OFFSHORE SITUATION ROOM PLAYER INSTRUCTIONS

This document includes the player instructions developed for each of the four games used in Offshore Situation Room:

- Prevention and Preparedness Game
- Response Game
- Impacts, Recovery, and Restoration Game
- Needs and Planning Game

Players received copies of the relevant player instructions as a read-ahead prior to the event.

PREVENTION AND PREPAREDNESS PLAYER INSTRUCTIONS

OVERVIEW

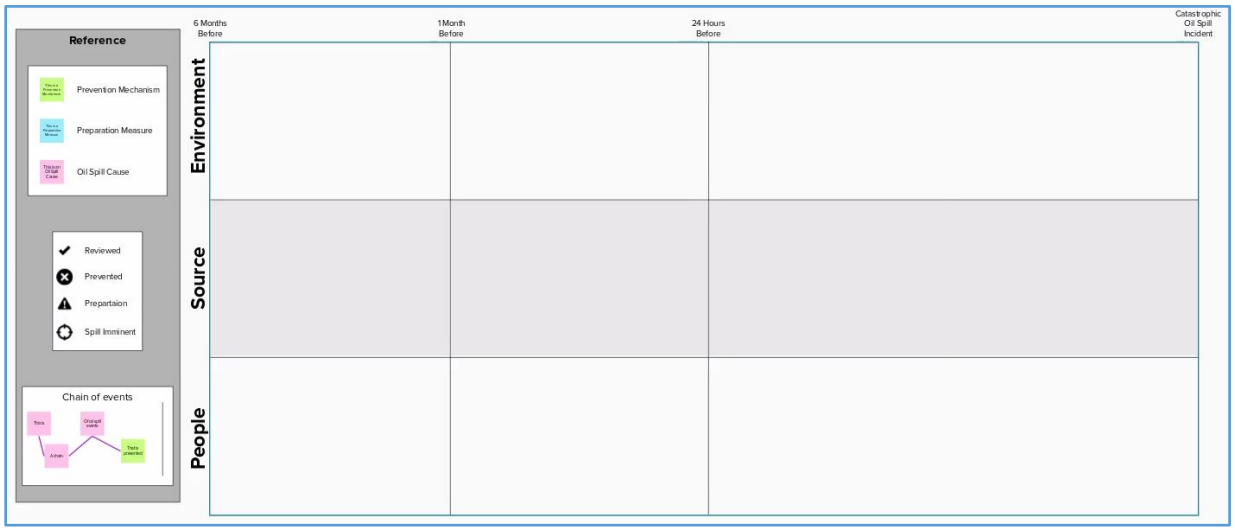
In OFFSHORE SITUATION ROOM: PREVENTION AND PREPAREDNESS, you and your fellow participants will look toward potential future offshore oil disasters in the Gulf of Mexico, identifying what might cause them along with what we can do to prevent and prepare for them. By playing this game, you will develop a set of collective, forward-looking scenarios to enable planning for what might happen in the future.

The game involves two teams:

- **OIL SPILL TEAM:** This team represents the forces of nature, chance, accident, and deliberate acts that can lead to a catastrophic offshore oil disaster in the Gulf of Mexico. Your job is to brainstorm single events and chains of events that will directly lead to such a catastrophe. Success for your team lies in identifying as many vulnerabilities in the oil drilling, production, and transportation process as you can—so that we understand the risk landscape and so the **PREVENTION/ PREPAREDNESS TEAM** can work to mitigate those vulnerabilities.
- **PREVENTION/PREPAREDNESS TEAM:** This team represents the forces of diligence, thoughtfulness, and deliberate planning that prevents or limits the impact of an offshore oil disaster in the Gulf of Mexico. Your job is to identify the things that we can do today to keep oil drilling, production, and transportation safe. Success for your team lies in identifying how vulnerabilities identified by the **OIL SPILL TEAM** will not lead to a spill, or how the effects from an incident can be effectively mitigated.

OFFSHORE SITUATION ROOM: PREVENTION AND PREPAREDNESS is a semi-cooperative game. Although the two teams are actively trying to counter/contradict each other's additions to the game board (i.e., a virtual whiteboard), there is only a single combined score for both teams. The score combines Oil Spill Points, Prevention Points, and Preparedness Points—players all win when they maximize all three numbers. The higher the point totals, the more things the players identified that might go wrong, the more they thought about what we can do today to fix it, and the more they thought about what we can do today to prepare for and mitigate negative consequences. A lopsided balance of Oil Spill Points is great news for the GRP, because it provides a large list of things that can be improved to make the Gulf safer *today*.

SETUP



The game will be run on "MURAL," which provides a collaborative virtual whiteboard in which all players can work together to develop the network of oil spill events, prevention mechanisms, and preparation measures that will help make the Gulf environment safer and healthier. They do this by adding virtual sticky notes to the **workspace** shown above and connecting them to create chains of events.

In addition to the three reference boxes on the left side, the game board is divided into three rows, with a horizontal timeline across the top indicating different timeframes prior to the occurrence of a catastrophic offshore oil disaster. The far right of the timeline—labelled "Catastrophic Offshore Oil Disaster"—denotes the moment a catastrophic oil disaster occurs. At this point, spilled oil begins entering the waters of the Gulf of Mexico. Moving left, additional vertical lines denote "24 Hours Before," "1 Month Before," and "6 Months Before" the catastrophic offshore oil disaster. Note that these lines are not evenly spaced. We expect that many contributing events will happen just prior to the catastrophe—and we provide ample room to capture these events.

In addition to determining the timeframe when a contributing event to the oil spill may occur, players will need to determine to which domain (i.e., row) their offshore oil spill events, prevention mechanisms, and preparedness measures pertain. The board is divided into three domains:

- The **Environment**—i.e., the land, water, air, or seabed that can affect and be affected by the incident;

- The **Source**—i.e., the infrastructure, equipment, and physical items involved with the spilled oil event; and
- The **People**—i.e., the humans who live and work in the vicinity, including their knowledge, skills, and experience.

Players will all receive a short tutorial on the MURAL interface during the game; those interested in exploring this platform ahead of time can sign up for a free account at www.mural.co. **Note: you do not need to sign up for an account to participate in this event!** For the game, you will log into OFFSHORE SITUATION ROOM: PREVENTION AND PREPAREDNESS simply by clicking a provided link (see Information on Using Mural Platform).

HOW TO PLAY

OFFSHORE SITUATION ROOM: PREVENTION AND PREPAREDNESS has fairly straightforward steps:

(1) Write your ideas (e.g., an event, mechanism, or measure) on virtual sticky notes;

(2) Place the notes on the timeline at the appropriate timeframe in the appropriate row;

(3) Connect your note to any other events, mechanisms, or measures that it affects or that affect it; and

(4) Repeat steps 1–3.

The game facilitator will walk both teams through adding the first few sticky notes (i.e., events, mechanisms, and measures) and appropriately positioning and connecting them to other items on the board. Once players are familiar with these steps, however, the game will become a more fluid session of brainstorming and note creation, followed by a recap and point tally.

Step 1: Write your ideas (e.g., event, mechanism, or measure) on virtual sticky notes

If you are on the **OIL SPILL TEAM**, then your role is to think of an event, or a chain of events, that can lead to a catastrophic offshore oil disaster in the Gulf of Mexico. Whether the catastrophic spill results from a source involved in oil discovery, production, or transport is up to the players, and not all ideas need to refer to the same source. Early in the game, players should focus on known possible failure modes, whether or not the players know of methods to prevent or prepare for their occurrence. As the game progresses, we encourage players to think more creatively or speculatively about less likely but still plausible avenues that could result in a large-scale, catastrophic offshore oil spill. Write these events on **RED** sticky notes.

If you are on the **PREVENTION/PREPAREDNESS TEAM**, then your role is to look at the events on the board (i.e., the **RED** sticky notes) and decide whether you know of a mechanism *currently* available in the Gulf of Mexico that would prevent an event from leading to a catastrophic oil spill. If you can think of something, write it down on a **GREEN** sticky note.

The **PREVENTION/PREPAREDNESS TEAM** members have a second role: in the absence of an available prevention mechanism (or if a prevention mechanism were to fail), decide whether you know of any preparedness measures *currently* in place for the spill envisioned. Specifically, are there measures in place to limit or reduce the magnitude or impact of the resulting oil spill? If the answer is yes, write those preparedness measures down on **BLUE** sticky notes.

Step 2: Position the note on the board at the right timeframe and in the appropriate domain

Players must place their notes on the MURAL board at the right **timeframe** on the timeline and in the right **domain**.

Determining the right timeframe. Reminder: the rightmost line on the timeline represents the moment when a catastrophic oil spill begins flowing oil into the Gulf of Mexico. The leftmost line represents 6 months prior to the oil spill. Two additional lines indicate 1 month and 24 hours prior to the oil spill, but the scale is intentionally not constant across the timeline.

- If you are placing a **RED** oil spill event, decide how much of a delay exists between when the event occurs and when oil would be expected to flow into the Gulf (whether it is detected or not). Using the vertical lines as a rough reference, place the sticky note to the left of the "Catastrophic Offshore Oil Disaster" line at the appropriate distance to represent that time delay. For example, events that would cause oil to be released immediately should be placed next to the rightmost line.
- If you are placing a **GREEN** prevention mechanism, first identify the oil spill event that it is preventing. That oil spill event should be connected to another event or the "Catastrophic Offshore Oil Spill Disaster" line with a connecting chain (more on that next). Determine when the prevention mechanism would either (a) automatically trigger to stop the flow of oil that would result from that event, or (b) would be activated in order to prevent the event from causing a catastrophic oil spill. Place the sticky note at that point in time.

- If you are placing a BLUE preparedness measure, determine how often that measure takes place in a typical year. Is this preparedness measure practiced daily? Is this drill exercised monthly or yearly? Place the sticky note at a time that represents the *frequency* at which the preparedness measure currently occurs that is sufficient to prepare for the oil spill event identified.
- If none of the situations listed fit the sticky note that you are trying to place, ask your facilitator for guidance.

Determine the right domain. As mentioned previously, the board has three **domains**: People, Source, and Environment. Use your best judgment to determine the appropriate domain.

- If you are placing a **RED** oil spill event, place the sticky note in the domain (at the appropriate timeframe determined above) in which the event happens that results in a catastrophic oil spill. This should be the *primary cause* of the event. If it is a failed valve, for example, it should be in the Source domain. If it is a deliberate terrorist act, it should be in the People domain.
- If you are placing a GREEN prevention mechanism, place the sticky note in the domain (at the appropriate time as determined above) in which the prevention mechanism acts. This will typically, though not necessarily, be in the same domain as the **RED** sticky note that you are addressing.
- If you are placing a BLUE preparedness measure, place the sticky note in the domain (at the appropriate time as determined above) in which the measure resides. If it is a training regime for oil industry workers, it should be in the People domain. If it is a mandated safety valve, it should be in the Source domain. If it is sensors and equipment placed near an oil rig to monitor for subterranean landslides, it should be placed in the Environment domain.
- If none of the situations listed fit the sticky note that you are trying to place, ask your facilitator for guidance.

Step 3: Connect your note to any other events, mechanisms, or measures that it affects or that affect it

In order to create a network of related oil spill events, prevention mechanisms, and preparedness measures, we need to:

1. Connect the sequence of events that contribute to the catastrophic oil spill;

2. Connect the prevention mechanisms to the oil spill events and identify whether and when they interrupt the catastrophic oil spill; and
3. Connect the preparedness measures to the events that those measures affect.

To create these connections, simply draw a line (using the MURAL connector tool, see Information on Using Mural Platform) between the sticky note that you have just added and any other relevant sticky notes on the board.

Preparedness measures (**BLUE** sticky notes) might connect to many other sticky notes. If the preparedness measure applies to *all* oil spill events, omit connecting lines to avoid cluttering the board.

Prevention mechanisms (**GREEN** sticky notes) should interrupt the line extending from an oil spill event (**RED** sticky note) to the Catastrophic Oil Spill Incident line. Either place the note on the line (at the appropriate time) between the oil spill event and the next event in the chain or the Catastrophic Oil Spill Incident line. If the prevention mechanism is in a different domain from the oil spill event, be sure to shift the original line connecting the oil spill event to the next event, such that it now connects to the new **GREEN** sticky note. Then add a new connection between the **GREEN** sticky note and the next event in the chain (basically, insert the prevention mechanism as an intermediate item in the chain). This will indicate that the event chain has been broken or prevented.

RED sticky notes allow you to create a chain of events that will likely lead to a catastrophic oil spill. For clarity, *each chain of events should attempt to use a different color connecting line*. This will allow the facilitator to more easily trace and recap individual event chains at the end of the game. **OIL SPILL TEAM** members are encouraged to think of chains of events that circumvent or obviate the prevention or preparedness measures that the other team identifies.

Step 4: Repeat steps 1-3

When you have placed a note and connected it to other relevant notes, go ahead and place the next note! No need to wait for the other team to respond to it. Keep placing notes, reading the other teams' notes, and conferring with your teammates to brainstorm and prioritize additional notes. The **OIL SPILL TEAM** should work together to identify novel ways the next catastrophic oil disaster in the Gulf might happen. The **PREVENTION/PREPAREDNESS TEAM** should think of all the capabilities already available to prevent or mitigate these situations.

Relatedly, if there are things that *we should be doing but currently are not*, **please note these needs to discuss during the NEEDS AND PLANNING game.** One of the primary purposes of this game is to discover things that we *are not doing but need to do* if we want to prevent or mitigate the next oil spill. You can take these lessons with you when the game is over.
At any time, either team should feel empowered to give a "hint" to the other team if they notice any obvious events, mechanisms, or measures that have been missed.

ENDING THE GAME

The game will end 30 minutes prior to the designated end of the session. At this point, the facilitator will ask players to stop adding sticky notes to the board and begin tracing event chains. The facilitator will step through each chain, asking players for clarifying or amplifying information as needed, identifying whether the chain of events is prevented, and assessing the number of associated preparedness measures. The facilitator will then record the score (Oil Spill Points, Prevention Points, and Preparedness Points) for that chain and move on to the next one.

INFORMATION ON USING MURAL PLATFORM

During the PREVENTION AND PREPAREDNESS game, players will use MURAL, a web browser-based online platform for visual collaboration that they will access through a link. The MURAL workspace essentially serves as a large virtual whiteboard to which players will add virtual sticky notes for their inputs. Players will work in MURAL while continuing to run Zoom for Government largely in the background to communicate and chat with their teammates.
The Offshore Situation Room staff evaluated several available platforms and selected MURAL for its ease of use and compatibility with a number of common web browsers (including Chrome, Firefox, Edge, and Safari). In playtests, players found operating in the MURAL workspace intuitive. Please note that players will only need to learn a small subset of MURAL's functions, which are described below (see Key Player Actions). The game facilitator will also review these functions during the game.

How to access MURAL

When you click on the MURAL link that you will receive for the PREVENTION AND PREPAREDNESS game, you will see a welcome screen that asks you to enter your name for this session (so others can identify you). Please enter your name and click the "ENTER AS A VISITOR" button.

Upon entry, MURAL will attempt to provide you with a primer on the basics (i.e., "Getting started in MURAL"). Since the game uses only a limited subset of MURAL's features, close the tutorial window by clicking "GOT IT" in the blue comment bubble and then clicking the "X" located to the right of the "Getting started in MURAL" header in the upper right-hand corner.

You should now be in the MURAL workspace for the game. Depending on the size of your monitor, you should see some or all of the virtual whiteboard for the PREVENTION AND PREPAREDNESS game. You may want to pan or to zoom in or out to center and optimize your viewing area of the virtual whiteboard. Performing these actions in MURAL is similar to manipulating a map in Google Maps:

- To pan, simply click on the space and drag your mouse cursor.
- To zoom in or out, you can use your mouse's scroll wheel, or you can move your cursor to the mini-map inset into the bottom right-hand corner of the browser and click the "-" or "+" arrows above it.

Key Player Actions

To play the game effectively, players will need to add sticky notes with their ideas to the virtual whiteboard and insert connecting lines to help establish relationships among the sticky notes (e.g., sequential chains of events).

Add a Sticky Note	Click the "Text" icon ( ) on the menu of MURAL options located on the far left side of the browser display. Once you do so, you will see a visual submenu of options, which include 3×3 sticky notes. Simply move your mouse over your desired color of sticky note and click-and-drag it onto the MURAL workspace. Immediately after you add the sticky note, you will see an active text cursor where you can add your desired text. A properties menu for the sticky note will also display next to the sticky note. If you are zoomed out on the whiteboard when you add a sticky note, your sticky note may appear quite small on the screen, making it hard to see what you type. If so, simply click the "Zoom" icon in the sticky note's formatting menu before adding your desired text.

	Once you have added a sticky note to the board, you can add another sticky note of the same color by simply double-clicking your mouse on the desired location.
Moving a Sticky Note	Similar to moving Microsoft PowerPoint objects, once your sticky note is on the whiteboard, you can simply select and drag it to your desired location.
Adding Connecting Lines	Click on the "Shapes and connectors" ic( ) on the menu of MURAL options located on the far left side of the browser display. On the visual sub-menu that appears, click the basic connect icon ( ). Upon selecting this icon (it will become outlined in blue), draw your desired connecting line between notes by clicking the starting point for the line and then moving your mouse cursor while holding your mouse button down (similar to how you would draw a line in PowerPoint). As a shortcut, you can also simply hold down the "c" key and drag to create a connection line using your mouse.

During the free-play period of the game, we expect the virtual whiteboard on MURAL to be populated with numerous sticky notes. Your ability to quickly scan over the whiteboard to react and respond to new ideas on the board will be essential to developing lines of thought and ensuring an engaging session. Toward this end, we recommend four additional functions built into MURAL:

X-Ray	By holding the "x" key while moving your mouse cursor across the whiteboard, the text inside any sticky note that your mouse cursor passes over will be magnified so that you can quickly and easily read it. This will allow you to generally stay zoomed out on the whiteboard and quickly probe any new sticky notes added to the whiteboard while not losing an overall picture of the action taking place.
Box Zoom	If you want to zoom on a specific region of the whiteboard, you can hold the "z" key while dragging a box with your mouse over the specific area of interest.
Show Info	If you would like to follow up with the author of a sticky note (e.g., for clarification), you can identify the author of the sticky note by selecting the

	sticky note and right clicking. Select “Show Info” to see who originally added, as well as who has potentially modified, the sticky note.
Move Mode	At some point, the board may become populated with numerous items, making it difficult to pan across the board without accidentally selecting a connecting line or sticky note. To avoid this, simply toggle on the “Move Mode” icon ( ) to the immediate left of the mini-map inset into the bottom right-hand corner of the browser.

RESPONSE GAME PLAYER INSTRUCTIONS

OVERVIEW

In OFFSHORE SITUATION ROOM: RESPONSE, you and your fellow participants are members of the Unified Command. You must work together to arrests the flow from the source of the offshore oil leak and mitigate the spill to minimize the impacts on the ocean and coast.

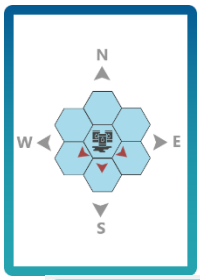
There are four teams, each with a specific set of actions (or capabilities) for responding to the offshore oil spill:

- OIL SPILL RESPONDERS. This team represents the oil industry, contractors, and federal agency personnel who are working to arrest the flow from the source and mitigate the spill.
- RESPONSE COORDINATORS. This team represents the personnel who are providing support and direction, overseeing the response and providing coordination and management.
- TECHNICAL ADVISORS. This team represents the subject matter experts who provide critical scientific information (e.g., weather, oil flow extrapolation, monitoring and assessment) to the responders.
- COMMUNITY. This team represents the public living along the coast who are directly impacted by the oil spill.

OFFSHORE SITUATION ROOM: RESPONSE is a cooperative game. All participants need to work together toward a single goal—stopping the flow of oil from a catastrophic spill. However, in the game as in reality, different stakeholders have different vested interests, and the best action for one player may not be the best action for another. All players start with 100 points. The total points are tallied at the end of the game based on the extent of the oil spill and each team's ability to protect the interests associated with its role. Teams should work to get the highest score.

BOARD SETUP

FLOW RATE deck and FLOW DIRECTION deck



- FLOW DIRECTION cards indicate the direction the oil is flowing. For example, in the card to the right, the oil is flowing from the damaged rig in equal amounts to three adjacent hexes (SE, S, and SW directions). FLOW DIRECTION cards will point in 1, 2, 3, or 6 directions.

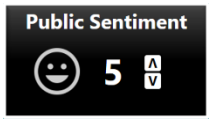
- FLOW RATE cards represent the volume of the oil flowing to each hex, as indicated in the FLOW DIRECTION card. For example, the card to the right indicates that five units of oil are flowing from the rig in each of the directions indicated by the FLOW DIRECTION card. The deck of FLOW RATE cards represents the total amount of oil that will flow from the source. When the FLOW RATE deck is empty, the source has been secured and the flow of oil has stopped. Thus, removing cards from the FLOW RATE deck represents progress toward stopping the oil spill.
- The six WILDCARD EVENT cards provide an additional level of uncertainty that players must consider when responding to the oil spill. The cards may require one or more teams to take an immediate action that limits their ability to respond to the oil spill. At the start of the

game, two WILDCARD EVENT cards (from the six) are randomly chosen and shuffled into the FLOW RATE deck.

Oil markers ( ). The black, circular **Oil** markers are applied to the hexagonal tiles on the board to indicate the presence of oil.

Badges. Each team has a set of badges in its rectangular area. The badges track various modifiers applied because of actions taken.

Action chips ( ). Players will use **Action** chips to take actions during the round.



Public Sentiment tracker. Public sentiment starts at 5 and is recorded on a scale from 0 to 9. No team may take an action that would reduce public sentiment below 0.

Timer ( ). The Game Facilitator will monitor the time remaining for each round. Players will get 20 minutes for the first round, 15 minutes for the second, and 10 minutes for each subsequent round.

PLAYER ACTIONS

The table below describes the actions each team can take. Actions can be done in any order, and any player may act at any time until the timer runs out. All actions require a player to use one **Action** chip.

OIL SPILL RESPONDERS	▪ *Lay Boom - Ocean*: Place **Boom** between any two Ocean hexes. ▪ *Skim Oil*: Remove 1 **Oil** marker from any Ocean hex and give it to the OIL SPILL RESPONDERS. ▪ *Apply Dispersant at the Source*: Place a **Source Dispersant** token on the FLOW RATE deck. Return the token to reduce the value of the next FLOW RATE card by 2. Decrease PUBLIC SENTIMENT by 1. ▪ *Apply Dispersant on the Surface*: Discard 2 **Oil** markers from a single Ocean hex. Decrease PUBLIC SENTIMENT by 1. ▪ *In Situ Burning*: Discard all **Oil** markers from a single hex. Reduce PUBLIC SENTIMENT by 2. ▪ *Work Towards Source Control*: Roll a die and reveal the bottom FLOW RATE card. If the roll is higher than the value of the card, remove it from the deck and place it in front of the TECHNICAL ADVISORS. Otherwise, return it to the

	bottom and shuffle the FLOW RATE deck. Additionally, if the roll is a 6, increase PUBLIC SENTIMENT by 1. ▪ *Recruit Local Help*: Roll a die. — 1–2, no effect. — 3–4, give the COMMUNITY a Boom Training Certificate. They are considered trained to *Lay Boom*. Increase PUBLIC SENTIMENT by 1. — 5–6, give the COMMUNITY a Skimming Training Certificate. They are considered trained to *Skim Oil*. Increase PUBLIC SENTIMENT by 1.
RESPONSE COORDINATORS	▪ *Empirical Observations*: Give an **Empirical Observations** token to the OIL SPILL RESPONDERS team. They may return it to you to add 1 to their next *Work Towards Source Control* roll. ▪ *Operational Coordination*: Roll a die. — 1–3, no effect. — 4–6, name one action. If OIL SPILL RESPONDERS and COMMUNITY perform an action of the same name that you choose, they may execute the same action again this round without using an additional **Action** chip. ▪ *Common Operating Picture*: Roll a die. — 1–3, no effect. — 4–6, add a bonus to one of the TECHNICAL ADVISORS' **Technical Solutions** tokens, indicating that it is "integrated." If an integrated **Technical Solutions** token is applied to *Work Towards Source Control*, it adds 2 to the die roll instead of 1. ▪ *Respond to the Media*: Increase PUBLIC SENTIMENT by 1. ▪ *Contingency Plan*: Gain a **Preparedness** counter. When a wildcard event appears, roll a die. Add to the result the total number of **Preparedness** counters that you have. If the new total is 7 or greater, negate the effects of the wildcard event. Discard all **Preparedness** counters. ▪ *Mobilize Additional Resources*: Roll a die. — 1–3, no effect.

	— 4–6, give the OIL SPILL RESPONDERS an **Additional Resources** token. They may return it to you to take an extra **Action** chip during this round.
TECHNICAL ADVISORS	▪ *Flow Assessment*: Flip over the top card of the FLOW RATE deck. Return it to either the top or the bottom of the deck. ▪ *Spill Trajectory Assessment*: Flip over the top card of the FLOW DIRECTION deck. Return it to either the top or the bottom of the deck. ▪ *Technical Solutions*: Give a **Technical Solutions** token to the OIL SPILL RESPONDERS. They may return it to you when performing *Work Towards Source Control* to add 1 to the die roll. ▪ *Sampling and Monitoring*: Place a **Sampling and Monitoring** token on any hex. Increase by 1 the total **Oil** markers removed from that hex by any actions for the remainder of the round. ▪ *Situational Assessment*: Place an **Assessment** counter on any shore hex. When **Boom** would be removed by an overflow into that hex, remove the **Assessment** counter instead of the **Boom**. This counter is not returned at the end of the round. ▪ *Community Engagement*: Roll a die. — 1–3, no effect. — 4–6, place a **Community Engagement** token next to the PUBLIC SENTIMENT tracker. The next time PUBLIC SENTIMENT would decrease, return the token to lower that reduction by 1. ▪ *Provide Clear Explanations*: Roll a die. — 1–3, no effect. — 4–6, give a **Clear Explanations** token to the RESPONSE COORDINATORS. They may return it to you to increase PUBLIC SENTIMENT by 2 instead of 1 if they *Respond to the Media* during this round.

COMMUNITY	▪ *Lay Boom (allowed once trained)*: Place **Boom** between any two Ocean hexes. ▪ *Skim Oil (allowed once trained)*: Reduce the total **Oil** markers on a chosen Ocean hex by 1. ▪ *Protect Shoreline/Sandbagging*: Place **Boom** adjacent to any Shore hexes. ▪ *Clean the Shore*: Remove 1 **Oil** marker from a Shore hex. ▪ *Call to Action*: Roll a die. — 1–4, no effect. — 5–6, COMMUNITY receives an extra **Action** chip at the start of the next round. ▪ *Leverage Community Liaisons*: Roll a die. — 1–3, no effect. — 4–6, place a **Community Liaisons** token next to the PUBLIC SENTIMENT tracker. Return this token to COMMUNITY to negate a loss of PUBLIC SENTIMENT. Return this token at the end of the round if not used.

PLAYING THE GAME

Oil is flowing from the incident site (i.e., the hex tile with the rig) at the center of the game board. To create the initial oil spill, turn over the top card from both the FLOW DIRECTION and the FLOW RATE decks. Place the **Oil** markers as directed by the cards.

The game consists of successive rounds, each of which has the following five steps. The game ends when no cards are left in the FLOW RATE deck or time for the session runs out.

Step 1: Forecast future oil flow. Start the timer. On behalf of the TECHNICAL ADVISORS, the game facilitator shows the top five cards from both the FLOW DIRECTION and the FLOW RATE decks to predict the future oil flow. No player may take any action until the TECHNICAL ADVISORS agree to return the cards. Then game facilitator shuffles those cards and return them to the top of their respective decks.

Step 2: Confer within your teams. Players engage with their teammates on possible actions and strategies to pursue for the round.

Step 3: Choose what actions to take. All teams, at any time, may use one **Action** chip to take an action allowable to their team. Teams should actively discuss the best set of actions

for the Unified Command to pursue. However, should disagreements arise, each team has the autonomy to choose the actions they think are the most appropriate, independent of the remaining teams. Cease actions and move immediately to **Step 4** if the timer runs out before the players have used all their **Action** chips.

Step 4: Spread the oil. Draw the top card from both the FLOW DIRECTION and the FLOW RATE decks. Place the amount of **Oil** markers indicated by the FLOW RATE card onto each hex indicated by the FLOW DIRECTION card.

If more than six **Oil** markers are on any Ocean hex, an overflow occurs. To resolve an overflow, first remove three **Oil** markers from the overflowing hex, and then place one **Oil** marker on all adjacent hexes except the one from which the **Oil** overflowed (which might be the Source). If there is **Boom** on the hex edge between the overflowing hex and the adjacent hex, remove the **Boom** instead of placing an **Oil** marker on that hex.

Step 5: Close out the round. Reset all badges with temporary effects. Return all distributed tokens to their original owners. Set the timer for the next round.

Continue with additional rounds until the FLOW RATE deck is empty. When the FLOW RATE deck is empty, the game ends. Tally the final scores of each player.

OTHER INFORMATION

- **Boom** will not stop **Oil** markers from entering the map from the FLOW RATE and FLOW DIRECTION cards during **Step 3**. **Boom** only prevents overflow during **Step 4**. **Oil** markers arising during **Step 3** represent a combination of surface flow directly above the source as well as subsurface flows in the vicinity of the source.
- When a *Contingency Plan* negates an event, **Oil** still spreads as directed by the flow rate value on the card drawn. However, the text of the event (e.g., "News networks obtain footage of deceased dolphins washing up on shore covered in oil. PUBLIC SENTIMENT is immediately reduced to 1") does not occur.

ENDING THE GAME

The game ends when no cards are left in the FLOW RATE deck. All teams start with 100 points and are assessed points at the end of the game based on the extent of the oil spill and players' ability to protect the key interests of their role. Points are assessed as follows:

- All players lose one point for each Ocean, Open Ocean, and Shore hex with **Oil**.

- OIL SPILL RESPONDERS lose two additional points for any hex with three or more units of **Oil**.
- OIL SPILL RESPONDERS gain one point for every two markers of **Oil** skimmed from an Ocean hex.
- RESPONSE COORDINATORS lose two additional points for every unit of **Oil** in Open Ocean hexes.
- RESPONSE COORDINATORS gain seven points for each wildcard discarded by a successful *Contingency Plan*.
- TECHNICAL ADVISORS lose an additional point for each Ocean and Shore hex with **Oil**.
- TECHNICAL ADVISORS gain three points for each FLOW RATE card discarded by a *Work Towards Source Control* action.
- COMMUNITY loses one point for each **Oil** on a Shore hex.
- COMMUNITY gains two points for each level of the final PUBLIC SENTIMENT above four.

The team with the most points did the best at protecting its interests during the game. However, any team with fewer than 100 points is worse off than before the oil spill occurred.

GAME NOTES

The following bullets provide context for the game design decisions underlying OFFSHORE SITUATION ROOM: RESPONSE and highlight their links to real-world issues and circumstances that affect the response to an offshore oil disaster.

- **Community Is Not Trained at the Start** – Although the community is very important in responding to a disaster such as the one represented here, not all members are fully trained on the emergency protocols, equipment, or procedures for contributing to disaster response. Thus, the game includes the training mechanism to highlight that oil spill response efforts need to allocate time and energy to building community capabilities—and if they do so, they can reap significant rewards.
- **Flow Direction and Flow Rate Cards** – The game needed a mechanism that made the response to the oil spill dynamic and unknown. Real response incidents can be chaotic, and the game designer wanted to evoke that feeling during gameplay. A hex grid surrounding the catastrophic incident provided a way to simulate oil flow in all directions. The decks of cards randomized the flow direction and flow rate, while still giving players some level of "forecasting" (through the TECHNICAL ADVISORS' abilities). Needless to say, most real-world flows are not as directed nor as random as they may appear here. Instead, each hex models a relatively large area, and the oil "flowing" from the center includes subsurface turbulence and currents. Instead of oil flowing

from the center, it is better thought of as oil surfacing in each of the hexes near the disaster site.

- **Limited Boom** – The limited amount of boom available to players highlights a known current shortfall—specifically, stores of boom are not sufficient to deal with a catastrophic oil spill disaster in the Gulf region, and the industrial base may not be able to manufacturer boom rapidly enough to substantially impact the problem.
- **Negative Scoring** – No one is expected to be better off after a catastrophic oil spill. Thus, the game starts all teams with 100 points, expecting them to lose points during gameplay. Opportunities for each team to gain points do exist, representing a positive reputation boost for that stakeholder group because of their success in their particular roles. However, it is unlikely that any team will have a score higher than 100 at the end of the game.
- **Public Sentiment** – This mechanism was introduced initially to moderate the OIL SPILL RESPONDERS' ability to simply apply dispersants and burn surface oil. The game designer wanted the game to provide a repercussion that represented the gravity of using those methods. The environmental and ecological impacts of dispersants are still not well understood. Surface burning creates large amounts of pollution, which can blow ashore. Public Sentiment is intended to represent that tension. This mechanism also allowed the game to include some of the ways that responders can and need to interact with the public, which in turn gives them leverage for the more drastic measures mentioned.
- **Technical Advisors and Prediction** – Much work has been done to ensure that oil spill disasters do not happen. Rarely (if ever) does the public hear about spills that were prevented. But when a major oil spill disaster does happen, the preparation beforehand—developing weather and flow modeling, equipment schematics, and detailed plans and diagrams of response operations—is vital to a rapid response effort. To represent this preparatory work, the game allows a free "peek" at the top cards. By shuffling them and returning them to the top of the decks, players have a one-in-five chance of knowing where and how much oil will appear. The TECHNICAL ADVISORS players also can spend their time doing detailed modeling of either the flow rate or flow direction—i.e., the *Flow Assessment* or *Spill Trajectory Assessment* player actions, respectively. By performing these actions, they have a choice between knowing what the FLOW RATE or FLOW DIRECTION card *is* or knowing what it *is not* by keeping the top card or moving it to the bottom. We do not intend this mechanism to allow the TECHNICAL ADVISORS to choose the future and determine what will

happen with the oil; instead, it forces an internal dialog, asking the players whether they want to address the "devil you know" or to trade it for something unknown that may be better or worse. Either way, the oil is still there waiting to come out. Returning it to the bottom simply delays the inevitable.

- **Wildcard Events** – Wildcard events provide additional suspense to the game (see the table below). Extenuating circumstances occur in real-world responses, and the game designer wanted to represent these events and highlight that they can be prepared for. Thus, the game includes an abstract ability for the RESPONSE COORDINATORS to prepare for these situations, taking actions early to hopefully head off any complications.

Wildcard Event	Action / Response
Hurricane	This card has a flow rate equal to the FLOW RATE card at the bottom of the deck. Operations must cease as the Hurricane passes. Immediately draw another FLOW RATE and FLOW DIRECTION card after the resolution of the FLOW RATE and FLOW DIRECTION for this turn. Apply their results as **Oil** continues to spill and all activities are halted due to weather
Loop Current	This card has a flow rate equal to the FLOW RATE card at the bottom of the deck. Oil is moved by a strong Loop Current across the Gulf of Mexico. Starting at the north-most hexes and moving clockwise, in any hex with more than three **Oil** markers, move one **Oil** to the next hex in the clockwise direction. This movement ignores any **Boom**. Shifts in **Oil** can cause overflows, which resolve after all **Oil** is shifted.
Media Frenzy	This card has a flow rate equal to the FLOW RATE card at the bottom of the deck. News networks obtain footage of deceased dolphins washing up on shore covered in **Oil**. Public sentiment is immediately reduced to 1.
Aviation Mishap	This card has a flow rate equal to the FLOW RATE card at the bottom of the deck. A collision occurred in the airspace surrounding the incident due to congestion from response workers and the media. All players receive only 1 **Action** chip for

	the next two turns as the rest of their time is spent recovering from and investigating the mishap
Boom Shortage	This card has a flow rate equal to the FLOW RATE card at the bottom of the deck. The stockpiles of **Boom** is emptied. Teams are given two **Boom** (divided as they choose) at the start of each subsequent turn to add to their stockpile. These can be used immediately or saved for future rounds
Capping Complication	This card has a flow rate equal to the FLOW RATE card at the bottom of the deck. Take the three highest FLOW RATE cards from the discard pile and shuffle them into the FLOW RATE deck

INFORMATION ON USING SPATIALCHAT PLATFORM

The Offshore Situation Room team evaluated several platforms for hosting the game and selected SpatialChat for its simplicity, ease of access, and compatibility with multiple web browsers (it works on Chrome, Safari, and Firefox). It also allows for proximity-based conversation—i.e., whether you hear someone depends on how close your avatar "bubble" is to them. This feature is critical for OFFSHORE SITUATION ROOM: RESPONSE because it allows players to freely move back and forth between discussions within their team, with other teams, or with the entire group simply by clicking and dragging their bubble.

For OFFSHORE SITUATION ROOM: RESPONSE, players will switch from Zoom for Government to SpatialChat by clicking on a SpatialChat link. When you click on (or copy and paste the link into your web browser), you will first encounter a welcome page. Simply enter your name (you can ignore adding any other information) and click "Continue." Next, you will be prompted to allow the application to use your camera and microphone or only microphone. Finally, click "Join Space," and you will enter the event space for the game.

Upon entry, you may want to pan and zoom in or out to center and optimize your viewing area of the game board. Performing these actions in SpatialChat is similar to manipulating a map on Google Maps:

- To pan, you can simply click anywhere on the event space and drag your mouse cursor.

- To zoom in or out, you can use your mouse's trackwheel, or you can move your mouse cursor to the bottom right, where the window will display a percentage bracketed by "∧" and "∨". Hovering your mouse over this percentage will display "+" and "-" buttons, and clicking them will zoom in and out, respectively.

Once in the event space, you can participate in a discussion by dragging your avatar bubble close to that group of avatars. Each of the teams has a designated area in the event space to gather for intra-team discussions; in addition, there is a designated plenary area for everyone to gather during inter-team discussions. These designated communications areas are on the perimeter of a shared game board. Your game facilitator will provide some general guidance about when to move between these communications areas throughout the game. A key aspect of the game, however, is incentivizing collaborative player actions among teams to achieve the greatest benefits. So, you are encouraged to move your bubble around to engage with other teams.

IMPACTS, RECOVERY, AND RESTORATION GAME PLAYER INSTRUCTIONS

OVERVIEW

Gulf of Mexico States and the federal government are concerned about restoring the environment while also meeting the specific needs of their constituents. To achieve their goals, restoration and recovery stakeholders must decide how best to allocate limited funding, scarce resources, human capital, and public support to both identify the impacts of an offshore oil spill incident and complete restoration projects that contribute to the health of the ecosystem.

The process of restoration and recovery can take years, and stakeholders do not always fully realize the fruits of their labors when competing interests prevail. Similarly, the specific requirements of any given restoration project are not entirely known when stakeholders have to choose to invest in identifying oil spill incident impacts. Against this backdrop of imperfect information and uncertainty, OFFSHORE SITUATION ROOM: IMPACTS, RECOVERY, AND RESTORATION asks players to compete against or collaborate with each other to promote the recovery and restoration of the region.

OFFSHORE SITUATION ROOM: IMPACTS, RECOVERY, AND RESTORATION is a resource management game during which players expend combinations of funding and /public buy-in markers to identify incident impacts, acquire capabilities, obtain regulatory approval, gain community support, and ultimately apply their resources to complete restoration projects.

Players work to complete the following six types of projects: non-marine habitat restoration, marine habitat restoration, economic development, land use mitigation measures, studies and analyses, and wildlife protection. These project types represent the broad categories of projects required for recovery and restoration following a major offshore oil spill incident. Once completed, each project provides ecosystem services to the region. *Ecosystem services* are benefits provided by ecosystems that enable human life and support their quality of life.[1] Through interactions among plants,

[1] Mayer, Larry & Boufadel, Michel & Brenner, Jorge & Carney, Robert & Cooper, Cortis & Deming, Jody & Die, David & Eagle, Josh & Geraci, Joseph & Knuth, Barbara & Lee, Kenneth & Morris, J. & Polasky, Stephen & Rabalais, N. & Reddy, Christopher & Stahl, Ralph & Yoskowitz, David. (2013). *An Ecosystem Services Approach to Assessing the Impacts of the Deepwater Horizon Oil Spill in the Gulf of Mexico*.

animals, and microbes within the environment, functioning ecosystems provide the following four categories of ecosystem services:

- *Provisioning services* (e.g., material goods such as food, feed, fuel, and fiber);
- *Regulating services* (e.g., climate regulation, flood control, and water purification);
- *Cultural services* (e.g., recreational, spiritual, and aesthetic services); and
- *Supporting services* (e.g., nutrient cycling, primary production, and soil formation).[2]

Offshore oil spill incidents disrupt the balance of ecosystem services; thus, to be effective, post-incident recovery and restoration efforts must support replenishment of ecosystem service levels. Each team works to add some level of these services to their area of focus (i.e., state and/or the region). All teams work to restore the region and promote resiliency, but they take different approaches to achieving their goals. The teams' unique ecosystem goal cards represent the balance of ecosystem services they try to achieve to improve the environmental conditions and quality of life for their constituents. The more ecosystem goal cards a team completes, the more the ecosystem improves—which in turn increases the public buy-in that accrues to the team at the end of the game.

Player Actions

- Teams work toward completing ecosystem goals cards. Each time players complete a project, they are awarded ecosystem services (i.e., provisioning, regulating, cultural, supporting) that they can apply toward fulfilling their ecosystem goal cards.
- Teams expend funding (dollars) to (1) identify incident impacts and (2) acquire capabilities including physical resources, expertise, and research and testing.
- Teams leverage public buy-in to obtain regulatory approval and/or gain community support.
- Teams apply their resources (e.g., funding, capabilities), regulatory approval, and community support to complete restoration projects. The levels of resources, regulatory approval, and community support required to complete a project correspond to the project type and degree of difficulty.
- Teams can choose to collaborate or to complete projects on their own. Any team can complete an open ocean project. State-based teams can only complete projects associated with their state unless they obtain permission from another state where a project is located.

[2] Ibid.

- Teams obtain additional public buy-in and receive possible funding bonuses for each restoration project they complete. Rewards correspond to the project type and difficulty level. For example, teams that complete projects that generate revenue streams (e.g., economic development) receive funding bonus dollars.
- Public buy-in and funding bonus rewards associated with project completion accrue to the state where the project is located unless the state where the project is completed grants permission to or enters into a negotiate rewards split with another team. However, open ocean project completion rewards accrue to whichever team completes the project.

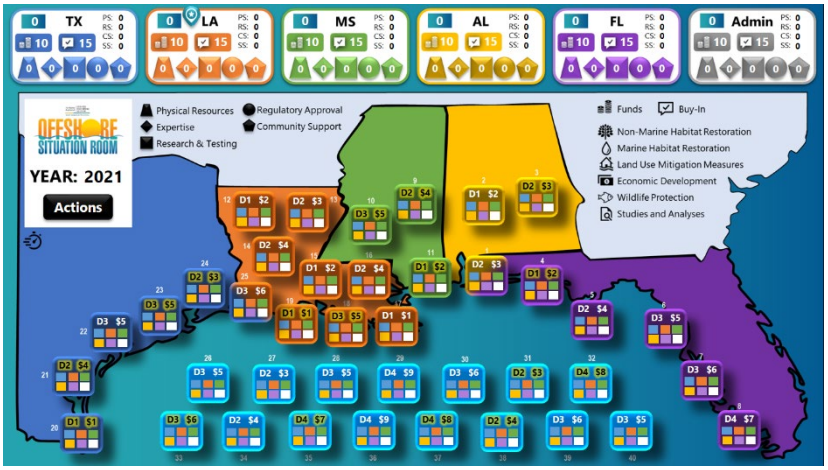
SETUP

Prior to playing the game, each team receives a set of ECOSYSTEM GOAL cards.

Each team's set of ECOSYSTEM GOAL cards is unique and unknown to the other teams playing in the game.

As teams complete projects, they accrue ecosystem services that they can apply to the completion of their ECOSYSTEM GOAL cards.

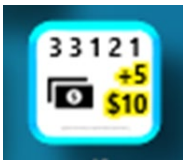
Each **Impact Identification** marker on the game map (indicated by the squares on the map to the right) represents an area that is both impacted by an oil spill incident and is the location of a restoration project,



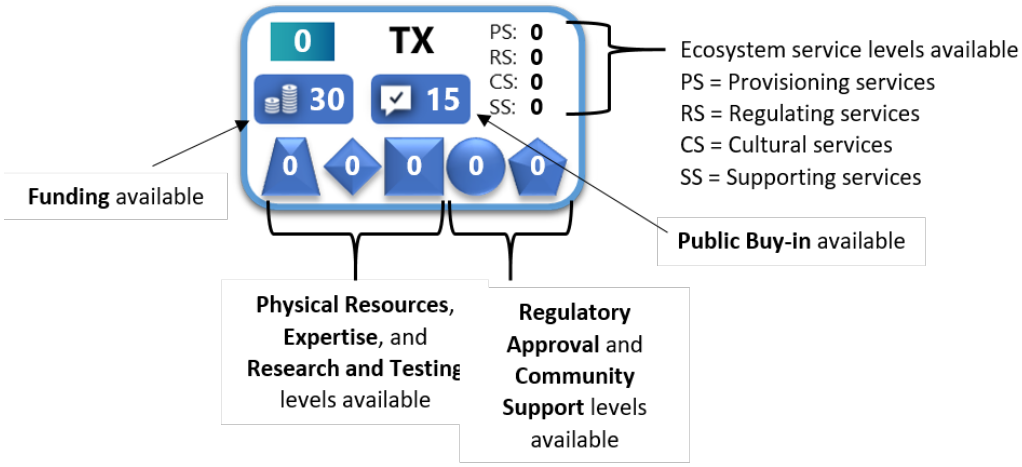
Impact identification markers are apportioned according to one of two zones—Onshore/Near Shore and Open Ocean. Onshore/Near Shore markers are color-coded to match one of the five Gulf Coast states represented on the game map. Open Ocean markers are turquoise.

The top side of each marker displays the cost to complete impacts identification.

The flipped side of each marker displays the capabilities, **Regulatory Approval**, and **Community Support** required to complete the project as well as the type of project and associated rewards at completion.



Each team's dashboard is displayed across the top of the game board. The dashboards track the levels of **Funding**, **Public Buy-in**, capabilities (**Physical Resources**, **Expertise**, **Research and Testing**), **Regulatory Approval**, and **Community Support** available to each team. The dashboards also track and display the levels of ecosystem services that each team has accrued and that are available to fulfill ECOSYSTEM GOAL card requirements. Below is a mock-up of a team dashboard and its features.



Teams amass ecosystem services each time they complete a project. Different types of projects result in different levels of ecosystem services. The matrix below illustrates the relationship between types of projects and the corresponding level of provisioning, regulating, cultural, and supporting services they contribute. The more shaded a circle, the more of an ecosystem service is gained by completing that project type. For example, completing an economic development project contributes relatively high levels of cultural and supporting services.

	Provisioning Services	Regulating Services	Cultural Services	Supporting Services
Wildlife Protection	◖ ○ ○ ○	● ● ○ ○	● ● ◖ ○	● ● ● ●
Marine Habitat Restoration	● ○ ○ ○	● ● ○ ○	● ● ● ○	● ● ● ●
Economic Development	◖ ○ ○ ○	● ○ ○ ○	● ● ● ◖	● ● ● ●
Land Use Mitigation Measures	◖ ○ ○ ○	● ● ○ ○	● ● ● ○	● ● ● ●
Non-Marine Habitat Restoration	● ○ ○ ○	● ● ○ ○	● ● ● ○	● ● ● ●
Studies and Analyses	● ○ ○ ○	● ● ○ ○	● ● ● ○	● ● ● ●

Playing the Game

The game consists of nine successive turns, each of which has the following six steps.

Turn Setup:

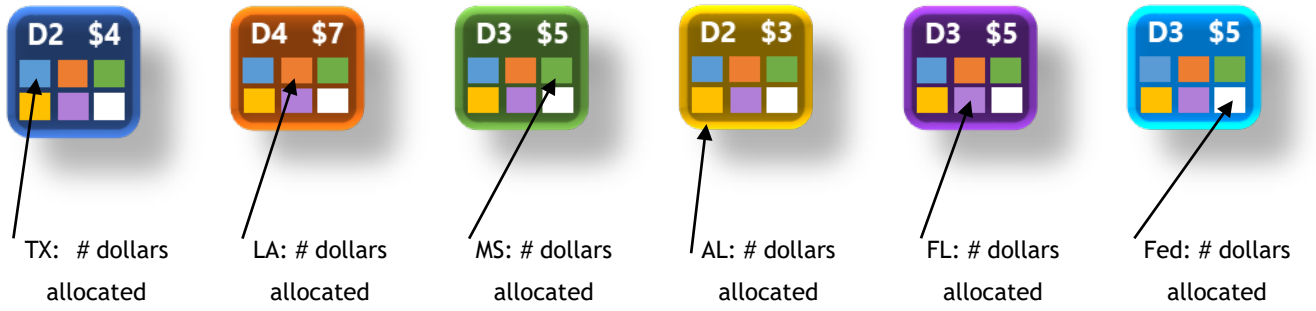
The game facilitator randomly assigns the **First Player** token to one of the six teams.

Step 1. Each team begins with $10 of **Funding** and 15 **Public Buy-in** markers (an additional $5 of **Funding** is allocated to each team at the beginning of a new round; additional **Buy-in** and possible **Funding** bonuses accumulate as a team completes projects).

Step 2. All teams allocate **Funding** to pay for impact identification (e.g., allocate funds to their respective boxes on **Impact Identification** markers).

A team will flip an **Impact Identification** marker to signify completing a payment, which reveals the type of project (indicated by the icon) as well as information about the **Buy-in** and **Funding** bonuses accumulated with project completion. The type of project (e.g., non-marine habitat restoration, studies and analysis) adjusts the ecosystem services rewards received (i.e., provisioning, regulating, cultural, and supporting). Teams are not limited in the number of impact identifications they can perform in a single turn.

- Teams may allocate some or all of the **Funding** required. Teams may collaborate to fund **Impact Identifications**, and permission is not required to fund the identification of impacts in another state.



- **Impact identifications** that are not fully funded during this step will not be flipped over in this turn.

Step 3. All teams simultaneously choose to EITHER acquire capabilities, Regulatory Approval, and/or Community Support OR lobby for funds. State-based teams cannot choose to both acquire and lobby in a single turn. If only one state-based team chooses to lobby then the Federal Government team serves as the other lobbying team and does not lose its ability to acquire capabilities in the same turn. Teams represent their choice to acquire or lobby by moving one of the two team members' "bubbles" to either the ACQUIRE or the LOBBY area adjacent to the game board in the SpatialChat room (see Information on Using SpatialChat Platform).

Acquire

- Each capability—**Physical Resources**, **Expertise**, and **Research and Testing**—costs $1 in **Funding** (no limit)
- **Regulatory Approval** and **Community Support** can be gained by leveraging **Public Buy-in** at a 1:1 ratio (no limit)

Lobby

- For teams that choose to lobby, the facilitator will select "Lobby" from the "Actions" menu and assign the two lobbying teams.
- Only two teams can lobby at a time (versus each other).
- If only one state-based team chooses to lobby, that team automatically lobbies the Federal Government team (in this instance, the Federal Government team retains the ability to acquire during the turn because funding flows through the Federal Government making grants).
- Funds are available according to a compete-or-collaborate scheme.
- Each team enters "compete" or "collaborate" into the SpatialChat chat box simultaneously when prompted by the game facilitator.
- **Funding** won through lobbying is displayed in the "Lobby" dialog box.
- A total of $10 is up for grabs. The lobbying award splits are detailed in the following table.

Team 1 Action	Team 2 Action	Team 1 Award	Team 2 Award	Federal Government Fee
Collaborate	Collaborate	$4	$4	$2
Compete	Compete	$0	$0	$10
Collaborate	Compete	$0	$8	$2
Compete	Collaborate	$8	$0	$2

Step 4. Teams will allocate capabilities, **Regulatory Approval**, and **Community Support** to complete project(s) for which impact identification has been completed (i.e., the **Funding** level on the marker has been met, and the marker's text has turned red).

- The **First Player** completes project(s), and then play continues clockwise.

- Teams can collaborate to complete projects. Teams that choose to collaborate negotiate in real time to determine the associated rewards split.
- If a team wishes to complete a project within another state, it must obtain permission from the state where the project is located.
- At project completion, rewards accrue to the team that completed the project alone or according to the negotiated split (if applicable),
- Projects cannot be partially completed in a turn.

Step 5. Before completing their turns, teams that have acquired a sufficient level of ecosystem services (i.e., provisioning, regulating, cultural, and supporting) to complete an ECOSYSTEM GOAL card will notify the facilitator. The facilitator will indicate fulfillment of the specific ecosystem goal card through a "pop-up dialog box" accessed through the team's dashboard.

Step 6. The **First Player** token is moved clockwise, and another turn is executed by completing Steps 1 through 6.

ENDING THE GAME

The game ends after nine turns representing the nine years between 2021 and 2030.
Teams receive additional **Buy-in** points based on the number of ECOSYSTEM GOAL cards they completed. The rewards associated with ECOSYSTEM GOAL card fulfillment are detailed in the table below.

Number of Ecosystem Goal Cards Fulfilled	Buy-in Rewards
1	4
2	8
3	14
4	22
5	32
6	44
7	58
8	74
9	92

The team with the most Buy-in points at the end of the game wins!

GAME NOTES

The following bullets provide context for the game design decisions underlying OFFSHORE SITUATION ROOM: IMPACTS, RECOVERY, AND RESTORATION and highlight their links to real-world issues and circumstances that affect the impacts identification, recovery, and restoration efforts following an offshore oil disaster.

- **Relationship between Project Types and Ecosystem Services** – Recovery and restoration projects provide overall benefits to the environment in the form of ecosystem services. Different types of projects produce different levels of ecosystem services. Thus, the game assigns differing levels of ecosystem services by project type. For example, economic development projects provide the greatest levels of cultural services through projects that improve the community's ability to seek a livelihood within the environment or enhance public use and enjoyment of the environment.
- **Ecosystem Goal Cards** – Although improving the health of the overall ecosystem is the ultimate goal following an offshore oil spill incident, efforts toward achieving that goal are often conducted in a disaggregated fashion by many different stakeholders. Coordination of efforts across these stakeholder groups is generally not automatic and is often achieved through voluntary collaboration based on perceived mutual benefit. Thus, the game includes the ecosystem goal card mechanism to highlight that stakeholders embark on oil spill recovery and restoration efforts in accordance with their specific interests and needs as represented by the unique combinations of levels of ecosystem services on each team's assigned set of ecosystem goal cards.
- **Lobbying** – The game needed a mechanism that represented oil spill incident recovery and restoration funding mechanisms and the opportunity cost associated with dedicating resources to obtain more funding. Thus, teams can choose to lobby OR acquire capabilities. This binary choice represents the opportunity cost (i.e., forgoing the acquisition of resources, approval, and support) of state-based teams that are dedicating time and resources to lobby for funds via developing and submitting grant applications. The grant application process can be collaborative or competitive. States can increase their likelihood of award, albeit shared, by collaborating with each other to present recovery and restoration project proposals that have wider impact and are therefore more appealing to the awarding entity. However, states could all choose to compete against each another and no award is made, because each state developed proposed projects

that were so narrowly scoped as to not substantively address recovery and restoration needs. On occasion, states may begin the grant application cycle collaboratively, but one state (after gaining insights from collaborative pre-proposal discussions) chooses to submit an individual application, leaving the other state (that had been counting on a collaborative submission) too late to submit an individual application. In each of these instances, the Federal Government administers the grant funding process and either charges an administrative fee, or retains the available funding if no award is made.

- **Funding Bonuses** – In addition to contributing to the recovery and restoration of the area and contributing to ecosystem services levels, some project types (e.g., economic development) also generate revenue through tourism, for example. The game represents this dynamic by assigning funding bonuses to project types that generate revenue.
- **Federal Government Abilities** – Oil spill incident recovery and restoration is a mediated process that often involves regulatory and legal enforcement of damage payments. Because the Federal Government (through regulatory agencies and the courts) oversees and administers a significant portion of the funding available for recovery and restoration, the game affords the Federal Government greater latitude than state-based teams (e.g., lobby administrative fees, lobby pairing without losing the ability to acquire capabilities).

Information on Using SpatialChat Platform

The Offshore Situation Room team evaluated several platforms for hosting the game and selected SpatialChat for its simplicity, ease of access, and compatibility with multiple web browsers (it works on Chrome, Safari, and Firefox). It also allows for proximity-based conversation—i.e., whether you hear someone depends on how close your avatar "bubble" is to them. This feature is critical for Offshore Situation Room: Impacts, Recovery, and Restoration because it allows players to freely move back and forth between discussions within their team, with other teams, or with the entire group simply by clicking and dragging their bubble.

For Offshore Situation Room: Impacts, Recovery, and Restoration, players will switch from Zoom for Government to SpatialChat by clicking on a SpatialChat link. When you click on (or copy and paste the link into your web browser), you will first encounter a welcome page. Simply enter your name (you can ignore adding any other information) and click "Continue." Next, you will be prompted to

allow the application to use your camera and microphone or only microphone. Finally, click “Join Space,” and you will enter the event space for the game.

Upon entry, you may want to pan and zoom in or out to center and optimize your viewing area of the game board. Performing these actions in SpatialChat is similar to manipulating a map on Google Maps:

- To pan, you can simply click anywhere on the event space and drag your mouse cursor.
- To zoom in or out, you can use your mouse’s trackwheel, or you can move your mouse cursor to the bottom right, where the window will display a percentage bracketed by “∧” and “∨”. Hovering your mouse over this percentage will display “+” and “-” buttons, and clicking them will zoom in and out, respectively.

Once in the event space, you can participate in a discussion by dragging your avatar bubble close to that group of avatars. Each of the teams has a designated area in the event space to gather for intra-team discussions; in addition, there is a designated plenary area for everyone to gather during inter-team discussions. These designated communications areas are on the perimeter of a shared game board. Your game facilitator will provide some general guidance about when to move between these communications areas throughout the game. A key aspect of the game, however, is incentivizing collaborative player actions among teams to achieve the greatest benefits. So, you are encouraged to move your bubble around to engage with other teams.

NEEDS AND PLANNING PLAYER INSTRUCTIONS

OVERVIEW

In OFFSHORE SITUATION ROOM: NEEDS AND PLANNING, you and your fellow participants will use your subject matter expertise and your experiences from the incident-phase Offshore Situation Room games to develop—and then later revise—a prioritized list of actions to enhance resilience to future offshore oil disasters in the Gulf of Mexico.

Although labelled as a game, OFFSHORE SITUATION ROOM: NEEDS AND PLANNING is more like a workshop. It combines a structured brainstorming session to identify needed actions with a voting mechanism for prioritizing them. The game has only one team, consisting of approximately 1520 participants, who represent one of the four key stakeholder communities at Offshore Situation Room—namely, (1) Science in Action, (2) Engineering and Technology, (3) Community Engagement, or (4) Regulation and Best Practices.

There is no win condition for this game. If the facilitators can help participants create a prioritized list of actions that can be taken today, using discussions about game mechanisms for additional insight, then everyone wins!

SETUP

In addition to the facilitator, three supporting roles are played by staff:

- **Assessor**: One or two Offshore Situation Room planning committee members will serve as the game's Assessors. These individuals—with input from participants—will assign a rating (low, moderate, or high) based on the level of effort necessary to achieve each proposed action by 2030.
- **Game Mechanism Advisor**: This individual will help participants frame an action as either a modification of an existing game rule in one of the three incident phase games or a new game rule.
- **Real-Time Translator**: The Real-Time Translator will take comments about actions from participants and distill them into succinct descriptions to share with participants in real time.

The game has two stages:

- **Brainstorming Needs**: During the first stage, participants will brainstorm and develop ideas on needed actions to enhance resilience to offshore oil disasters in the Gulf of Mexico. The Real-Time Translator will capture these actions on an Excel worksheet shared through Zoom for Government.
- **Prioritizing Needs**: During the second stage, participants will transition to using EasyRetro, an online tool that facilitates the sharing of and voting on ideas, through which they will prioritize their list of needed actions.

How to Play

During the brainstorming stage, participants will introduce and discuss their ideas for needed actions to enhance resilience to future offshore oil disasters in the Gulf of Mexico. Participants will be encouraged to draw on any insights obtained from playing the incident-phase games, as well as their subject matter expertise and experience. Once identified, the Game Mechanism Advisor will discuss how the action—once achieved—would potentially translate into a change in one or more of the incident phase game mechanisms or rules (for potential use in the 2030 Thought Experiment session on Day 2). Finally, the Assessor will work with participants to scope the level of effort associated with achieving this action by 2030.

During the prioritization stage, participants will engage in successive rounds of voting on pools of actions (i.e., "swim-meet" style) to methodically identify the highest priority actions. Within each pool, participants will each receive a certain number of votes to distribute among the listed actions. The top vote-getting actions in each pool will proceed onward. Voting will continue until a single pool of 12 actions exists. Based on prioritization and levels of effort, a select subset of these 12 will be addressed in the 2030 Thought Experiment session on Day 2.

Ending the Game

The game ends when the group has identified their top priority actions and the subset of these actions that will proceed to the 2030 Thought Experiment. Please note, however, that all actions identified in this game will be used to produce a post-event report. Actions that are not included in the final pool or the 2030 Thought Experiment will not be ignored or discarded. The motivation behind incorporating only select actions for the thought experiment was to (1) prevent players from becoming overwhelmed and (2) place the top-voted actions in an applied context. The 2030 Thought

Experiment will serve as an initial test to hopefully identify potential complications or additional benefits associated with these actions.

On Day 3, the same groups of participants will play OFFSHORE SITUATION ROOM: NEEDS AND PLANNING a second time. The session on Day 3 will be shorter than the Day 2 session. This second iteration of the game will focus on updating and refining the existing list developed during Day 2, rather than developing a new prioritized list from scratch.

INFORMATION ON USING EASYRETRO PLATFORM

In addition to Zoom for Government, OFFSHORE SITUATION ROOM: NEEDS AND PLANNING participants will access EasyRetro through a provided link. EasyRetro works on all major web browsers except for Internet Explorer. Upon clicking the link, participants will immediately enter the EasyRetro dashboard. Each column within the dashboard represents one pool and will already be populated with up to 12 randomly selected actions from the Excel spreadsheet. When directed by the facilitator, participants will vote on which actions in a particular pool they consider the most important by clicking the "thumbs up" icon on the bottom right of each entry. Participants may allocate as many of their available votes as they want toward a particular entry. However, all available votes must be distributed each round. If participants change their minds about their allocation of votes, they can simply click the "x" icon on the bottom right of each entry (which appears once a participant has voted for an item) to reduce the number of their votes for this entry by one and reclaim this vote.