ChatGPT

Commercial Fishing Boat Storm Aesthetic Reference Guide

Curated Reference Library (Heavy Weather Footage)

This reference library catalogues key videos of fishing vessels battling harsh storms (Deadliest Catch-style and real footage). Each entry details the source, vessel type, conditions, and aesthetic notes:

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Epic Storm: Bering Sea Crab Boat Rides It Out	Crab boat (Bering Sea)	Day	5	massive waves, gale winds, rolling, spray, survival	0:00–1:30, 3:00–3:40, 4:50–5:20	Shows extreme waves burying the bow and wheelhouse [1] – a reference for the **highest** storm conditions possible.
Summer Bay Crew in Huge Storm (Deadliest Catch)	Crab boat (Summer Bay)	Day	4	green water, deck flood, heavy spray, overcast, chaos	0:45–1:10, 2:20–2:50, 4:00–4:30	Deck repeatedly awash in *green water* (solid wave water) [2]; crew bracing under constant onslaught [3]. Great for **deck VFX** and crew animation reference.

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Northwestern Faces a Siberian Storm (Deadliest Catch)	Crab boat (Northwestern)	Twilight	4	snow, dusk glow, ice-spray, 40-ft waves, wind	1:00–1:30, 3:15–3:45, 5:10–5:40	Icy decks and low visibility in a polar storm; snow and sea-spray in dim light. Useful for **cold fog** and blowing snow lighting.
Huge Storm Hits the Titan Explorer (Deadliest Catch)	Crab boat (Titan Explorer)	Day	3	grey skies, big swell, rain, yawing, persistence	0:20–0:50, 1:30–2:00, 3:50–4:20	Steady heavy seas impacting a larger modern crab boat; showcases long rolling swells and *persistent* heavy weather. Good for **ship physics** and **persistent rain VFX**.
Biggest Storms & Waves of the Bering Sea (Compilation)	Crab boats (multiple)	Day/ Night mix	5	monster waves, lightning, crew peril, flooding, foam	**Various:** 0:30, 1:50, 3:00, 4:10, 5:20	Multiple peak moments from Deadliest Catch: rogue waves shattering over decks, lightning flashes, near-capsize moments. Delivers high drama & variety of angles [4] – **VFX and cinematic camera** goldmine.

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Deadliest Catch's Roughest Waters (Compilation)	Crab boats (multiple)	Night/ Day mix	4	relentless, dark seas, fear, slow-motion, impact	**Various:** 0:10, 0:50, 2:00, 4:30, 6:00	Highlights the most **moody** shots – e.g. slow-motion waves and silhouetted crew. Emphasizes atmosphere over action [4]. Great for **tone setting** and camera pacing (lingering vs. frenetic).
French Fishing Boat vs Storm *Goretti* (Atlantic)	Trawler (French)	Day	5	towering seas, hurricane gusts, wall of water, spray, extreme	0:00–0:20, 0:45–1:10	An *Atlantic gale* with gusts up to **110 mph** [5] – massive wave walls engulf the trawler. Ultimate reference for **extreme storm** scale (nearly hurricane-force seas).

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Enormous Wave Crashes Over Fishing Boat in Antarctica	Longliner (Argos Georgia)	Day	5	rogue wave, full immersion, cold, foam whiteout, sudden	0:10–0:25	One **rogue wave** utterly submerges the deck in the Ross Sea, Antarctica. Illustrates how a single wave can obliterate visibility (foam *whiteout*) [6] . Vital for **sudden impact VFX**.
Sarah David S411 – Fishing Boat in Storm (Irish Sea)	Trawler (N. Ireland)	Day	3	choppy waves, rain, overcast, deck work, routine danger	1:00–1:30, 4:00–4:20	A smaller trawler fighting a moderate gale. Constant rain and short-period waves make deck work *risky but routine*. Good baseline for a **"common" storm** scenario.
Fishing Vessel *Cacharulo* in Rough Seas	Trawler (Spain)	Day	4	rolling swell, green water on bow, cloudy, crew resilience, spray	0:30–0:50, 2:10–2:30	Atlantic/ Mediterranean heavy weather with large rolling swells. Repeated "green water" over the bow, crew timing work between wave hits. **Reference for wave timing and deck drainage**.

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Pelagic Trawler *Western Viking* – Leaving in Rough Seas	Pelagic trawler (Scotland)	Day	3	harbor waves, bow plunge, foam, overcast, resilience	0:15–0:45, 1:10–1:30	Vessel departs port into a rough North Sea. Bow plunges into oncoming breakers, throwing foam over the bow. Great for **bow splash** and showing a heavy ship's resilience exiting harbor.
Dramatic Footage – *"The Price of Fish"* Storm Film (2018)	Trawler (UK)	Day	4	50-knot winds, huge spray, deck cams, realism, endurance	0:50–1:20, 3:00–3:30	Documentary-style footage of crew enduring a gale (~50 kn winds). Multiple angles (including **onboard GoPro**) show *authentic* crew behavior and water on lens. Excellent for **realistic POV** and **true-scale spray VFX**.

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Lapwing PD 972 – Hauling Net on Wild Day (North Sea)	Trawler (Scotland)	Day	4	heavy roll, gear operation, whitecaps, strong wind, grey	0:10–0:40, 1:20–1:50	North Sea storm while hauling net (Feb 2011). The boat pitches heavily, whitecaps everywhere. Shows gear under strain and crew coordination amid waves [7]. Key for **equipment physics** and **crew animations** in rough seas.
Bering Sea Rescue: The *Alaskan Monarch* (1990)	Crab boat (92 ft)	Night	5	ice buildup, breaking waves, rescue lights, mayday, chaos	1:00–1:30, 2:00–2:20	Infamous rescue: 25 ft waves break over a stranded crabber [8] amidst pack ice. Floodlights and helicopter lights illuminate chaos at night. Reference for **emergency scenarios**, ice-laden vessel visuals, and dramatic sound (alarms, radio).

Source (Link)	Vessel Type	Day/ Night	Intensity (1-5)	Top 5 Keywords	Best Timestamps	Notes for Game Use
Wizard Crew Rocked by 30 ft Night Waves (Deadliest Catch)	Crab boat (Wizard)	Night	4	darkness, amber glow, rogue wave, injury, urgency	0:20–0:45, 1:40–2:05	A *nighttime* deck catastrophe: an unseen 30′ wave slams the crew. Amber deck lights halo in the spray, a man goes down. Perfect for **night storm lighting** and illustrating safety gear and procedures under duress [3].

Storm Intensity Legend: 1 – mild rough seas; 5 – extreme life-threatening storm. “Green water” = solid seawater on deck (vs. just spray) [2].

Aesthetic Taxonomy (Visual Tag System)

To organize recurring visual motifs, we define tags by category. Each tag is listed with its definition and examples of where it appears in the references:

- **Lighting Tags:**
- `LIGHTING_DECK_FLOOD_AMBER` – Amber/yellow deck floodlights that cast warm, hazy light. Common on commercial boats (high-pressure sodium floods) [9]. *Seen in:* Wizard night waves (amber glow on spray), **Night Deck** mood.
- `LIGHTING_BRIDGE_RED` – Red low-level lighting in the wheelhouse at night to preserve night vision [10]. Creates an eerie red glow on controls and faces. *Seen in:* wheelhouse shots on night shifts, **Night Bridge** mood.
- `LIGHTING_SPOTLIGHT_BEAM` – Powerful white spotlight or searchlight beams cutting through darkness/rain. Often used during rescues or to spot buoys. *Seen in:* Alaskan Monarch rescue (helicopter/spot lights in storm).

- **Weather Tags:**

- `WEATHER_HEAVY_RAIN` – Torrential downpour; thick raindrops visible against light (deck lights or horizon). Rainwater streams off gear and lens. *Seen in:* Summer Bay storm (driving rain on camera), *Price of Fish* doc footage.
- `WEATHER_SLEET` – Stinging mix of rain and ice/snow. Accumulates as slush on deck and clothing. *Seen in:* Northwestern Siberian storm (freezing spray and snow).
- `WEATHER_FOG_THICK` – Dense fog dramatically reducing visibility; muffling light into a gray glow. *Seen in:* Twilight fog scenarios (horizon disappears), calm-before-storm scenes.
- `WEATHER_SPINDRIFT` – High winds shearing off wave crests into horizontal *spray sheets*. Forms wind-driven streaks of foam [11] that race across the water. *Seen in:* footage of gale-force winds (foam streaks in North Sea videos).

- **Water/Wave Tags:**

- `WATER_GREEN_WATER_ON_DECK` – Solid waves washing over the deck (literally green seawater flooding in) [2]. This is the full force of a wave coming aboard, often damaging and dramatic. *Seen in:* Summer Bay and *Cacharulo* clips (deck engulfed).
- `WATER_FOAM_STREAKS` – Long *white* streaks of foam blown off wave tops by wind [11]. Indicates high wind velocity and turbulent seas. *Seen in:* Storm Goretti (wind blowing foam), many open-ocean gale shots.
- `WATER_WAVE_IMPACT_SLAM` – The moment a wave impacts the hull or deck, marked by a loud **boom** and spray explosion. Often accompanied by camera shake. *Seen in:* Wizard 30ft wave (sudden hit), Antarctic rogue wave (camera completely submerged briefly).

- **Material/Surface Tags:**

- `MATERIAL_RUST_STREAKS` – Brown-red rust streaking down metal surfaces from salt corrosion. Ubiquitous on working boats (e.g., around welds, bolts). Signals age and maintenance challenges. *Seen in:* hulls and deck equipment in all footage (e.g., *Price of Fish* trawler hull).
- `MATERIAL_PEELING_PAINT` – Layers of marine paint flaking off due to constant abrasion (chains, traps, salt). Exposes metal and primer. *Seen in:* close-ups of older crab boats (weathered bulkheads, deck handrails).
- `MATERIAL_WET_SHEEN` – Glossy, reflective wetness on every surface – from rain and sea spray. Decks, railings, and clothing all glisten with specular highlights. *Seen in:* **every** storm scene – e.g., Summer Bay's soaked deck and slicker suits shining under lights.
- `MATERIAL_ICE_ENCASING` – White/opaque layers of ice on structures from freezing spray. Transforms boat surfaces into frost sculpture, adding weight. *Seen in:* Northwestern in icy storm, Alaskan Monarch (hull iced), **Ice and Whiteout** scenarios. (E.g., heavy ice can add *150+ tons* weight [12].)

- **Camera & Framing Tags:**

- `CAMERA_WET_LENS` – Water droplets on the camera lens, causing blurring and distortion. Emulates GoPro/helmet cams in rough weather. *Seen in: Price of Fish* film (spray hitting camera), crew POV shots with splashes.

- `CAMERA_HANDHELD_SHAKE` – Unstabilized, jerky camera motion following the vessel's jolt. Conveys chaos and impact. *Seen in:* on-deck footage during wave hits (e.g., Wizard wave scene – camera tumbles, horizon dutch-tilts 45°).
- `CAMERA_ROLLING_HORIZON` – Cinematic stable shot where the boat's deck and horizon are seen tilting dramatically. Emphasizes how far over the vessel heels. *Seen in:* chase-boat shots of crab boats in swell [13], drone footage in rough seas.

- **UI & Instrument Tags:**

- `UI_RADAR_GLOW` – The soft green glow of a radar scope or navigational screen in a dark wheelhouse [14]. Often a circular sweep with a blip, casting green light on crew. *Seen in:* night bridge scenes (radar and GPS monitors casting light on faces).
- `UI_SONAR_PING` – The periodic *ping* and blip of a depth sounder or fish-finder sonar on-screen. Visually a scrolling graph or concentric circles, with associated audio ping. *Seen in:* some wheelhouse scenes in calm moments (background detail).
- `UI_ANALOG_GAUGES` – Old-school dials (engine RPM, rudder angle) with needles that vibrate from engine and wave impacts. Backlit in faint light. *Seen in:* engine room shots or bridge console close-ups when the boat slams (needle jitter).

- **Mood/Emotion Tags:**

- `MOOD_DREAD_STEADY` – A sustained atmosphere of tension and dread, even when "nothing happens." The crew is quiet, anticipating the next wave. *Seen in:* long night wheelhouse shots with howling wind outside [4].
- `MOOD_ADRENALINE_SPIKE` – Sudden spikes of panic and action. Marked by shouting, alarms, and rapid camera cuts when a wave hits or a crewman is in danger. *Seen in:* Wizard rogue wave incident (chaos as crewman goes down).
- `MOOD_OMINOUS_LULL` – The eerie calm before the storm (or between wave sets). Lower engine RPM, relative quiet, maybe a slight clearing in weather – but an ominous, lurking threat. *Seen in:* moments before a big wave in compilations, **"Calm Before the Slam"** mood.
- `MOOD_EXHAUSTED_RELIEF` – After the worst passes: crew visibly fatigued, silence except for wind and engine, perhaps gallows humor or stunned faces. *Seen in:* post-storm scenes in Deadliest Catch where men slump against railings, soaking wet.

These tags form a vocabulary for art and design discussions (e.g., "We need more `WATER_FOAM_STREAKS` in the gale scene" or "The night fishing mission should hit a `MOOD_ADRENALINE_SPIKE` when the wave triggers an alarm"). They capture what our references repeatedly show across environment, effects, and emotional tone.

Storm Mood Board Packs

Using the references and tags, we propose 6 thematic *mood boards* to guide the game's art direction. Each pack is described in words (with suggested colors, materials, VFX, camera, sound, and UI cues):

1. Day Storm: Steel Blue Fury

- **Palette:** *steel blue*, *slate gray*, *cold white* (foam), *deep teal* (sea water), *charcoal* (cloud bases). *(Think: the Bering Sea's "deep steel grey" expanse* [15] *under overcast skies.)*
- **Materials:**
- Dripping *wet steel* hull panels (blue-grey paint darkened by water)
- Black rubber bumpers slick with saltwater
- Chipped paint on railings with orange rust peeking through
- Canvas tarps and ropes soaked dark
- White foam residue clinging to metal mesh and nets
- **VFX:**
- Constant *rain mist* (fine, wind-blown) that diffuses light
- Waves with *whitecap foam streaks* tearing off [11] in the gusts
- Occasional *green water* crashing over the bow and coursing along decks
- Lens droplets and spray splashes on the camera during big hits (tag: `CAMERA_WET_LENS`)
- **Camera:** Largely handheld feel. Slightly shaky and *sea-swaying motion* at all times (to induce the VR user's sense of imbalance). During big impacts, camera reels and horizon line tilts dramatically. Occasional wide shots to show the full boat pitching on 20+ ft swells for scale.
- **Sound:** Dominated by *wind howl* and *wave crashes*. The wind has a deep bass rumble underneath a higher whistle. Constant thrum of diesel engines (in a lower register, laboring against waves) sets a background rhythm. Loud *booms* when waves slam the hull punctuate the soundscape, followed by the roar of water rushing over deck. Distant radio chatter or a deckhand's yell is barely audible in the mix.
- **UI:** Minimal overlay – rely on in-world instruments. Bridge instruments display a glowing green radar sweep with blips (`UI_RADAR_GLOW`) and an echo-sounder graph. These screens contrast with the monochrome blue exterior. Any text (like warnings) uses high-contrast fonts (white or cyan) against dark backgrounds, slightly blurred as if on a shaking CRT monitor.

2. Twilight Storm: Fog and Glow (Gray)

- **Palette:** *gunmetal gray* sky, *fog white* horizons, *dull silver* water with hints of *bruise purple* in clouds, and pockets of *warm gold* from low sun peeking under clouds.
- **Materials:**
- Every surface sheened with moisture – reflective puddles on deck
- Patina of salt crust on windows, diffusing the light (windows appear milky)
- Slicker suits on crew, colored orange but muted in the grey light
- Navigation buoys on deck with fresh reflective tape glinting in gloom
- Aluminum fittings (antennas, radar) dripping water, softly gleaming when light hits
- **VFX:**
- Thick *fog banks* rolling through, dramatically cutting visibility to maybe 30–50 meters (`WEATHER_FOG_THICK`). The boat's own lights cast halos in the haze.
- Light rain/drizzle that causes a constant drip from edges of roof and gear.
- Occasional distant lightning flash diffused in clouds, momentarily lighting up the fog.
- Sea state: a heavy swell but more *swell* than breaking waves – huge dark shapes rising out of the fog. Foam is minimal, more smooth heaving until a wave nears the boat.
- **Camera:** Many medium and close shots to emphasize isolation. E.g. a shot from the wheelhouse *through a rain-speckled window*: outside is just grey void and a towering wave emerging. Use slow zooms or steady cams to create a suspenseful feeling (e.g., slowly revealing a wave out of fog). When

on deck, camera stays tight on crew with shallow depth of field – background fades into grey. The camera might pan quickly when a wave suddenly appears ("there's one!"), adding surprise.
- **Sound:** Muffled. The blanket of fog and humidity deadens sound – *engine drone* and *propeller wash* dominate, but sound somewhat closer and droning. Fog horn blasts cut through periodically (low bellow). Crew voices are hushed or tense. Distant thunder can be heard as a low rumble, but not sharply – it rolls. Water noises are gentler in this mood: more *swashing* and *sloshing* as waves lap rather than slam (until a big one hits). The overall mix should feel *quietly menacing*.
- **UI:** Emphasize radar and instruments as lifelines. The radar screen in fog is critical – perhaps an in-game UI element could simulate a radar view pinging a large wave or nearby object. Use a soft green UI theme to mimic real radars. Any textual UI (like prompts) could gently pulse or blink, as if a warning light, rather than remain static – reinforcing the ship-like feel. Font might be slightly pixelated or OCR-style, colored soft green or amber.

3. Night Deck: Sodium Amber Chaos

- **Palette:** *pitch black* background (moonless storm night), with *sodium amber* highlights from deck floodlights, *fluorescent green* and *red* accents from crew gear (reflective safety strips). Foam and water appear as *dirty white* flashes in light, and the sky remains a void.
- **Materials:**
- **Wet metal** everywhere, catching amber light (specular hotspots on railing edges, winches).
- Bright yellow rain slickers on crew, dirtied and shining when light hits – almost the only strong color against darkness.
- Deck wood or nonskid coating dark and glossy from water.
- Glass: wheelhouse windows streaked with water; when light from inside hits them, shows clear rivulets.
- Rust and grime are largely hidden in the dark, but revealed in flashlights or sparks.
- Pools of water on deck reflecting the orange light like a mirror (until a wave wipes them).
- **VFX:**
- Driving rain *visible in light beams* – streaks of orange across the scene (`LIGHTING_DECK_FLOOD_AMBER`).
- Constant *spray* from waves breaking, sometimes blowing across the deck like smoke in the amber backlight.
- Occasional *green water on deck* events appear as sudden surges of black water that turn golden under lights as they splash up.
- Mist and steam from breaths or engine exhaust might catch light as well, adding haze.
- Maybe electrical arcing or sparking from equipment if damaged (brief blue-white flashes).
- **Camera:** Very kinetic. On-deck night footage tends to be first-person shaky (think GoPro on a crew helmet at night). We emulate that: the camera is right there with the crew, bobbing and snapping around to follow action (e.g., turning to see a wave coming, then whipping back to a crewmate handling a line). Impacts cause momentary loss of visual (camera maybe drops to a view of the deck or sky for a second). Lens *flares and glares* abound – every light is a halo (wet lens + darkness = bloom). Possibly occasional thermal/night-vision style shots for dramatic effect (grainy green visuals) if needed to show something in the dark.
- **Sound:** Deafening mix: *Wind shrieks* around corners of the deck. *Metal-on-metal clanging* as loose equipment rattles or a crane swings. *Shouted communication* ("Watch out!") barely cuts through. The engine sounds are lower-frequency but you feel them more than hear them clearly. Importantly, water sounds are explosive: when a wave hits, you hear a sharp *crack* of water against steel followed by a drowning roar. Also incorporate alarms: e.g., a muffled high-low *alarm bell* if water level gets

high or a door opens – heightening urgency. Silence is nonexistent; even between big waves there's the scuffle of boots and the drumming of rain on metal.

- **UI:** Diegetic, as much as possible: e.g., the only light on the HUD might be a small icon resembling the boat's **radar** if the player checks it, or the glow of a headlamp. Perhaps a minimal overlay indicating player health/stamina in a subtle way (like a colored vignette) to avoid any bright UI element breaking the dark immersion. If text prompts are needed, use a dull amber color in the corner, as if part of the boat's instrumentation, and keep them sparse. All fonts in this mode should be **bold and easily readable in low light** (no thin lines), maybe with a slight outer glow to simulate backlighting. Essentially, the UI should feel like part of the ship equipment at night.

4. Night Bridge: Red Light Vigil

- **Palette:** Interior darkness with selective *red lighting* (`LIGHTING_BRIDGE_RED`) and faint *green/blue monitor glows*. Imagine the wheelhouse lit only by instrument panels and a red overhead lamp. Outside the windows: nearly black with occasional white spray or light from deck. Inside: faces are in shadow with red rimlight, instruments softly colored.
- **Materials:**
- Matte black dashboards with illuminated dials (small pools of light on a black surface).
- Brass or steel compass and wheel, catching a tiny red reflection.
- Old chair leather and wooden trim, barely visible except where the red light hits – showing decades of wear in that limited light.
- Condensation on the inside of windows (from human breath in cold air), glowing red where the lamp hits and gleaming when lightning flashes outside.
- Coffee mug, maps, binoculars on the console – all in silhouette or slight red fill.
- **VFX:**
- *Cigarette smoke* or vapor in the air (if any crew in bridge) visible as swirling red-tinted haze around a lamp.
- Occasional *lightning flash* from outside illuminates the whole bridge in blinding white for a split second, revealing the chaotic seas through windows. Then back to red/dark.
- *Instrument glow:* Not exactly VFX, but ensure screens (radar, sonar) have a slight bloom – a fuzzy halo from the green or blue screens that illuminates the nearby wall and the helmsman's face. Possibly a subtle flicker on old monitors.
- *Rain on glass:* from outside, droplets on the bridge windows create ever-changing patterns of refraction for the outside lights. Wipers slogging intermittently, each swipe briefly clearing a view before new droplets form.
- **Camera:** Mostly *stationary or gentle movements* in the bridge – contrast with deck chaos. For example, a locked-down shot over the Captain's shoulder focused on the forward windows, showing giant waves appearing in the darkness ahead lit by the boat's spots. The camera might shake with the ship but not free-float (the bridge is a relatively stable vantage, though it still pitches). Use focus pulls: focus shifts from the raindrops on the glass (near focus, streaks of red light) to the far view of an incoming wave when lightning or a searchlight illuminates it. Also incorporate POV shots through the captain's eyes (in VR, the player will essentially *be* in this POV), scanning instruments then looking out into blackness – perhaps with a subtle red tint simulating the eye's adaptation.
- **Sound:** Inside the wheelhouse, sounds are slightly muffled compared to outside – the wind is a muffled roar, and each wave impact is heard as a low boom and a vibration. The prominent sounds: *radio chatter* (staticky, voices from other boats or Coast Guard – maybe a mayday or weather report) and *beeping electronics* (e.g., the radar ping, the course alarm if off track). There might be an engine noise but more background and constant. The creaking of the ship's structure is more noticeable

here in the relative quiet: wood paneling creaks, items rattle softly with each roll. If the captain speaks or mutters (or the player character's breathing), it's clear. This is an intimate, tense soundscape – the *sanctuary* from the storm where information comes in. Occasionally, a *slam* on the window from a wave will crash the soundscape, reminding that danger is inches away (a heavy *THUD* and wash of water sound that you hear dully through glass).

- **UI:** The player's "UI" in this context is largely the actual instruments in front of them. Emphasize an in-game interactive radar, map, engine telegraph, etc., all rendered diegetically. If a traditional UI element is needed (like an objective marker or dialog), incorporate it into existing screens (e.g., a message pops up on the virtual radar screen or a small text on a console display). Use the *red monochrome* color scheme for any text (to mimic night mode of devices). Keep it low in brightness. For example, if there's a tutorial hint, it could appear as a note on a small console LED display in red text. This keeps the bridge "dark adaptation" feel. Essentially, **no bright HUD elements** should float in the player's view; everything should feel like it belongs in that red-lit room.

5. Ice and Whiteout: Frozen Hell

- **Palette:** *Blinding white* snow and ice, *pale blue-gray* overcast daylight, *dark steel* ocean with frothy white tops. The scene is high-contrast when the snow stops, and eerily monochrome during snowfall (almost everything becomes white or light gray). A bit of *brown rust* or *bright orange* survival gear might punctuate the palette.
- **Materials:**
- Thick *ice drapes* over the bow, railings, antennas – opaque layers of rime ice covering surfaces (`MATERIAL_ICE_ENCASING`). The boat looks encased in frosty armor.
- Moving parts frozen in place: e.g., ice on block pulleys, coated lines stiff as rods.
- Snow piled in corners of deck, sloshing as it mixes with seawater.
- Deck itself a slippery mix of ice and slush. Non-skid paint barely visible through the frost.
- Crew gear covered in frost: gloves and jackets whitened, ice clinging to goggles and beards.
- Icicles hanging from the edges of the wheelhouse roof and equipment.
- **VFX:**
- *Blizzard snowfall* when conditions peak – thick snow reducing visibility to just the ship itself. Snowflakes whipping sideways (`WEATHER_SNOW_BLIZZARD`).
- *Ice formation* effects: subtle growth of ice on surfaces over time, perhaps a shader that grows crystalline edges on windward sides of objects. Visibly grows thicker if the player doesn't knock it off.
- *Breath fog* from crew in the cold air. Every exhale visible.
- *Halo effect* around lights (similar to fog) as snow reflects light – at night, an ice storm would halo deck lights significantly.
- Waves are a bit slower but very powerful (cold air, big swells). When waves hit, they fling chunks of ice from the ship into the air along with water.
- Possibly *crack sounds* and small splinters of ice flying when heavy ice breaks off (e.g., if the crew knocks it free or a wave shears some off).
- **Camera:** Emphasize the *harshness* and the *struggle*. Use some shaky cam when the crew is working to break ice (close-ups of a mallet hitting ice off the railing, camera flinching with each hit). Wide shots to show the boat *listing* from asymmetrical ice weight – maybe a drone-like shot revealing the vessel encrusted in white in a field of gray ocean. Also, some near-first-person views when looking through safety goggles *caked with frost*, giving the player a sense of limited vision (a layer of ice on the camera that cracks and falls off after a big jolt, revealing the scene). **Impact moments**: e.g., a wave hits and a 60-pound chunk of ice breaks off a mast and smashes onto the deck [16] – the camera should follow it in slow motion or a quick cut to convey the danger. Possibly incorporate

slight slow-motion when the environment goes from blizzard fury to a sudden calm (eye of storm or lull) – showing snow gently falling in silence before things pick up again (a dramatic contrast).

- **Sound:** A mix of *wind's howl* (even higher-pitched in cold air, almost a shrieking whistle) and the *pelting of snow and ice*. There's a distinct sound to ice – the tinkling of ice pieces across the deck, the glassy shatter when big chunks fall and break. Include the *chipping sound* of crew swinging hammers or baseball bats to break ice off gear. During whiteouts, sound can go oddly muffled when heavy snow is falling (sound absorption) – so we might drop high frequencies a bit to simulate that insulated feeling. When the boat slams, you get an extra sound of ice *cracking and sliding*. Also, the weight of ice might cause objects to strain – so add *creaking and groaning* of the ship's structure more than usual. If conditions reach an extreme, alarms will sound: e.g., stability alarm or ice accretion alarm. Perhaps incorporate radio warning about ice ("Coast Guard: all vessels, freezing spray warning in effect"). The absolute vibe: *lethal cold*. The player should *hear* the cold – teeth chatter, a gust of wind physically *stings* via sound.
- **UI:** Perhaps an **"ice gauge"** UI element could be introduced – but do it in-world: e.g., a thermometer graphic or icing indicator on a console in the wheelhouse that fills up as ice accumulates. The UI text and icons should adopt a frosty style (pale blue/white) during these segments, with maybe a subtle crystalline texture. Warnings for the player like "De-ice the boat!" could flash in white with a snowflake icon, then fade, instead of a plain text box. Also consider screen effects on the UI: edges of the player's view frost over to indicate extreme cold (and maybe player health if that's a factor). Keep any critical HUD info high-contrast (white on a dark background) since the world is so white – possibly use a dark semi-transparent background for UI text during snow so it's readable against snow bursts. But overall, minimal clutter: rely on environmental cues for the severity (like the boat rolling more due to ice weight, alarm lights blinking) rather than heavy HUD.

6. *"Calm Before the Slam"*: Ominous Lull

- **Palette:** *Bruised purple* and *deep orange* twilight sky (just as storm is forming or breaking). The sea is *uncharacteristically glassy* or slowly undulating with a *greenish-black* tone. There's a sickly yellow tint to the clouds on the horizon – a classic omen of a bad storm coming. Overall palette has more contrast: dark water, a stripe of pale light at horizon, and black clouds above.
- **Materials:**
- Surfaces are still wet but less agitated – so you see *mirror-like puddles* on deck reflecting the strange colored sky.
- Flags or tarps hang limp (if truly calm before wind picks up). Antennas and lines are still, allowing water droplets to bead on them.
- Crew gear is less in use – e.g., jackets open or off, things relatively in order (right before chaos). But maybe one or two items are out of place, foreshadowing trouble (a loose bucket rolling gently).
- The ship's hull is dark and reflective in the calm water. Maybe oil slick patches from bilge water reflect the orange sky.
- Distant lightning illuminated on metal surfaces in brief flashes (showing textures that are otherwise in shadow).
- **VFX:**
- Very *little motion* at first: no rain yet, just distant lightning. The water has a slight swell but with a smooth surface – until the first big wind gust or wave arrives.
- Perhaps a subtle *ground swell* effect: the boat gently rises and falls in long periods, which actually can be an uneasy feeling when waiting for something worse.
- If humidity is high, a bit of *heat lightning* flicker in clouds with no immediate thunder audible (just flashing clouds).

- When the storm is about to “slam,” you might show a sudden wall of rain in the distance approaching – like a curtain of gray advancing. This could be a dynamic effect moving toward the player.
- Maybe a few seabirds circling or frantically flying to safety (wildlife cue) – not exactly VFX, but an environmental cue that the *animals know something is coming*.
- **Camera:** The pacing here is crucial – *linger*. Use long takes: e.g., a slow wide shot of the boat against a calm horizon with thunderheads far away, holding for several seconds to build anticipation. Camera can slowly track around the boat, showing 360° of relatively calm seas but ominous clouds encroaching. Then, micro-cues: maybe a sudden close-up of a coffee cup sliding an inch on a table – implying the first jolt. Or a time-lapse-esque quickening of cloud movement as wind picks up. Essentially, the camera language goes from serene (even use a stable gimbal or drone shot for an ethereal calm feeling) to rapid-fire handheld once the “slam” arrives. Perhaps even break the fourth wall with an abrupt cut: everything was quiet, then *smash cut* to a wave hitting (to shock the player). In VR, you could have the calm scene and then a literally *unavoidable* wave impact that tosses the player.
- **Sound:** Start near-silence (relative to other scenes). Maybe gentle lapping of water, distant thunder barely heard (a low rumble that you feel more than hear). No engine change (steady RPM) but maybe the captain throttles down the engine during this wait – so engine falls to an idle murmur. Emphasize small sounds: a lone seagull cry, creaking wood as the boat flexes slowly. This contrast will make the incoming storm’s noise even more overwhelming. When the first gust hits: you hear a sudden *whoosh* of wind that was absent moments before, loose objects clatter, a wind chime or radio antenna starts clanking. The **transition** is key – possibly start fading in a tense music or just let the environment swell. Once the slam comes, there might even be a brief moment of *actual silence* right before impact (ear shock) then a cacophony. This is the horror movie beat in our game: the player knows it’s about to get bad, and sound teases them – maybe even a voice on the radio, “Brace yourselves…” followed by static as the storm front knocks out comms.
- **UI:** Use this moment to tutorialize or prompt the player in a diegetic way. For instance, a message “Storm incoming: Secure the deck!” might appear on a console screen or be spoken via radio rather than a traditional HUD text, to maintain immersion. Visually, the UI could do something clever: as barometric pressure drops, a gauge on the bridge could swing and maybe that is actually a timer for the player (indicating time before storm hits). So the UI elements are styled as meteorological instruments – *barometer dropping, storm warning light blinking*. If an on-screen prompt is necessary, use a color like yellow or orange (matching the sky) to hint at the cautionary nature. The key is to not break the calm with a jarring UI – keep it subtle until the game intentionally breaks calm with the storm itself.

Each **mood pack** above combines color, texture, VFX, and cinematic rules to ensure consistency in the game’s look and feel under various conditions. They serve as creative direction targets for the art team – e.g., if a level is a night deck scene, refer to “Night Deck: Sodium Amber Chaos” to ensure all those elements (palette, lighting, wetness, camera shake, sound mix, UI integration) are present.

Game Art Direction Translation

Drawing on the reference library and taxonomy, here is a practical art direction brief for the VR fishing boat storm game. This translates the observed aesthetics into concrete guidelines for different departments:

Lighting Design Guidelines

- **Daytime:** Overcast, cold lighting dominates. Use a desaturated, diffuse light (the sun often hidden by clouds). Sky color leans steel-blue or gray, casting *blue-grey tones* on everything. No harsh shadows – instead, a broad ambient light with occasional brighter glints when the sun peeks through storm breaks. Day storms should feel *oppressively dim* and colorless (as seen in Bering Sea footage where winter daylight is barely above dusk).
- **Night Exterior (Deck):** Embrace *high contrast* and *local light sources*. The only significant lights are the ship's own – e.g., **amber deck floodlights** and maybe a white spotlight or two. All exterior night scenes **must have haloed, glowing light sources and lots of shadow**. Expect deep black backgrounds with limited visibility; what's outside the cone of light falls off into darkness [4] . Simulate the way wet air blooms light: slight fog around lamps (`LIGHTING_DECK_FLOOD_AMBER`). This means using atmospheric scattering shaders so beams and halos show, especially with rain/spray.
- **Night Interior (Bridge):** Keep it *dark-adapted*. The wheelhouse should be illuminated primarily by instrument panels and perhaps a dim red overhead light [14] [10] . This means artists should use very low-intensity emissives for gauges (greens, blues) and a red fill light. The bridge lighting is a "dark look by design" [14] – it should feel like stepping into a night vision environment. Ensure materials in the bridge react to red light believably (no blown-out textures under red). Any white light (like someone opening a door to the galley) should be treated as an event (the captain will yell to shut it!).
- **Interiors (Quarters/Galley):** These can have a *warm, tungsten glow* when not in storm emergency. Cozy, cramped, warm light (maybe a single 40W bulb type feel). But during heavy weather, even interior lights might flicker or be turned off to save power/avoid distraction. So generally, keep interiors on the dim side – perhaps lit by a swinging lamp that sways with the ship's motion for effect. Contrast with the harsh exterior by making interior lighting slightly warmer color temperature (more yellow) – a sanctuary of warmth amid the cold storm.
- **Storm Specific Lighting Effects:**
- Use **lightning** strategically: real lightning is sporadic in our footage, but when present it's a stark *blue-white flash* that casts sharp, instant shadows. In-game, a lightning flash should momentarily reveal the entire scene (perhaps exposing a looming wave) and then plunge back to dark. Time it with thunder sound (with correct light-sound delay for distance).
- Ensure **searchlights** and **work lights** have photometric falloff – e.g., a spotlight pointed at waves will illuminate a patch of water in the distance, showing rain streaks in its path. This adds depth.
- All lights should have a wet environment reaction: e.g., slight flicker or electrical buzz if they get drenched (maybe purely an audio/visual effect, not actual failure unless for story).
- Player equipment like a headlamp (if used) should be visibly cone-shaped in rain/fog and fairly weak compared to big deck lights.

Water & Weather VFX Guidelines

- **Ocean Simulation:** The sea is a core character. We need a dynamic wave system that can reproduce everything from rolling swells to sharp "pyramidal" waves common in confused seas. Wave height and frequency should be adjustable by intensity level. For the worst storms, target wave heights comparable to reference (e.g., 30–40 ft, which can bury a 100-ft vessel [13]). The waves should occasionally align to produce a **"green water on deck"** event – meaning the crest doesn't break until it's hitting the ship, sending water across the deck (trigger physics for objects and player staggering).
- **"Green Water" Implementation:** Use fluid volumes or particle sheets to simulate solid water flooding the deck. The *impact* when green water hits should exert force on the player (VR feedback)

and move loose items. Visually, green water is distinct from spray: it's bulk water with foam only at the edges [2]. We can spawn a transluscent mesh or high-density particle blob that collides with geometry, then quickly dissipate into spray and foam decals. Players need to fear these moments (they should knock the player around).

- **Spray and Spindrift:** Continuous particle systems for *spray* are needed along wave crests (`WEATHER_SPINDRIFT`). In high winds, every wave top should generate streaking spray particles that blow off to leeward [11]. Also, where waves hit the hull, spawn spray bursts (these can be large meta-particles or sprite clusters) that the wind then carries across deck. Fine *mist* should fill the air, especially at night in floodlights (so light geometry with volumetric fog is essential). Use GPU particles for efficiency, and collide them with the camera (for wet lens effect). The spray should also coat surfaces (slightly increasing gloss/wetness dynamically).
- **Rain and Snow:** The weather system should be able to shift between rain, snow, sleet.
- Rain: Use a high-density particle system with streak motion blur. Only visible when lit (e.g., in front of a light or against a dark sky). Rain should cause dynamic ripples in puddles and add to dripping effects on edges (e.g., roof drip).
- Snow: Larger, slower flakes with turbulence. Accumulation shader: in freezing conditions, snow should start accumulating on horizontal surfaces (slowly) until washed away by waves or manually cleared. When snow hits a warm surface or water, maybe it steams/melts.
- Sleet: a mix – perhaps render as rain with occasional clumps (simulate pellets). Audio should reflect a harder *tic-tic* sound on surfaces.
- **Fog:** Use volumetric fog volumes that can change density. For "foggy" scenarios, set a uniform high-density fog with a falloff so horizon is hidden. Use noise to avoid fog looking too uniform. The fog should react to wind (slight lateral movement) if possible. Critically, adjust how lights behave in fog (the scattering factor) – e.g., deck lights in fog = big glowing aura.
- **Ice Formation:** During *freezing spray* events (`WEATHER_SLEET` in subzero), implement a system where a thin ice layer grows on surfaces facing wind. This could be a shader that blends to an ice texture over time based on an "icing" scalar. It should be most noticeable on rails, lines, and the bow. The game should communicate weight of ice – e.g., the boat maybe lists or rides heavier (if physics permits). If too detailed to simulate weight, at least visually **show** heavy ice and perhaps have NPCs comment ("We're getting top-heavy with ice!"). The real-world reference: **hundreds of thousands of pounds of ice can accrue** [12], so convey that visually (thick layers on high surfaces).
- **Foam and Surface Detail:** Large waves should produce foamy patches when they break. Use tileable foam textures projected on wave peaks as well as particle foam. After a wave passes, foam should trail on the water (our references show foam streaks left behind by waves [11]). Perhaps use a flowmap on the ocean surface to carry foam textures in the direction of wave travel/wind. On deck, when water sloshes, leave behind wet decals and maybe some foam at corners where water pooled briefly. Every drain/scupper on deck could, after a big flush, spurt some remaining water. Details like that sell authenticity.
- **Horizon and Sky:** For storms, the sky needs animated cloudscapes – fast-moving stratocumulus and cumulonimbus clouds. Use a sky system where cloud speed and density can ramp up as storm intensifies. The horizon line often disappears in heavy weather due to spray and low clouds [15], so we should achieve that by blending sea and cloud with fog. No crisp horizon in a storm – ensure the lighting/fog makes sea and sky bleed together in the distance (except in rare clear lull moments).
- **Feedback to Player:** The player should *feel* these weather effects: VR can simulate some through audio/visual, but also consider haptic feedback if controllers vibrate (e.g., a heavy wave slam triggers a vibration). Also, heavy wind could be simulated via audio and some camera sway, but perhaps also

by making it harder to move straight (player avatar being pushed). While not purely visual, this cross-feedback enhances believability.

Material & Texture Library Requirements

We need a robust library of materials capturing the **weathered, working-boat** look. Key textures and how they should behave:

- **Painted Metal (Hull & Superstructure):** Should have layers: base steel, primer, topcoat. Use **blended materials** to show chipping: e.g., edge wear shaders that expose primer and rust at corners and along weld seams. Include subtle salt staining – whitish streaks where salt dried. When wet, these surfaces should darken and increase specular response (`MATERIAL_WET_SHEEN`). Rust should remain matte even when wet (oxidation isn't shiny), while intact paint gets glossy when soaked. *References:* virtually every video shows rust and wear; e.g., the Summer Bay's hull likely has rust patches visible.
- **Unpainted Metal (Winches, Cranes, Tools):** Use high-detail normal maps for pits and scratches. Galvanized steel texture for things like wire ropes, shackles – with that spangled pattern but dulled by wear. For stainless parts, lots of scratches and some rust streaks where dissimilar metal contact occurs. All metals in exterior should support **dynamic wetness**: a parameter that adds water beading and increases reflection when rain/spray hits. Possibly utilize techniques from racing games (they often have good wet car shaders) but with more grime.
- **Wood (Deck boards, Crab Pots if wood, etc.):** Old wood with worn anti-slip coating or just raw planks. Needs to look swollen and dark when wet. Add moss or marine growth in crevices for age (some boats have algae on always-wet areas). Also, ice can form on wood with a frosty white shimmer. We'll need a shader that can overlay frost/snow.
- **Nonskid Deck Coating:** Many decks are coated in a gritty paint (often gray). Create a material with embedded grit and lots of patch repairs. Should show wear along high-traffic lanes (maybe smoother where many feet have scuffed it). When wet, puddles form in low spots – could use a flow map or multiple normals to simulate thin water layer versus dry patches. Also incorporate rust ring stains where barrels or equipment sat.
- **Rubber & Plastics:** E.g., rubber gloves, boots, coiled hoses, bumpers on sides. Use a slightly lighter diffuse when wet (wet rubber can look slightly gray). Ensure a high specular for wet rubber (it almost mirrors when soaked). For plastics: crates, buoys (often bright colored) – they should be faded by sun and abraded, with algae growth if often in water. These materials also accumulate ice differently – ice might not stick as well to plastic, but snow will. Our library should have: *Yellow slicker fabric*, *red/orange flotation foam (like life ring material)*, *black rubber* surfaces, all with aging.
- **Glass:** Wheelhouse windows need a **dynamic rain/ice shader**: transparent with refraction, plus attachment of water droplets. Use techniques from car windshields (with wipers). Wipers should actually clear a path (use a mask that gets updated, or multiple material layers). Glass should also fog up inside if conditions are right (maybe when warm inside, cold out). For exterior light glass (e.g., floodlight covers), consider slight fogging and salt crust – many lights on real boats get a salt haze, which could simply be part of the texture.
- **Ropes & Nets:** Fibrous materials that darken when wet (dry rope is light tan, wet is dark brown for manila, or dark green if synthetic). Frayed ends, maybe some with green algae tint. Need to simulate them under tension – maybe normal maps for stretched look. Also, when iced, ropes become stiff and white-coated. Nets: slime and seaweed bits could be caught in them, especially after hauling gear in storms. Provide variants for **new vs old** rope – new poly line is brightly colored, old is faded and fuzzy.

- **Clothing & Fabric:** *Rain Gear Material* – usually PVC or similar on cloth. Needs to be highly specular when wet, somewhat specular even when dry. Show scratches and ingrained dirt (these suits get covered in fish gurry and tar, etc.). Reflective tape strips on jackets should actually reflect light in our engine (maybe via an emissive when hit by light vector). Other clothing: wool caps, hoodies – should soak and darken realistically, perhaps drip water. Also include ice/snow on surfaces if exposed.
- **Equipment Screens & LEDs:** The radar monitors, sonar screens, etc., should appear slightly aged – maybe faint scratches or dust on glass – but main feature is their glow. Use emissive maps and possibly a Fresnel to simulate old CRT curvature. Also, they may have water droplets if a window near them is open (some water splashed in). Not a huge focus, but small details: e.g., salt crystals around the edges of a monitor if a wave splashed in and evaporated. The **UI** integration with these should use these materials (i.e., if UI text displays on a monitor, have it appear slightly curved, green-tinted with maybe a scanning line or slight flicker for authenticity).
- **Storytelling Wear:** Every material should tell a mini story of the boat's hard life. E.g., **signage**: decals and safety signs peeling off (half gone, e.g., "No Step" text barely visible). **Bullet holes or patches**: some boats have welded patch plates – include some random welded squares on the hull texture set. **Soot**: exhaust stack areas should have black soot stains trailing. **Fish grime**: work areas might have brownish stains from fish blood/oil that even rain doesn't fully wash (especially on wood or deck paint). All these textured details add realism and reinforce the hardship.

We will compile these materials into a library with consistent scaling and detail so that when players walk up close in VR, the surfaces hold up (high-res textures, use of normal maps and roughness variation). Also plan for **LOD** handling – e.g., at a distance, rust is baked into diffuse; up close, use normal/parallax for rust depth and peeling paint.

Environmental Storytelling & Clutter

A lived-in ship tells story through its clutter and wear. We want the environment art to place and design props such that they convey the life of a crab fisherman and the imminent danger. Some guidelines:

- **Safety and Survival Gear Everywhere:** Life rings, immersion suits in cases, EPIRB (beacon) on the roof – these should be present and visibly worn or used. *E.g., a survival suit locker might be open with one suit partially out (implying someone grabbed it in a scare).*
- **Tools & Spare Parts Stashed:** The deck and bridge should have bungee-corded or tied-down items: a gaff hook leaning on a rail, coils of rope hung on pegs, bins of shackles and spare bulbs, duct tape on everything. These items should move or fall if untethered in big rolls, adding chaos. The **little details** (like duct tape on a broken window or a coffeemaker bolted to a shelf) make it authentic.
- **Messy but Functional:** This is not a tidy vessel – *except* when a storm is coming, things might be hurriedly secured. We can show contrast: at port, items are more loose; before a storm, there are extra ratchet straps and lashings on deck cargo. For instance, maybe show a stack of crab pots chained down with extra chains (if in game). Or a barrel tied to a post that normally isn't. Environmental storytelling: an NPC shouted "secure that barrel" and now the barrel has fresh rope on it.
- **Evidence of Past Events:** Scars on the boat: a bent railing section where a wave hit (and maybe temporarily patched with a pipe brace), cracked wheelhouse window with a star fracture (maybe a past rogue wave impact). Perhaps an engraved plaque of a lost crew member somewhere (a memorial touch). These touches add gravitas. On the deck, maybe a painted mark like "Larry's Line" indicating where someone was swept (for those who know the story).

- **Human Touches:** Even in a utilitarian crab boat, crew personalize the environment. In the bridge, pin up a family photo (but maybe water-damaged), stickers on a cabinet ("No crying in fishing" or boat logos). In the galley, maybe humorous graffiti or tally marks of crab caught. These should be subtle and only noticed in calm moments, but they lend depth.
- **Clutter as Hazard:** Include loose items that become dangerous in motion: e.g., a heavy hook on deck that slides when the boat rolls (the player might have to dodge it). In references, an unsecured net reel ripped free and injured a man [3] – we can simulate similar potential. Thus art should identify which objects are normally secured; if not, we can foreshadow (e.g., "secure net reel" quest or visual of a frayed strap on it).
- **Ice and Snow Story:** In icy scenarios, have buckets of salt or axes left out for de-icing – showing the crew's battle against nature. The *outcome* of neglecting these is shown by how messed up things get (e.g., that 60 lb ice chunk that fell [16]). Possibly include that chunk embedded in something or lying on deck as a prop after it happens.
- **Interior Story:** The interior spaces (if explorable) like bunks or engine room also tell story. Bunks might be unmade, with gear tossed due to rough seas (e.g., personal belongings strewn after a big hit). The engine room could have oil cans rolling on the floor grates if not secured, etc. Use these to emphasize how storms penetrate every corner (e.g., a coffee pot shattered on galley floor after a roll – implying someone forgot to latch a cabinet).

In summary, **every prop should feel secured or perilous**. If it's not tied down, the player will expect it to move when the ship moves – so physics or scripted movement should address that. And the placement of clutter should reinforce the narrative: before storm = busy securing (some items mid-process of being tied), after storm = chaos of things broken loose, normal times = a bit of a mess but pattern to it.

Camera and Motion Guidelines (VR Feel)

Because this is a first-person VR game, the "camera" is the player's eyes, but we still control environmental and some camera effects:

- **Head Motion & Seasickness:** The goal is to simulate sea sickness and unease. The player's viewpoint should *always* have a degree of motion matching the boat's movement. We must carefully tune this for VR: a constant slow roll and pitch is essential (the horizon in VR should tilt and bob). Possibly use a physically-based approach: attach the VR camera to a pivot simulating the boat's center of gravity, with some noise. However, avoid extremely high-frequency shaking directly to the VR camera (could cause discomfort beyond simulation). High-frequency impacts can be conveyed via visuals (the world moves relative to player a bit) and haptics/sound. **Rule of thumb:** low-frequency, large-amplitude motions (sway, roll) are okay in VR (they cause the intended unease), but high-frequency vibrations might need to be toned down or conveyed through controller rumble instead of head movement.
- **Cinematic Cameras for Non-VR Moments:** If any cutscenes or external views are shown (like a third-person view of the boat for dramatic effect between levels), follow the cinematic language from Deadliest Catch: use *chase-boat stable shots* to show scale (horizon tilted, boat smashing through wave) [13] and *handheld on-deck shots* for intimate action. Also, consider incorporating the show's style of sometimes slow-motion dramatic wave footage versus chaotic quick cuts [4]. For instance, if the player fails a task and a wave hits, we could briefly go into a slow-mo as the wave engulfs them (for dramatic effect), then back to first-person.
- **First-Person Effects:** Use camera effects to enhance immersion: water on lens (as discussed), *depth of field focus shifts* (maybe when focusing on far vs near objects – though in VR the player typically

has depth focus themselves, but we can simulate eye adaptation to light changes instead), and headbob when walking that corresponds to ship motion. A neat idea: if the player is below deck and then comes out on deck, initially their "eyes" take a second to adjust to brightness (simulate that adaptation). And if a giant wave hits, maybe *briefly tilt the camera violently and blur* (simulate the player being knocked or closing eyes).

- **Interaction and Camera:** In VR, the player will do tasks (e.g., tying down items, hauling lines). Ensure the camera can physically crouch, lean etc. We should test interactions during various ship motions to ensure it's still doable (for example, picking up a tool while the ship rolls 30° – maybe allow a slight "stickiness" or larger grab radius to compensate for the moving environment). That's more game design, but important for art/anim too (animations of player hands might need to account for moving reference frames).
- **Cutscene to Gameplay transitions:** Smoothly blend. E.g., if we show an external view of the boat cresting a wave (to wow the player) and then snap back to first-person on deck, match the motion. The player's view on deck should start at the same tilt the external camera showed. Continuity of motion will make it seamless.
- **Cameras for Non-Player Entities:** Perhaps there are fixed security cams or helmet cams we can show (like a CCTV view of deck from wheelhouse monitor). Those should have the `CAMERA_HANDHELD_SHAKE` and water droplets too, akin to actual fixed GoPros that get splashed (like DC's fixed cams that ran 24/7 [17]). This not only is authentic, but we can use it as a UI element (e.g., player in wheelhouse can switch to a deck cam view on a screen to assess damage – it's both diegetic and cinematic). That camera feed would have noise, maybe freeze when hit by wave (loss of signal), etc., reflecting "worst shooting conditions imaginable" where they often lost cameras [18].
- **Motion Intensity Guidelines:** We define levels of ship motion tied to storm intensity and player activity:
- Intensity 1-2: ship gently rolls, maybe up to 5-10° tilt, moderate predictable rhythm. Player can move easily.
- Intensity 3: noticeable irregular motion, up to ~20° tilts, occasional unpredictable lurch (small ones). Player starts to have to hold onto in-game objects or steady themselves (we could simulate by slight controller shake when large tilt).
- Intensity 4: violent motion; 30° or more rolls, pitching into waves that block vision forward. Frequent sudden drops and impacts (ship bow slamming into trough – we can simulate a quick downward then upward jerk). At this level, unsecured items truly slide and fall. The player will likely need to virtually hold on (maybe a mechanic: grab a rail to steady, or else camera sway is even more). Essentially *chaos* – as described in many references with 30-40 ft waves and crew stumbling.
- Intensity 5: near survival conditions. Ship might partially **roll onto its side** with a rogue wave (e.g., 45°+ roll – the world goes nearly sideways for a moment [19]). Some motions may actually toss the player around (we might trigger a stumble animation or reposition them). Everything is extreme and perhaps some semi-scripted events occur (e.g., a wave that knocks out power – so lights flicker as well). Use sparingly for climaxes, as it will be disorienting (intentionally so).
- These guidelines ensure we deliver the promised seasick simulation: by Intensity 5 in VR, even seasoned players should be gripping their chairs IRL .

UI Style and Integration

We aim for diegetic, minimal UI with a commercial/maritime aesthetic:

- **Instrument-Like UI:** Wherever possible, information is conveyed through in-world devices: radar screens, analog gauges, warning lights, radios with voices. For example, instead of a floating "Storm

Alert" text, a **flashing red light** on the console and an automated voice "Storm warning imminent" could play. Or a digital display showing wind speed spiking. This keeps immersion high.

- **Visual Language:** If we need on-screen text/icons (for game-y elements like objectives, health, etc.), design them to look like maritime overlays. Use font styles found on marine equipment – e.g., **OCR-B** font (commonly on digital readouts), or Eurostile/Arial Narrow for labels. Possibly green or amber monochrome coloring (like old LCD screens). Avoid bright saturated game-y colors like neon blue or bright green that aren't seen on ship consoles. Instead, **muted greens, oranges, reds** that match real indicator lights.
- **Radar and Sonar UI:** This likely will be a core mechanic (finding schools of fish or other ships). Make the radar UI have a sweeping line, with blips that correspond to waves or land (false echoes can add realism). The radar view should jitter or have noise in heavy weather (like clutter from waves). It could double as a mini-map if needed, but maintain realism by including typical radar elements (range rings, bearing markers). If implementing as an actual game UI element, maybe allow the player to bring it up in a corner of their view as a PiP (picture-in-picture) that looks like a radar screen graphic, rather than a typical game map.
- **Overlay for critical info:** For health/stamina (if applicable) or seasickness level, we might use a subtle **vignette or color shift** rather than bars. E.g., if the player is getting exhausted or injured, edges of vision blur or redden slightly. Or implement a wristwatch device that the player avatar wears, which shows vitals in a diegetic way.
- **Typography and Iconography:** Use **simple, bold icons** similar to maritime signage (e.g., the outline of a life jacket, an anchor, wave symbols). Keep them understandable at a glance. For example, if showing the boat's stability meter, an icon of a boat tilting could be used. Text should be All-Caps likely (as many maritime labels are). Because the environment moves, UI needs to be quickly readable – no ornate scripts or excessive text. Short phrases or single words: "BRACE!", "SECURE GEAR!" could appear as necessary. Possibly accompanied by an audio cue (alarm or verbal).
- **Color Coding:** Adopt the marine standard for colors: Green often means starboard or safe, Red means port or warnings, Yellow/Amber for caution. For instance, an objective marker might be yellow (like a caution light), an emergency might flash red. Use these sparingly though – mostly rely on actual lights and sounds. If the player sets a waypoint, maybe it appears as a floating green buoy icon in-world (something that could be justified via AR display of their deckhand helmet).
- **Stability/UI Relationship:** A unique idea: if the boat is about to capsize (extreme tilt), the game UI could exaggerate the horizon tilt to alarm the player. Alternatively, incorporate a *list indicator* instrument in the bridge (many boats have an inclinometer showing degrees of tilt). We can have the UI highlight that if critical ("45° list!" in red).
- **Interactivity:** In VR, UI elements could be interactive physical buttons and screens. Ensure these follow through: e.g., to check mission objectives, maybe the player toggles a switch on a console that brings up a "task list" on a small cabin display. This way even meta info is accessed via a physical action. It's more engaging and keeps them in the world.

Overall, the UI philosophy: **embed the player in the ship's operational context.** Every piece of info is something a real crew might have via tools or senses. Emphasize sounds and lights over text whenever possible (people in storms rely on alarm buzzers, shouted warnings, colored lights). Only resort to textual HUD if absolutely necessary, and even then style it to feel like part of the environment.

With these integrated guidelines, all departments (art, VFX, audio, design) have a clear vision of the target aesthetic drawn from the real-world references. The result should be a *hyper-real* yet playable simulation

that matches the tone of *Deadliest Catch*-style scenarios: **gritty, dangerous, immersive to the point of inducing sea legs.**

Most Useful 20 Reference Clips (Department Usage Shortlist)

Finally, here are the 20 strongest reference clips from our research, each with why it's essential and who on the dev team will benefit most:

1. **Epic Storm: Bering Sea Crab Boat (1977)** – *Essential:* Shows a small crab boat enduring a once-in-a-generation storm (waves over wheelhouse) [1]. *Key timestamps:* 0:50 big wave engulfs bow; 3:10 sustained roll nearly capsizing. *Usage:* **VFX/Physics** (wave scale, green water), **Level Design** (storm intensity 5 scenario setup), **Animation** (violent ship motion reference).

2. **Summer Bay Crew Battered by Huge Storm** (Deadliest Catch clip) – *Essential:* Textbook deck chaos in heavy seas. Green water flooding deck repeatedly, crew nearly swept [3]. *Key timestamps:* 0:45 wave hits crew; 2:30 camera shows flooded deck from wheelhouse. *Usage:* **Gameplay Design** (hazards for player on deck), **VFX** (water on deck simulation), **Animation** (crew bracing and stumbling).

3. **Northwestern Faces a Siberian Storm** – *Essential:* Great for **cold weather storm** visuals – snow + waves. Sig Hansen's boat plowing through 40-ft waves with icing. *Key timestamps:* 1:20 icy spray over bow; 3:30 twilight darkness, wave nearly broaches boat. *Usage:* **Lighting** (twilight conditions), **Materials** (ice on ship), **Audio** (wind + snow combination).

4. **Huge Storm Hits the Titan Explorer** – *Essential:* A modern crab boat in heavy seas, showing how a larger vessel handles waves. Good contrast to smaller boats. *Key:* 0:25 bow smashes into wave; 1:50 crew's perspective from wheelhouse of wave impact. *Usage:* **Physics** (different ship mass response), **Camera** (bridge perspective steady vs deck), **Design** (storm progression pacing).

5. **Deadliest Catch – Biggest Storms & Waves (Compilation)** – *Essential:* Highlight reel of *multiple* extreme moments [4] – rogue waves, gear failures, crew injuries in storms. *Key:* 1:55 Wizard nearly capsizes; 4:10 Time Bandit hit by wave, guy overboard scenario. *Usage:* **Directors/Artists** – overall tone reference, **Sound** (variety of storm audio in quick succession), **QA** (check we hit these intensity notes).

6. **Deadliest Catch – Roughest Waters (Cinematic Compilation)** – *Essential:* Focuses on *atmosphere* and cinematography [4]. Slow-motion wave shots and moody wheelhouse scenes. *Key:* 0:10 ultra slow-mo wave crest; 2:00 captain silhouette in dark wheelhouse with music. *Usage:* **Art Director/ Lighting** (mood boards reference, how to make storms feel cinematic), **Audio** (when to use music or silence), **Marketing** (could inspire trailer scenes).

7. **French Fishing Vessel vs Storm Goretti** (2026) – *Essential:* Real-life recent footage of **hurricane-force** conditions (110 mph winds) [5]. Towering waves dwarfing a trawler. *Key:* 0:05 boat nearly vertical on wave; 0:50 wave crashes over entire ship. *Usage:* **VFX** (max intensity wave shapes), **AI/ Gameplay** (perhaps when to call abandon ship?), **Lighting** (daytime storm gloom).

8. **Enormous Wave Crashes Over Boat (Argos Georgia)** – *Essential:* Rare Antarctica shot showing a *single rogue wave* submerging a vessel. Good for a peak event. *Key:* 0:15 wave impacts – looks like a wall of white foam. *Usage:* **Event Scripting** (boss wave event design), **VFX** (mega-spray and foam), **Sound** (the deep boom of one massive wave).

9. **Sarah David S411 – Fishing Boat in Storm** – *Essential:* 20m trawler in Irish Sea gale. Shows "everyday" heavy weather which still looks crazy to laymen (normal for fishermen per commentary). *Key:* 1:10 crew hauling nets in rough sea; 4:05 long shot of boat in waves for scale. *Usage:* **Gameplay** (routine task difficulty in storm – e.g., hauling catch), **Balance** (not every storm is doomsday – this is a 3/5 intensity ref), **Environmental Art** (regional differences – green water color in Irish Sea, etc.).

10. **Fishing Vessel *Cacharulo* in Rough Seas** – *Essential:* Spanish trawler in Atlantic – shows longer period swells with green water on bow repeatedly. *Key:* 0:30 wave breaks over bow; 2:20 view from bridge as bow buries in wave. *Usage:* **Camera** (bridge first-person view timing), **VFX** (water over bow but minimal foam – more swell), **Design** (mid-game storm encounter reference).

11. **Pelagic Trawler *Western Viking* – Rough Seas Leaving Harbor** – *Essential:* Unique scenario leaving port in storm, waves at harbor mouth. *Key:* 0:20 ship pitches into oncoming breaker; 1:00 stern shot showing wake and rolling. *Usage:* **Level Design** (harbor/near-coast waves behavior), **Cinematics** (dramatic departure sequence), **Physics** (interaction of vessel with large swell in shallow water).

12. **"The Price of Fish" Storm Film (2018)** – *Essential:* Authentic doc style, multiple onboard camera angles, focus on crew endurance. *Key:* 0:55 chest-cam of deckhand getting hit with spray; 3:10 slow pan of exhausted crew in wheelhouse after storm. *Usage:* **Animation/Character** (posture of fatigued crew, how clothes cling when drenched), **UI/UX** (the chest-cam feel for potential replay or secondary camera), **Tone** (the everyday heroism vibe).

13. **Lapwing PD972 – Wild Day Net Haul (Newsflare)** – *Essential:* Real North Sea fishing, hauling nets mid-storm. Great for *work process under duress*. *Key:* 0:12 net drum slamming as boat rolls; 1:30 crew coordinating to bring net in while waves hit. *Usage:* **Gameplay Mechanics** (e.g., a mini-game or task of hauling nets during waves – how timing might work), **Animation** (net machinery movement, crew teamwork gestures), **Material** (wet fishing net textures under strain).

14. **Bering Sea Rescue – Alaskan Monarch (Coast Guard)** – *Essential:* Extreme case: iced vessel on rocks, Coast Guard helicopter rescue in monster waves [8]. *Key:* 1:10 night vision view of boat in surf; 2:00 helicopter spotlight + swimmer in water. *Usage:* **Mission/Story** (could inspire a rescue mission scenario), **VFX** (mix of ice, breaking surf, and night lighting), **Sound** (distress calls, helo rotor noise with storm). Also good for **UI** (maybe a mission UI with rescue timer, etc., drawn from real incident).

15. **Wizard Crew Rocked by 30ft Waves (Night)** – *Essential:* Iconic DC scene of a nighttime rogue wave hitting the deck, injuring crew [3]. *Key:* 0:22 calm -> 0:24 impact out of nowhere; 1:50 aftermath with injured deckhand and alarm. *Usage:* **AI/Challenge** (random wave event to keep player on toes), **Audio** (the alarm and shouting), **Lighting** (how amber lights + darkness + sudden chaos interplay).

16. **Battling Ice Packs – Deadliest Catch** (Ice episode highlights) – *Essential:* Illustrates *extreme icing* conditions. Crew breaking ice off everything as massive ice floes surround. *Key:* segment where crew jackhammers ice on deck; a shot of a boat covered in ice, nearly unrecognizable. *Usage:*

Environment Art (need for heavy ice models), **Gameplay** (de-icing tasks), **Physics** (simulate weight of ice affecting boat). Also reference that *ice can capsize a boat silently* if not managed [12].

17. **72 Hours on an Alaskan Crab Boat (YouTube – e.g., F/V Saga)** – *Essential:* A mini-documentary that shows the day-night cycle including a storm segment. Good for pacing and how crew behavior changes (jovial in calm, all business in storm). *Key:* storm portion ~11:30 mark (as per YouTube chapters, "extreme weather" at 09:37) – likely shows abrupt weather change. *Usage:* **Game Progression** (shifting weather), **Dialogue** (crew call-outs during storm vs calm), **Lighting** (transitions from daylight to dark storm).

18. **Coast Guard Cutter in Heavy Weather Towing** (e.g., Alex Haley video) – *Essential:* Though not fishing, shows a vessel assisting another in heavy seas, which highlights relative motion of two vessels. Could be useful if game features AI boats or need to show how a towline behaves. *Key:* CG video likely has dramatic towline tension in big waves. *Usage:* **Physics** (rope physics under duress), **AI** (ally or rescue boat behavior in storm), **VFX** (multiple vessels' wakes interacting).

19. **North Sea Trawler Tossed (Newsflare "Ship in Storm")** – *Essential:* Similar to Lapwing, possibly the same clip, shows a medium trawler nearly disappearing in waves [7]. Emphasizes how even large boats vanish in troughs. *Key:* as wave passes, only mast tip visible above wave. *Usage:* **Cinematic** (shots where player's vessel is nearly submerged – third-person or drone cams), **Level Design** (set expectation that line-of-sight is often broken by waves), **Scale Reference** (wave vs ship proportions).

20. **Deadliest Catch – Falling Ice on Seabrooke** – *Essential:* A scene where ice falls and injures a deckhand [16]. Shows direct consequences of weather on crew. *Key:* A 60 lb ice chunk nails a crewman – dramatic slow-mo possibly. *Usage:* **Animation** (ragdoll/physics of crew hit by object), **Game Mechanics** (need to clear ice or suffer accidents), **VFX** (shattering ice particle effect). Reinforces *cause-and-effect* for player actions (ignore ice -> disaster).

Each of these clips provides unique lessons – by studying them, the **VFX team** learns what real spray, foam, and wave impacts look like; the **lighting and environment artists** see the correct color and contrast; the **sound designers** hear authentic engine, wind, and impact noises; the **game designers** glean ideas for mechanics (like ice removal, emergency rescues, timing tasks between waves); and the **animators/ character team** observes authentic human reactions and movements (bracing, struggling, resting).

By cross-referencing these real moments, we ensure our game nails the authenticity and intensity of crab fishing in storms.

Immutable Aesthetic Rules (Summary): After all this research, we distill the game's visual/experiential style into a set of **non-negotiable rules** that define our stormy seas atmosphere:

1. **The horizon is never still** – the world must continuously pitch, roll, or heave to mimic the restless ocean (even calm moments have a slow swell). A stable horizon = no immersion.
2. **All exterior night scenes have haloed lights and low visibility.** Every night shot should show glowing orbs of deck light in mist, with water droplets on the "camera" lens and an almost invisible horizon [4].

3. **Nothing is perfectly clean or new.** Every surface on the boat shows wear: chipped paint, salt stains, rust streaks (`MATERIAL_RUST_STREAKS`). Pristine assets are forbidden – grit and grime are the law of the sea.
4. **Wetness everywhere.** If it's outside, it's wet. Decks, rails, crew – all should appear soaked with high specular shine (`MATERIAL_WET_SHEEN`). Puddles form in deck recesses, water drips from edges constantly.
5. **Green water will come.** In any heavy storm, solid "green water" waves must frequently crash onto the deck [2] – not just tiny splashes. Our storms *must* flood the deck and threaten to wash players overboard, as per reality.
6. **Interiors stay dark in storms.** Wheelhouse lighting stays dim/red (`LIGHTING_BRIDGE_RED`) during night operations [14]; no bright white lights ruining night vision. Similarly, interior spaces feel cramped, warm, and a bit claustrophobic – a refuge from the storm but still trembling with the sea's fury.
7. **Ice is an enemy.** In freezing conditions, the boat visually *transforms* under ice weight – thick rime on every surface. If icing is ignored, we show the vessel riding lower and listing; large ice chunks will break off dangerously (like the 60 lb chunk incident [16]). The rule: freezing spray is a critical threat, not just pretty VFX.
8. **Camera = crew member.** The viewpoint in VR behaves like a physical presence on the boat – it bobs, shakes, even gets knocked down by waves. We do not present the world from a detached, steady camera. The player *feels* part of the chaos (within comfort limits).
9. **Diegetic feedback first.** Warnings and info come through in-world elements (alarms, lights, NPC yells) before any UI pop-up. The environment itself informs the player – e.g., hearing the change in engine strain or wind pitch as cues to danger or task needs – keeping immersion.
10. **Every storm has a rhythm.** There are tense lulls and furious peaks (as seen when cinematography switched between slow suspense and fast action [4]). Our game's pacing must reflect this: not constant 100% chaos, but waves (literally and figuratively) of tension.
11. **Exterior nights = amber and shadows; exterior days = blue and grey.** This color law governs our lighting: nights are defined by artificial amber lighting against black, and days by cold natural light under grey skies. No cartoony color grading – stick to the authentic marine palettes observed.
12. **The player should instinctively hold on.** Through VR motion and visuals, we instill the reflex that when the boat lurches, the player *wants* to grab something. This is the ultimate immersion test – if we get it right, players will bend their knees and reach for a rail when a wave hits, exactly as real fishermen do.
13. **No HUD element should feel gamey or out of place.** If it's on screen, it looks like it belongs on a boat instrument or a tactical display. Floating health bars, flashing "XP +10" – none of that. The design mantra: *Would a crab boat in the Bering Sea have this?* If not, integrate or omit it.
14. **Sound is half the environment.** The roar of wind, crash of waves, and groan of the boat's hull are ever-present. There must never be a truly "silent" moment outside – even in lulls, there's a moan of wind or water. Use sound to convey scale (big waves = big booms) and threat (alarms, etc.), reinforcing what the eyes see.
15. **Respect reality to heighten immersion, then bend it for playability.** We ground everything in real reference (as we have) – that means realistic wave physics, believable crew actions, genuine boat layouts. Only if a real element severely hampers gameplay do we adjust, and even then, we try an in-world solution (e.g., real crews might slow down for comfort – we give players a way to do so rather than simply ignoring the discomfort). Authenticity is our baseline; fun is built on top of it, not at its expense.

By adhering to these immutable rules, we ensure the final experience is **consistently authentic, intense, and immersive**. The player will truly feel like they are on a storm-tossed fishing vessel, fighting the elements to get the job done – exactly the sensation our research set out to capture. [13] [9]

---

[1] ALASKAN MONARCH FISHING SHIP 1979-1990 - WRECK WRAK ...
https://wrecksite.eu/wreck.aspx?214947

[2] green water - Wiktionary, the free dictionary
https://en.wiktionary.org/wiki/green_water

[3] [19] 'This is it': Cordova fishermen tell harrowing tales of trip home in waves whipped by unseasonable storm - Anchorage Daily News
https://www.adn.com/alaska-news/weather/2019/05/24/this-is-it-cordova-fishermen-tell-harrowing-tales-of-trip-home-in-waves-whipped-by-unseasonable-storm/?fbclid=IwAR1a5CtnSXD7F9eYaArNTy5Yu0_pGKSjF9KiluzNpzaaYdV7BcT4mlrW5_M

[4] [13] [14] [17] [18] The American Society of Cinematographers | Rough Seas: Deadliest Catch
https://theasc.com/articles/rough-seas-deadliest-catch

[5] French Fishing Boat Rides Huge Waves During Storm Goretti | Storyful Video
https://video.storyful.com/record/37831

[6] Enormous Wave Crashes Over Fishing Boat in Antarctica!!! - YouTube
https://www.youtube.com/watch?v=dMN26XHJ6Fs

[7] Ship in Storm - Fishing trawler tossed around in rough seas
https://www.newsflare.com/video/511039/ship-in-storm-fishing-trawler-tossed-around-in-rough-seas

[8] South West Alaska Shipwrecks (A) – Alaska Shipwrecks
https://alaskashipwreck.com/shipwrecks-by-area/south-west-alaska-shipwrecks-2/south-west-alaska-shipwrecks/

[9] Departments - HIGH PRESSURE SODIUM LIGHTS
https://www.englundmarine.com/products/high-pressure-sodium-lights%7CWID-HPS.html

[10] ELI5: Why do they use red lights inside certain rooms in boats? : r/explainlikeimfive
https://www.reddit.com/r/explainlikeimfive/comments/nbqwvl/eli5_why_do_they_use_red_lights_inside_certain/

[11] Beaufort scale - Wikipedia
https://en.wikipedia.org/wiki/Beaufort_scale

[12] Destination report: Sinking likely result of freezing spray, fatigue | National Fisherman
https://www.nationalfisherman.com/alaska/destination-report-sinking-likely-result-of-freezing-spray-fatigue

[15] Are we all in agreement that arctic/antarctic waters are the scariest? : r/thalassophobia
https://www.reddit.com/r/thalassophobia/comments/1f3gdgc/are_we_all_in_agreement_that_arcticantarctic/

[16] Deadliest Catch-Season 6-Episode 10-The Darkened Seas | Deadliest Catch Blog
https://deadliestcatchblog.wordpress.com/2010/06/15/deadliest-catch-season-6-episode-10-the-darkened-seas/