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Eight Oceans: Driving Conservation Engagement Through Gamification of Ocean Policy

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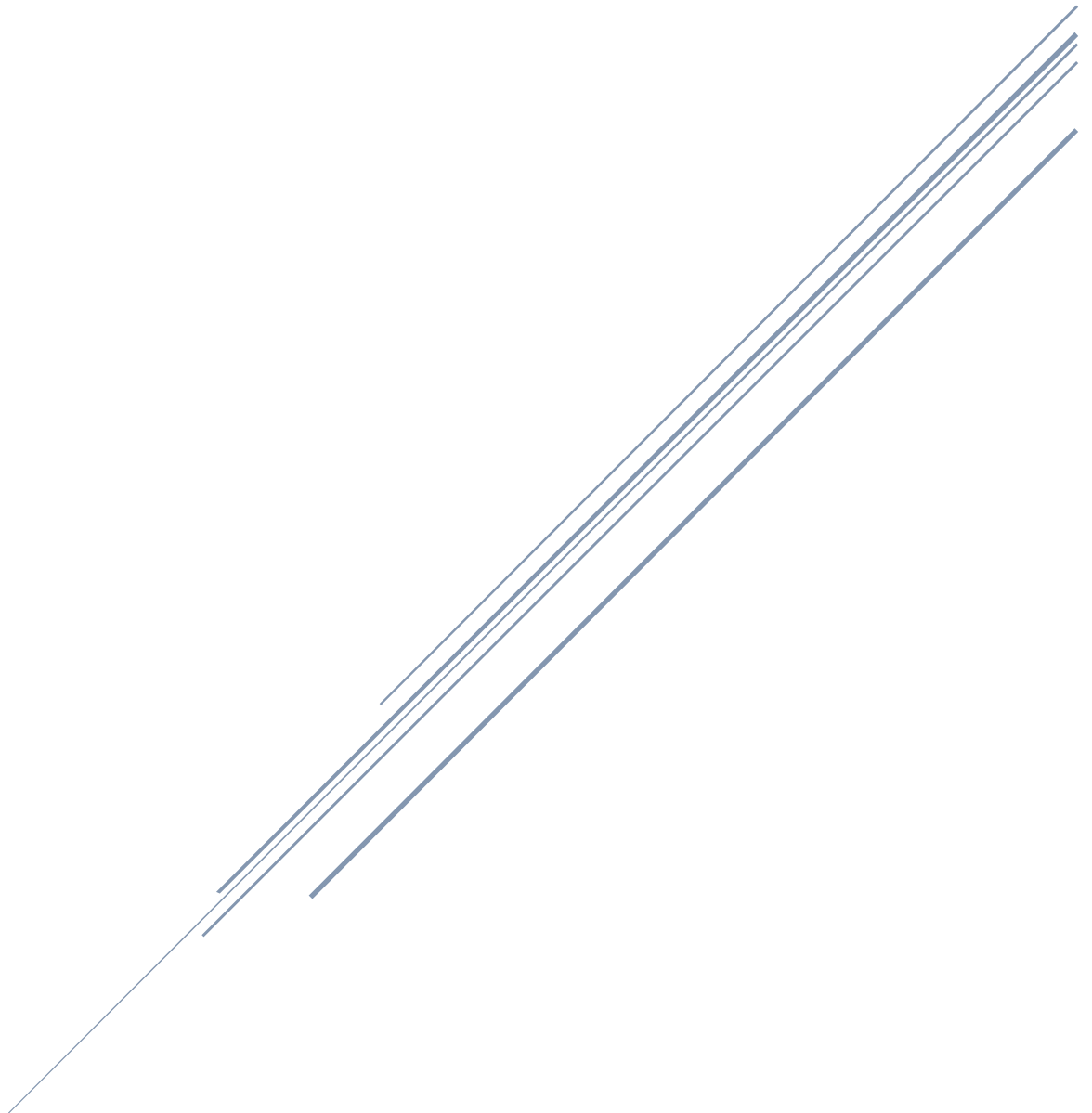
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EIGHT OCEANS

Driving Conservation Engagement Through Gamification of
Ocean Policy



Dane Whicker

Capstone Project

Master of Advanced Studies in Marine Biodiversity and Conservation

Scripps Institution of Oceanography, UC San Diego

Capstone Advisory Committee Final Project Signature Form



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6/15/2023

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June 15, 2023

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Date

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Executive Summary.

The ocean is a vital source of many valuable resources and services, such as food supplied through fishing, energy derived from oil and wind power, and often overlooked materials like sand, salt, and minerals. Each of these resources is finite by nature, so the need to sustainably manage them is paramount if we wish to ensure their availability alongside healthy ocean ecosystems for future generations. Doing so will require science-guided policies and laws that are crafted in coordination with stakeholder input from ocean-users and members of the public. Sustainability does not just require protection of ocean resources, but encouragement of human welfare as well. As such, public and stakeholder input is vital. However, engagement can be limited by barriers of inaccessibility: ocean-conservation topics are often complicated, and the policy processes and economic solutions we use to address them are equally so.

This project offers a unique solution to fill that gap by representing real world issues and policy processes as a cooperative, physical board game. This process is called gamification: applying game design elements to non-game contexts. By gamifying ocean policy processes and making conservation decisions fun, *Eight Oceans* strives to demystify opaque policy processes, empower players to learn and discuss a myriad of complex ocean topics, and inspire player involvement and action in the real world. This game was created by assigning game mechanics and elements to real world processes and creating a conservation-focused objective for players to accomplish. This basic game ruleset was then put through many rounds of playtesting with a diversity of players, who provided feedback to revise and create new iterations of the game. The resulting prototype version serves as the framework for a more fully tested and complete product, intended for eventual marketability. Through the lens of gaming, *Eight Oceans* intends to bring important topics in ocean conservation a unique new audience.

Introduction.

The need for sustainable management of our ocean's resources in terms of food, energy, recreation, and more has been widely recognized for years.¹ Management through laws, policies, and other governance will be necessary to ensure that both existing and burgeoning ocean industries can be "sustainable" – that is, allow for socioeconomic development to meet the needs of people while minimizing environmental damage and promoting equity.¹ Increasingly, discussions on how to accomplish such ambitious goals center on the need for a both a science-driven and stakeholder-centered approach acting in concert.² The importance of involving many different ocean users in the discussions that shape management policies is clearer now than ever before, and so the need for increased public understanding of these issues is paramount.² However, ocean policy and management is a complex and dynamic topic that some of these stakeholders may find opaque and inaccessible. This can lead to public frustration, apathy, and lack of engagement in the policy making process.

One unique solution to address this gap in education and engagement is through the tool of gamification. Commonly defined as "the use of game design elements in non-game contexts,"³ there has been some empirical evidence that gamification is effective as a learning tool that can influence behavioral change.⁴⁻⁸ Several examples of using board games centering on environmental issues (such as climate) already exist, and early research supports the possibility that they can be effective as tools for effective environmental communication.^{8,9} Given this evidence, this capstone project focuses on communicating ocean conservation topics within this unique medium - striving for an accurate design and creation of a new cooperative board game that gamifies these complex topics of ocean management. By fostering connection, educating players about such topics, and demonstrating policy in action in a simulated and gamified way, this project seeks to inspire players to think differently about our ocean resources and encourage engagement with ocean policy in the real world.

Design Process.

The overarching goal of this project was to create an informative and fun cooperative board game product that empowers players with ocean resource management decisions and conservation ability through policy. In the game, each player takes on the role of an ocean conservationist, represented by an illustrated game pawn, and can spend their in-game actions interacting with a moving world. Players are empowered with many options for how to spend their time - for instance, players may choose to harvest resources such as fish or fossil energy from the oceans to complete personal projects and fuel the nation's growth, at the cost of the ocean's overall health scores. They could also spend their time introducing and advocating for policies – powerful playing cards that can help make environmental protection or societal development easier, with a range of effects and consequences.

For example, using the policy card pictured in *Figure 1*, players may choose to advocate for a policy that reduces plastics in an effort to reduce pollution in the ocean. This card, when implemented, will help improve an ocean health score, but makes project cards (a representation of private sector action) harder to complete, as many businesses scramble to find alternative materials for manufacturing. Many of the project's learning objectives are accomplished through this kind of passive learning – letting the players interact with the game and experiment to see what strategies work and which do not to achieve the stated conservation-focused objective.



Figure 1. Plastics Reduction Policy Card. Within the game, players have the option to advocate for and pass policy cards such as this to achieve goals of sustainable ocean resource management. Each card is based on real world scenarios.

The most important element to the design process was *playtesting*: putting a version of the game in front of other players so that they could play and provide feedback as to both the game's enjoyability as well as the game's effectiveness in conveying its learning objectives. Feedback from each session was noted and brought back to make changes to the game's overall design. Through this cyclical process, many versions of the game have been tested, changing various parts of the game each time. The feedback from these players and the playtest sessions they participated in was vital to the current shape of the game.

Playtesters:

Allison Cusick, Analisa Freitas, Beverly Scharnhorst, Brooklynn Vandehey, Corey Tamondong, Cua Lee, Denise Alcantara, Eric Rodriguez, Galen Ciscell, Hannah Tannenbaum, Jef Hatch, Josh Croak, Kenan Chan, Kristen Johannes, Lilianna Watson, Lorea Dandoy, Nicole Rosenberg, Patricia Rendall-Rocha, Samantha Murray

Figure 2. List of playtesters. Each of these individuals helped guide the design of the game forward by offering their time to playtest and provide feedback on new iterations. Thank you!

Each session of feedback provided the impetus to change one or more parts of the game, which often involved making sweeping changes to the game's 100+ playing cards. For this purpose, the program

NanDECK was used.¹⁰ NanDECK is a free piece of software that allows you to utilize its unique computer coding language to automate the design of playing cards based on information input from a comma separated values spreadsheet. Using this tool, all card information could be easily updated to make changes to all cards quickly, rather than manually updating the game components by hand.

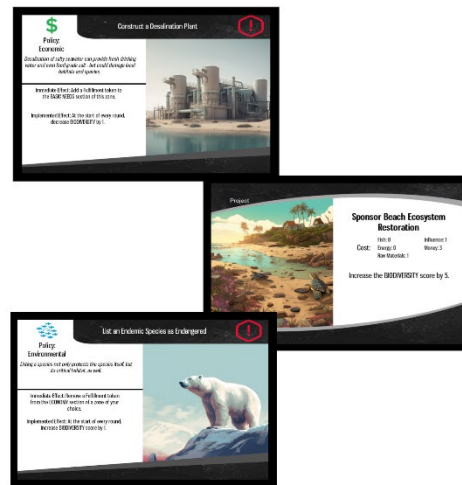
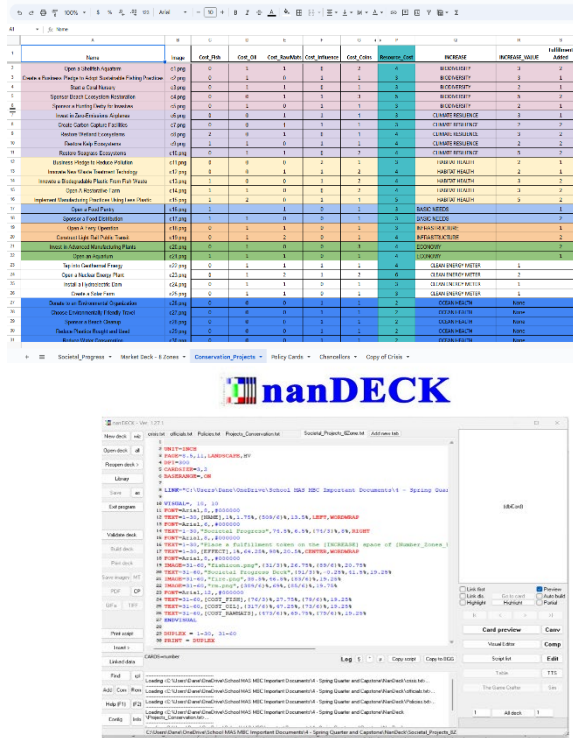


Figure 3. NanDECK. This program enabled playing card creation from the input of spreadsheet data (pictured top). Through writing of code blocks (pictured left), NanDECK helped provide new versions of playing cards (pictured right). Art was generated using the AI Art tool Midjourney.

Many of these playtests during the design process were performed with hand drawn and typed game components, but for a final product, compelling artwork is necessary to drive engagement and further passive learning objectives. For this purpose, the Artificial Intelligence art tool *Midjourney* was utilized.¹¹ This tool provided the ability to generate artwork based on a text prompt. The game's various boards, tokens, chits, and cards were all illustrated using this tool.

Current Status and Next Steps

This document details the game's current ruleset, art assets, and cards, which are current as of June 13th, 2023. One proof of concept copy of the game has been manufactured through print-on demand service *The Game Crafter*.¹² While the work done within this capstone project is monumental towards the vision of communicating ocean conservation topics through the unique lens of gaming, many mechanical, communication and balance issues with the gameplay still exist. As such, these rules, mechanics, components represent a prototype version of the game, and are intended to be a living document. This prototype will be further playtested and change significantly as the game is further developed towards the eventual goal of publication and sale to a uniquely new audience.

8
ceans



Eight Oceans
Playtest Rules
Version 1.0
(Capstone Version)

“All life is part of a complex relationship in which each is dependent upon the others, taking from, giving to and living with all the rest.”

— Jacques-Yves Cousteau

Save the fish. Save humanity.

In the vast expanse of the ocean, a fragile equilibrium teeters on the edge.

The once-pristine waters of Maridia, teeming with vibrant life and secrets yet to be discovered, are now under grave threat. These plentiful seas provided the food, power, and materials to spark rapid industrial growth, and yet, over-extraction of these resources now endangers the very ecosystems that fueled this renaissance.

Amidst this crisis, a group of passionate and determined individuals emerges — ocean conservationists devoted to safeguarding the seas and restoring the balance. Together, they embark on a noble mission - seeking to stem the tide of destruction and weave a new narrative for the ocean's future. In **Eight Oceans**, you and your fellow players step into the shoes of these valiant ocean protectors.

Eight Oceans is a cooperative game, where players must work together to win. As the game unfolds, you will face critical decisions and challenges that mirror the real-world complexities of ocean conservation. By completing powerful individual projects and influencing the policies and people that will guide society forward, you must work together to find the delicate equilibrium between meeting the needs of society and preserving the irreplaceable wonders beneath the waves.

Can you achieve this harmonious balance before it's too late?



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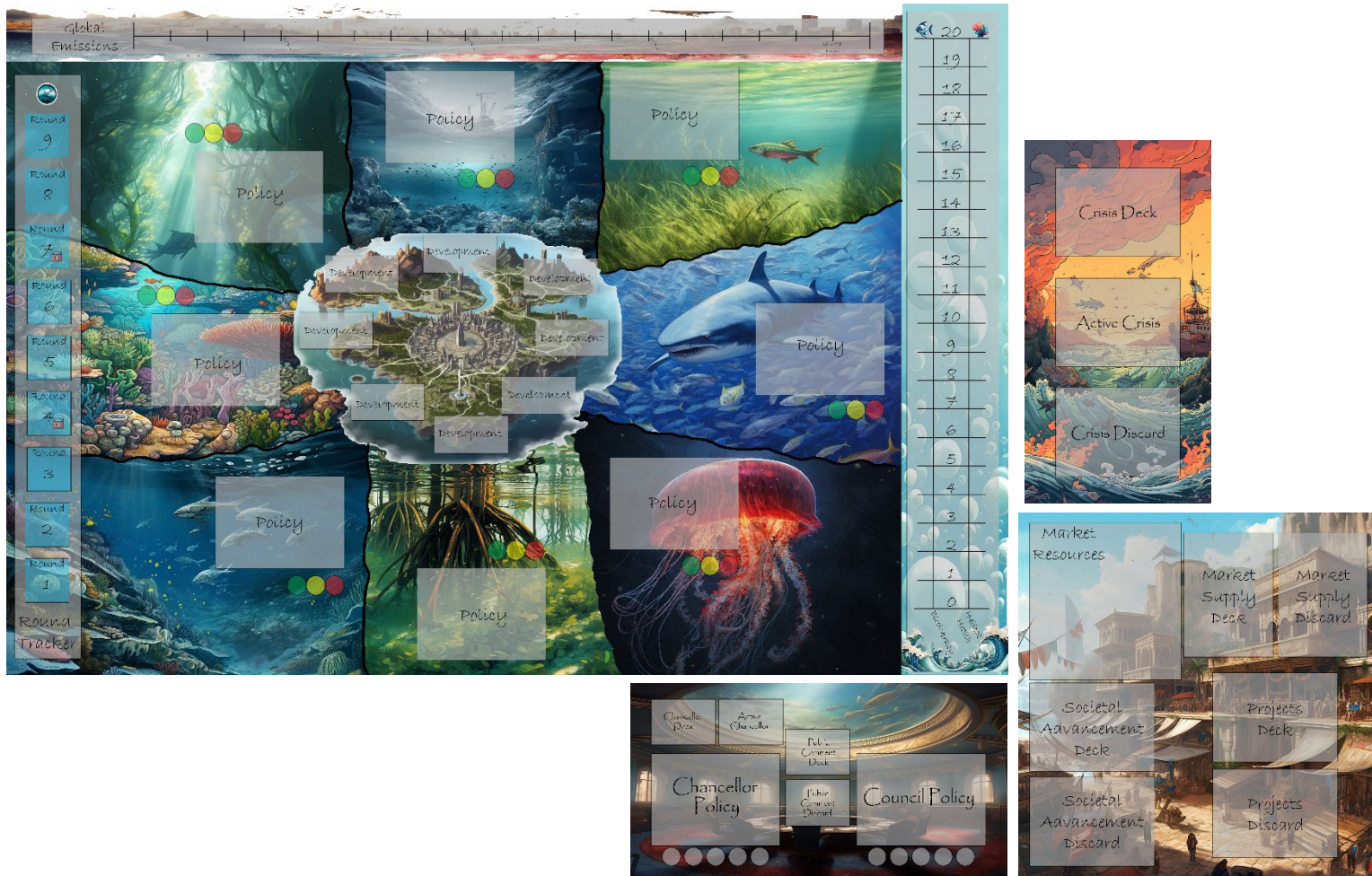
Game Component List

- 1 Game Board with Eight Ocean Zones
- 1 Capitol Board
- 1 Market Board
- 1 Crisis Board
- 1 Round Tracker Standee
- 2 Score Tracker Standees: Biodiversity and Habitat Health
- 1 Scorecard and Six Score Trackers
- 1 Eight-Sided Zone Dice
- 8 Conservationist Standees
- 20 Coin Resource Tokens
- 20 Fish Resource Tokens
- 30 Fossil Energy Resource Tokens
- 10 Green Energy Resource Tokens
- 20 Raw Material Resource Tokens
- 15 Influence Resource Tokens
- 28 Double Sided Support and Opposition Tokens
- 28 Extraction Chits
- 8 Double Sided Advancement Tiles
- 24 Gold Advancement Bars
- 6 Player Turn Reminder Cards
- 1 Lead Player Token
- 30 Project Cards
- 31 Market Supply Cards
- 30 Societal Advancement Cards
- 41 Policy Cards
- 12 Chancellor Cards
- 12 Crisis Cards
- 32 Public Comment Cards

Game Setup

1. Set out the game board, capitol board, crisis board, and marketplace boards as shown.
2. Every player selects a conservationist and places their conservationist token in the capital.
3. Place a score tracking marker on the number 15 for the two ocean health scores: Biodiversity and Habitat Health.
4. Shuffle the **advancement tiles** and randomly place them in the development sections of the game board. Make sure that the words “Basic Needs”, “Infrastructure”, and “Economy” are face up on all tiles.
5. Prepare the Market Board by shuffling the **market supply deck**, **societal advancement deck**, and **projects deck** and placing them face down in their marked locations. Deal one **project card** to each player at random: this becomes their **active project**.
6. Shuffle the **policy deck** together and place them, face down, in the marked spot on the board.
7. Prepare the Capitol board by shuffling and placing the **chancellor deck** and the **public comment deck** in their respective spaces. Draw one chancellor card and place it in the active chancellor space. Place the double-sided support and opposition tokens near the Capitol board.
8. Prepare the **crisis deck** by shuffling it and placing it on the marked spot on the crisis board, face down.
9. Place ocean extraction chits, fish, fossil energy, green energy, raw material, influence, and coin resources near the board as a common **supply**.
10. Deal one coin resource to each player.
11. Give the **lead player token** to the player who has most recently submerged their head in a body of water.

Game Layout



Example Setup



Board Anatomy

The Game Board



Round Tracker 📅

The goal of Eight Oceans is to ensure healthy oceans through nine in-game years of play.

These years are represented by rounds, tracked here.

Global Emissions Meter 🌡️

As fossil energy gets spent to fuel projects and societal progress, the emissions from their use will build in the atmosphere. The resulting climate changes could spell disaster.

Advancement Tiles. 🏡

Each of Maridia's eight zones has the potential for development towards a brighter, healthier society, if it's citizen's needs are met. The requirements to advance each zone are detailed on page 13.

Ocean Extraction Chits. 🐟

Extraction chits are a representation of overall degradation of ocean health from extraction. More chits represent a less healthy ocean.

Chits are typically added by extracting resources and can be removed through certain projects.

The Capital. 🏙️

The illustrious capital of Maridia is a vibrant metropolis where many people work and play. At the heart of the city lies the Ivory Summit, a beautiful tower from which Maridia's chancellor and government influences the shape of the nation.

It is here that players will be able to influence ongoing policies that shape the course of the game.

Ocean Zones. 🌊

Each coastal area of Maridia is a portal to a stunning underwater world of unlimited beauty and potential. Abundant and diverse marine life captivates and provides the main food source of the people of Maridia, while oil, gas, sand, and mineral resources of the seabed are the reason for many of the nation's booming businesses and modern amenities.

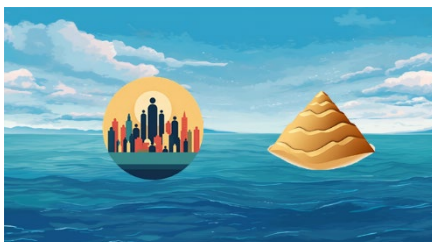
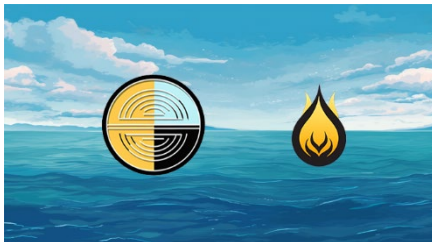
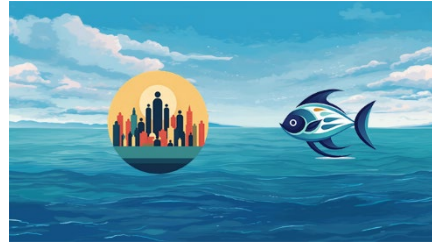
In these zones, players will be able to extract resources to fuel Maridia's growth, sustain a hungry populace, and complete personal projects. Proper management of these zones is key.

Policy Spaces 📜

As the game progresses, policies will be **implemented** into ocean zones, and provide ongoing effects.

The Scorecard / Balancing the Game

The delicate balance between the health of the ocean and the prosperity of Maridia is represented by three score tracks to measure ocean health. Advancement tiles placed in each zone represent society's progress and prosperity. Winning the game requires keeping ocean health scores high by the end of 9 in game years, and higher scores are achieved by advancing as many zones as possible.



The Conservation Tracks.

These three scores represent the health of Maridia's Oceans, as a whole.

Biodiversity is a measure of the number of species and their overall abundance in the ocean. A high score means, quite literally, plenty of fish in the sea.

Habitat Health is a measure of the integrity of the foundational elements of ocean ecosystems, and how clean the waters are. A high score means unpolluted, plastic-free ecosystems with thriving corals, kelps, and more.

Global Emissions is a measure of greenhouse gas emissions and the danger of a warming climate. Though the ocean has some capacity to resist these changes, higher emissions levels will have a directly damaging effect to the ocean and all life contained within.

Advancement Tiles

Maridia is a nation always striving to advance, but to do so, the needs of the populace must be fulfilled. By fulfilling all three categories in a zone, the tile will flip, meaning zones that produce more resources and fuel more growth.

Basic Needs is a measure of citizen's access to food, water, public spaces, and other amenities essential to life. Fulfilling this category means a fed and healthy populace.

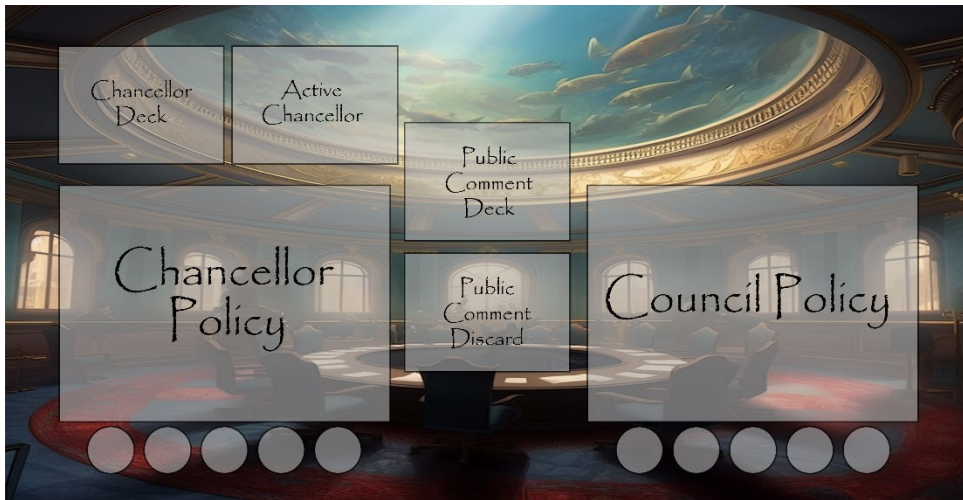
Infrastructure is a measure of the underlying systems, facilities, and structures of Maridia's society, like electricity, hospitals, schools, and internet access. Fulfilling this category means widespread and equitable access to these foundational systems.

Economy is a measure of Maridia's employment rate, goods availability, and business health. Fulfilling this category means employed citizens and financial stability.

These categories are *fulfilled* through societal advancement cards and some policies and projects. See "Fulfilling an Advancement tile" on page 21 for more information.

The Capitol Board

The Ivory Summit is a bustling place where policies that shape the future of Maridia are decided.



Public Comment Deck.

The citizens of Maridia are highly politically involved, and all policies are subject to public support or opposition. On every player's turn, a card from this deck will be drawn, providing a support or opposition token for one of the two face-up policies.

Chancellor Deck and Current Chancellor.

Maridia's Chancellor, and their elected cabinet of officials, have a powerful sway over the policies that shape the nation's future.

These cards will dictate which policy type is automatically introduced and supported each round. Chancellors change every three rounds.

Chancellor Policy and Council Policy.

Every round, the active chancellor will introduce a policy they think is best for Maridia's growth and development. This policy resides in the Chancellor Policy Space. However, the chancellor is not the only one introducing policy: as members of Maridia's Ocean Resources Council, you will be able to propose policies of your own, residing in the Council Policy space.

Support and Opposition Tracks.

Each type of policy represents a unique aspect of Maridia's growth. These policies can have potentially powerful and ongoing impacts on the game... but must first be passed by the government to take effect. For a policy to pass, it must gather three **support tokens (green checkmark)** before it gathers three **opposition tokens (red X)**. The first of either policy to accomplish this will be **implemented**, moving to the board to provide its effects.

Policy Types.

Economic policies support and bolster Maridia's economy, usually fulfilling the economy category of advancement tiles.

Social policies address social inequities and promote the well-being of individuals and communities. They usually fulfill the basic needs category of advancement tiles.

Infrastructure policies direct efforts and funding toward developing the nation's power grids, educational systems, roads, and more. These usually fulfill the infrastructure category of advancement tiles.

Environmental policies work to safeguard the natural world and promote its restoration and overall health. These policies usually support bolstering the two ocean health scores, or removal of tokens from the global emissions meter.

The Market Board

Sometimes working in concert with the government, while other times being at odds, the private sector of Maridia continually pushes to drive society forward.



The Market.

As the people of Maridia harvest resources from the ocean, they end up for sale, where eager individuals and businesses buy them for their own use.

Resources gathered through draws from the **Market Supply Deck**, and resources sold by players, reside in the Market until bought by players or consumed by the **Societal Advancement Deck**.

The Market Supply Deck.

Each round, the citizens of Maridia harvest resources from the ocean to provide the market with goods. Every draw from this deck will provide the **Market** with resources, but damage Maridia's oceans.

Societal Advancement Deck.

The entrepreneurial spirit of Maridia's citizens provides a constant push to develop and advance society.

If enough resources are in the **Market** at the end of a game round, they will be consumed, and a card from this deck will be flipped, usually fulfilling the requirements of advancement tiles.

Projects.

As citizens of Maridia, yourselves, you can complete projects of your own to influence ocean scores, extraction chits, and even advancement tiles. The projects in this deck can be taken by players to be later completed in exchange for resources.

Resources.

Eight Oceans has six different resources:



Fish tokens represent all food items harvested from the ocean, which feeds the populace of Maridia.



Fossil Energy tokens represent the oil and gas resources drilled from the ocean floor, the burning of which provides electrical power across the nation. These projects are necessary for growth, but **every fossil energy token spent will add to the global emissions meter**, and potentially threaten disaster.



Green Energy tokens are identical to fossil energy tokens, **but spending them does not add to the global emissions meter**. These tokens represent energy generated from renewable and clean sources, but are hard to obtain in-game.



Raw Material tokens represent sand mined from river deltas and the seabed for use in concrete, as well as minerals and other materials that are used in modern construction and technology.



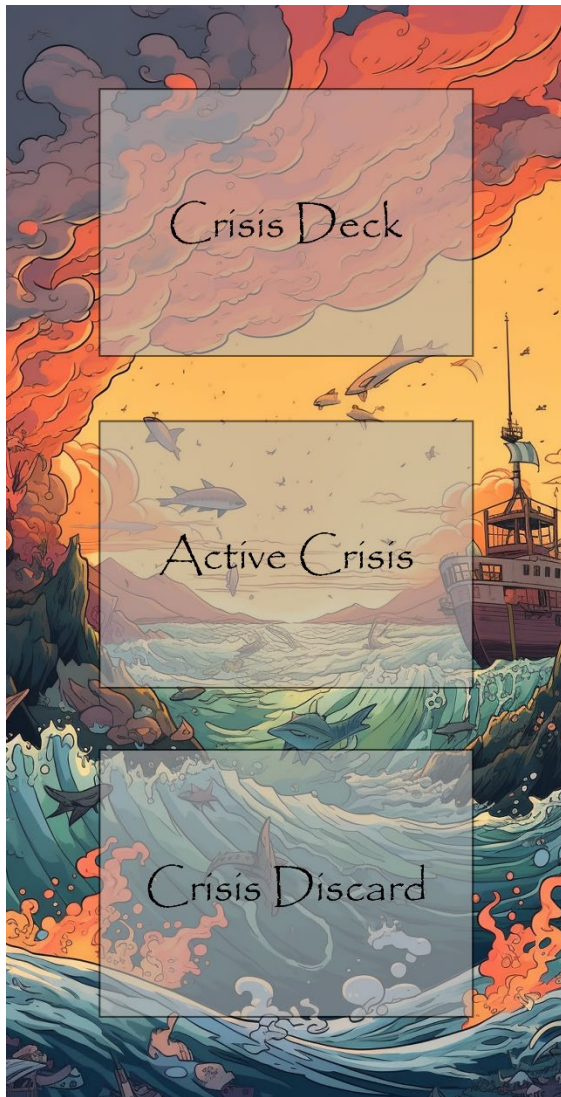
Influence tokens represent social capital and your conservationist's network, relationships, and connections. They are gained through advocating.



Coin tokens represent the legal tender of Maridia, and can be used to complete projects, buy resources, deal with crises, and more.

The Crisis Board

If ocean resources are managed poorly, or if global emissions reach an unsustainable level, disastrous consequences could occur. These threats must be dealt with in a timely fashion, lest they spiral into something worse.



Crisis Discard.

After a crisis threat action or threat effect has been resolved, discard the crisis card by placing it here.

Active Crisis.

Once a crisis occurs, it is drawn from the deck and placed face up in this space. A crisis can occur in two ways:

1. If an ocean zone has three ocean extraction chits, and another would be added, draw and resolve a crisis card.
2. If you place a fossil energy token on a space on the global emissions meter marked "crisis", immediately draw and resolve a crisis.

Crisis Discard.

After a crisis threat action or threat effect has been resolved, discard the crisis card by placing it here.

Resolving a Crisis.

When the game instructs you to resolve a crisis, draw a crisis card from the crisis deck. Follow the text under the immediate effect portion of the card, then place the card in the active crisis space.

While any crisis is face up, you may not remove ocean extraction chits from zones with three chits. During this time, any player may use their **action** to spend the resources listed under the **threat action** portion of the card. If they do, follow the text listed under the **threat action** portion of the crisis card, then discard it.

If the **threat action** is not performed by the time another crisis card would be drawn and resolved, follow the text under the **threat effect** portion of the card, and discard the card. Then, resolve the newly drawn crisis card.

Game Rules

Mission Objective

To win the game, players must finish 9 rounds of play with ocean health scores above 10, and without the global emission meter filling completely.

Gameplay Flow

The game is played over a series of 9 **rounds**, which are each separated into three phases:


1. Council Phase
2. Action Phase
3. Market Phase

Phase 1: Council Phase

In this phase, the people of the nation of Maridia go about their daily lives, running the governments and businesses that define the nation's success. During this phase, the **lead player** (and only the lead player) performs the following steps, in order.


1. **Place or move the round tracker token.** If this is the first round of play, place the tracker token on "round 1". In subsequent rounds of play, move the token up one space on the track. If the token is placed on a space with an envelope "election" icon, flip over a new elected official from the elected official deck, replacing the old one.
2. **Introduce a Council Policy.** Draw two cards from the policy deck. Choose one to place face-up in the *Council Policy* space and shuffle the other back into the policy deck. If the space is not empty, you may choose to replace the current face up card with the new one, or leave the current policy in place. If you replace the policy, remove all support and opposition tokens from the council policy track.
3. **Chancellor Movement.** Place a **support token** on the currently face-up *Chancellor Policy*. If there is no face up policy in the *Chancellor Policy* space, draw cards from the **policy deck** until you find a policy that matches the current chancellor's supported category, placing it face up on the space and shuffling the remaining

deck before placing the **support token**. If this support token would be the policy's third support token, **implement** the policy, rolling the zone dice to choose an empty zone. Then, place one **opposition token** on the council policy, if and only if the type matches that chancellor's opposed policy type. Note that this may not always occur.

4. **Perform Start-of-Round Effects.** Check all implemented policies for "start of round" effects, and apply them. These effects are indicated by this icon: 
5. **Career Income** – All players take one COIN resource from the supply.

Sidebar: Implementing Policies

Often, a policy will have both an **immediate effect**, which provides an instant shift to scores or other change to the game, and an **implemented effect**, which will alter the gameplay in some way permanently as long as the policy is implemented. When the game directs you to *implement a policy*, follow the **immediate effect** text, then, if the card has an **implemented effect**, place it on the game board. Whoever put the last support token on the policy chooses where the policy is placed.

Follow the text of the **implemented effect** for the rest of the game, so long as the policy remains on the game board. As a helpful reminder, policies that have effects that occur during the start of the round will have a  symbol to remind you to perform any start of round effect. If you implement a policy, and there are no open spaces, the new policy *overrides* an existing policy, replacing it.

Phase 2: Action Phase

In this phase, players will take actions and have the opportunity to complete projects. Starting with the lead player, each player will take the following steps, in order. **After one player has performed all steps, the next player in a clockwise order goes, until all players have taken a turn.**

1. Reveal Public Comment. Flip over a public comment card onto the public comment discard, noting the symbol and direction of the arrow. Place the pictured token (support or opposition) on the policy which the arrow points to.

2. Supply Market. Draw a card from the market deck. Place an **ocean extraction chit** in the indicated zone, then take fish, fossil energy, and raw material tokens equal to the numbers shown on the card from the supply, placing them in the market. For each **resource type** that was placed in the market, decrease its **linked score** by 1. (See the linked score sidebar, page 15).

Example: During his turn, Erik draws the market supply card, at right.

Erik takes one ocean extraction chit and places it in ocean zone one, then takes one fish and one fossil energy, placing them in the market.

Erik then lowers the harvested resource's linked scores. Because the card supplied fish, he lowers Biodiversity by 1, but does not lower any other scores. Fossil energy has no linked score, and no raw materials were harvested, meaning its linked score, habitat health, is not lowered.



3. Move. You may move your pawn from your current space to an adjacent one. The capital is considered adjacent to all ocean zones.

4. Take 1 Action. You may take one action from the list of five actions, detailed to the right. Note that some actions are limited to having your conservationist pawn in a certain space on the game board.

PLAYER ACTIONS:

Gather.	Any Ocean Zone
<p>Declare which resource you would like to extract (Fish, Fossil Energy, or Raw Material), and take one of the corresponding resources from the supply. If the type you declared matches one of the icons pictured on the advancement tile of your current zone, you may collect two resources instead of one. If this would</p> <p>After collection, add one ocean extraction chit to your current ocean zone, remembering to decrease the linked score of that resource by 1.</p> <p>If the zone in which you collect resources has advanced (it's advancement tile has been flipped), you may also collect the other pictured resource (Coin or Influence).</p>	
Advocate.	The Capital
<p>Place 1 support or 1 opposition token on a policy of your choosing. You may spend influence to place additional tokens.</p> <p>If you would place the third support token on a policy, you may choose an ocean zone that does not currently have an implemented policy, and implement it in that zone. If you would place the third opposition token, move that card to the bottom of the policy deck.</p> <p>When finished, <u>if you did not spend influence to place additional tokens</u>, collect one influence.</p>	
Exchange.	Any Location
<p>Draw three project cards from the project deck. You may select one, shuffling the other two back into the deck. If you do, discard your current active project, and replace it with the drawn card.</p> <p>You may only have one active project at any given time.</p> <p>Additionally, as part of this action, you may give, take or trade any number of resources with one player whose pawn share your space. You may also swap active projects, if you choose. Both players must agree on the exchange.</p>	
Work.	Any Location
<p>Take one COIN resource from the supply.</p>	

Sidebar: Linked Scores

Two of the game's five resources (Fish, Fossil Energy, and Raw Materials) are linked to one of the three conservation scores, as indicated by the icon to the right of the score track.

Fish are linked to **Biodiversity**. The more we harvest seafood from the ocean through fishing, the less diverse and abundant the oceans become.

Raw Materials are linked to **Habitat Health**. Processes like sand mining and mineral extraction are essential to making concrete for construction and building modern technologies... but damage the foundations on which marine animals build their lives.

Note: **Fossil Energy** has no **linked score**, but it is important to remember that spending fossil energy will add to the Global Emissions Meter. Fossil energy represents oil and gas: fossil fuels extracted from the ocean to power homes, businesses, and infrastructure. The more of these fuels that are collected (and eventually burned), the more emissions are absorbed by the oceans. This can cause drastic changes in ocean chemistry, weather patterns, and overall sea level.

Sidebar: Ocean Extraction Chits

As the pressure builds on the ocean's resources, the less resilient they become. This is represented through **ocean extraction chits**, which build through gameplay.

When the game instructs you to **add an ocean extraction chit** to an ocean zone, take one chit from the supply and place it in one of the empty extraction spaces in the zone. Then, decrease the **linked score** of whichever resource was gained from the action that led to the placement of the chit by the number of chits in the zone.

(Example: Clara performs the **order extraction** action to collect **raw materials** in Ocean Zone 2, which already has one chit in it. After collecting her resources, she places a new chit in Zone 2. Since Zone 2 now has two chits, she decreases the **Habitat Health** score by 2 points.

Sidebar: Fossil and Green Energy.

Usually, when the game instructs you to *spend a resource*, you take that resource's token and return it to the supply.

There is one very important exception to this rule: **Fossil Energy**. Whenever a fossil energy token is spent, do not return it to the supply. Instead, place the token on the next available space on the global emissions meter, from left to right. Note that this could trigger a crisis card to be drawn.

Green energy tokens, on the other hand, can be spent as if they were fossil energy tokens, though they are returned to the supply as normal, instead of being added to the global emissions meter.

Phase 3: Market Phase

If enough resources are available in this phase, society will **advance**, raising the prosperity of the nation. Starting with the lead player, each player will take the following steps, in order. **After one player has performed all steps, the next player in a clockwise order goes, until all players have taken a turn.**

1. **Buy and Sell.** If you have resources to sell, you may move them to the market board, and collect one COIN resource per resource sold. You may also buy resources from the market's available supply: spending 1 COIN per resource, and taking them from the market board.
2. **Complete Project.** If you have the required resources to complete your active project, you may return them to the supply. Follow the reward text on your project card and discard it. Then draw a new project card from the deck, which becomes your new active project.
3. **Advance Society.** Check the resource cost on the back of the top card in the societal advancement deck. If matching resources are available in the market, return those resources to the supply and reveal the card. Follow that card's instructions, then discard it. If, after you resolve the first card, there are still enough resources to complete the newly revealed top card of the deck, return those resources to the supply and resolve the card. Do this as many times as market resources allow. If the required resources are not available for the current card, do not perform this step.

Once all three phases have been completed, pass the lead player token to the next player, in clockwise order. Then, repeat the process.

Sidebar: "Fulfilling" an Advancement Tile Category.

When the game instructs you to "fulfill" a category of an advancement tile, take one of the gold *Advancement Bars* and place it on the corresponding category of the advancement tile.

If, at any point during the game, all three categories of a tile are covered by advancement bars, remove the bars and flip the tile to its other side – that zone is now considered to have **Advanced**.

Taking the gather action in a zone that has advanced will provide an additional resource on top of the gathered materials, pictured on the tile.

Ending the Game

The game ends in **victory** if either the following conditions are met:

- Round 9 Ends with both ocean health scores above 10.
- All eight advancement tiles have been flipped, and both ocean health scores are above 10.

The game ends in a **loss** when one of the following occurs:

- Immediately, when any score reaches zero.
- Immediately, when the global emissions meter is full.
- Round 9 ends and either ocean health score is below 10.

Appendix I. Known Issues and Questions.

- There is still a need to simplify many of the game mechanics and processes. The current game is understandable by those who have experience with more advanced board games, but not necessarily my target audience.
- There is a need to return to also having a 4 zone basic version of the game.
- Ocean extraction chits have the potential to build really quickly.
 - “Ecosystem Services” are still not in the game and could really help with the building too quickly problem.
- “Giving up turns” – there is an issue with times when times arise that there is nothing to do.
- Some players do not like the action and market phase split.
- Playtime runs long. Overall simplification is needed.
- There is a lack of player agency, and working as a team needs some emphasis.
 - **Character powers are necessary.**
- Takes a while for game flow to “click” with many players.
 - Need to make things a little simpler to understand, more intuitive. Rules edits and flowcharts (visual) may help.
- There is confusion about policy cards that have global effects vs just local effects. These card texts need clarification.
- Three playtests now have been stuck in an impossible to win state.
 - Policies may need balance to be more accessible.
- Coin availability is unbalanced.
- Should *buying* and *selling* influence be possible?
- No policies seem really all that bad, nobody voted against them.
- Player feedback has been received that completing a clean energy project card and not getting an IMMEDIATE BENEFIT was not fun.
- Currently, flavor text is missing to help accomplish learning objectives.
- The game board is STILL way too big.
- The game’s player scalability may be unbalanced (drawing market and public comment cards).
- Ocean zones lack uniqueness – even just giving them names could help. Perhaps a mechanical difference, too [each region more abundant in a certain resource?
 - **Zones are not labelled on the printed version of the game.**

Appendix II. Suggested and Possible Changes.

- **Variable player powers are incredibly important. Include these in the base game. Do not save for expansion.**
- Inclusion of a “Sustain Populace” Track that represents the needs of society instead of the advancement tiles. This might simplify things and provide a fixed, ramping difficulty.
- “Free” (no action) interactions with the policy engine?
 - The need for influence drives interaction with the policy engine, at the current moment. I want to drive engagement, not make it feel like a chore or something one has to do just to get influence.
- Player influence over Elections? Can players vote?
- Ecosystem Services inclusion – a way to heal ocean extraction chits and reward early conservation work?
- Move “societal advancement” into the first phase to keep is simple?
- Add an “Environment” phase? This would be where checks for “Ecosystem Services” happen.”
- Move policy cards to be physically near the city?
- There needs to be a dedicated place for resources to be stored.

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8 oceans



Global Emissions



20

20	
19	
18	
17	
16	
15	
14	
13	
12	
11	
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9	
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Biodiversity
Habitat Health

- Round 9
- Round 8
- Round 7
- Round 6
- Round 5
- Round 4
- Round 3
- Round 2
- Round 1
- Round Tracker



Policy Deck

Market
Resources

Market
Supply
Deck

Market
Supply
Discard

Societal
Advancement
Deck

Projects
Deck

Societal
Advancement
Discard

Projects
Discard

Chancellor
Deck

Active
Chancellor

Public
Comment
Deck

Chancellor
Policy

Public
Comment
Discard

Council Policy





Crisis Deck

Active Crisis

Crisis Discard

Societal Advancement
New Restaurant Chain Opens



Place a fulfillment token on the BASIC NEEDS space of 1 zone(s).

Societal Advancement
Community Supported Fishery Box Begins Distribution



Place a fulfillment token on the BASIC NEEDS space of 1 zone(s).

Remove an Ocean Extraction Cube from a zone of the lead player's choosing.

Societal Advancement
Local Seafood Market Opens



Place a fulfillment token on the BASIC NEEDS space of 1 zone(s).

Societal Advancement
Crop Yields Increased Through App Integration



Place a fulfillment token on the BASIC NEEDS space of 2 zone(s).

Societal Advancement
Marine Species Availability at Grocers Expanded



Place a fulfillment token on the BASIC NEEDS space of 2 zone(s).

Remove an Ocean Extraction cube from a zone of the lead player's choosing.

Societal Advancement
Small Fish Caught and Sold for Livestock Feed



Place a fulfillment token on the BASIC NEEDS space of 2 zone(s).

Place an Ocean Extraction cube on a zone of the lead player's choosing.

Societal Advancement
Large Scale Commercial Fishing Operation Begins



Place a fulfillment token on the BASIC NEEDS space of 3 zone(s).

Place an Ocean Extraction cube on a zone of the lead player's choosing.

Societal Advancement
Increase in Imported Goods



Place a fulfillment token on the ECONOMY space of 1 zone(s).

Societal Advancement
Coastal Resorts Open



Place a fulfillment token on the ECONOMY space of 1 zone(s).

Societal Advancement
Specialty Pastry Chain Opens



Place a fulfillment token on the ECONOMY space of 1 zone(s).

Societal Advancement
New Tech Company Begins Business



Place a fulfillment token on the ECONOMY space of 2 zone(s).

Societal Advancement
Coastal Tourism Business Begins Operation



Place a fulfillment token on the ECONOMY space of 2 zone(s).

Societal Advancement
Offshore Drilling Platform Opens



Place a fulfillment token on the
ECONOMY space of 2 zone(s).

Societal Advancement
Cruise Liner Opens



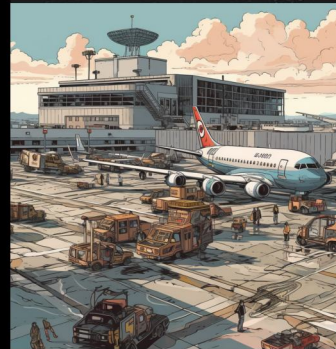
Place a fulfillment token on the
ECONOMY space of 3 zone(s).

Societal Advancement
Hospitals Built



Place a fulfillment token on the
INFRASTRUCTURE space of 1 zone(s).

Societal Advancement
Airport Built



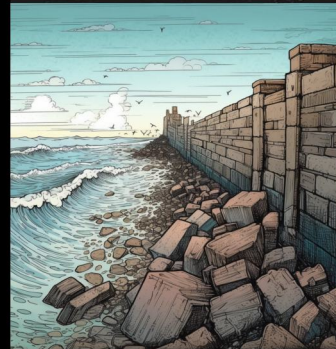
Place a fulfillment token on the
INFRASTRUCTURE space of 1 zone(s).

Societal Advancement
New Power Plant Begins Operation



Place a fulfillment token on the
INFRASTRUCTURE space of 1 zone(s).

Societal Advancement
Seawall Built



Place a fulfillment token on the
INFRASTRUCTURE space of 2 zone(s).

Societal Advancement
New Major Highways Built



Place a fulfillment token on the INFRASTRUCTURE space of 2 zone(s).

Societal Advancement
Bridges Constructed Over Major Rivers



Place a fulfillment token on the INFRASTRUCTURE space of 2 zone(s).

Societal Advancement
Major Power Grid Expansion



Place a fulfillment token on the INFRASTRUCTURE space of 3 zone(s).

Societal Advancement
Subways Repaired and Upgraded



Place a fulfillment token on the BASIC NEEDS and INFRASTRUCTURE space of 1 zone(s).

Societal Advancement
Cold Storage Facilities for Seafood Open



Place a fulfillment token on the BASIC NEEDS and INFRASTRUCTURE space of 1 zone(s).

Societal Advancement
Greenhouse Farms Begin Operation



Place a fulfillment token on the BASIC NEEDS and INFRASTRUCTURE space of 1 zone(s).

Societal Advancement
New Home Properties Developed



Place a fulfillment token on the
INFRASTRUCTURE and ECONOMY space of
1 zone(s).

Societal Advancement
Oil and Gas Pipelines Expanded



Place a fulfillment token on the
INFRASTRUCTURE and ECONOMY space of
1 zone(s).

Societal Advancement
Widen Shipping Canal



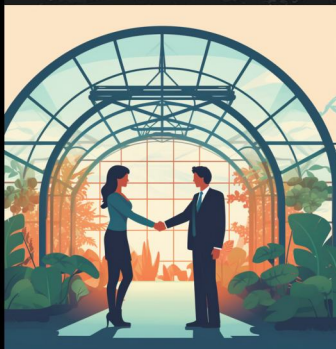
Place a fulfillment token on the
INFRASTRUCTURE and ECONOMY space of
1 zone(s).

Societal Advancement
University Built



Place a fulfillment token on the
ECONOMY and BASIC NEEDS space of 1
zone(s).

Societal Advancement
Industry Led Food Access Nonprofit Opens





Place a fulfillment token on the
ECONOMY and BASIC NEEDS space of 1
zone(s).


Societal Advancement
Farmer's Market Cooperative Opens



Place a fulfillment token on the
ECONOMY and BASIC NEEDS space of 1
zone(s).

Advancement Cost:

 1  0  0



Advancement Cost:

 1  0  0



Advancement Cost:

 2  0  0



Advancement Cost:

 2  1  0



Advancement Cost:

 2  0  2



Advancement Cost:

 2  1  1



Advancement Cost:



Advancement Cost:



Advancement Cost:



Advancement Cost:




Advancement Cost:



Advancement Cost:



Advancement Cost:

 0  2  2



Advancement Cost:

 1  2  2



Advancement Cost:

 0  0  1



Advancement Cost:

 0  1  1



Advancement Cost:

 0  1  1



Advancement Cost:

 0  2  1



Advancement Cost:

 0  2  2



Advancement Cost:

 0  2  2



Advancement Cost:

 0  3  2



Advancement Cost:

 0  1  2



Advancement Cost:

 1  1  1







Advancement Cost:

 1  0  2



Advancement Cost:

 0  1  2




Advancement Cost:

 0  2  1



Advancement Cost:

 0  2  1



Advancement Cost:

 0  1  2



Advancement Cost:

 2  1  0



Advancement Cost:

 1  1  1



Juncardo d'LaRose Chancellor

A commercial fisherman by trade, Juncardo won the election on a platform of job creation for hard-working citizens, and has won popularity by delivering on these promises. He actively denies climate change

Support: Economic
Oppose: Environmental

Fineli Adahil Chancellor

Having grown up in poverty, Fineli shared her stories and struggles to win the heart of the electorate. She deeply desires to see industries booming and jobs for everyone, so that no one has to go hungry, like she did.

Support: Economic
Oppose: Infrastructure

Hilda Argrove Chancellor

Hilda detests government handouts, and firmly believes that everyone can make it in Maridia if they just try hard enough. She would much rather use governmental funds to help the economy grow.

Support: Economic
Oppose: Social

Maxine Magmi Chancellor

Maxine is an idealist, and firmly believes in humanity's progress over all else. Her critics often points out her view of the environment as nothing but an extractable resource, while her supporters point to the numerous ways her projects have made life better in Maridia.

Support: Infrastructure
Oppose: Environmental

G. H. Alder Chancellor

Often criticized for his socialistic views, Geoff H. Alder wants to public transportation, housing, and healthcare freely accessible for all - even if that hurts businesses.

Support: Infrastructure
Oppose: Economic

Lydia Lyssandre Chancellor

Lydia just wants a beautiful world - her critics often point out her support of aesthetically pleasing renovations and initiatives, while ignoring the real issues of homelessness and inequity in Maridia.

Support: Infrastructure
Oppose: Social

Archibald Aquet Chancellor

Perhaps outspoken in his idealism, Archibald is a fierce advocate for the environment. His critics say that his active disregard for businesses will be his downfall as he sets out to regulate their potential environmental harms.

Support: Environmental
Oppose: Economic

Niserie Imrotel Chancellor

Niserie grew up in a small town on the edge of the wilds, and is a fierce advocate of "giving back to nature". While that won her the election, many point out the harms of putting nature over the needs of people.

Support: Environmental
Oppose: Infrastructure

Lusa Aeth Chancellor

Before her political career, Lusa was the director of an aquarium that was renowned for its rescue and rehabilitation programs. She is often criticized for putting "animals over people".

Support: Environmental
Oppose: Social

Cyrine Star Chancellor

Cyrine won on a platform of equality. She actively points out the financial inequities in the country - and wants to do everything she can to even out the distribution of wealth.

Support: Social
Oppose: Economic

Thamas Cyne Chancellor

Thamas beleives in the power of people and of community. He accomplishes his goals most often by directing resources towards local governments and initiatives, while halting or delaying federal projects.

Support: Social
Oppose: Infrastructure

Giovanni Viridian Chancellor

Giovanni is an enigmatic man who does not often speak of his life prior to his political career. He dislikes government regulations, though the federal spending he does support often goes to supporting local community well-being.

Support: Social
Oppose: Environmental



Chancellors

Biodiversity Crisis
Invasive Species Outbreak

A new, non-native marine species has arrived, outcompeting the local species.

Immediate Effect: Decrease HABITAT HEALTH score by 2

Threat Action: Eat the Invasive
#PLAYERS Money or #PLAYERS Influence. Increase HABITAT HEALTH by 1. All players may collect one fish resource.
Discard this card.

Threat Effect: Decrease HABITAT HEALTH by 2.

Biodiversity Crisis
Fishery Stock Crash

Where there once were fish, now there are none.

Immediate Effect: Decrease SUSTENANCE score by 2.

Threat Action: Amend Management
#PLAYERS Money or #PLAYERS Influence. Increase SUSTENANCE by 1. Discard this card.

Threat Effect: Place this card face up in an empty ocean zone. Performing the GATHER (FISH) action in this zone yields only 1 fish for the rest of the game.

Biodiversity Crisis
Rise in Illegal Animal Smuggling

The rarer marine animals have become, the more people are willing to pay to have them in home aquariums.

Immediate Effect: Decrease ECONOMY score by 2.

Threat Action: Increase Enforcement
#PLAYERS Money or #PLAYERS Influence. Increase ECONOMY score by 1. Discard this card.

Threat Effect: Decrease BIODIVERSITY and CLIMATE RESILIENCE by 2.

Biodiversity Crisis
Photosynthetic Dissappearance

The phytoplankton, kelp, seagrasses, and photosynthetic parts of the sea are vanishing.

Immediate Effect: Decrease CLIMATE RESILIENCE by 2.

Threat Action: Restoration Plan
#PLAYERS Money or #PLAYERS Influence. Increase CLIMATE RESILIENCE by 1. Discard this card.

Threat Effect: Decrease HABITAT HEALTH by 2.

Biodiversity Crisis
Rancid Seas

Crashes in key filtering species threatens to knock the ecosystem out of balance.

Immediate Effect: Decrease SUSTENANCE and ECONOMY scores by 2.

Threat Action: Restoration Plan
#PLAYERS Money or #PLAYERS Influence. Increase SUSTENANCE and ECONOMY scores by 1. Discard this card.

Threat Effect: Decrease CLIMATE RESILIENCE and HABITAT HEALTH scores by 2.

Climate Crisis
Red Tide

A bloom of harmful algae has deprived fish of oxygen and made the beaches unsafe for humans.

Immediate Effect: Decrease BIODIVERSITY and ECONOMY scores by 2.

Threat Action: Water Quality Monitoring
#PLAYERS Money or #PLAYERS Influence. Increase ECONOMY score by 1. Discard this card.

Threat Effect: Decrease SUSTENANCE score by 2.

Climate Crisis
Extreme Weather

Heavy rains and winds are becoming more commonplace, causing destruction to power lines and substations.

Immediate Effect: Decrease POWER score by 2.

Threat Action: Restore the Grid
#PLAYERS Energy or #PLAYERS Money. Increase POWER score by 1. Discard this card.

Threat Effect: Decrease POWER score by 2.

Climate Crisis
Disease Outbreak

The warming temperature of the oceans has caused a new pathogen to proliferate - and its hit our food supply.

Immediate Effect: All players must discard one fish resource.

Threat Action: Research Cause
#PLAYERS Money or #PLAYERS Influence. None. Discard this card.

Threat Effect: Decrease BIODIVERSITY by 2.

Climate Crisis
Acid Oceans

The oceans absorb a LOT of the carbon we put into the atmosphere... but at a cost.

Immediate Effect: Decrease HABITAT HEALTH score by 2.

Threat Action: Restore Habitats
#PLAYERS Raw Material or #PLAYERS Money. Increase HABITAT HEALTH by 1. Discard this card.

Threat Effect: Decrease BIODIVERSITY by 2.

Ecosystem Crisis
Ecosystem Imbalance

Something's happened to a key predator, causing an explosion in another species that's decimated the ecosystem's functioning.

Immediate Effect: Decrease CLIMATE RESILIENCE by 2.

Threat Action: Strategic Cull
#PLAYERS Money or #PLAYERS Influence. Increase CLIMATE RESILIENCE by 1. Discard this card.

Threat Effect: Decrease BIODIVERSITY by 2.

Ecosystem Crisis
Plastic Stranglehold

Plastic may be convenient to humans, but most wildlife doesn't feel the same.

Immediate Effect: Decrease BIODIVERSITY score by 2.

Threat Action: Removal
#PLAYERS Money or #PLAYERS Influence. Increase BIODIVERSITY by 1. Discard this card.

Threat Effect: Decrease HABITAT HEALTH by 2

Ecosystem Crisis
Unsafe Waters

Pollution and runoff has contaminated the local waters to a disgusting degree. If something isn't done soon, the rivers and beaches will be unsafe for everyone.

Immediate Effect: Decrease ECONOMY score by 2.

Threat Action: Improve Infrastructure
#PLAYERS Money or #PLAYERS Influence. Increase ECONOMY score by 1. Discard this card.

Threat Effect: Decrease ECONOMY and SUSTENANCE Scores by 2.

Event
Power Outage

Immediate Effect:

Threat Action:
· Discard this card.

Threat Effect:



Market Supply

Resources to Market:

 1  1  0



Market Supply

Resources to Market:

 1  0  1



Market Supply

Resources to Market:

 0  1  1



Market Supply

Resources to Market:

 1  1  1



Market Supply

Resources to Market:

 1  1  0



Market Supply

Resources to Market:

 1  0  1



Market Supply

Resources to Market:

 0  1  1



Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

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Market Supply

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Market Supply

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Market Supply

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Market Supply

Resources to Market:

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Market Supply

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Market Supply

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Market Supply

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Market Supply

Resources to Market:

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Market Supply

Resources to Market:

 1  1  1



Market Supply

Resources to Market:

 1  1  0



Market Supply

Resources to Market:

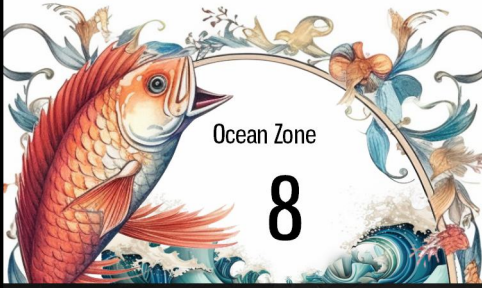
 1  0  1



Market Supply

Resources to Market:

 0  1  1



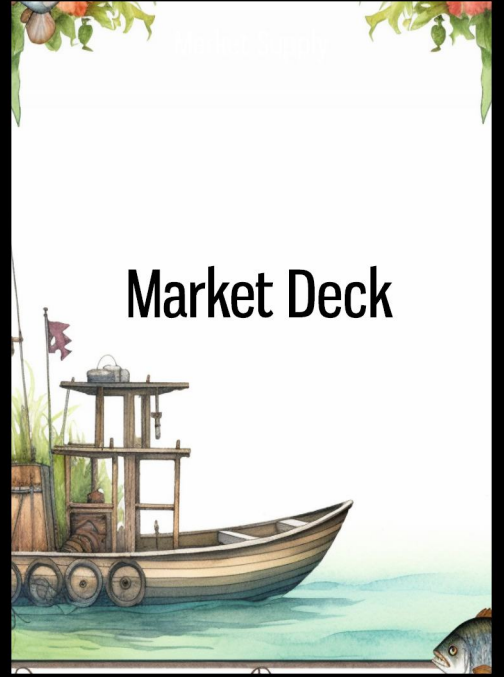
Market Supply

Resources to Market:


 1  1  1



Market Deck



Project




Open a Shellfish Aquafarm

	Fish: 0	Influence: 0
Cost:	Energy: 1	Money: 2
	Raw Materials: 1	

Increase the BIODIVERSITY score by 3.

Project




Create a Business Pledge to Adopt Sustainable Fishing Practices

	Fish: 0	Influence: 1
Cost:	Energy: 1	Money: 1
	Raw Materials: 0	

Increase the BIODIVERSITY score by 3.

Project




Start a Coral Nursery

	Fish: 0	Influence: 0
Cost:	Energy: 1	Money: 1
	Raw Materials: 1	

Increase the BIODIVERSITY score by 2.

Project




Sponsor Beach Ecosystem Restoration

	Fish: 0	Influence: 1
Cost:	Energy: 0	Money: 3
	Raw Materials: 1	

Increase the BIODIVERSITY score by 5.

Project



Sponsor a Hunting Derby for Invasives

	Fish: 0	Influence: 1
Cost:	Energy: 1	Money: 1
	Raw Materials: 0	

Increase the BIODIVERSITY score by 2.

Project




Invest in Zero-Emissions Airplanes

	Fish: 0	Influence: 1
Cost:	Energy: 0	Money: 1
	Raw Materials: 1	

Remove 3 tokens from the Global Emissions Meter.

Project




Create Carbon Capture Facilities

Fish: 0 Influence: 1
Cost: Energy: 0 Money: 1
 Raw Materials: 1

Remove 2 tokens from the Global Emissions Meter.

Project




Restore Wetland Ecosystems

Fish: 2 Influence: 0
Cost: Energy: 0 Money: 1
 Raw Materials: 1

Remove 3 tokens from the Global Emissions Meter.

Project




Restore Kelp Ecosystems

Fish: 1 Influence: 1
Cost: Energy: 1 Money: 1
 Raw Materials: 0

Remove 2 tokens from the Global Emissions Meter.

Project




Restore Seagrass Ecosystems

Fish: 0 Influence: 0
Cost: Energy: 1 Money: 2
 Raw Materials: 1

Remove 5 tokens from the Global Emissions Meter.

Project



Business Pledge to Reduce Pollution

Fish: 0 Influence: 2
Cost: Energy: 0 Money: 1
 Raw Materials: 0

Increase the HABITAT HEALTH score by 2.

Project




Innovate New Waste Treatment Technology

Fish: 0 Influence: 1
Cost: Energy: 0 Money: 2
 Raw Materials: 1

Increase the HABITAT HEALTH score by 2.

Project




Innovate a Biodegradable Plastic From Fish Waste

	Fish: 1	Influence: 1
Cost:	Energy: 0	Money: 2
	Raw Materials: 0	

Increase the HABITAT HEALTH score by 3.

Project




Open A Restorative Farm

	Fish: 1	Influence: 0
Cost:	Energy: 1	Money: 2
	Raw Materials: 0	

Increase the HABITAT HEALTH score by 3.

Project




Implement Manufacturing Practices Using Less Plastic

	Fish: 1	Influence: 1
Cost:	Energy: 2	Money: 1
	Raw Materials: 0	

Increase the HABITAT HEALTH score by 5.

Project



Open a Food Pantry

	Fish: 1	Influence: 0
Cost:	Energy: 1	Money: 1
	Raw Materials: 1	

Place a fulfillment token on the BASIC NEEDS space of 1 zone(s).

Project




Sponsor a Food Distribution

	Fish: 1	Influence: 0
Cost:	Energy: 1	Money: 1
	Raw Materials: 0	

Place a fulfillment token on the BASIC NEEDS space of 2 zone(s).

Project



Open A Ferry Operation

	Fish: 0	Influence: 0
Cost:	Energy: 1	Money: 1
	Raw Materials: 1	

Place a fulfillment token on the INFRASTRUCTURE space of 1 zone(s).

Project




Construct Light Rail Public Transit

Fish: 0 Influence: 0
Cost: Energy: 1 Money: 1
 Raw Materials: 2

Place a fulfillment token on the **INFRASTRUCTURE** space of 2 zone(s).

Project




Invest in Advanced Manufacturing Plants

Fish: 0 Influence: 0
Cost: Energy: 1 Money: 3
 Raw Materials: 0

Place a fulfillment token on the **ECONOMY** space of 2 zone(s).

Project



Open an Aquarium

Fish: 1 Influence: 0
Cost: Energy: 1 Money: 1
 Raw Materials: 1

Place a fulfillment token on the **ECONOMY** space of 1 zone(s).

Project




Tap into Geothermal Energy

Fish: 0 Influence: 1
Cost: Energy: 1 Money: 1
 Raw Materials: 1

Place this card in front of you. At the start of every round, collect 1 **CLEAN ENERGY** token from the supply. Treat this token as identical to a **FOSSIL ENERGY** token.

Project




Open a Nuclear Energy Plant

Fish: 0 Influence: 1
Cost: Energy: 1 Money: 2
 Raw Materials: 2

Place this card in front of you. At the start of every round, collect 1 **CLEAN ENERGY** token from the supply. Treat this token as identical to a **FOSSIL ENERGY** token.

Project



Install a Hydroelectric Dam

Fish: 0 Influence: 0
Cost: Energy: 1 Money: 1
 Raw Materials: 1

Place this card in front of you. At the start of every round, collect 1 **CLEAN ENERGY** token from the supply. Treat this token as identical to a **FOSSIL ENERGY** token.

Project

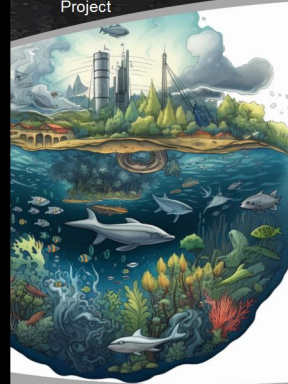


Create a Solar Farm

Fish: 0	Influence: 0
Cost: Energy: 1	Money: 1
Raw Materials: 1	

Place this card in front of you. At the start of every round, collect 1 CLEAN ENERGY token from the supply. Treat this token as identical to a FOSSIL ENERGY token.

Project



Donate to an Environmental Organization

Fish: 0	Influence: 1
Cost: Energy: 0	Money: 1
Raw Materials: 0	

Remove one ocean extraction cube from your current zone.

Project



Choose Environmentally Friendly Travel

Fish: 0	Influence: 1
Cost: Energy: 0	Money: 1
Raw Materials: 0	

Remove one ocean extraction cube from your current zone.

Project



Sponsor a Beach Cleanup

Fish: 0	Influence: 1
Cost: Energy: 0	Money: 1
Raw Materials: 0	

Remove one ocean extraction cube from your current zone.

Project



Reduce Plastics Bought and Used

Fish: 0	Influence: 1
Cost: Energy: 0	Money: 1
Raw Materials: 0	

Remove one ocean extraction cube from your current zone.

Project



Reduce Water Consumption

Fish: 0	Influence: 1
Cost: Energy: 0	Money: 1
Raw Materials: 0	

Remove one ocean extraction cube from your current zone.





Construct a Desalination Plant



Policy:
Economic

Desalination of salty seawater can provide fresh drinking water and even food-grade salt - but could damage local habitats and species.

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS section of this zone.

Implemented Effect: At the start of every round, decrease BIODIVERSITY by 1.



Approve Widespread Coastal Development

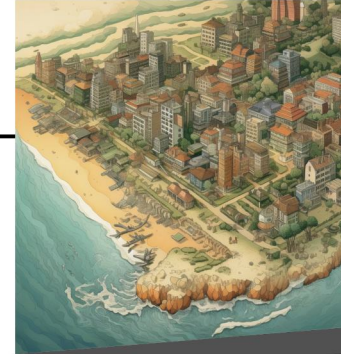


Policy:
Economic

Opening up shops, hotels, and more on the coast will bring tourists from all over to visit, bolstering the economy but creating pressure on local ecosystems.

Immediate Effect: Add a Fulfillment token to the ECONOMY section of this zone.

Implemented Effect: At the start of every round, decrease HABITAT HEALTH by 1.



Build New Port Infrastructure

Policy:
Economic

Shoreline facilities are critical to sustainable ocean businesses, but nearby seagrasses, corals, and kelps may suffer.

Immediate Effect: Add a Fulfillment token to the INFRASTRUCTURE and ECONOMY sections of this zone.

Implemented Effect: While in this zone, you may spend an action to trade any number of your resources for any number of other resources. If you do, add one ENERGY token from the supply to the emissions meter.



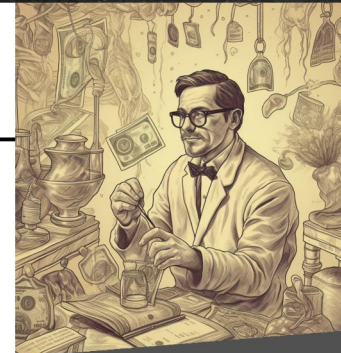
Research and Development Grants

Policy:
Economic

Government funding can help fund innovative new projects and technologies, but what future will these new projects create?

Immediate Effect: Add a Fulfillment token to the ECONOMY section of two zones of your choice.

Implemented Effect: Action: Draw three cards from the top of the project deck, and put them back in any order.



Enforce a Tariff on Imported Seafood



Policy:
Economic

Tariffs help encourage the domestic food economy, but taxing seafood from other nations could lead to food shortages.

Immediate Effect: Add a Fulfillment token to the ECONOMY section of two zones of your choice.

Implemented Effect: At the start of every round, remove one fish token from the marketplace, if possible.



Fund Marine Biotechnology



Policy:
Economic

The sea has endless potential to inspire technology and provide new medicines, but can the ocean take additional strain?

Immediate Effect: Add a Fulfillment token to the ECONOMY section of a zone of your choice. Decrease BIODIVERSITY by 1.

Implemented Effect: At the start of every round, roll the zone dice. If the result matches the zone this policy is enacted in, add a fulfillment token to the BASIC NEEDS of one zone of your choice.





Lease Offshore Oil Drilling Areas

Policy:
Economic

Providing energy to heat and cool homes could be as easy as drill, baby, drill.

Immediate Effect: Decrease HABITAT HEALTH by 2. Every player collects one fossil energy.

Implemented Effect: Performing the GATHER (ENERGY) action in this zone, always collect three energy resources. If you do, decrease HABITAT HEALTH by 1.



Tax Incentives for Small Businesses



Policy:
Economic

Access to government capital can really help innovative projects get off the ground, but will it take government funding away from other critical projects?

Immediate Effect: Add a Fulfillment token to the ECONOMY section of this Zone.

Implemented Effect: At the start of every round, if an INFRASTRUCTURE policy is face up, add one opposition token to it's track.



Approve Deep Sea Mining



Policy:
Economic

A plethora of rare metals exists fathoms below the surface and mining them could help both businesses and people. However, the true costs are poorly understood.

Immediate Effect: Add a Fulfillment Token to the ECONOMY section of three zones of your choice. Decrease both ocean health scores by 2.

Implemented Effect: At the start of every round, place two raw materials in the market, and decrease both ocean health Scores by 1.



Permit Widespread Dredging and Sand Mining



Policy:
Economic

I do like sand. It's course and rough, and useful for building so many things.

Immediate Effect: Decrease HABITAT HEALTH by 2. All players collect 1 raw material resource.

Implemented Effect: At the start of every round, add one RAW MATERIAL resource to the market.



Install a Network of Marine Protected Areas



Policy:
Environmental

One MPA is great and all, but have you tried 124?

Immediate Effect: Remove a Fulfillment token from the BASIC NEEDS section of a zone of your choice.

Implemented Effect: At the start of every round, remove one Ocean Extraction Token from this zone. Place an opposition token on the Extraction Track of this zone - the GATHER action can no longer be performed in this zone.



Restrict Ship Speed Along Migratory Species Routes

Policy:
Environmental

Restricting vessel speeds can help reduce collisions with wild, migrating animals like whales, but the speed at which goods and services are shipped may suffer.

Immediate Effect: Increase both BIODIVERSITY and HABITAT HEALTH by 2.

Implemented Effect: No player may take the EXCHANGE action while in this zone.





Spray Climate Controlling Aerosols



Policy:
Environmental

Geoengineering has some incredible potential to fight the climate catastrophe, but many questions about its safety, sustainability, and politics remain.

Immediate Effect: Remove 8 energy tokens from the Global Emissions Meter.

Implemented Effect: If you would draw a CLIMATE CRISIS card from the crisis deck, discard it instead of following its text. At the start of every round, the first player must spend one money resource. If they cannot, discard this card. If this card is ever discarded from being enacted, add 8 energy tokens to the Global Emissions Track.



Utilize Cap and Trade to Limit Emissions

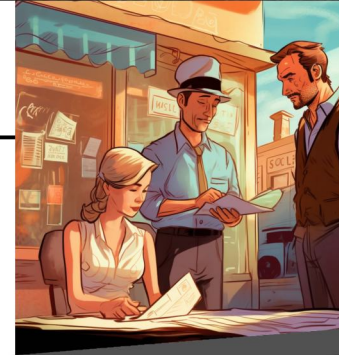


Policy:
Environmental

Buy your way to emitting today.

Immediate Effect: Remove 2 energy tokens from the Global Emissions Meter.

Implemented Effect: At the start of every round, remove one fossil energy token from the marketplace, if possible.



Mandate a Transition to Electric Cars



Policy:
Environmental

Transportation is one of the biggest sectors of greenhouse emissions. Electric cars offer zero-emission options, though charging station infrastructure is a big consideration.

Immediate Effect: Remove a Fulfillment token from the INFRASTRUCTURE section of a zone of your choice, if possible.

Implemented Effect: At the start of every round, remove one energy token from the global emissions meter.



List an Endemic Species as Endangered

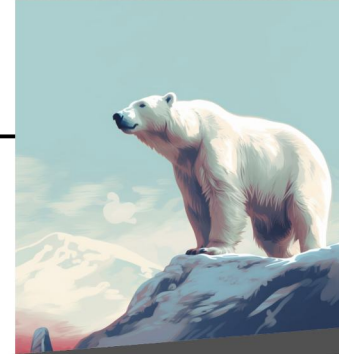


Policy:
Environmental

Listing a species not only protects the species itself, but its critical habitat, as well.

Immediate Effect: Remove a Fulfillment token from the ECONOMY section of a zone of your choice.

Implemented Effect: At the start of every round, increase BIODIVERSITY score by 1.



Pass a Clean Water Law



Policy:
Environmental

Okay, but what does navigable even mean?

Immediate Effect: Remove a Fulfillment token from the ECONOMY section of a zone of your choice.

Implemented Effect: At the start of every round, increase HABITAT HEALTH by 1.



Pass Plastics Reduction Policy

Policy:
Environmental

Reducing single use plastics helps stop the flow of these hazardous materials into the ocean, but may leave businesses scrambling for alternatives.

Immediate Effect: Increase HABITAT HEALTH by 4.

Implemented Effect: When checking to see if you advance society, treat the number next to the RAW MATERIAL symbol as if it was one higher.





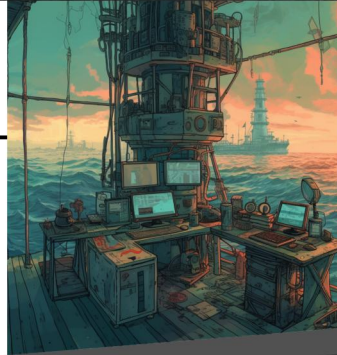
Establish Consistent Ocean Monitoring

Policy:
Environmental

It's not glamorous work, but the knowledge of ocean patterns and trends is invaluable.

Immediate Effect: None.

Implemented Effect: If this zone is at three ocean extraction cubes, and a draw from the MARKET SUPPLY DECK would add another, you may choose to discard the drawn card, optionally drawing another. You may only do this once per round.



Buy Out Damaging Fishing Gear

Policy:
Environmental

As more sustainable fishing gear is innovated, the old must be cycled out - and there must be incentive to do so.

Immediate Effect: Remove 2 fish resources from the market. If this removal is not possible, remove as many fish resources as you can.

Implemented Effect: The first time any player performs the GATHER (FISH) action in this zone in a round, do not add an ocean extraction cube.



Require Environmental Impact Statements

Policy:
Environmental

NEPA, NEPA, NEPA.

Immediate Effect: Decrease INFRASTRUCTURE score by 3.

Implemented Effect: If any policy card would be installed and decrease a CONSERVATION TRACK score, reduce the amount decreased by 1.



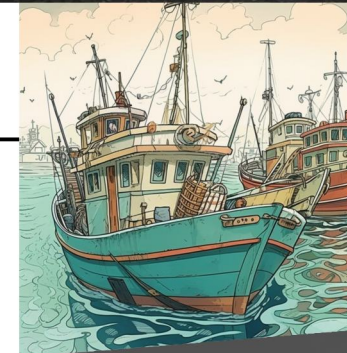
Establish a System of Tradable Fishing Quotas

Policy:
Environmental

Even though the overall take of seafood may be limited, tradable quotas could be a solution that offers fishermen more control over their business.

Immediate Effect: Remove 1 fish resource from the market. If no removal is possible, remove a fulfillment token from the BASIC NEEDS section of a zone of your choice.

Implemented Effect: When performing the GATHER (FISH) action in this zone, do not roll the dice. Instead, collect 1 fish resource but do not place an extraction cube.



Invest in New Highways



Policy:
Infrastructure

Clearing existing traffic jams and providing new routes between cities takes a lot of concrete.

Immediate Effect: Add a Fulfillment token to the INFRASTRUCTURE section of this zone.

Implemented Effect: At the start of the round, decrease HABITAT HEALTH by 1.



Invest in City-wide Stormwater Capture

Policy:
Infrastructure

Creating new ways to capture rainfall helps provide water to a thirsty populace.

Immediate Effect: Add a Fulfillment token to the INFRASTRUCTURE section of this zone.

Implemented Effect: None (Discard this card and do not install it into an ocean zone.)





Improve Public Transit in Major Cities

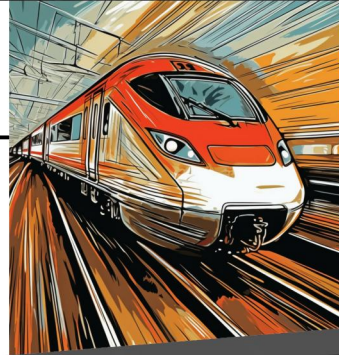


Policy: Infrastructure

It may not be a magic school bus, but it'll get you where you need to go.

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS and INFRASTRUCTURE section of this zone. Decrease HABITAT HEALTH by 1.

Implemented Effect: At the start of every round, remove one energy token from the global emissions meter.



Lease an Offshore Wind Farm

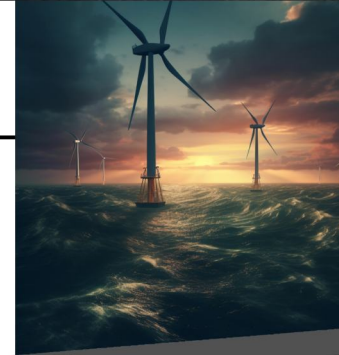


Policy: Infrastructure

With proper zoning and planning, an offshore wind farm can generate clean energy for millions of homes.

Immediate Effect: Decrease BIODIVERSITY score by 2.

Implemented Effect: At the start of the round, place a green energy token on this card. As an action, a player may take all green energy tokens on this card without adding an ocean extraction cube.



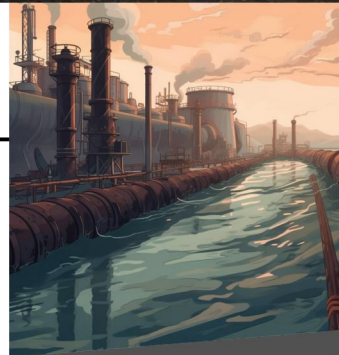
Allow Construction of Marine Oil Pipeline

Policy: Infrastructure

Though it comes with significant environmental cost, people all across the nation want access to power.

Immediate Effect: Increase INFRASTRUCTURE by 1. Decrease HABITAT HEALTH by 2.

Implemented Effect: Players may freely trade ENERGY resources between each other at any time.



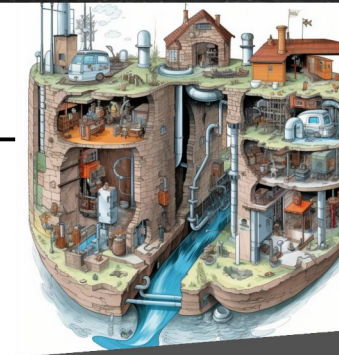
Improve Sewage Systems

Policy: Infrastructure

All that waste has gotta go somewhere, better if its not directly onto swimmable beaches.

Immediate Effect: Add a Fulfillment token to the INFRASTRUCTURE section of this zone. Add an energy token from the supply to the global emissions meter.

Implemented Effect: None. (Discard this card and do not install it into an ocean zone.)



Urban Renewal Project



Policy: Infrastructure

Freshening up a city and its facilities helps provide for the residents.

Immediate Effect: Add a Fulfillment token to the INFRASTRUCTURE section of this zone. Add an energy token from the supply to the global emissions meter.

Implemented Effect: At the start of every round, add one ENERGY resource to the market.



High-Speed Internet Expansion

Policy: Infrastructure

These days, internet is a necessity to life. Expanding it means fair and equitable access for all.

Immediate Effect: Add a Fulfillment token to the INFRASTRUCTURE section of this zone. Decrease BIODIVERSITY and HABITAT HEALTH by 1.

Implemented Effect: Action: Perform the ADVOCATE action from this zone.





Expand Energy Grid

Policy: Infrastructure

Access to energy is absolutely essential for a thriving society, but will increase the demand for fossil fuels.

Immediate Effect: Add a Fulfillment Token to the INFRASTRUCTURE section of this zone.
Decrease CLIMATE RESILIENCE by 2.

Implemented Effect: When checking to see if you advance society, treat the number next to the ENERGY symbol as if it was one less.



Establish a Fishery Management Plan for a New Species

Policy: Social

Allowing a new species to be caught under regulation brings new and more diverse food options to the table, and takes some pressure off of existing stocks.

Immediate Effect: None.

Implemented Effect: When Checking to see if you advance society, treat the number next to the FISH symbol as if it was one less.



Join the Coastal Zone Management Act



Policy: Social

Though it may come with some short term costs, joining a federal program for coastal resources can give local governments more management resources and options.

Immediate Effect: Remove a fulfillment token from the ECONOMY section of this zone.

Implemented Effect: At the start of the round, remove 1 ocean extraction cube from this zone.



Pass the Oil Pollution Act

Policy: Social

Oil spills are a matter of if, not when. So it's best to be prepared.

Immediate Effect: None.

Implemented Effect: If an "Oil Spill" CRISIS CARD would be drawn, reduce HABITAT HEALTH by 2, then discard the card without following its effects.



Improve Access to Fishing Licenses

Policy: Social

Fishing is an age old pastime, and making bureaucracy easier means more people out enjoying nature.

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS section of this zone.
Decrease BIODIVERSITY by 1.

Implemented Effect: Performing the GATHER (FISH) action in this zone always yields 2 fish resource.



Permit Offshore Seaweed and Shellfish Aquaculture

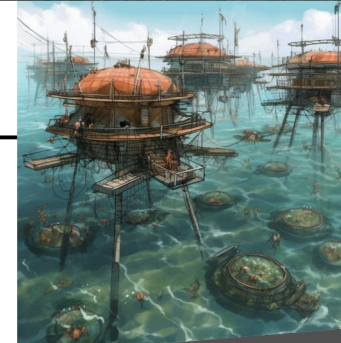


Policy: Social

"Kelp is cool!" - KMC

Immediate Effect: Increase BASIC NEEDS and CLIMATE RESILIENCE scores by 1. Decrease BIODIVERSITY by 1.

Implemented Effect: At the start of every round, add one FISH resource to the market.





Legalize Blast and Cyanide Fishing



Policy: Social

This fishing yields large catch and easy collection yet is extremely damaging to the surrounding environment.

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS of three zones. Decrease HABITAT HEALTH by 4.

Implemented Effect: At the start of every round, add two FISH resources to the market, but reduce both BIODIVERSITY and HABITAT HEALTH by 1.



Permit Offshore Finfish Aquaculture



Policy: Social

Clearing the red tape for aquaculture projects means scalability - more sustainable food, faster. But problems with fish feed and disease raise red flags for some opponents.

Immediate Effect: Increase BASIC NEEDS and ECONOMY scores by 3. Decrease BIODIVERSITY by 4.

Implemented Effect: At the start of every round, place one FISH resource on this card. As an action, a player in this zone may take all FISH RESOURCES on this card without placing an ocean extraction token.



Education Subsidies



Policy: Social

Education is an absolute cornerstone of a successful society, but someone's gotta pay for it.

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS section of this zone, and remove a fulfillment token from the ECONOMY section of this zone.

Implemented Effect: At the start of every round, the lead player may collect one influence resource.



Equal Pay Legislation

Policy: Social

*It's about **** time.*

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS section of this zone.

Implemented Effect: None, but you helped solve the pay gap. That feels great! (Discard this card)



Affordable Housing Initiative



Policy: Social

A roof over your head is a basic human right.

Immediate Effect: Add a Fulfillment token to the BASIC NEEDS section of this zone.

Implemented Effect: At the start of every round, increase BASIC NEEDS by 1.



Policy Cards



