

Scientists' Declaration of Support for the Protection of the Cashes Ledge Area

In the heart of the Gulf of Maine, approximately 90 miles off the New England coast, lies one of the most unique, diverse, dynamic and ecologically productive systems in the region's marine waters. The undersea ridge comprising Cashes Ledge, Parker Ridge, and Sigsbee Ridge and flanked by the deeper reaches of Cashes and Ammen Basins, together constituting the "Cashes Ledge Area" (Figure 1), encompass a wide range of inter-connected habitats and altogether a rich and remarkable biodiversity. Atop and along the flanks of its highest peak, on Ammen Rock, lies the deepest, densest kelp forest on the eastern seaboard and the jewel in the crown of the Cashes Ledge Area.

For several decades the Cashes Ledge Area has served as an important research site for numerous marine scientists who study ocean wildlife, fisheries sustainability, oceanography, and climate change. Research of the Cashes Ledge Area by scientists and academic institutions has already added substantially to our common understanding of New England's marine ecosystems, particularly within the Gulf of Maine. This offshore haven for ocean wildlife and laboratory of marine ecology provides an opportunity for decades of continued study of ecosystem functioning and biodiversity in a rare environment that is isolated from the polluted waters of coastal habitats and less impacted by commercial fishing.

Measured by any scale, the Cashes Ledge Area warrants protection to ensure that its intricately connected habitats and unique ecosystem can continue to serve as a reserve of ocean biodiversity, productivity and an offshore ocean laboratory for scientific research. With the Gulf of Maine warming faster than 97% of the world's oceans, the largely intact habitats and communities of the Cashes Ledge Area also constitutes a key opportunity for climate change research and stewardship.

For these reasons, we support the nomination of the Cashes Ledge Area as a National Marine Sanctuary and urge the acceptance of this nomination to the Sanctuary Inventory and the initiation of the public process for its designation. As part of the nomination, we also support the establishment of a fully protected sub-area within the Sanctuary and encompassing the Ammen Rock kelp forest and adjacent inter-connected habitats (Figure 1). In addition to conserving biodiversity and engendering ecosystem resilience to climate change, protecting this sub-area from fishing and other extractive and destructive activities would provide scientists a crucial natural laboratory to study the impacts of ocean warming and acidification without the confounding influences of additional human impacts.

Unique Ocean Habitat

The foundation of the Cashes Ledge Area is a sharply rising granitic ridge with widely spaced pinnacles and knolls that runs generally parallel to the coast and extends approximately 32 miles from the southeastern extent of Parker Ridge, through Cashes Ledge itself, to the northeastern tip of Sigsbee Ridge (Figure 1). [1, 2] Flanking this underwater mountain range are the deeper reaches of Cashes Basin to the west and Ammen Basin to the east, reaching maximum depths of approximately 725 ft. Ammen Rock, the highest peak within Cashes Ledge, rises steeply from the ocean floor at 460 feet to within 30 feet of the ocean's surface. The offshore location and steepness of the site create a unique environment where strong currents mix deep cold and shallow warmer water that contacts the rocky bottom within the photic zone. The result is a highly productive location for prey organisms like algae and plankton and a habitat dominated by predatory fish such as cod, pollock, cusk and wolffish. [3, 4, 5, 1, 2, 6, 7]

The area is typified by diverse terrain and substrates, ranging from banks, rocky peaks, and channels to a complex substrate of mud, gravel, sand, and bedrock; in a relatively small area it thus contains all of the bottom types typical of the offshore Gulf of Maine. [8] It supports vibrant bottom dwelling communities of bright orange, red and yellow sponges, sub-arctic species of sea stars, brittle and feather stars, sea squirts, sea pens, sea anemones, worms, northern shrimp, horse mussels and myriad encrusting

bryozoans. Among its defining features is one of the largest and deepest kelp forests in the Gulf of Maine, located on the uppermost reaches of Ammen Rock. [9, 2]

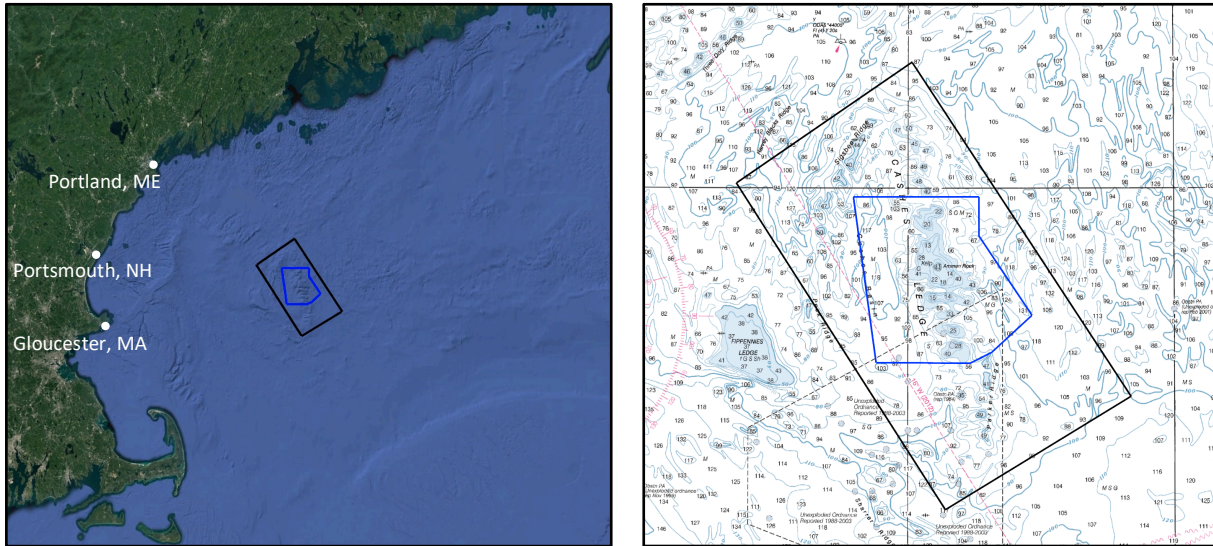


Figure 1. Cashes Ledge Area location within the central Gulf of Maine (left) and bathymetry (right; fathoms), showing the proposed National Marine Sanctuary (black) including a fully protected sub-area (blue).

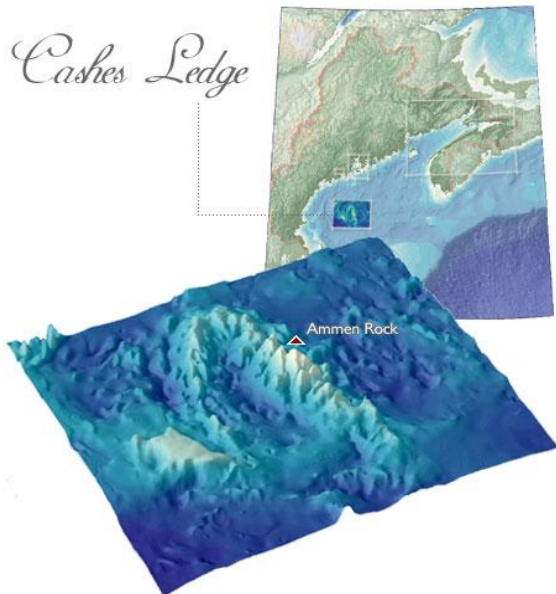


Figure 2. Three-dimensional rendering of the Cashes Ledge Area. Gulf of Maine Research Institute. "Cashes Ledge." Undersea Landscapes | Maps of Cashes Ledge. Map is a 50x vertical exaggeration.

The value of the Cashes Ledge Area habitat has been recognized by the regional federal fishery management authority, the New England Fishery Management Council (NEFMC), which has designated a large portion of the area as Essential Fish Habitat for species such as Atlantic cod, haddock, pollock, monkfish, American plaice, white hake, witch flounder, and halibut. For example, the rocky cobble and gravel substrates of the Cashes Ledge Area are critical for juvenile Atlantic cod, its sandy and algal dominated areas serve as habitat for all life stages of pollock and cunner, and its deep muddy areas are essential habitat for white hake. Several of these species are depleted stocks subject to overfishing,

overfished, or both. For instance, the Gulf of Maine haddock stock is subject to overfishing, while Gulf of Maine Atlantic cod is both subject to overfishing and classified as overfished.

Ecological Importance and Characteristics

The Cashes Ledge Area's "mountain range" rises steeply from the deep adjacent sedimentary basins with many peaks lining this extensive ridge (Figure 2). Ammen Rock, located roughly in the center of the ridge is of particular prominence and provides a diverse habitat that has proven ideal for studying the structure of benthic communities along its 30-300 ft depth gradient. Ammen Rock is a dome-shaped steeply sloping granite outcrop, covered with tall laminarian kelp that rises to within 30 ft of the ocean surface. The kelp forms a canopy, providing a structurally complex habitat occupied by many species. The sloping bedrock shelf extends to depths of approximately 220 ft, before continuing gradually deeper. [2] Beyond 220 ft the bottom is a talus slope of cobble and large boulder outcroppings interspersed with patches of sand and gravel. A sand and gravel plain extends deeper than 250 ft to the base of the ridge, beyond which are the fine sand and silt sediments of the deep basins. [2] This diverse mixture of complex habitat types within a relatively small area and across a wide depth range helps to make the Cashes Ledge Area such a productive ecosystem sustaining a diverse mix of species. Within a given habitat type, it is well known that more spatially complex habitats support higher levels of diversity than simple ones. Ecological research indicates that habitat diversity also increases species diversity and is important for ecosystem functioning. [10, 11] In this sense the wide range of habitat diversity found from the peaks to the muddy deeps of the Cashes Ledge Area is a valuable ecological and research asset.

Oceanography

Another substantial factor in the health of the Cashes Ledge Area ecosystem is the confluence of currents along the ridge. These currents, heavily influenced by Gulf of Maine oceanographic gyres, provide a constant supply of cold, nutrient-laden waters. [12, 13] Waters circulate around the ridge in a pattern brought on by the ebb and flow of the tides. Another stunning oceanographic phenomenon known as internal waves, generated by the steep topography and stratified water column around Ammen Rock, bring even more of the plankton-rich waters down into this highly dynamic area. [14, 1, 15] The force of these internal waves pushes the warm water from the upper levels of the water column against the peaks and slopes of the ledge, driving it down to mix with the colder depths, delivering a rich supply of plankton to the bottom. [13, 1] The warm water then rises back to the upper photic zone where it is again pushed along Cashes Ledge forcing it downward again. This process repeats itself again and again during the late spring to fall with the movement of the internal waves producing drastic fluctuations in water temperature and plankton supply to the sea floor around Cashes Ledge that result in temperature changes of as much as 9 degrees centigrade and approximately 2-3 fold increases in phytoplankton on the bottom (100 ft depth) each time an internal wave passes through. [1]

The effect of this repetitive cycle is regular circulation of nutrient rich waters within the water column and on the bottom in this area creating an area of high productivity and energy, with a plentiful food supply and high growth rates among its resident bottom dwelling species of sponges, sea anemones, mussels and bryozoans. [7, 14, 15, 16] Another factor promoting high growth rates of benthic invertebrates at the shallow peaks of Cashes Ledge is enhanced water flow as currents speed up more than three times between 225 and 100 ft depths as the currents impinge on the topographic "ramp" that Cashes Ledge resembles (Figure 2). [17, 18] As increased water flow has been shown to increase the species richness of benthic invertebrates [19], high flow over the peaks of Cashes Ledge likely contributes to its high benthic diversity. Taken together, the characteristics of the marine communities situated atop the

long ridges of the Cashes Ledge Area reflect an incredible dynamism within this offshore ecosystem, characterized by high productivity, high growth rates of benthic invertebrates and high predation by demersal fish. [6, 20, 15, 21]

Species Diversity

The hard, rocky substrate on Ammen Rock and other pinnacles across the area are home to a variety of benthic flora and fauna that form diverse communities that vary by depth along the slopes of the pinnacles, establishing identifiable shallow, intermediate, and deep water zones. [9, 2] Although most of these species can also be found in deep rocky habitats along the New England and southern Nova Scotia coast, the unique topographic and geographic setting and enhanced productivity of Cashes Ledge has produced communities with uniquely different relative abundances and depth limits than in those coastal habitats. [9, 4, 2] In terms of the benthic invertebrate communities, the species richness at the northern edge of Cashes Ledge is higher than at any rock wall site at comparable depths in the Gulf of Maine. [4] Several undescribed species of poeciloscerid sponges occur at Cashes Ledge including one extremely rare species of blue sponge that has only been seen in rock wall communities at Cashes Ledge. [22]

In the shallow zone of Ammen Rock, which extends from the top of each pinnacle down to a depth of approximately 130 ft, exists the densest and deepest kelp forest on the eastern seaboard. [9, 2] The portion of the zone nearest to the surface is dominated by Laminarian kelp up to 20 ft tall. At 100 ft depth shotgun



Figure 5. High diversity invertebrate community at Ammen Rock containing large sea anemones (*Urticina*), encrusting bryozoans (*Parasmittina*) and orange sponge (*Hymedesmia*) and many others. (J. Witman)



Figure 3. Assemblage of three species of sea stars, massive and encrusting sponges and sea anemones at Ammen Rock Pinnacle (J. Witman)



Figure 4. Vase sponge (*Phakelia*) with brittle stars (*Ophiopholis*) on Cashes Ledge (J. Witman).

kelp (*Agarum clathratum*) becomes more dominant. In this zone, high levels of water flow and low sedimentation leads to rapid species turnover. Kelp dominated patches at the tops of the ridges are often intermixed with large aggregations of sea anemones (*Metridium senile*), with their light colored tentacle crowns swaying back and forth in the currents. [9, 22, 2] Encrusting and mobile invertebrates proliferate in part due to the abundance of kelp. [9, 2] An intermediate zone characterized by abundant suspension feeding invertebrates begins below the kelp dominated zone and continues to approximately 200 – 230 ft where the continuous rock slope ends. Large *Urticina* sea anemones, a particularly vulnerable species, and orange sea stars (*Hippasteria phrygiana*) are common predators in this range. Other prevalent invertebrates include brachiopods, small crinoids

and ascidians. Soccer ball sized yellow mounding sponges (*Mycale lingua*) dot the sea scape on these deep rocky slopes. [22, 2] As the continuous rock tapers into gravel and a muddy bottom from 230 - 250ft, the slope begins to level off and the soft bottom benthic community contains numerous tube worms (*Myxicola infundibulum*), mud anemones (*Cerianthus borealis*), and northern shrimp (*Pandalus borealis*). [9, 2] Much of the habitat structure in these deep soft substrate communities is biogenic, consisting of burrows, pits and delicate thickets of projecting tubes of mud anemones. [2]



Figure 6. Red cod and cunner in a kelp forest (Brian Skerry).

The rich and unique array of kelp and invertebrate species and diverse habitat types also helps to support and provide shelter for a productive population of finfish predators such as cod, haddock, hake and plaice in the Cashes Ledge Area. For example, though older cod are generally found in deeper water, cod up to three feet long have been found within the relatively shallow kelp forest at Ammen Rock. [20, 23] Up to five foot long “whale cod” have also been observed on the northern edge of Cashes Ledge. [21] Cashes Ledge also hosts a resident form of “red cod”—an effect likely due to some combination of diet, environmental conditions, and possibly genetics [24] — that is primarily associated with the kelp forest. [25] Juvenile cod are also most abundant in the kelp forest [26], which likely provides an important refuge from predators. [27]

Also found in relative abundance in this area are other large predatory finfish such as white hake and pollock. [23] Many other groundfish, though less abundant, are commonly present in the Cashes Ledge Area, including wolffish, monkfish, haddock, redfish, silver hake, American plaice, and halibut. [23] Blue sharks are commonly seen plying the waters around Cashes Ledge in the warmer months, sometimes feeding on seabirds at the surface. Atlantic bluefin tuna can also be found pursuing herring and using the ledges and slope of Cashes Ledge to entrap large schools of these pelagic fish. [21]

Average fish biomass on Ammen Rock has been shown to be 305 times greater than in coastal kelp communities at the same depth and to have a numerical density more than twice the average in temperate western North Atlantic waters. [27] Comparisons to similar locations in coastal Maine where populations of commercial groundfish species are generally depleted have suggested that the high abundance of large fish such as cod, pollock and wolffish at Cashes Ledge leads to an ecosystem where their predation still plays a dominant role. [20] For example, kelp forests in many regions, including the coastal Gulf of Maine, have suffered from enhanced grazing by surging sea urchin populations released from predation due to the depletion of the commercial fish species that naturally regulate their populations. At Cashes Ledge, healthier populations of predatory fish, including Atlantic cod and Atlantic wolffish, may maintain natural food web interactions that regulate sea urchin populations, allowing the kelp to thrive. [28]

Analysis of sightings data also shows a high species richness and abundance of whales and dolphins in the Cashes Ledge Area, particularly over Cashes Ledge itself and in the area over Cashes Basin just to the west. [29] Cashes Ledge, with its abundant plankton, is an important feeding stop for humpback whales during their seasonal migration in the spring and early summer. The critically endangered North Atlantic right whale is also often observed in the area. Minke whales are frequently spotted at Cashes Ledge in the summer, often diving in the internal wave slicks, presumably to feed.

Vulnerable Species and Communities

A number of the invertebrate species found on Cashes Ledge are particularly vulnerable to human disturbance. Research and modeling indicate that Cashes Ledge invertebrate communities at 30 m depth

normally experience a low rate of disturbance. [30, 31] However, simulations of resilience indicate that it would take from 7 – 268 years for a given species to recover from disturbance, with the rarer species taking more time. The large solitary sea anemone, *Urticina crassicornis*, is especially vulnerable as the model predicted 268 years for it to return to the community if removed by fishing gear or other impacts.

Large, yet sensitive, horse mussel beds that serve as foundation species are especially common at Ammen Rock. By providing a habitat and a refuge from predation for other species of invertebrates these beds serve as mini-biodiversity hotspots on the bottom. [32] Due to their diversity enhancing function, horse mussel beds are protected habitats in the Irish Sea and other northern regions. These beneficial horse mussels are susceptible to human impacts such as bottom-trawling fishing gear, lobster pots, gillnets and even the effects of fishing hooks and lines. Once damaged or displaced, horse mussel beds will be slow to regenerate on Cashes Ledge, as these beds seldom form in subtidal areas from horse mussel larvae relocated from other areas. Brachiopods, an ancient lineage of invertebrates, are another species found on the deeper walls of Cashes Ledge that are vulnerable as a result of their difficulty recruiting replacement larvae. [21]

The kelp that has come to be the identifying characteristic of the Cashes Ledge Area is itself quite susceptible to human-induced harm. Although Atlantic kelp is known to re-grow within one to two years of removal, it would take many years for the tall kelp forests found on Cashes Ledge pinnacles to return to their current stature if stripped clear by mobile fishing gear or significantly shredded by repeated impact from lines, hooks, traps or other human influences. The diverse ecosystem that depends upon these kelp forests could be completely altered, if not eliminated, during the period of re-growth. For this reason, it is crucial that this key habitat be permanently protected.

Unique Kelp Forests

The kelp forests on Ammen Rock and the deep pinnacles on Cashes Ledge stand out as one of the most unique ecological structures in the Gulf of Maine. Average biomass of sugar kelp (*Saccharina latissima*) at Ammen Rock has been recorded to be up to 3 orders of magnitude greater and density up to 162 times higher compared to coastal sites at similar depth; these are the greatest levels of biomass and density reported for this species in the western North Atlantic. [27] Kelp ecosystems are one of the most productive in the world, and the kelp forests of Cashes Ledge are no exception, providing a very important habitat for a diverse array of organisms, including fish, mollusks, and other seaweeds. [33, 34, 35] These kelp beds also likely serve as nursery grounds for large predatory fish, such as cod and pollock. [20, 9, 6]

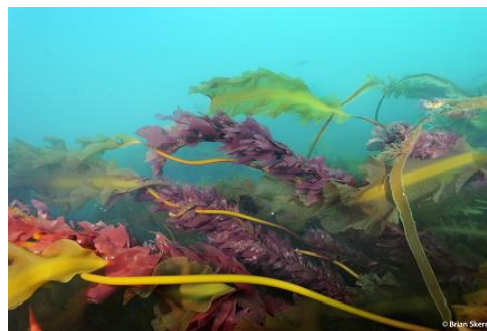


Figure 7. *Saccharina latissima* kelp (Brian Skerry).

The ecological role of the kelp is even broader than the dense forests that they create in this Cashes Ledge ecosystem. The substantial kelp forests of Cashes Ledge likely provide a stream of nutrients and energy to the waters all around the mountainous ledge, as the kelp serves as a food source for organisms inhabiting the deeper waters surrounding the ridge and benthic organisms at the base of the ridge. Detritus from the kelp, kelp particles that have eroded and broken free over time, slowly drift down from the upper water column and serve to feed the organisms in the waters below. [36] This important ecological role of kelp has been well studied in the Pacific Northwest [37] and with the same species of kelp off Nova Scotia that occur on Cashes Ledge, where a direct link has been found between the density of the kelp bed and the extent of detritus production. [36] Burial of kelp detritus in continental shelf slopes and the deep ocean has also been identified elsewhere as a mechanism for carbon sequestration [38], and the role of the Cashes Ledge kelp in the local carbon cycle and the possibility of kelp detritus ultimately being buried in the sediments of the deep adjacent basins are important research questions that remain to be investigated.

Climate Change

The importance of climate change impacts on the Gulf of Maine cannot be overstated. The past five years (2019-2023) have been among the warmest on record [39], and waters are currently warming faster than 97 percent of the global ocean. [40] A wide variety of impacts on benthic and pelagic organisms are being observed throughout the region. The impacts of warming are particularly acute for species such as kelp and Atlantic cod for which the Gulf of Maine is near the southernmost extent of the species' North Atlantic range. [41, 42] As these trends continue, the scientific value and importance of protecting a portion of the Cashes Ledge Area as a living laboratory and oceanographic research platform only increase. The baseline of information on the abundance and diversity of organisms and temperature along a wide range of depths makes the Cashes Ledge ecosystem a particularly good area to test the hypothesis that Gulf of Maine marine life may be able to survive the exceptionally rapid warming of shallow waters by moving to deeper cooler waters, achieving a refuge at depth. [43]

On Ammen Rock, declines in sugar kelp abundance between initial surveys in the 1980s and surveys in 2015 were attributed to the rapid warming of the Gulf of Maine system, and the 2012 heat wave in particular, in combination with the spread of an invasive species of white bryozoan (*Membranipora membranacea*) encrusting the kelp blades. [27] Analyses from a 2023 scientific cruise to the Cashes Ledge Area are underway and preliminarily suggest that while overall kelp abundance remains high, the proportion of sugar kelp relative to horsetail kelp (*Laminaria digitata*) has continued to decline and that the percent coverage of the invasive red alga *Dasysiphonia japonica* has increased substantially. [44] Protecting these most pristine yet still vulnerable kelp forests of the Gulf of Maine will maximize their resilience in the face of continued warming. [45]

Fisheries and Existing Habitat Protections

Among the most significant of the risks to the Cashes Ledge Area's ecosystem is the damage posed by commercial fishing. Cashes Ledge was first described as fishing grounds in the 1800s, though fishermen generally avoided the area because the underwater topography made anchoring and fishing difficult. [46] By the 1920s, cod, haddock, and other species were being commercially harvested on Cashes Ledge. However, it was not until the late 20th century, with the advent of new technologies such as bottom-fishing gear equipped with "rock-hoppers," capable of trawling a rocky seafloor, that commercial fishing became common in the Cashes Ledge Area.

In response to declines in groundfish populations, starting in the late 1990s the NEFMC has used spatial closures in the Cashes Ledge Area as a tool to address fishing mortality and to protect essential fish habitat. Since 2002, all gear capable of catching groundfish has been prohibited year-round in the Cashes Ledge Groundfish Closure Area, a large region encompassing Cashes Ledge, Fippennies Ledge, and the areas between them. At present, this area is identified as a mortality closure linked to the status of Gulf of Maine groundfish. Within this mortality closure are also Habitat Management Areas (HMAs) limiting the fishing gear types that can be used in designated Essential Fish Habitat. The use of all bottom-tending mobile fishing gear is prohibited in the Cashes Ledge Habitat Management Area, which encompasses a portion of Cashes Ledge largely limited to its rocky ridgeline. The much smaller Ammen Rock HMA encompassing the majority of the kelp forests is closed to all gear except lobster traps. Recent studies indicate these closures are having positive impacts on managed species. Analyses of cod caught inside relative to outside the Cashes Ledge Groundfish Closure Area, for instance, have shown greater length and age inside the closed area; greater gut fullness and differences in stable isotopic signatures also indicate greater availability of prey resources and a broader range of prey types. [47]

While these commercial fishing closures demonstrate a recognition by the NEFMC of the value of the Cashes Ledge Area and have effectively prohibited the most invasive and destructive forms of fishing using various styles of bottom trawl, they are inadequate in scope and not permanent. The closures are

fisheries management tools focused on achieving optimum yield from managed species in the area and are not designed or intended to serve as a mechanism for protecting marine biodiversity. Outside of the Ammen Rock HMA, a number of other commercial fishing gears are still permitted in the Cashes Ledge Area, including mid-water trawls, purse seines, lobster pots, rakes, cast nets, tongs, weirs, dip nets, stop nets, pound nets, pelagic hook and line, pelagic longlines, single pelagic gillnets, and shrimp trawls, as well as recreational fishing. These existing management measures are furthermore subject to change and can be modified or removed through fishery management actions. Equally importantly, while the current closures do provide protection against some fishing impacts, those protections fail to address other potential impacts associated with energy development, ocean dumping and numerous other ocean uses. Consequently, the cumulative extent of the conservation measures provided by this suite of fishing regulations is simply insufficient to provide the Cashes Ledge Area with the level and permanency of protection that it warrants and needs.

Need and Benefits of Permanent Habitat Protection

For decades, the best marine science has demonstrated the critical importance of establishing permanently protected areas in our oceans as a means to maintain their long-term health, resilience and biological diversity. [48, 49] The impacts of climate change on our ocean, as well as the ongoing global biodiversity crisis, create an urgent need to build such resilience into the region's ocean ecosystem and to help ensure its adaptability to the challenges it faces. A growing movement of scientists, policy makers, conservation organizations, and others around the world have called for the protection by 2030 of at least 30 percent of the world's land and oceans for the benefit of people, biodiversity, and climate resilience [50], an effort enshrined in the US in the Biden Administration's America the Beautiful Initiative.

Marine protected areas are a key tool for achieving the 30x30 and America the Beautiful goals, playing a central role in maintaining healthy and vital oceans. Protected areas conserve living resources and habitat, maintaining biodiversity. Ecosystems with high abundances and diversity of species such as the largely intact Cashes Ledge Area also often have greater capacity to resist, recover from, and adapt to stressors associated with change, including warming and extreme events such as heatwaves and storms. At the species level, healthy and more abundant populations are generally more resilient to stress, while at the ecosystem level, healthier ecological communities are more likely to maintain natural ecosystem interactions and function; this latter effect might provide an "insurance policy" that ecosystem functioning will be maintained even if some species decline. [45, 51, 52]

The Cashes Ledge Area presents an important and unusual opportunity to permanently achieve such protection and associated ecological benefits. Given the existing fishery regulations already applicable to the Cashes Ledge Area, full and permanent protection of a sub-area of the region could be achieved with relatively minimal disruption to the commercial fishing industry, and these existing restrictions have helped to protect its sensitive environment for more than two decades. However, even if those restrictions are left in place, their scope and breadth are insufficient to ensure sustained protection against common threats to the healthy ecosystems of the Cashes Ledge Area and to allow its unique ocean floor habitat and kelp forests to be fully restored. Safeguarding the Cashes Ledge Area will ensure that this bountiful marine wonder and its many unique characteristics can be studied and admired by future generations.

For these reasons, we strongly support action to permanently protect the Cashes Ledge Area by designating it a National Marine Sanctuary. A Sanctuary designation would complement and extend existing measures in the region, providing more comprehensive and coordinated conservation and management of the exceptional resources found in the Cashes Ledge Area. It would celebrate the area's rich natural heritage and provide a refuge for its vibrant and vulnerable marine life, while also providing an exciting platform for research and education. As part of the designation, we support the creation of a fully protected sub-area within the Sanctuary, similar to fully protected portions of other Sanctuaries such as the Channel Islands National Marine Sanctuary. This area would be centered on the Ammen Rock kelp

forest but also encompass adjacent, connected habitats (Figure 1), in which all extractive and destructive activities would be prohibited, with the goals of conserving biodiversity and building climate resilience, while also facilitating research. Full protection of this sub-area would allow investigation of a multitude of important research questions in the absence of any additional human impacts, providing an unparalleled reference site for identifying and understanding the impacts of climate change in the Gulf of Maine.

Securing long-lasting protections for this important ocean wonder is vital in our rapidly changing ocean. We support this nomination and urge the addition of the Cashes Ledge Area to the Sanctuary Inventory and initiation of the public process for its designation as a National Marine Sanctuary.

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