THE SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

Space Industry Activity in the South Atlantic

Habitat and Ecosystem Advisory Panel
Summer 2026

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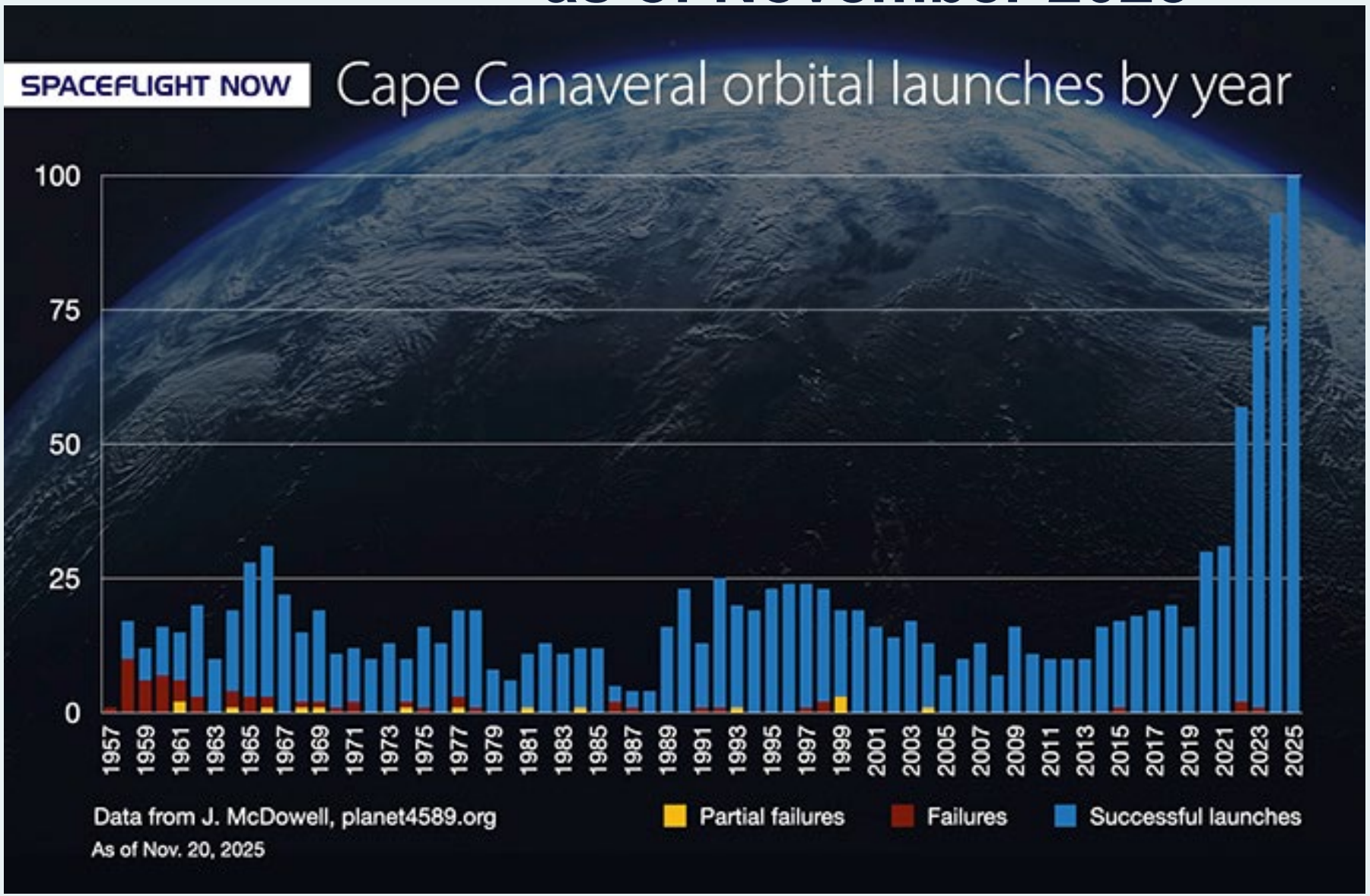
Background

- The space industry is active in the region, mainly off Florida's east coast.
- Main big players
  - Space X – Private Corporation
  - Space Florida –Public corporation established by the state of Florida
  - NASA – Independent Government agency
  - Space Force – Air Force

Past and Projected Future Number of Space Launches as of November 2025



year	Projected launches
2025	109
2026	100-120+
2027	120-150+* *maybe 200 depending on development timelines
2028	338+

https://www.space.com/faa-private-launches-double-2028-report

https://spaceflightnow.com/2025/11/20/live-coverage-falcon-9-starlink-mission-marks-100th-launch-of-the-year-from-floridas-space-coast/

Background

- Since 2023:
  - Presentations to Council and HEAP from Space Florida
  - Freedom of Information Act request to USCG for information on area closures, frequency, and duration to start determining impacts to fisheries
  - Comment letters on proposed projects
- July 2025
  - HEAP made initial recommendations of possible sources of information
  - Staff contacted as many emails and phone numbers as possible
- January 2026
  - Received Initial summaries of EA's EIS's, summaries of peer reviews
  - *Assessment of Coastal Water Resources and Watershed Conditions In and Adjacent to Canaveral National Seashore* (National Park Service, 2012)
  - *Space Launches and Their Possible Impact on the Deterioration of the Indian River Lagoon Marine Ecosystem in Florida* (Ayassamy, 2025)
  - *Potential Negative Effects of the Brazilian Space Program on Coastal Sharks* (Wosnick et al., 2023)
  - Ecological Impacts of the Space Shuttle Program at John F. Kennedy Space Center, Florida *(NASA Technical Memorandum; Document ID 20140012489, 2014)*

Overall Takeaway Across All Three Papers

- Space launches introduce real chemical and debris pollution into coastal systems
- Metal contamination (Hg, Rb, Li) are now documented in marine predators
- Acidification and toxic deposition are plausible stressors for estuaries
- Baseline health of the Indian River Lagoon is fragile
- Current regulation and monitoring are inadequate for space-related pollution

Contacts made as of December 2025 + June 2026

- Fish and wildlife service: 2
- FL Fish and Wildlife Conservation Commission: 4
- FL Department of Environmental Protection: 8
- NASA: 3 (including two data requests)
- Brevard County: 2
- Indian River Lagoon Council: 1 +1
- Reporters: 1
- Space Force: 2 +3
- + St. Johns Water Management District: 2
- + Fish houses : 2
- + NOAA Office of Protected resources:2
- + Southern Fishery Association

Space Force Texas
Cumberland Island
Port Canaveral
Florida Atlantic University
Wharf Study project – long-term strategic infrastructure investment, HEAP should maintain a close eye on the project development
Numerous websites, public comments, Environmental Assessment (EA), Environmental Impact Statements (EIS)
+ American nautical services
+ Office of Coast Survey
+ The Nature Conservancy
+ National Wildlife Refuge
+ Ocean Conservancy

Outcomes

- “Thank you for contacting redacted. To submit a Freedom of Information Act (FOIA) Request, start here https://www.compliance.af.mil/”
- “Unfortunately, the redacted does not collect any of the information that you are looking for. Furthermore, I do not know of any agency that does.”
- “I can try to find that out but not sure that will be available except from the companies launching, and I doubt they will share.”
- “Things are evolving so quickly here that there might not be too many hard details available beyond what's been publicly announced.”
- “The links (to the EISs) are likely all of what is publicly available at this point, especially since it was the FAA that took point on the EIS.”

Summary of the 2024 Remote Sensing Study on Cape Canaveral Launch Sites and Coastal Ecosystems

- The study's central conclusion is that Cape Canaveral's coastal ecosystems are undergoing significant transformation, but the dominant drivers are climate- and landscape-related rather than direct impacts from modern rocket launches.
- Falcon launches produce localized, short-lived vegetation effects, whereas sea-level rise, wetland loss, mangrove expansion, altered fire regimes, and coastal erosion are producing larger, long-term ecological changes and increasing risks to both natural habitats and launch infrastructure. The cumulative effects of expanding launch operations should be monitored closely.

- Coastal Vegetation is Changing Rapidly
  - Between 2016 and 2023, the study documented Salt Marsh → Mangrove Conversion
  - Mangroves expanded significantly along lagoon shorelines and replaced portions of salt marsh habitat. Since 2016, winter temperatures have generally not been cold enough to suppress mangrove expansion.
  - Coastal Strand/Scrub → Hardwood Hammock Conversion attributed to the lack of recent prescribed burns, Long-term fire suppression, The last prescribed burns in those areas occurred around 2011.
- Wetland Loss is Occurring Near LC-39A
  - Wetland thinning to open water and marsh degradation within mosquito-control impoundments near LC-39A due to altered hydrology from impoundment management, rising water levels and reduced tidal exchange caused by dikes and water-control structures

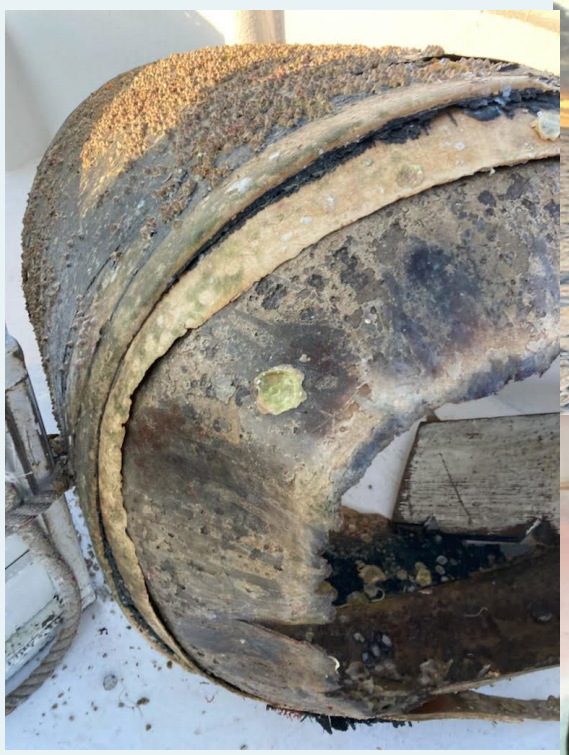
Summary of the 2024 Remote Sensing Study on Cape Canaveral Launch Sites and Coastal Ecosystems

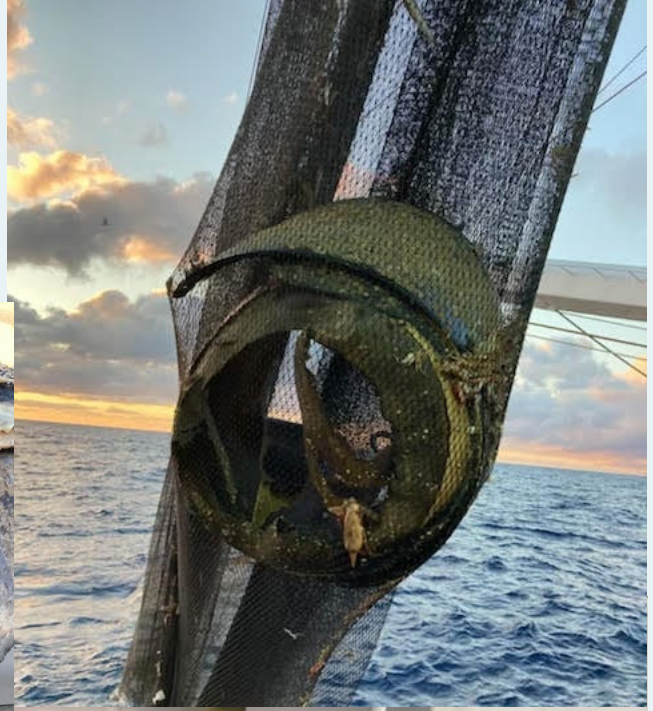
- Rocket Launch Effects on Vegetation are Detectable but Limited
  - Within days after launch reduced vegetation vigor was detected near the launch pad and damage was concentrated in areas affected by exhaust plumes.
  - Within approximately one month vegetation recovered and NDVI values returned toward pre-launch conditions.
- Comparison with Shuttle-Era Solid Rocket Motors
  - The study found Falcon launch impacts were substantially smaller than impacts previously documented from Space Shuttle solid rocket boosters.
  - Historic Shuttle-era effects included hydrochloric acid deposition, aluminum oxide deposition, vegetation spotting and leaf damage and broader spatial impact zones.
  - Modern Falcon liquid-fueled rockets produced much more localized effects.
- Dune Erosion is a Major Concern
  - The study documented significant erosion near LC-39A. Approximately 40–50 meters of beach retreat has occurred between 2010 and 2023. Dune elevations near LC-39A remain lower than at comparison sites. There are persistent erosion hotspots adjacent to launch infrastructure.
  - NASA previously responded with dune restoration projects in 2010 and 2013–2014.
  - Those projects successfully increased local dune elevations, but erosion continues to threaten the area.

Summary of the 2024 Remote Sensing Study on Cape Canaveral Launch Sites and Coastal Ecosystems

- Sea-Level Rise is Accelerating
  - One of the most significant findings was the observed increase in water levels around Cape Canaveral.
  - Between 2010 and 2023 mean Sea Level increased approximately 17 cm.
  - Mean Lower Low Water increased approximately 20 cm.
- Launch Infrastructure Faces Future Flooding Risks
  - Water levels already approach portions of the launch complex during normal tidal conditions.
  - If current trends continue by approximately 2084, water could routinely reach elevations near roads surrounding LC-39A.
  - Under some NOAA sea-level-rise scenarios, large portions of the area surrounding LC-39A would be inundated.
  - The authors characterize inundation risk as an emerging threat to launch operations.
- Increasing Launch Activity Adds a New Stressor
  - Launch rates are increasing.
  - Larger vehicles such as Starship/Super Heavy are planned.
  - Environmental review processes are underway to evaluate future impacts.

Fishermen Photos





What's Next?

- There may be individuals who are documenting observations on possible impacts from the space industry
- No one is gathering this info
- Issues with PRA – Council can not gather data
- Could a Citizen Science Project be possible?
  - Possible national security concerns with data debris location
  - Could it gather closures and track economic loss?
  - Could it fill the water quality information gap?
  - Is PRA still an issue?

Artemis I launch taken from the Space Florida Launch and Landing Facility

If the HEAP recommends a possible citizen science project, what questions do we need answered?

The following slides are based on conversations with our Citizen Science Program Manager.

The HEAP may not be able to answer all of the questions right now, but we need to start thinking along these lines.

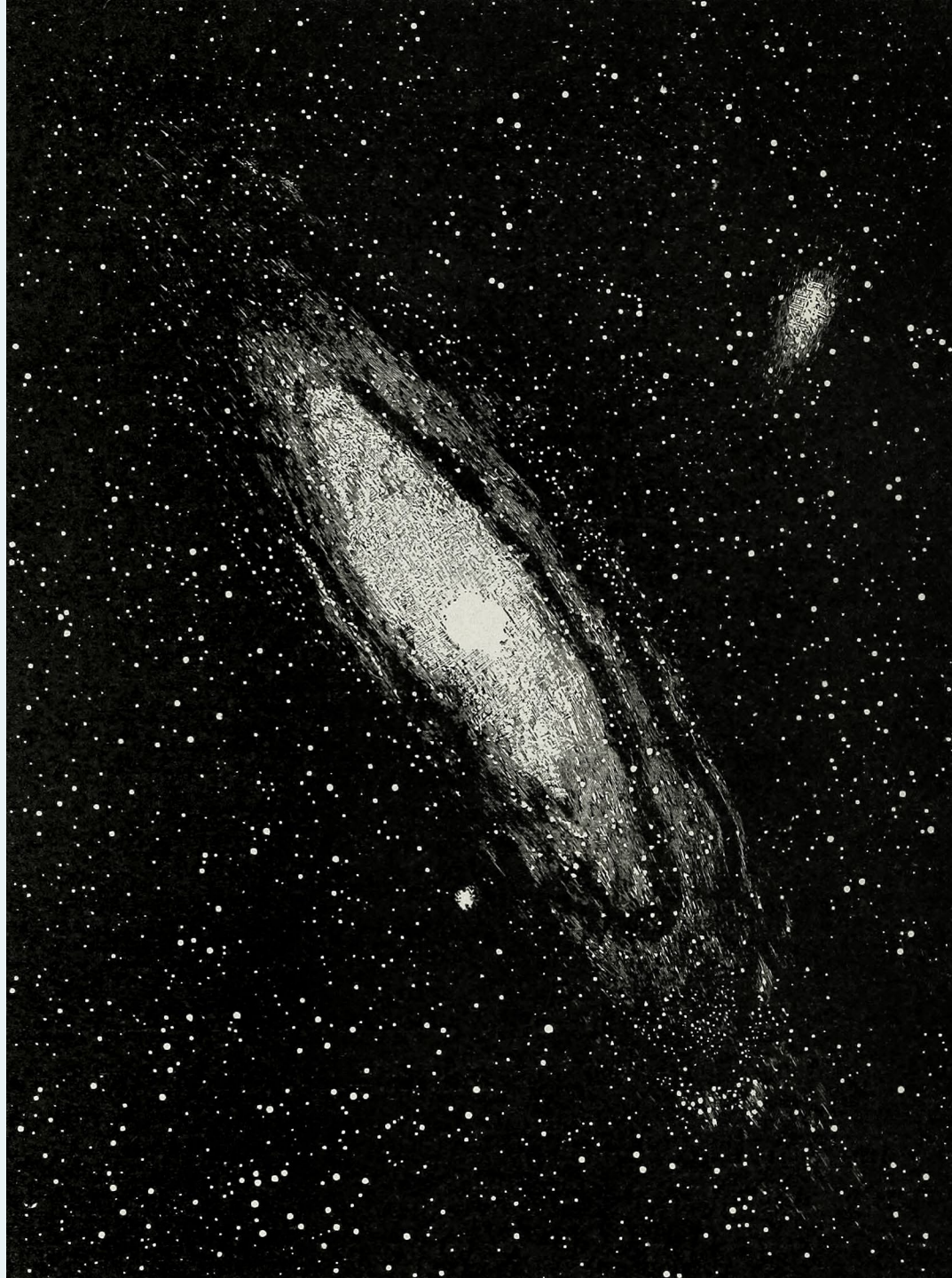
What Data Fields are Needed?

- Debris
  - Where it is?
  - What it is?
- Fishery impacts
  - Number of closures?
  - What is the economic loss?
- Water quality information
  - Pre and post launch data
  - Number of failed launches (onsite detonation)
  - Aftereffects and the number of freshwater flushes
- Anything else?

https://www.rawpixel.com/search/space%20public%20domain?page=1&path=1522&sort=curated

What tool?

- SCIFISH can build an app
  - It needs an ACCSP partner to support
  - The available data fields focus on fishery-dependent data
  - Data fields are limited
- Citsci.org
  - Can create an app that gathers everything
  - Can collect pictures and work offline
  - One app or more?
- Google form
  - Maybe a little bit more user-friendly?
  - Can have an offline printable option
- Already existing app?
  - The LaunchOnDemand app is trusted by fishermen



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Who Should be Involved?

- Council staff are limited by the Paperwork Reduction Act and council workload
  - Council staff can receive the data and provide analysis
- Would an AP member be willing to be the scientific support?
- Would a fishing organization be willing to be the collector of data?

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Additional Thoughts

- How do fishermen find out about the tool?
- How will fishermen's involvement be retained?
- How are data shared?
- How is confidentiality maintained?

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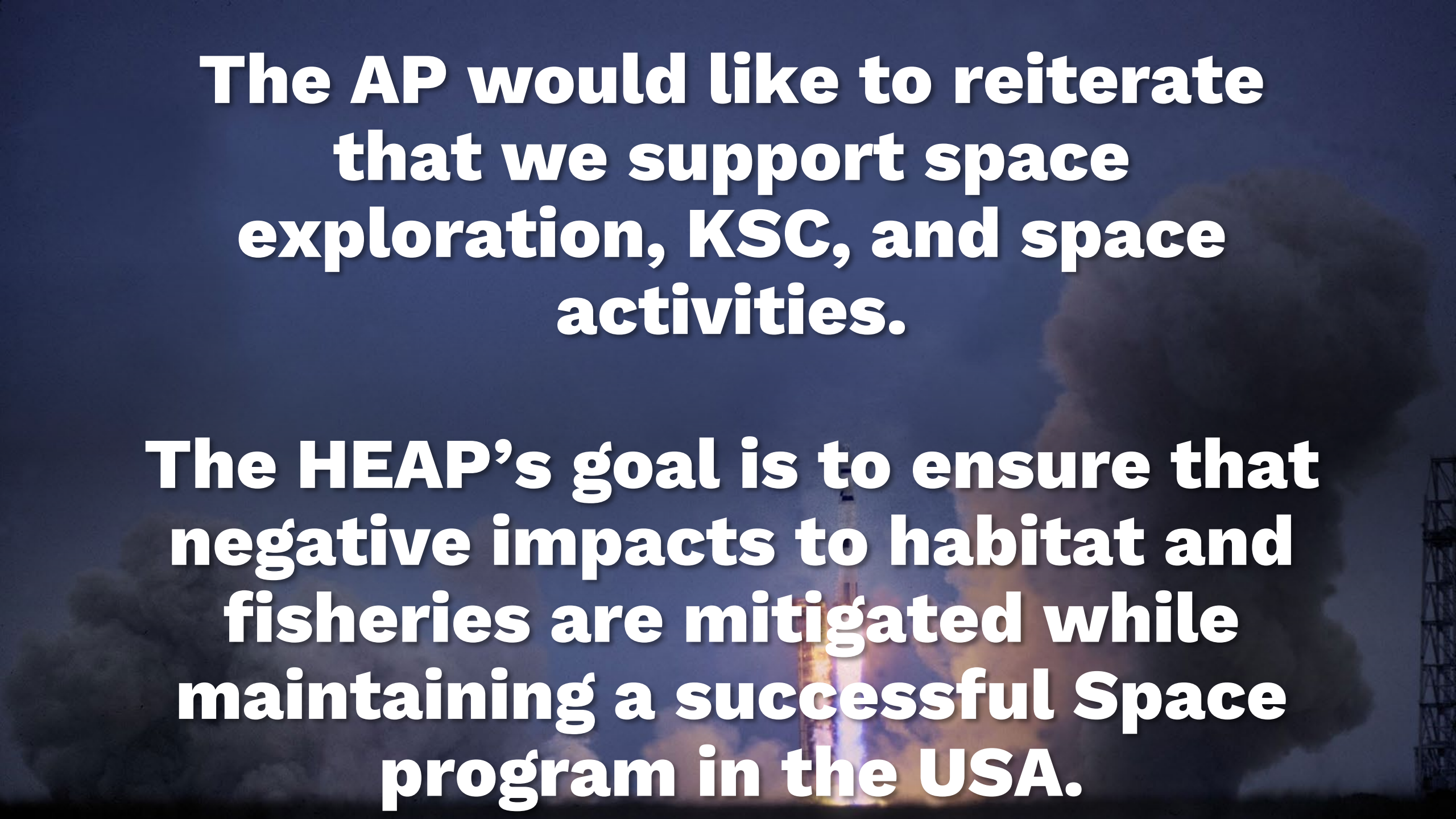
Recommendations From the HEAP

- How can the Council further its goal of protecting EFH considering increased activity related to the space industry?
  - New policy?
  - Integrate into an existing policy?
- How can the HEAP support any data gathering that needs to occur for the policy to be written?



The AP would like to reiterate that we support space exploration, KSC, and space activities.

The HEAP's goal is to ensure that negative impacts to habitat and fisheries are mitigated while maintaining a successful Space program in the USA.


Thank you