Lifting Baselines:

Northwest Atlantic Gray Seals & the Consequences of Conservation Success

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MARINE CONSERVATION ECOLOGY

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Lifting Baselines:
Phenomenon and Process

- Bringing back the wolves?
- Changing perceptions of coastal predators
- Conservation success: The spectacular recovery of gray seals
- Conflicts arise
- How to lift public baselines of coastal predators

Bringing back the wolves…

Step 1. Extirpate predator in the US, leaving remnant population in Canada

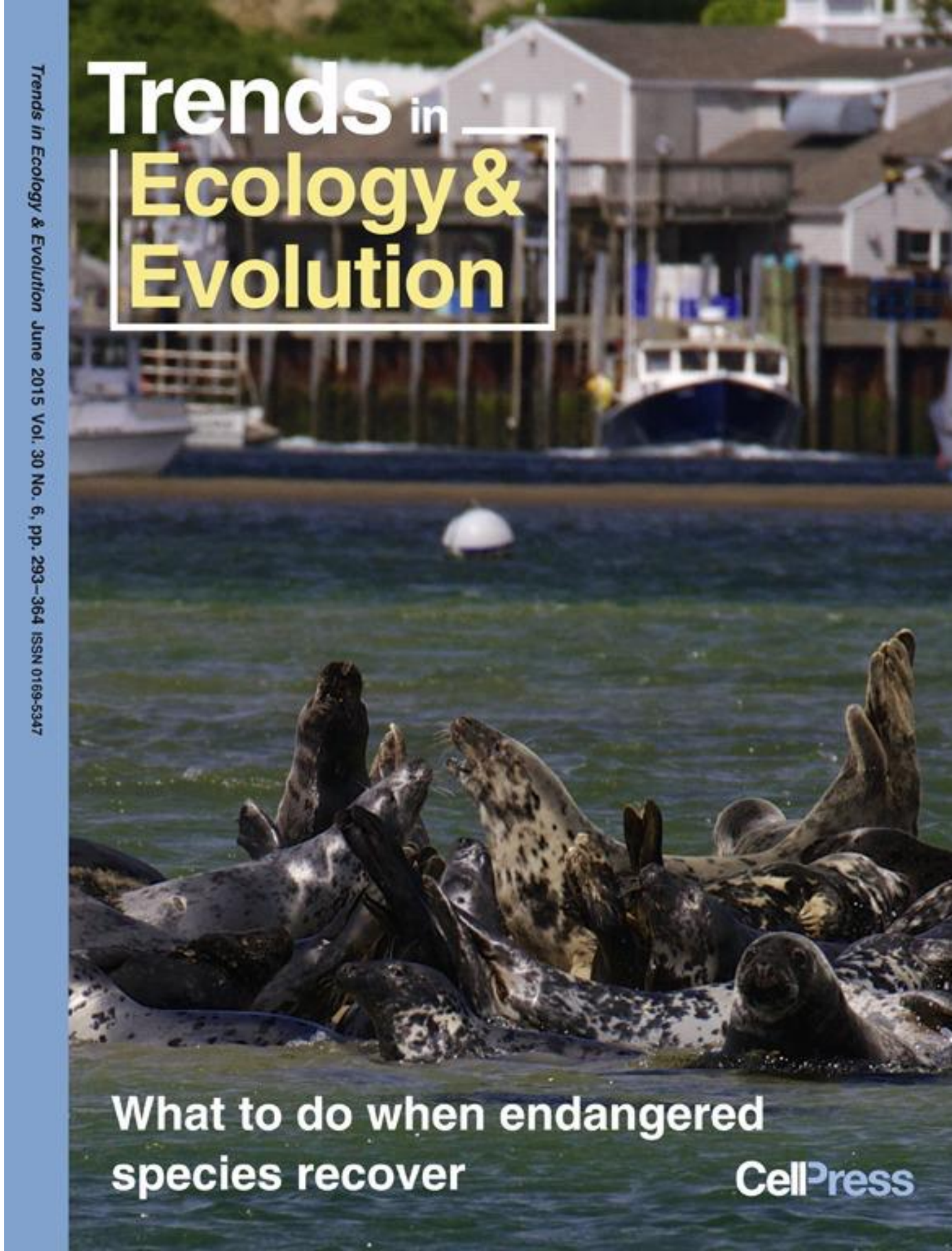
Step 2. Deploy conservation actions in US that allow for recolonization and recovery

Step 3. Animals immigrate back into US and (re)assume ecological roles

Step 4. People freak out

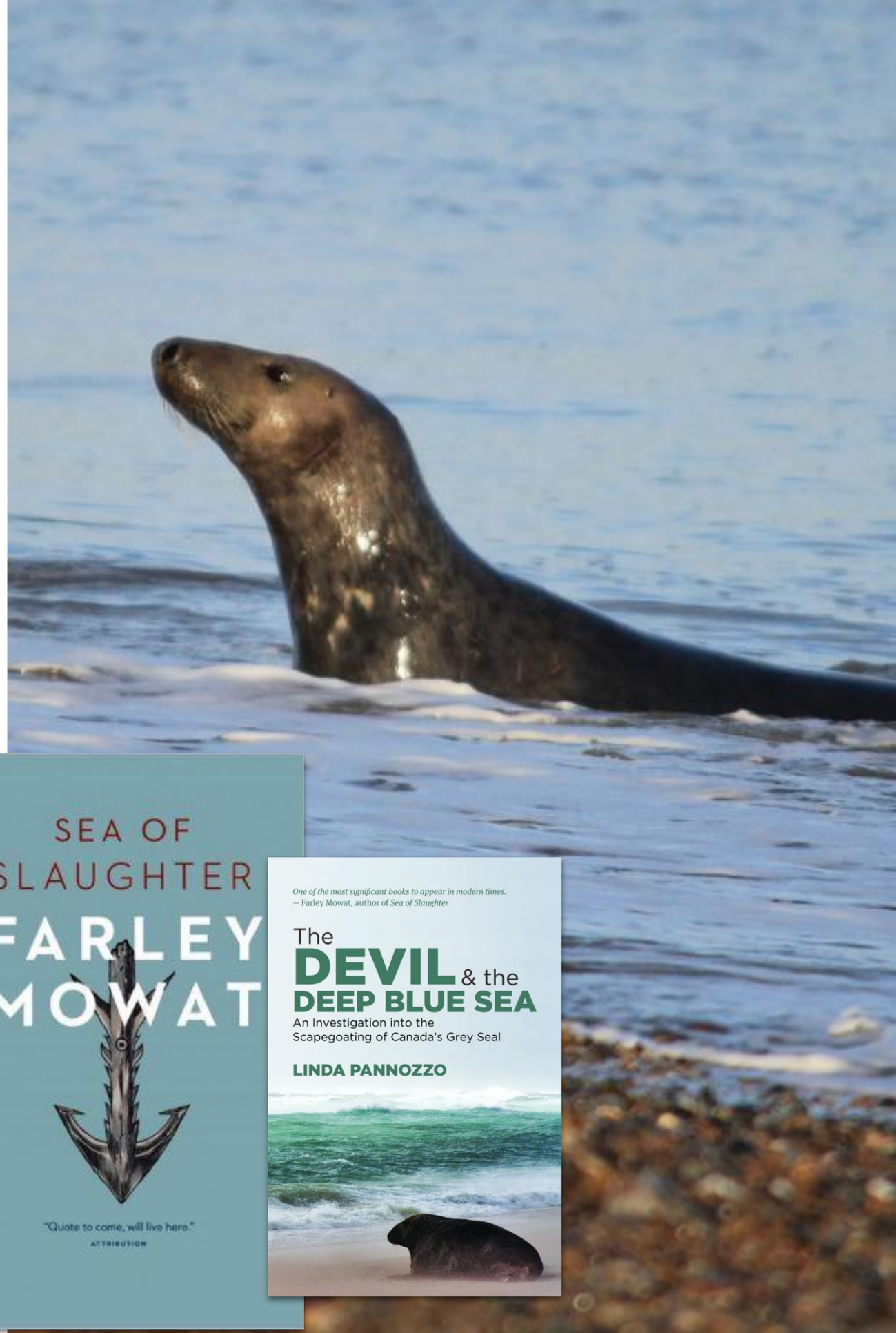
Embracing the challenges of success

- Traditional view of coastal marine predators (me)
    - *"Deficit" Model*: Depletion, over-exploitation, extirpation
- Modern context (some of my students)
    - *"Surplus" Model*: Recovery, growth, increasing human interactions, many of which are negative
- **How to deal with the conservation success of recovering gray seals?**

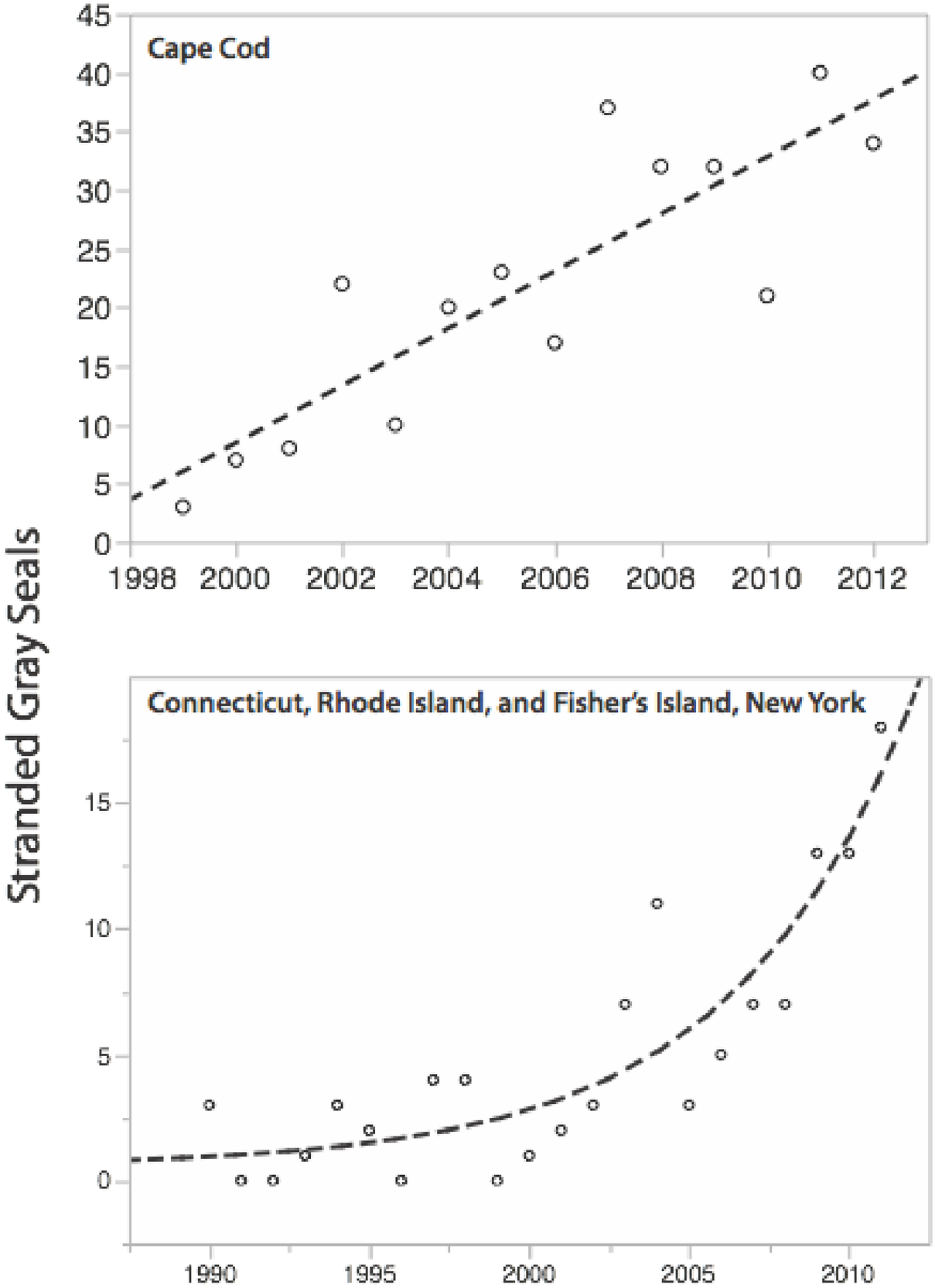


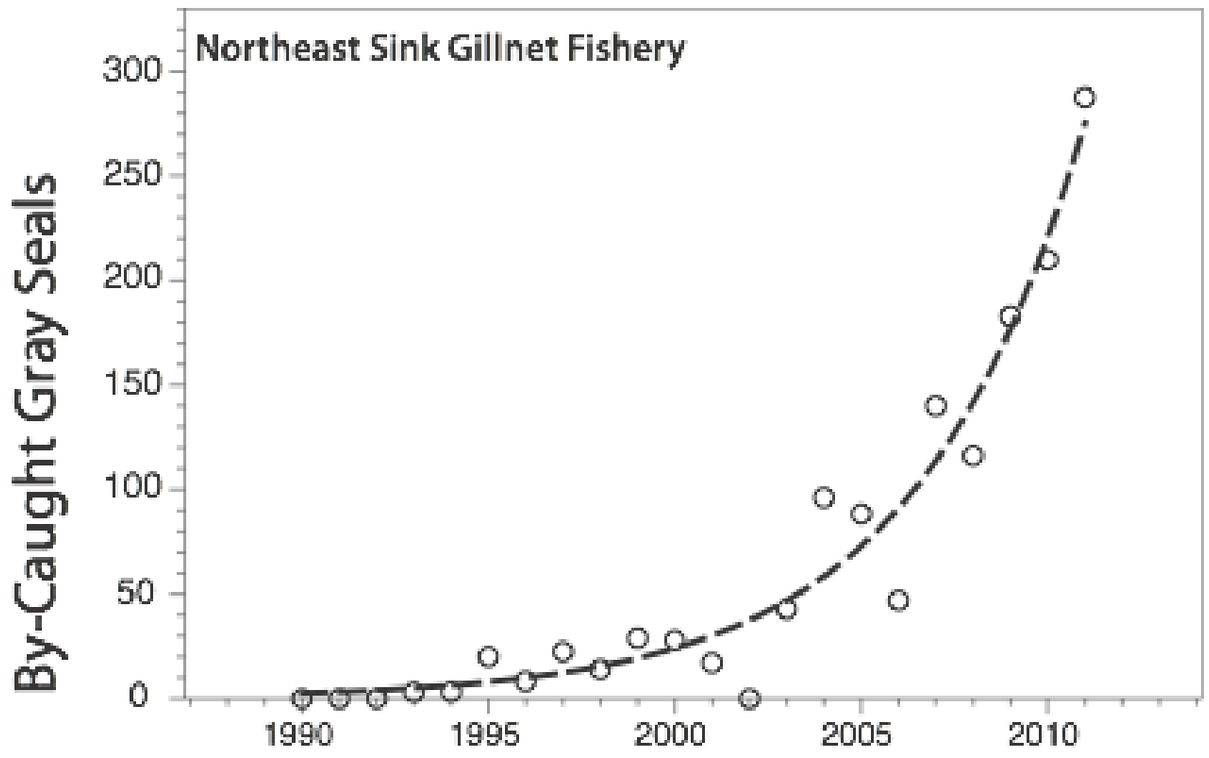
Are gray seals new to Cape Cod?

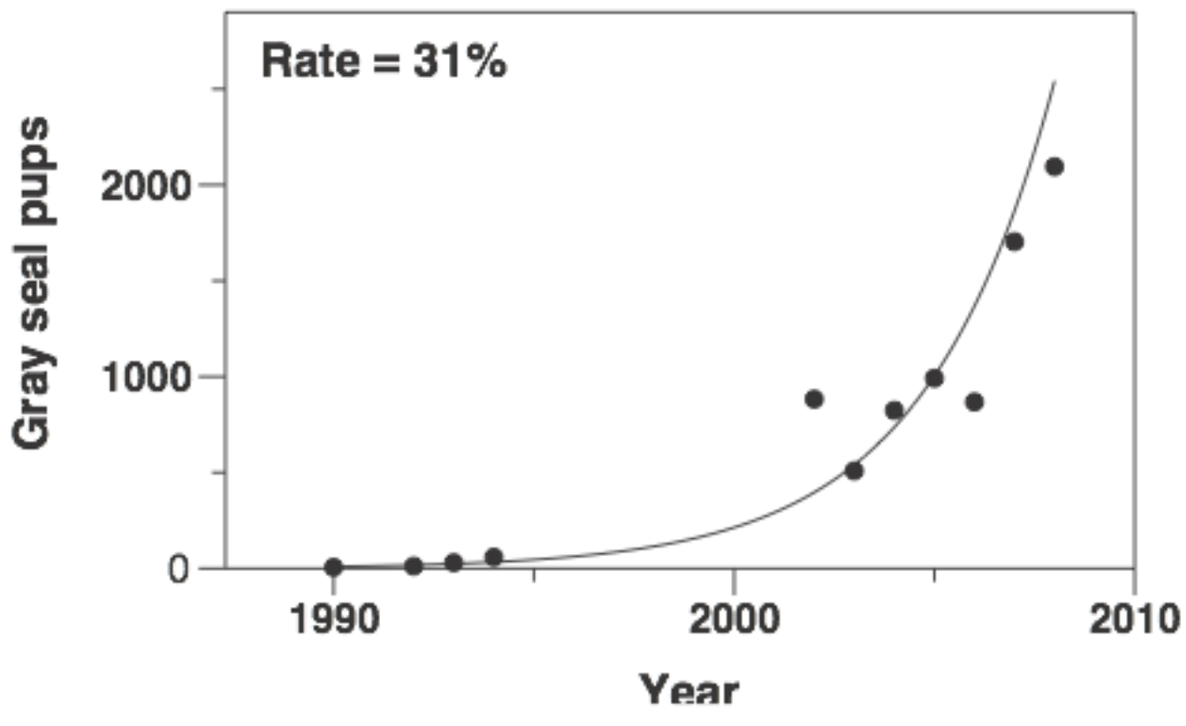
- Historic range spanned the temperate/sub-Arctic regions of the North Atlantic
- Large colonies as far south as Cape Hatteras
- Extirpated through hunts/bounties in the Gulf of Maine during the 1800s
- Absent from the lives of people for generations



Evidence of rapid recovery



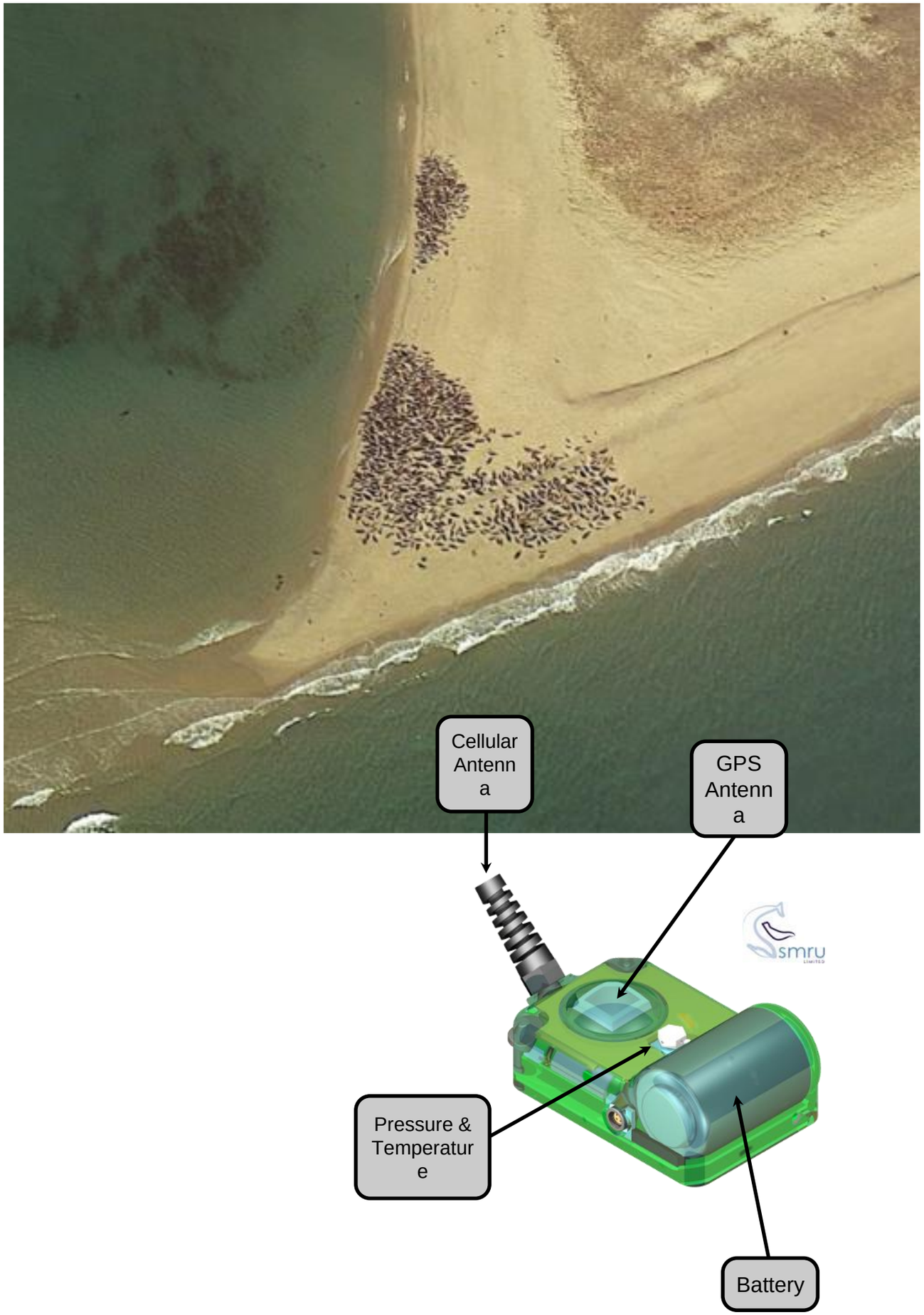




Johnston, D. W., Frungillo, J., Smith, A., Moore, K., Sharp, B., Schuh, J., & Read, A. J. (2015). Trends in Stranding and By-Catch Rates of Gray and Harbor Seals along the Northeastern Coast of the United States: Evidence of Divergence in the Abundance of Two Sympatric Phocid Species? PLoS One, 10(7), e0131660. http://doi.org/10.1371/journal.pone.0131660

Counting gray seals with Google?

- Digital aerial surveys of gray seals around Cape Cod
  - ~ 15,000 seals on beach in 2012
  - ~ 20,000 seals on beach in 2015
- Proportion of animals at sea calculated through wildlife telemetry techniques
- **Likely 30,000 to 50,000 gray seals in the Northeastern US, depending on correction factor used** - *Moxley et al. In Press, BioScience.*



The Seascape of Fear

Gray seals may be eating all the fish

The Seascape of Fear

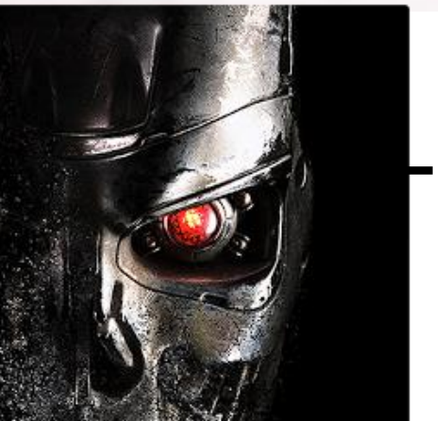
Gray seals may be bad neighbors - noise, water quality

The Seascape of Fear

Gray seals may attract white sharks to the Cape Cod region

The Seascape of Fear

Gray seals may be over-running the place



The Seascape of Fear

Gray seals are killing all the harbor porpoises and harbor seals

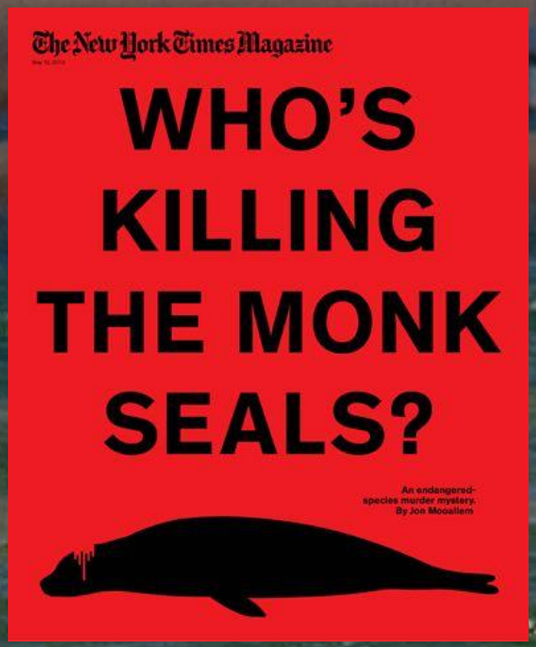
The Seascape of Fear

Gray seals have essentially been absent from the Gulf of Maine for the entirety of modern ecology

What’s the New Normal?

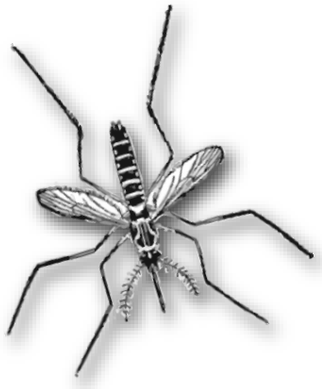
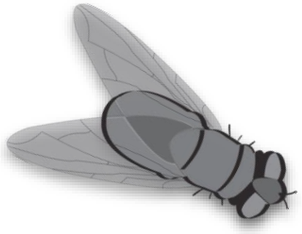
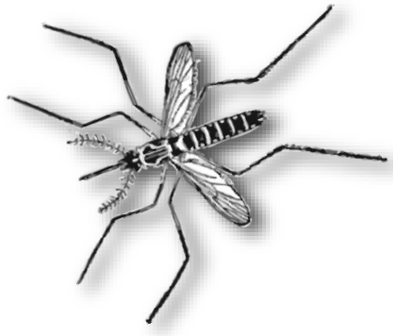
Human development proceeded as if seals would never be part of the marine ecosystem

- Grey seals in Cape Cod
- Humpbacks in North Pacific
- Harbor seals in La Jolla
- Sea otters in Alaska

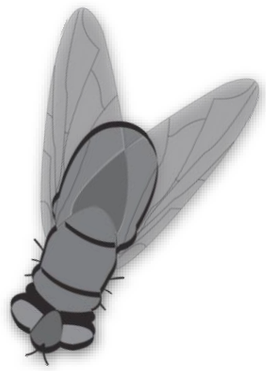


Ongoing Mismatch

Conservation actions and human expectations can be out of sync

"Their benefit to humanity is just about on the level with mosquitoes and houseflies”




Tom Sledzik, Harwich, MA.
Cape Cod Online, March 24, 2013

Lethal removals

Recent shootings, calls for culls in local, regional and national media

Long list of novel conflicts

“Expanding pinniped populations in general have resulted in increased human-caused serious injury and mortality, due to shootings, entrainment in power plants, interactions with recreational hook and line fisheries, separation of mothers and pups due to human disturbance, dog bites, and vessel and vehicle strikes"

NMFS Pacific Stock Assessment Report

Recovery of Humpbacks

- World-wide protection through moratorium on commercial whaling
- Most populations recovering at rapid rates
- Some approaching pre-whaling abundance
- Support large tourism industries
- Increasing issues with entanglement, ship strikes, plus unexpected conflicts such as hatchery depredation

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Embracing conservation success of recovering humpback whale populations: Evaluating the case for downlisting their conservation status in Australia

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ABSTRACT

Optimism and hope in conservation biology are supported by examples of endangered species recovery, such as the population growth observed in humpback whales in several of the world's oceans. In Australia, monitoring data suggest rapid recovery for both east and west coast populations, which are now larger than 50% of their pre-whaling abundance. The measured growth rates exceed known species trends worldwide and have no indication of diminishing. Under Australian Commonwealth legislation and regulations, these populations should be considered for downlisting, as they are not eligible for listing as a threatened species against all statutory criteria. A change in conservation status will produce new challenges for the conservation and management of a recovered species, especially with the Australian economic landscape experiencing large-scale growth and development in recent years. More importantly, a recovered humpback whale population may bring a positive shift in the research goals and objectives throughout Australia by ensuring other endangered species an equal chance of recovery while delivering hope, optimism, and an opportunity to celebrate a conservation success.

1. Introduction

Marine mammals exhibit many of the characteristics of Ehrenfeld's [1] hypothetical most endangered animal, including large size, long lifespans, late reproductive age, few offspring, commercial value, distributions that cross international boundaries, and behaviors that place them at risk from a number of anthropogenic activities [2,3]. These vulnerabilities manifested in historic extinctions (e.g. Steller's sea cow (*Hydrodamalis gigas*) [4]), modern extinctions (*e.g.* Yangtze river dolphin or baiji (*Lipotes vexillifer*) [5–7]), and the plight of critically endangered species that may go extinct within a generation (e.g. vaquita (*Phocoena sinus*); [8–10]). Despite the vulnerability of marine mammals to negative human impacts (intentional or otherwise), there is room for optimism.

Optimism and hope in conservation biology will always be important factors for species recovery and success [11–14]. While some debate the semantic differences between hope and optimism [12], we purposely conflate the two, as one can lead to the other regardless of initial state. Optimism and hope in conservation biology are essential, as the relentless communication of conservation problems does not always encourage politicians, policy makers, and the public to solve them [15]. The plight of many marine mammal populations remains of concern globally, and conservation biologists should not detract from these cases. However, opportunities to illustrate and promote success must also be highlighted, thus providing hope and optimism that ongoing conservation actions can prevail. Ultimately, conservation biologists seek to juxtapose the long litany of sobering conservation concerns with inspirational examples that motivate people to use resources wisely and take sustainable and effective actions.

Presented here is an argument to revise the conservation status of the population of humpback whales (*Megaptera novaeangliae*) that inhabit Australian waters under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), thus providing a sensible and suitable opportunity to celebrate the recovery of an iconic species, without dismantling existing legislative protections from new and existing threats. Downlisting their conservation

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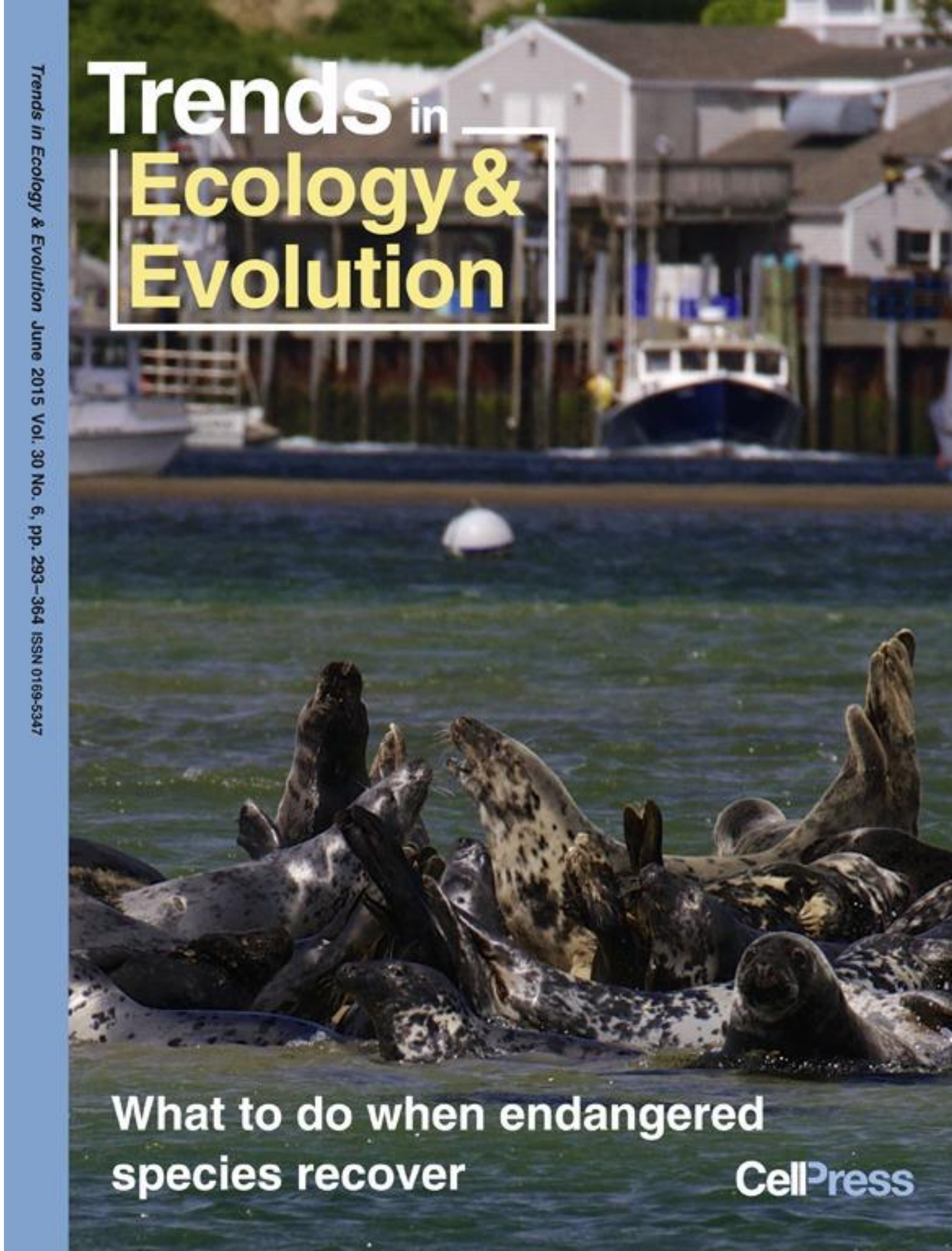
Lifting public baselines

- Celebrate recovery! Down-list and de-list to species encourages investment in process

- Anticipate range expansions and potential ecological roles

- Assess true costs and benefits of relocations and lethal removals

- To lift baselines, trained science communicators, facilitators, and conflict managers must help resolve conflicts.



Thanks and Collaborators

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