b-11ed-9e77-13598e06aead.html.

[103] S. 1078, *supra* note 37.

[104] *Id.*

about the sea level's impending effect on their investment while also proving an environmental solution that makes a managed retreat more practical. This stage of Senate bill 1078 intends to center its program around communities that bear the brunt of climate change. The bill provides a long-term resolution to sea level rise's effect on stratified communities by alleviating the prospective financial burden of damage to property value. The bill is also as a win for low-income communities in a short-term capacity by not "overreacting" to the threat of sea level rise, but instead meeting the rising levels with gradual steps to plan and reduce the destructive impact of the changing coastline.

Although the bill stresses the importance of the burden underserved communities face with the impacts of climate change and intends for this program to be centered around these communities, the Senate bill itself does not give direction or specifics to how the program will be implemented. It gives this power to OPC and CCC. The question remains is how the OPC and the CCC will evaluate disadvantaged populations that will be affected. It is also unknown if the bill is intended solely for residential properties in these communities or other types of properties.

The bill was passed by both the Assembly and Senate of California and, on September 29, 2022, California Governor Gavin Newsom vetoed the bill and returned it back to the senate without his signature. The bill will now need to be approved with a two-thirds vote in both Houses to be passed into law to override the Governor's veto.

The Governor vetoed the bill due to an incomprehensive plan of the cost that the program will be long-term.[105] Although he says that Senate bill 1078 "has the potential to play an important role" in building coastal resilience, it does not show how cooperation will be ensured between different stakeholders like property owners, local governments, and other investors. The Governor seems to stress the importance of cooperation and collaboration between local and state authorities and property owners, along with being hesitant due to how local rental markets will react with the government as property owners in the mix. Collaboration and cooperation are key to ensuring this bill will prevail, especially with multiple different stakeholders involved.

III. Conclusion

The destruction that sea level rise will bring seems to be an inevitable reality for the near future of the earth. Sea level rise is an issue that

[105] Letter from Gavin Newsom, Governor of California, to Members of the California State Senate (Sept. 29, 2022), https://www.gov.ca.gov/wp-content/uploads/2022/09/SB-1078-VETO.pdf?emrc=EE715f.

all citizens of coastal states will feel an impact from. From directly affected citizens that live on the coastal front, to others that will feel the effects of coastal dwellers migrating more inland to escape the rising sea levels. The people that will bear the heaviest burden from any type of climate change, but specifically sea level rise, will be low-income communities, people of color, and tribal communities due to among other things, inaccessibility to resources and lack of representation. Sea level rise will expose further inequalities disadvantaged groups face, but proposed Senate bill 1078 is looking in the right direction.

Senate bill 1078 has flaws that need to be addressed, especially when it is trying to cater to disadvantaged communities. Leaving it to the OPC and CCC to decide which communities to invest in is a good point in delegation, but it is still vague in terms of how exactly this will be fleshed out. This bill, with its flaws, does present an avenue on how sea level rise can be managed in the future. This bill has the potential to be a win-win for all differing parties: the state, the local governments, the environment, and the people who inhabit it.

The future is unknown regarding Senate bill 1078. Even if it is passed with the Governor's veto, it is unclear how the program will play out. However, chaos regarding the effects of rising sea levels, this bill presents the option for California to be a leader in presenting solutions to the effects of sea level rise. In conclusion, sea level rise impacts will unfold within the next 100 years and now, California has the ability to alleviate the burden it will cause to all Californians.

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