

# Groundfish FMP Amendment 28:

## Essential Fish Habitat and Rockfish Conservation Areas

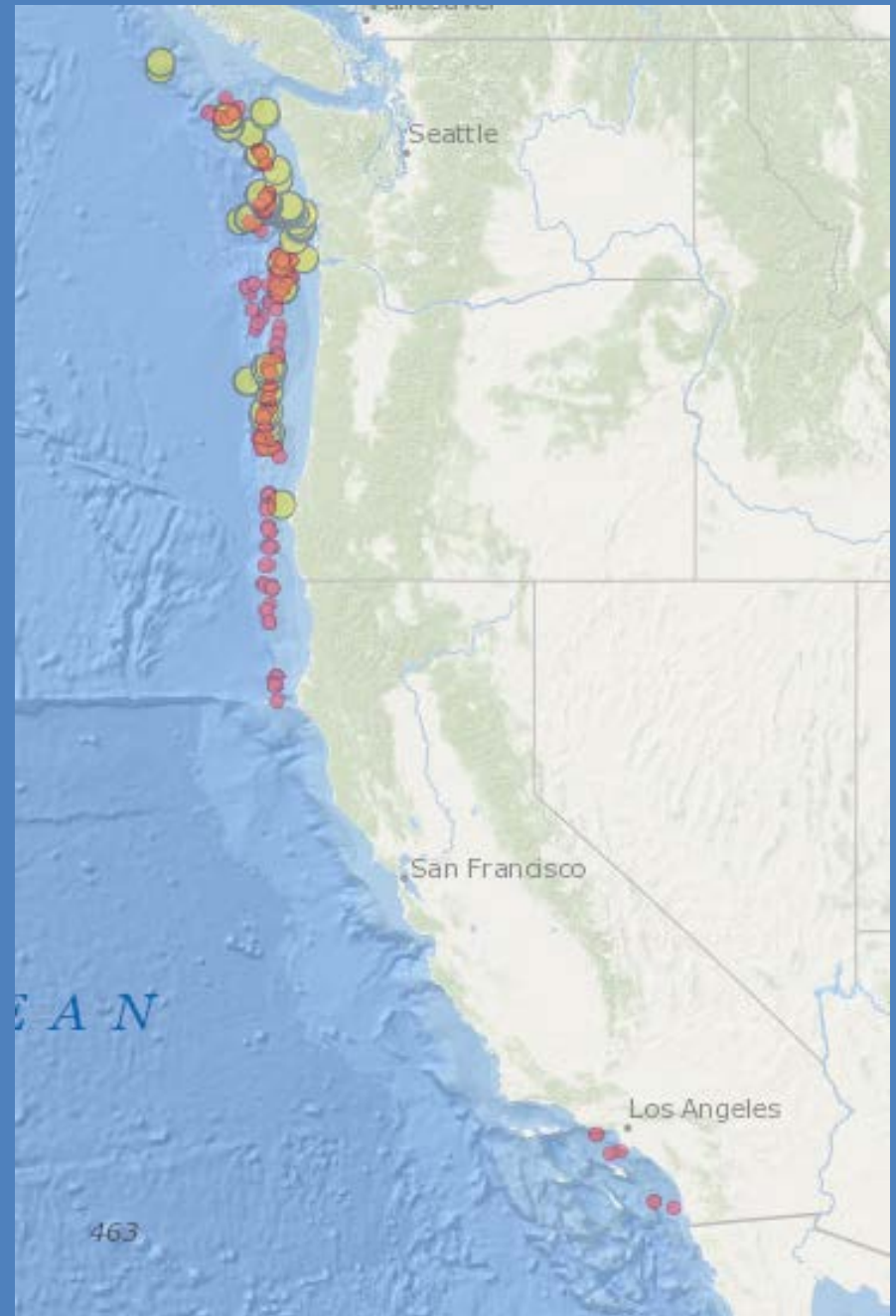


## Summarized Recommendations

- Identify a PPA at this meeting that replaces the RCA with adaptive management tools targeting any species, and enough new/expanded EFHCA's to achieve a net effective gain
- Expand the scope of priority habitats to include connectivity/corridors/diversity, and methane seeps
- Include the Comprehensive Conservation Proposal for the Southern California Bight
- Include new EFHCA's that protect methane seeps

# Methane Seeps

- Chemosynthetic microbial action sustains vibrant, slow-growing animal communities
- Critical to ecosystem function with a surprisingly large sphere of influence
- Through creation of rocky substrate, often extensive, play a key role relative to EFH
- Emerging information on links to Council-managed groundfish
- Emerging information on locations, with opportunity at hand due to overlap with Am 28 polygons



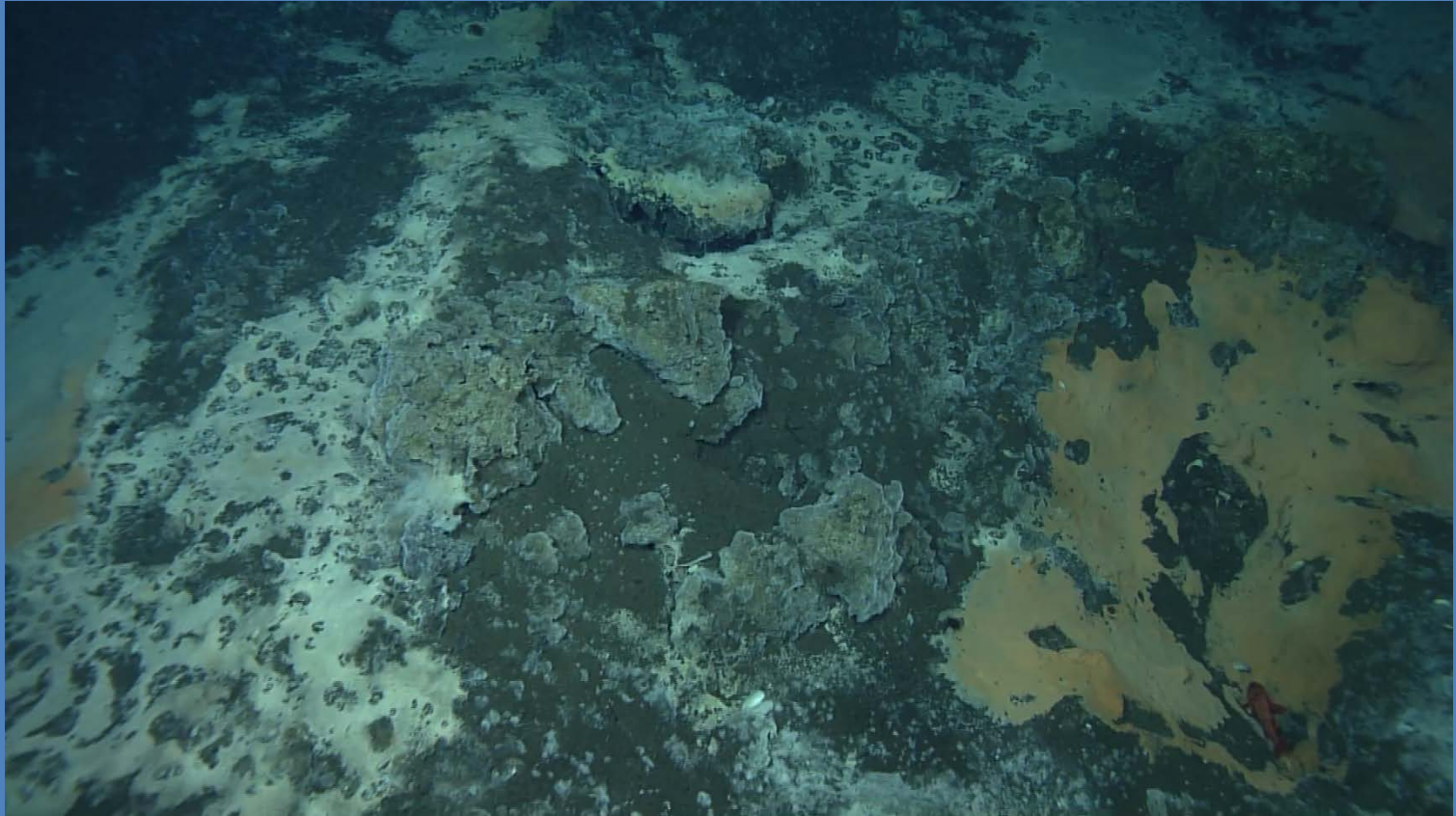
# Methane Seeps: New Information



E/V Nautilus (Ocean Exploration Trust) discovered and/or dived on many new seeps in 2015 and 2016, dramatically expanding the existing base of knowledge. Approximately 500 new bubble streams discovered in 2016, roughly doubling the known number of seepage sites

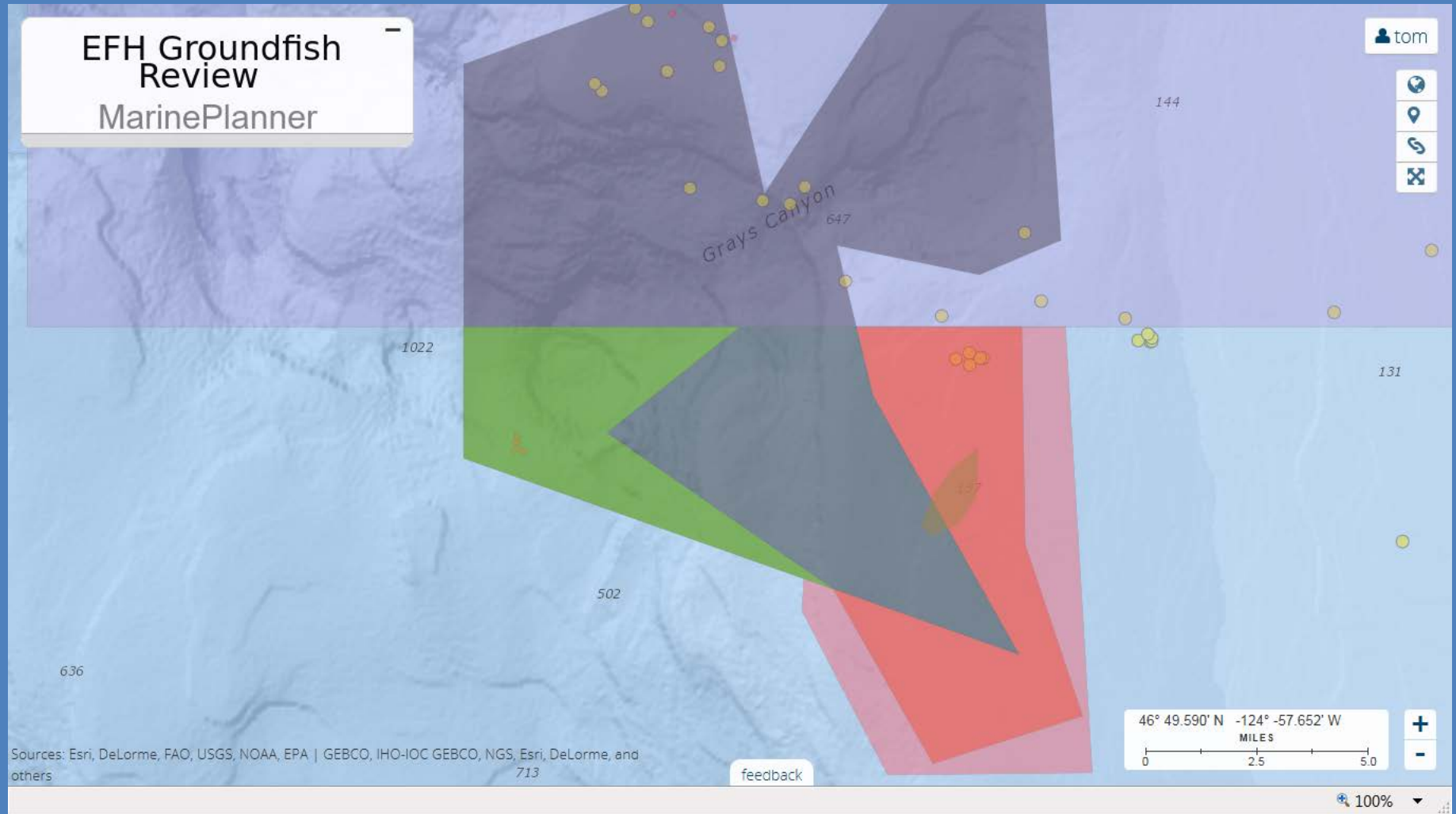


# Methane Seeps: New Information

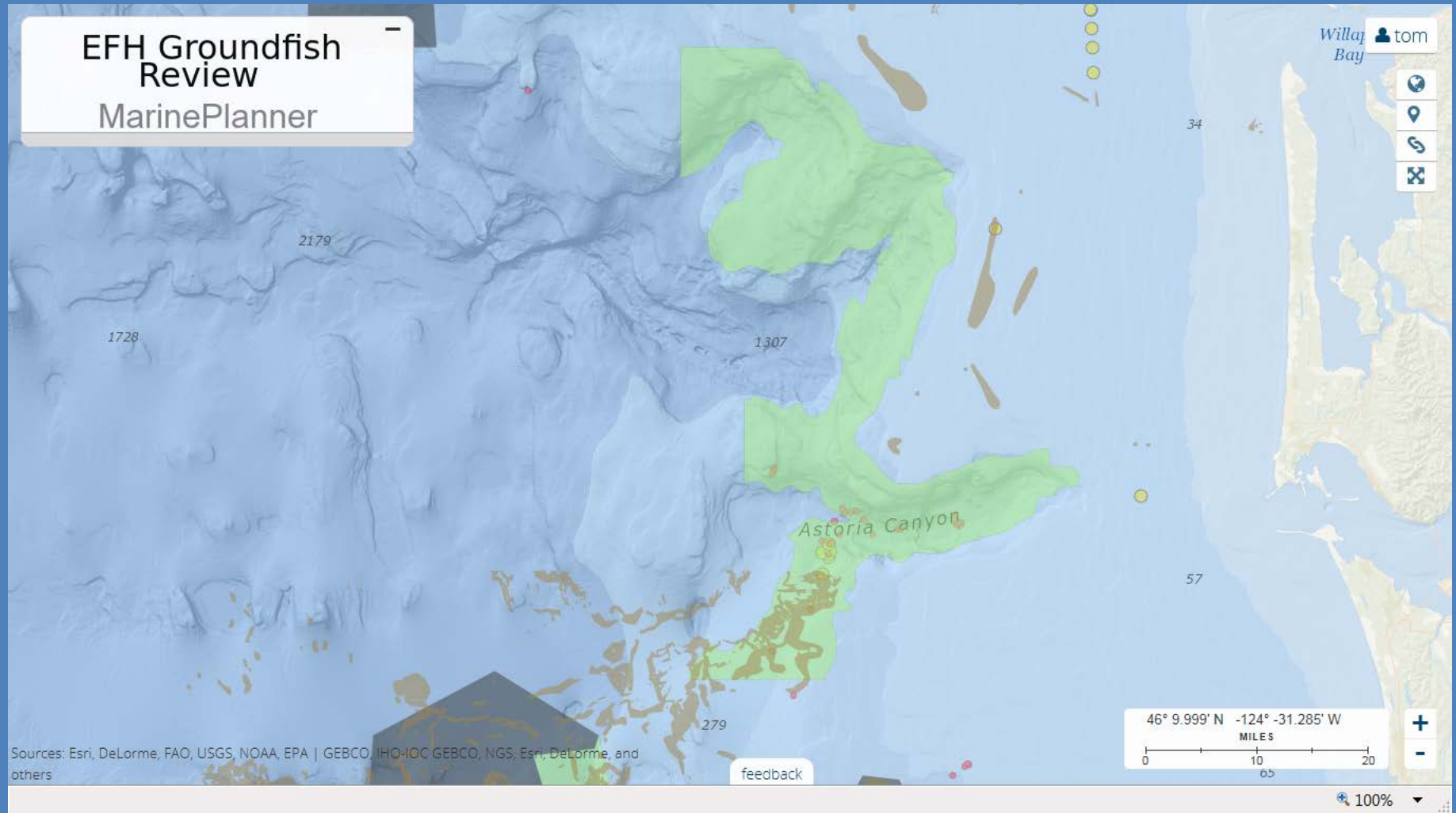


Del Mar Seep off San Diego extensively studied and 2015 paper describes higher abundances of longspine thornyheads at the seep than in surrounding sedimented areas (Grupe et. al. 2015)

# Priority Polygon 1: Gray's Canyon

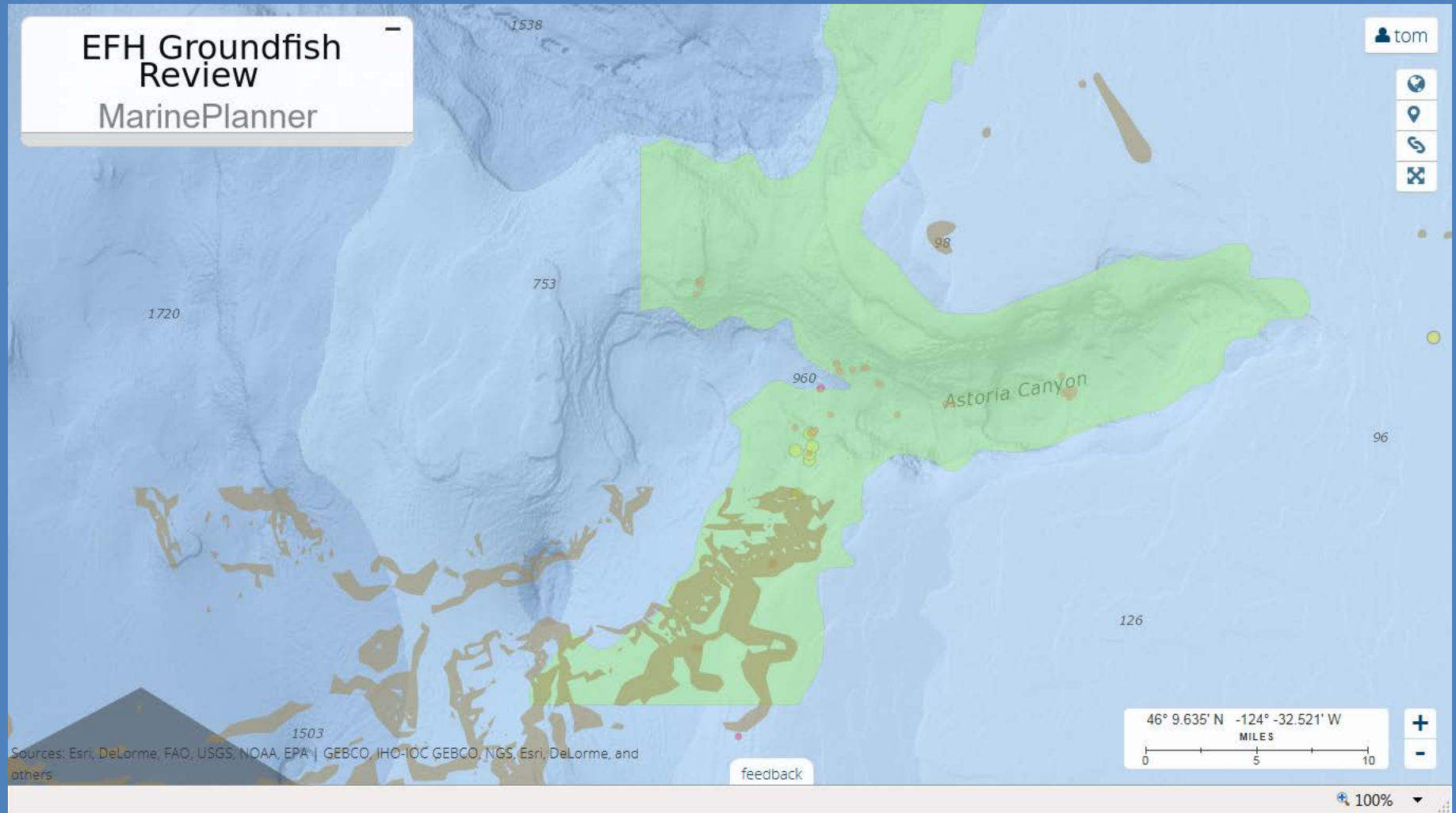


# Priority Polygon 2: Astoria Canyon



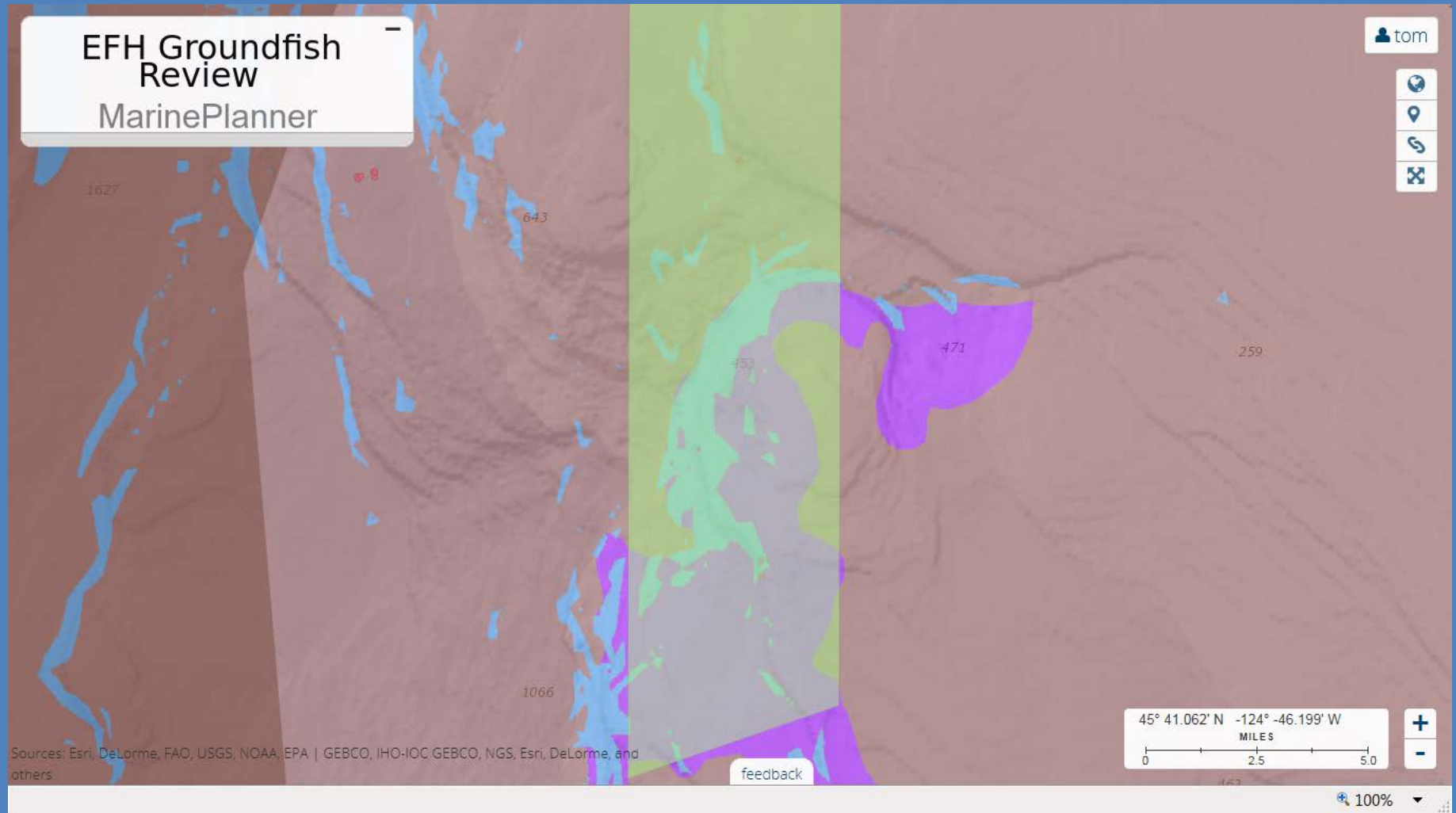


# Priority Polygon 2: Astoria Canyon





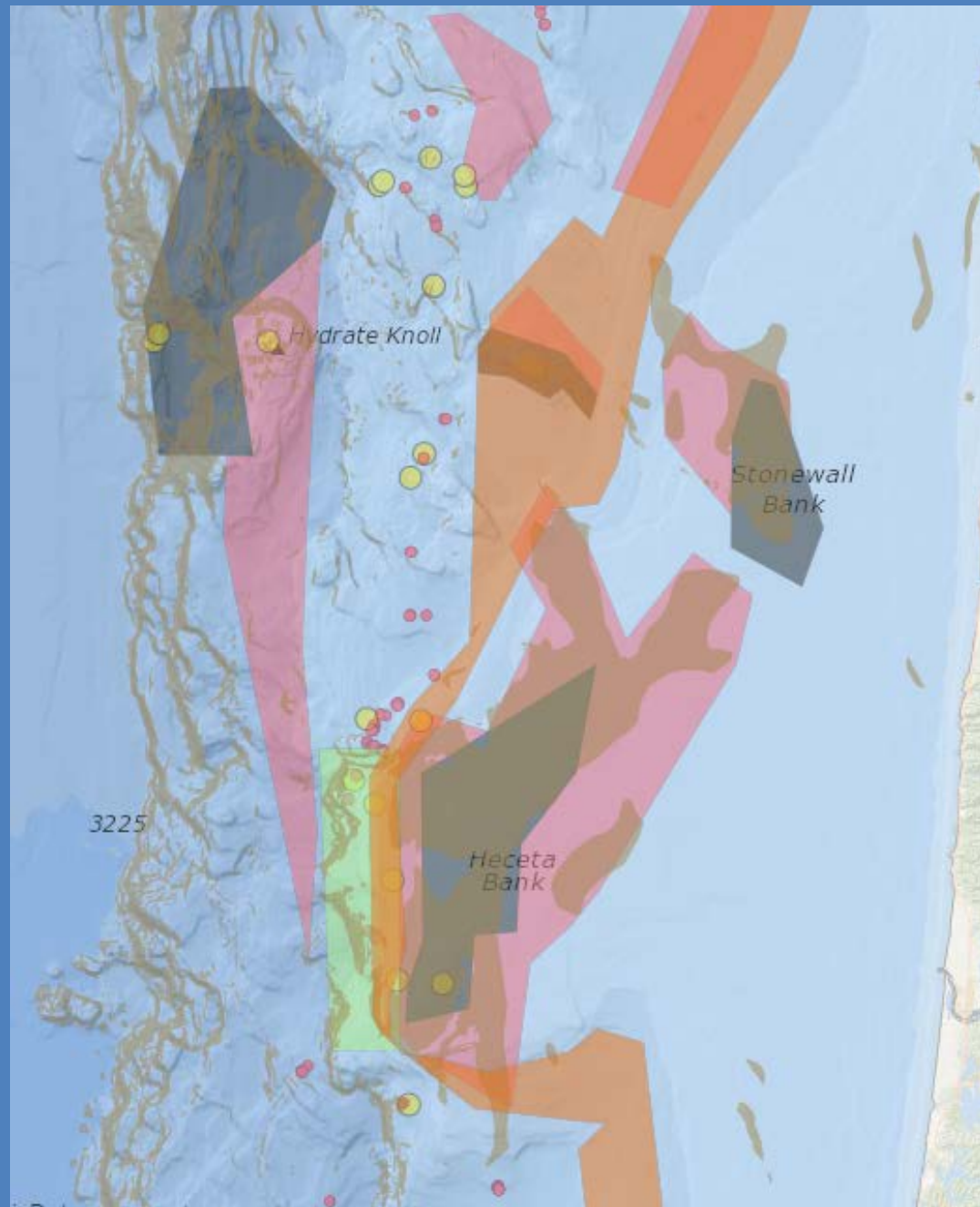
# Priority Polygon 3: McArthur Canyon



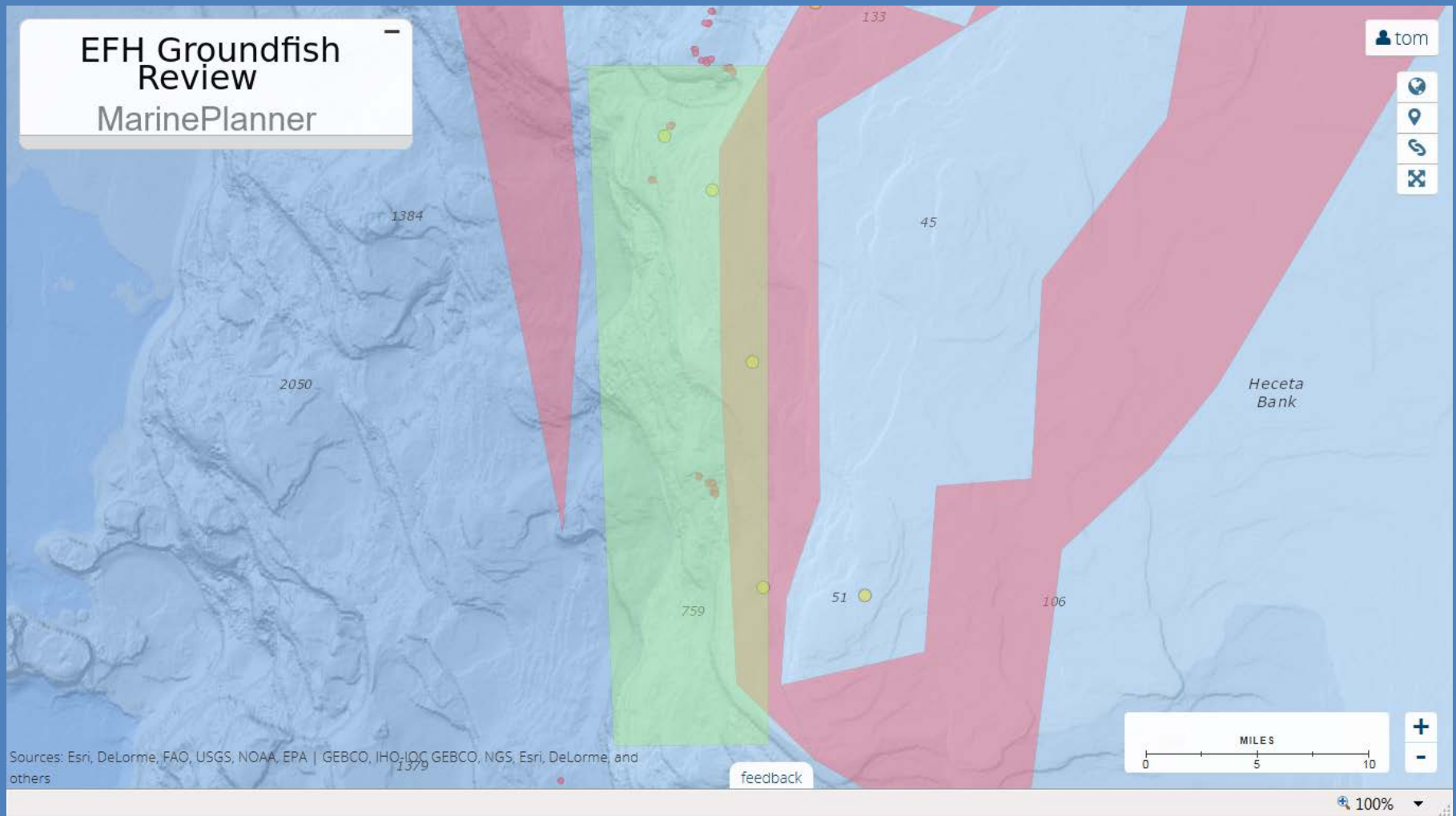
**Priority Polygon 4:  
Hydrate Ridge/Central  
Oregon Footprint  
Modification**

**And**

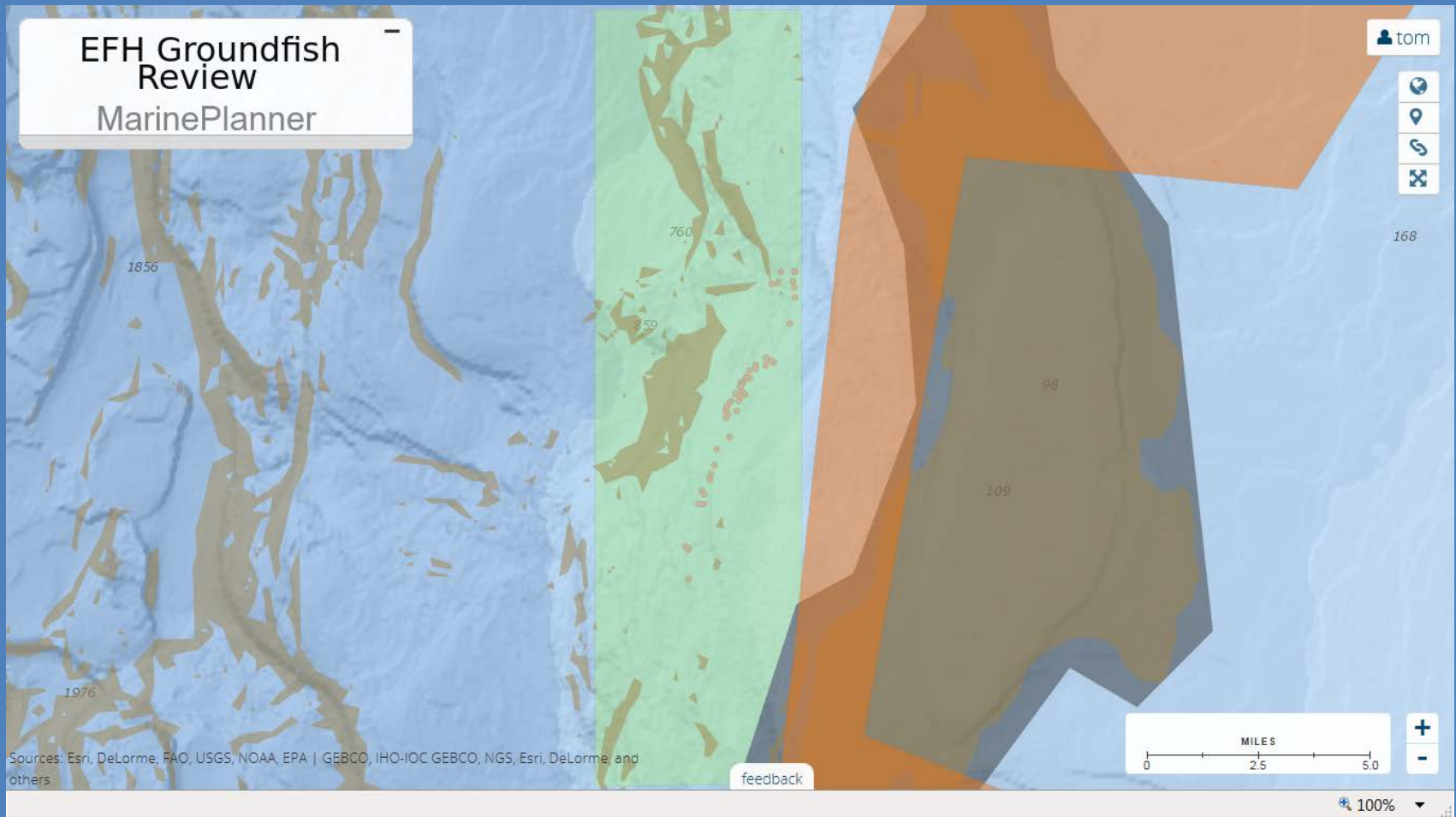
**Priority Polygon 5:  
Heceta Bank West**



# Priority Polygon 5: Heceta Bank West

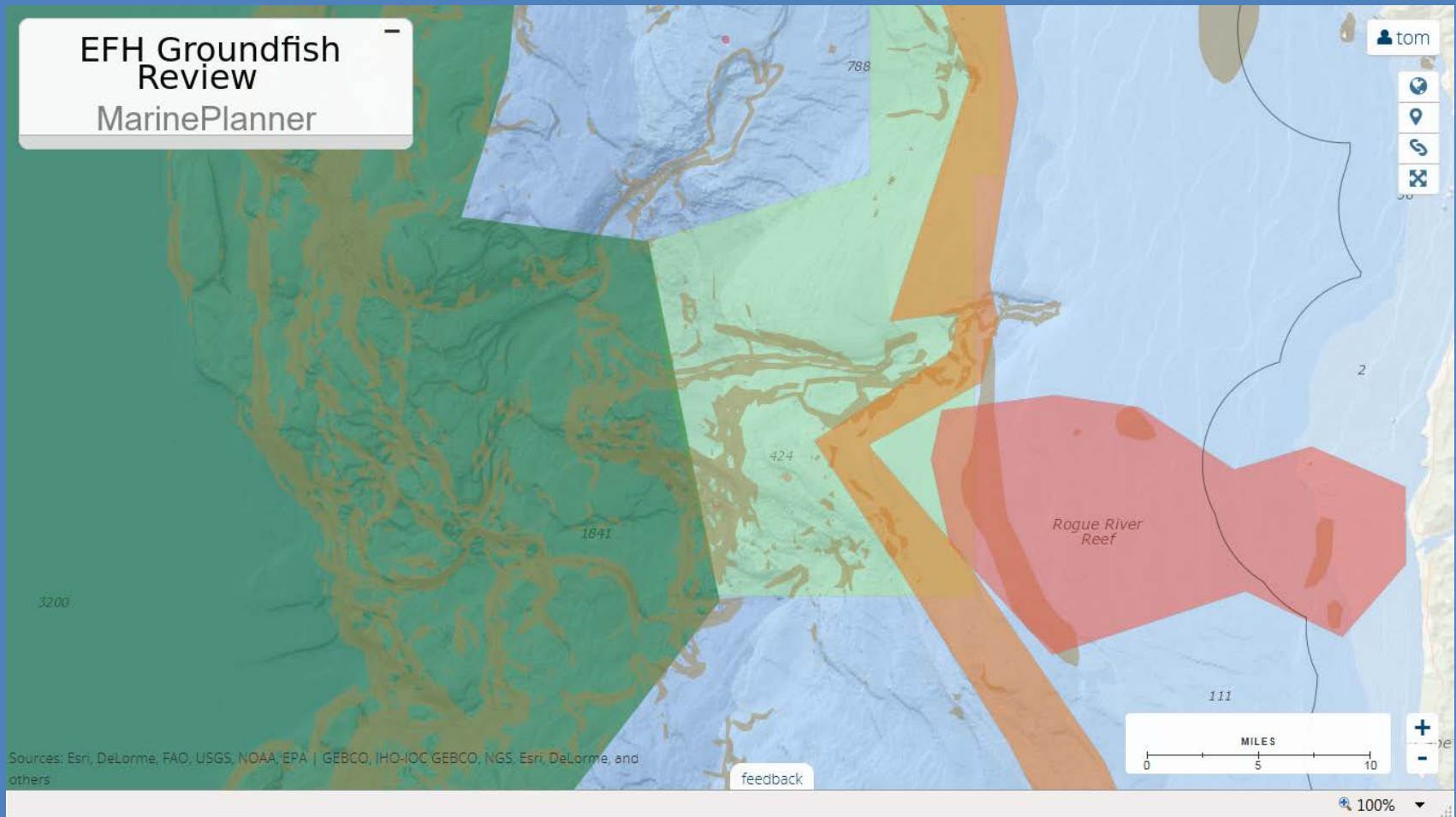


# Priority Polygon 6: Bandon High Spot West

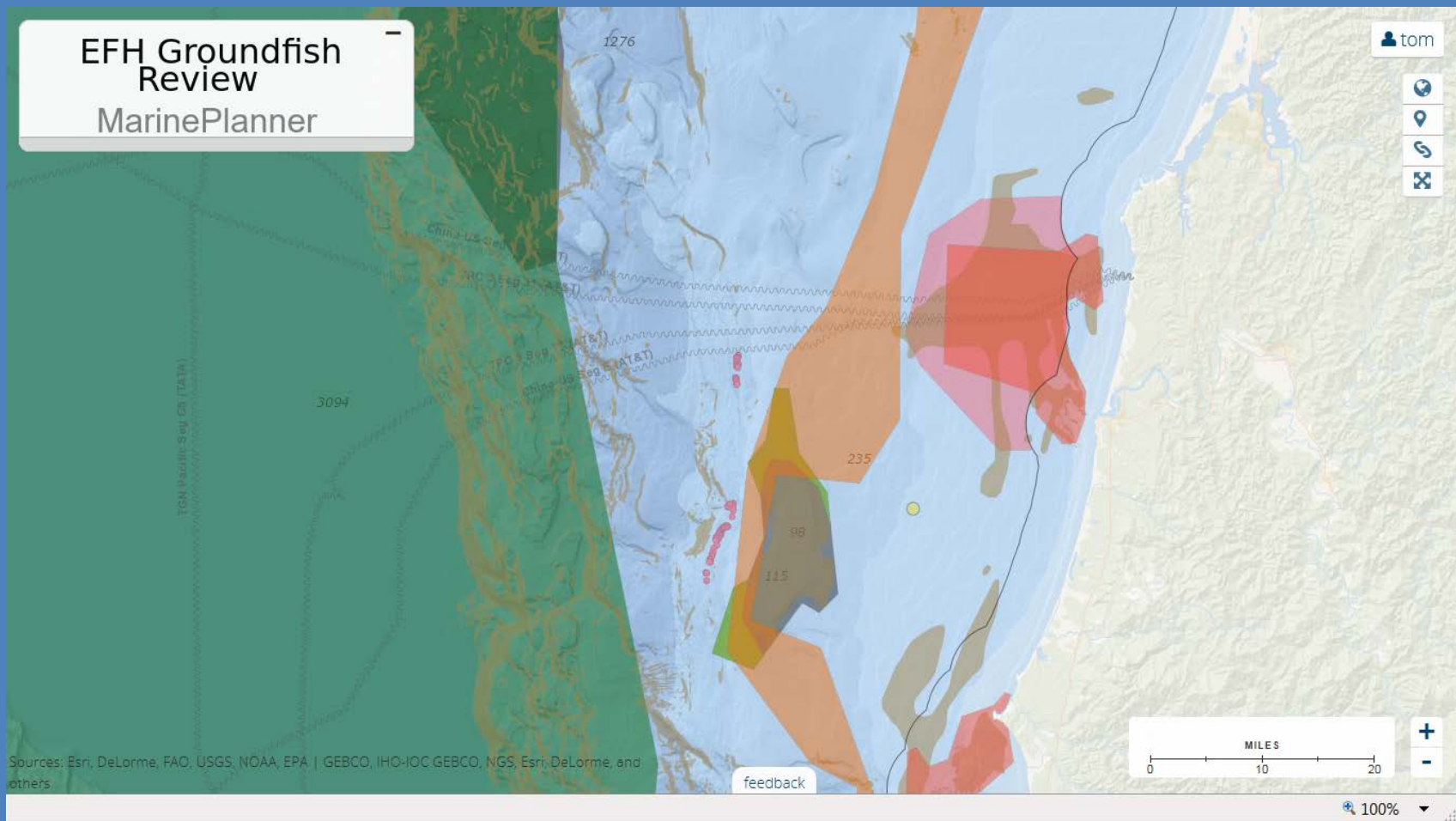




# Priority Polygon 7: Rogue Canyon



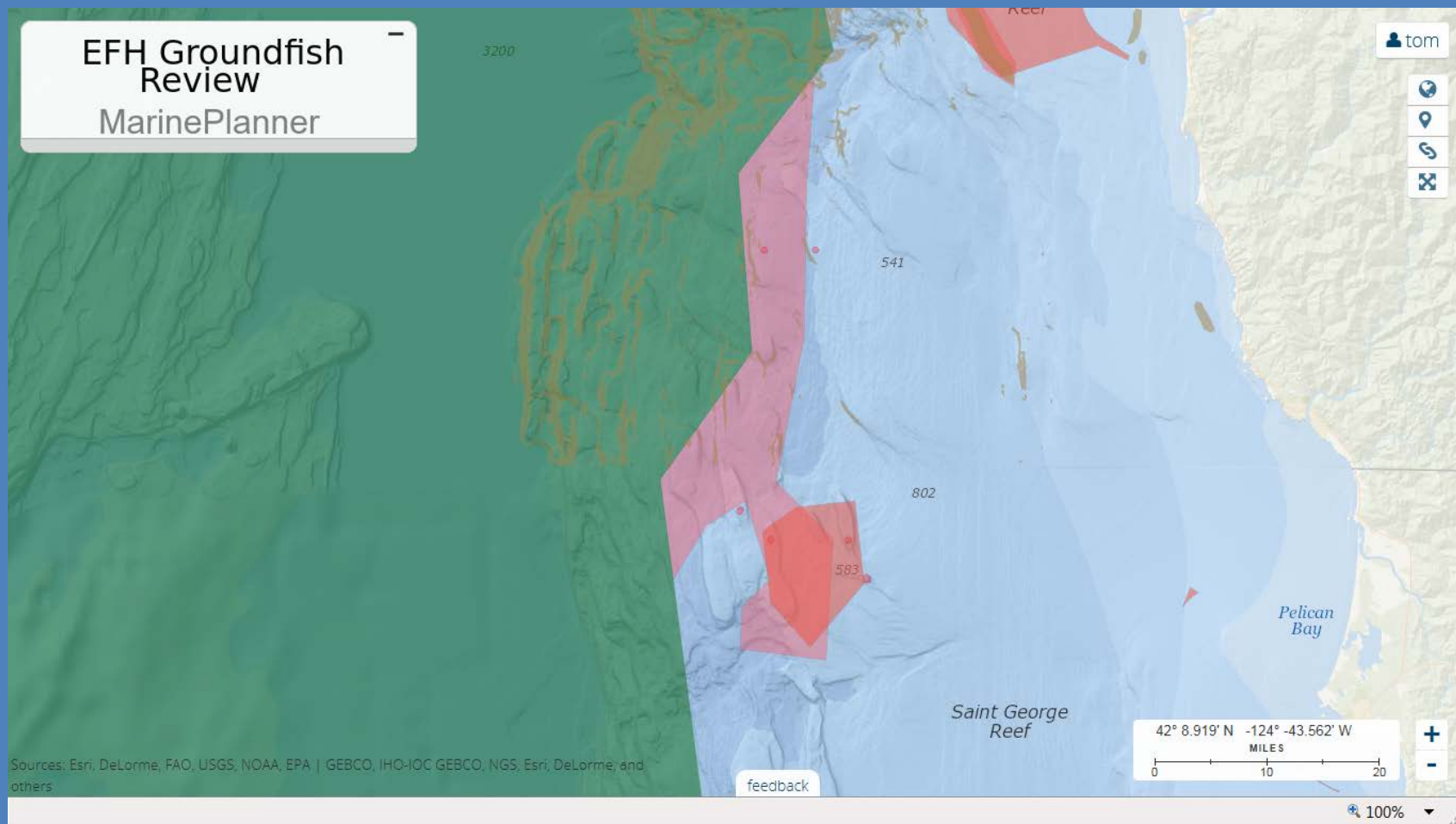
# Alternative Corridor Possibility: Arago Reef Area



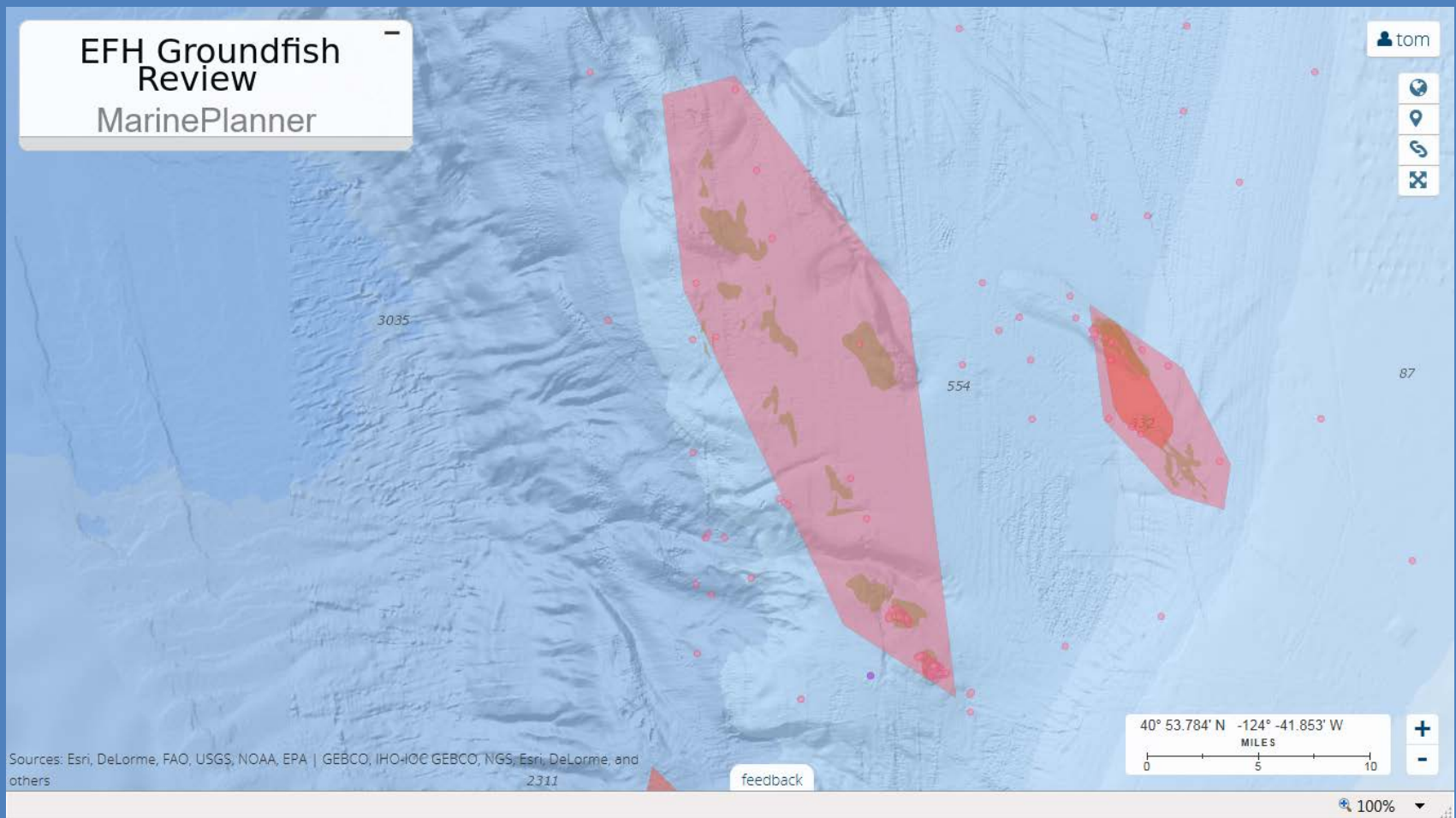
# Priority Polygon 8: Southern Oregon Footprint Modification

## Priority Polygon 9: Crescent City Deepwater Hotspot

## Priority Polygon 10: Brush Patch

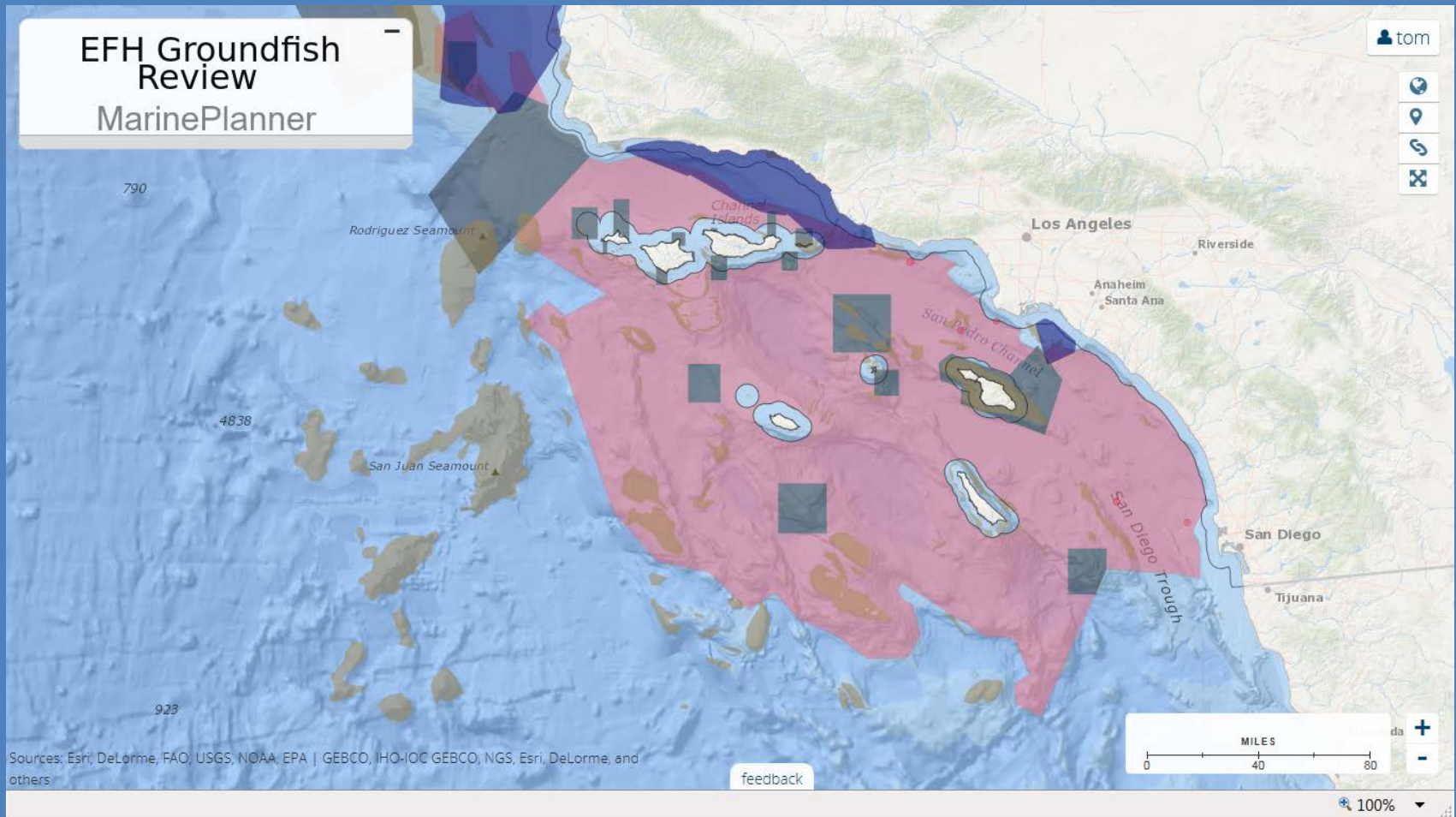


# Priority Polygon 11: Samoa Deepwater

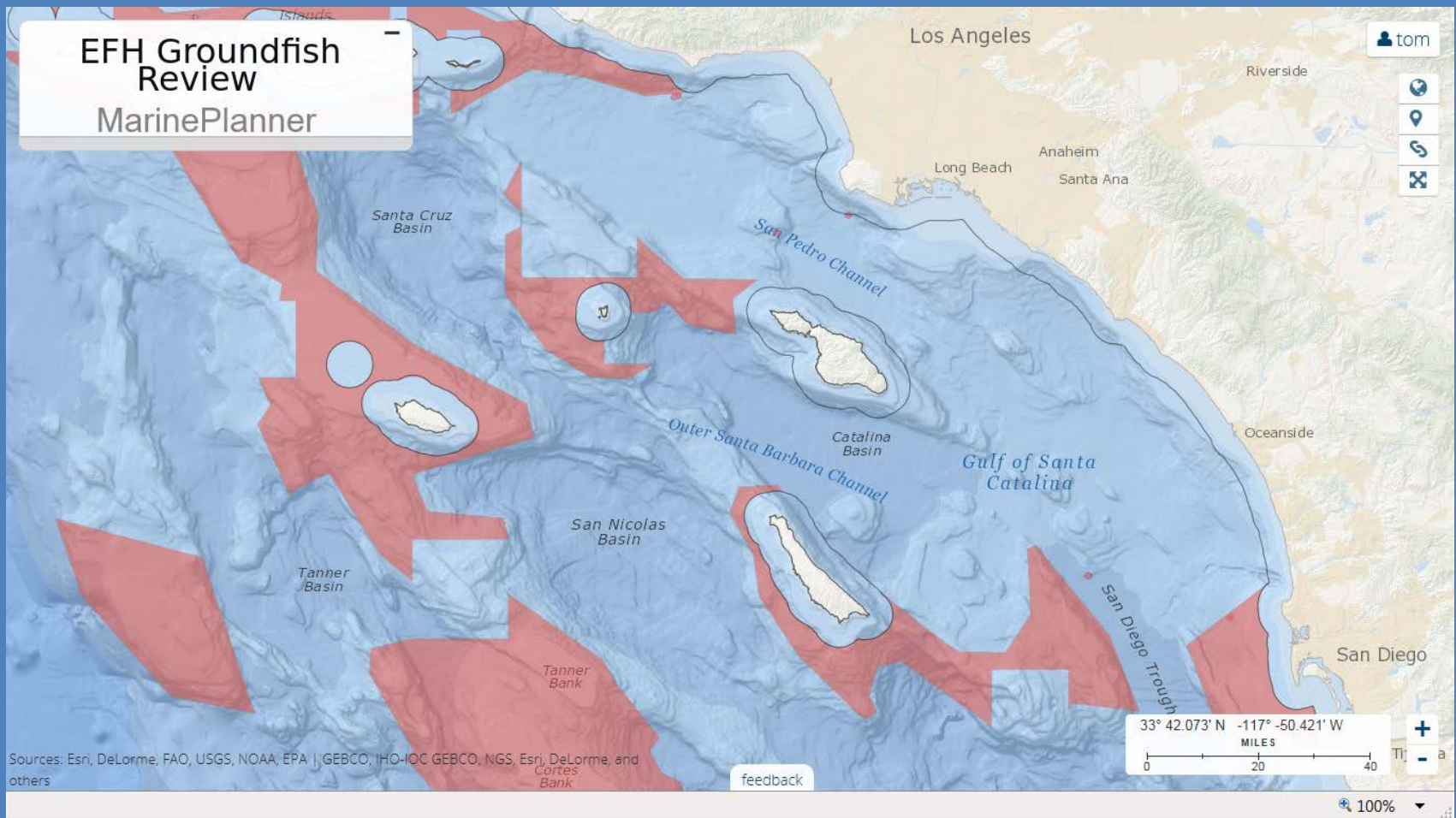




# Priority Polygon 12: Southern California Bight



# Comparison: Feature-Based Alternative will not protect methane seeps in Southern California



# Additional Acknowledgements

- Developers and proponents of the Amendment 28 stakeholder proposals
- Raw EM302 multibeam sonar data collected on the exploration vessel Nautilus, operated and funded by the Ocean Exploration Trust Inc. Data were processed using specialized software by Susan Merle of the Cooperative Institute for Marine Resources Studies and NOAA's Pacific Marine Environmental Laboratory. Additional acknowledgments: Nicole Raineault, director of science operations, Ocean Exploration Trust, and expedition leader of Leg NA072; and Robert Embrey, senior research scientist, NOAA's Pacific Marine Environmental Laboratory, lead scientist for Leg NA072.
- Johnson, H. P., U. K. Miller, M. S. Salmi, and E. A. Solomon (2015), *Analysis of bubble plume distributions to evaluate methane hydrate decomposition on the continental slope*, *Geochem. Geophys. Geosyst.*, 16, 3825–3839, doi:10.1002/2015GC005955
- NOAA/Oregon State University, Consolidated GIS Data Catalog and Online Registry for the 5-Year Review of Pacific Coast Groundfish EFH College of Earth, Ocean, and Atmospheric Sciences and Department of Microbiology, College of Science, Oregon State University.
- Ecotrust





Photo Credit: Ocean Exploration Trust Inc./NOAA (PMEL and OER)