Using Long Term Data Sets in Support of Ocean Wildlife Conservation

Sea Turtle Stranding Data from VA

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Long-term Sea Turtle Data Sets for Ocean Planning

Examples

- Strandings
- Sightings
- Nest counts
- Observed takes

Unless otherwise indicated, all images credited to Virginia Aquarium & Marine Science Center

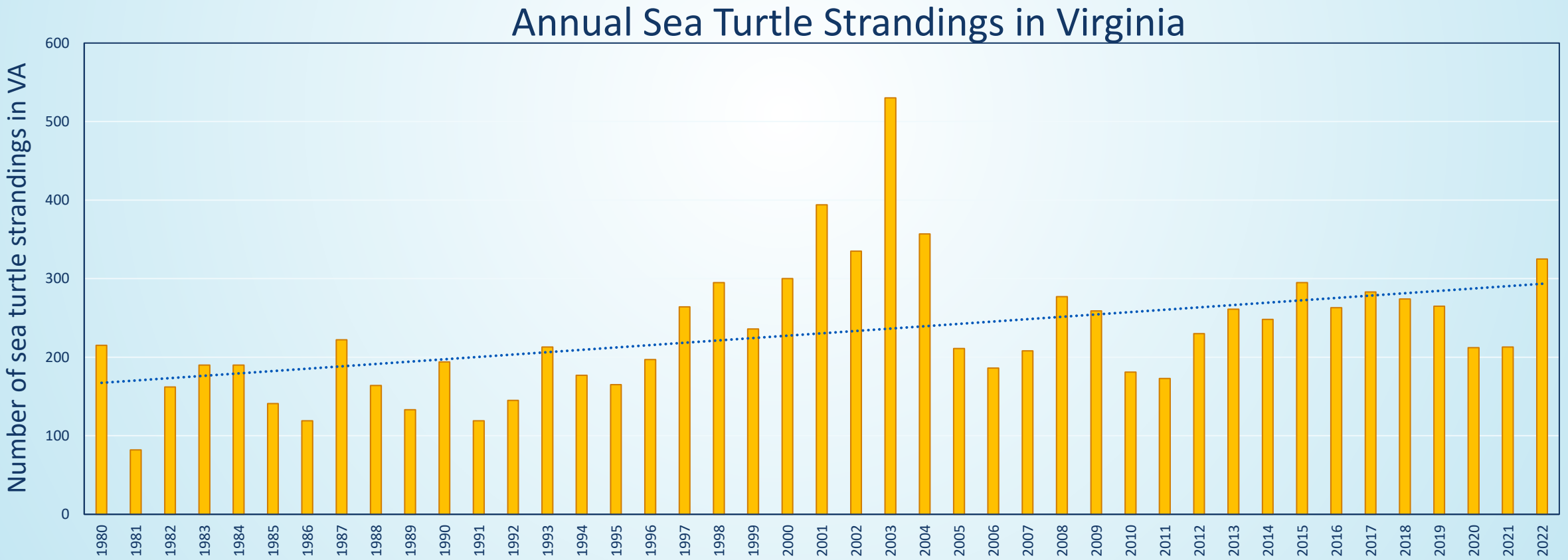
Understand how data are collected & managed

Need to understand limitations (caveats)

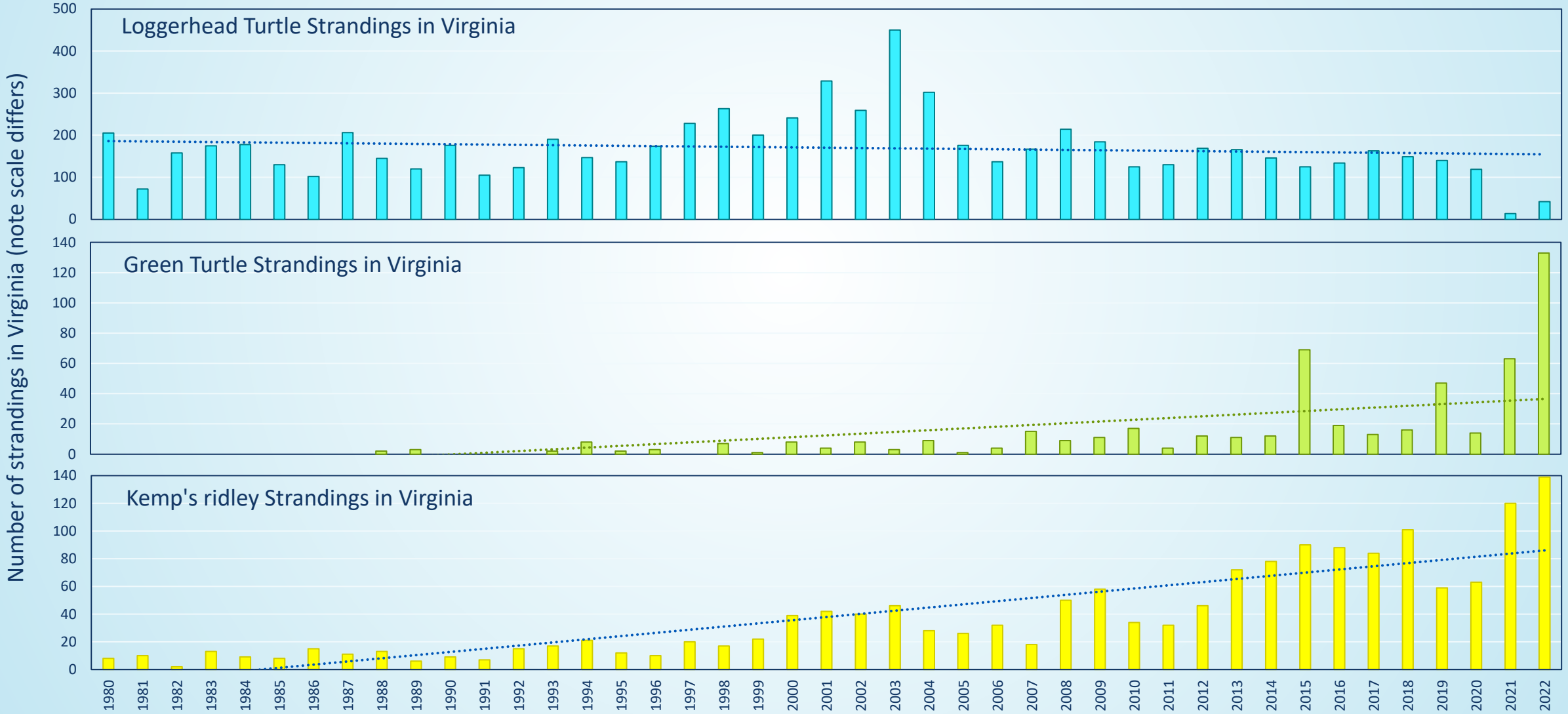
- QAQC process
- Effort
- Sources
- Consistency for all of the above

Stranding Data Trends

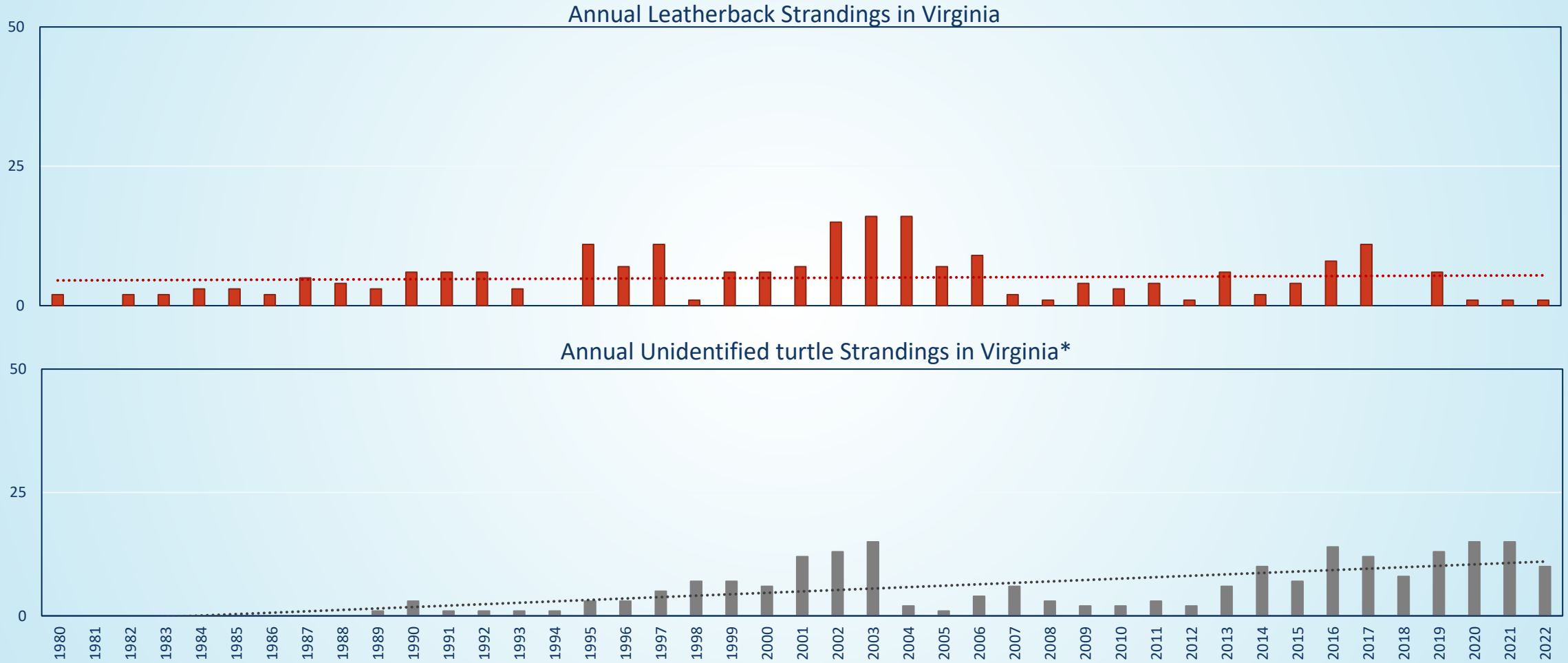
- Slight increase in Virginia sea turtle strandings since 1980 (note peak 1997-2005)



Trend differs by species



Trend differs by species, and…



*Differences in number of unidentified turtles reflect changes in staff experience, guidance from NMFS, & QAQC process, among other things.

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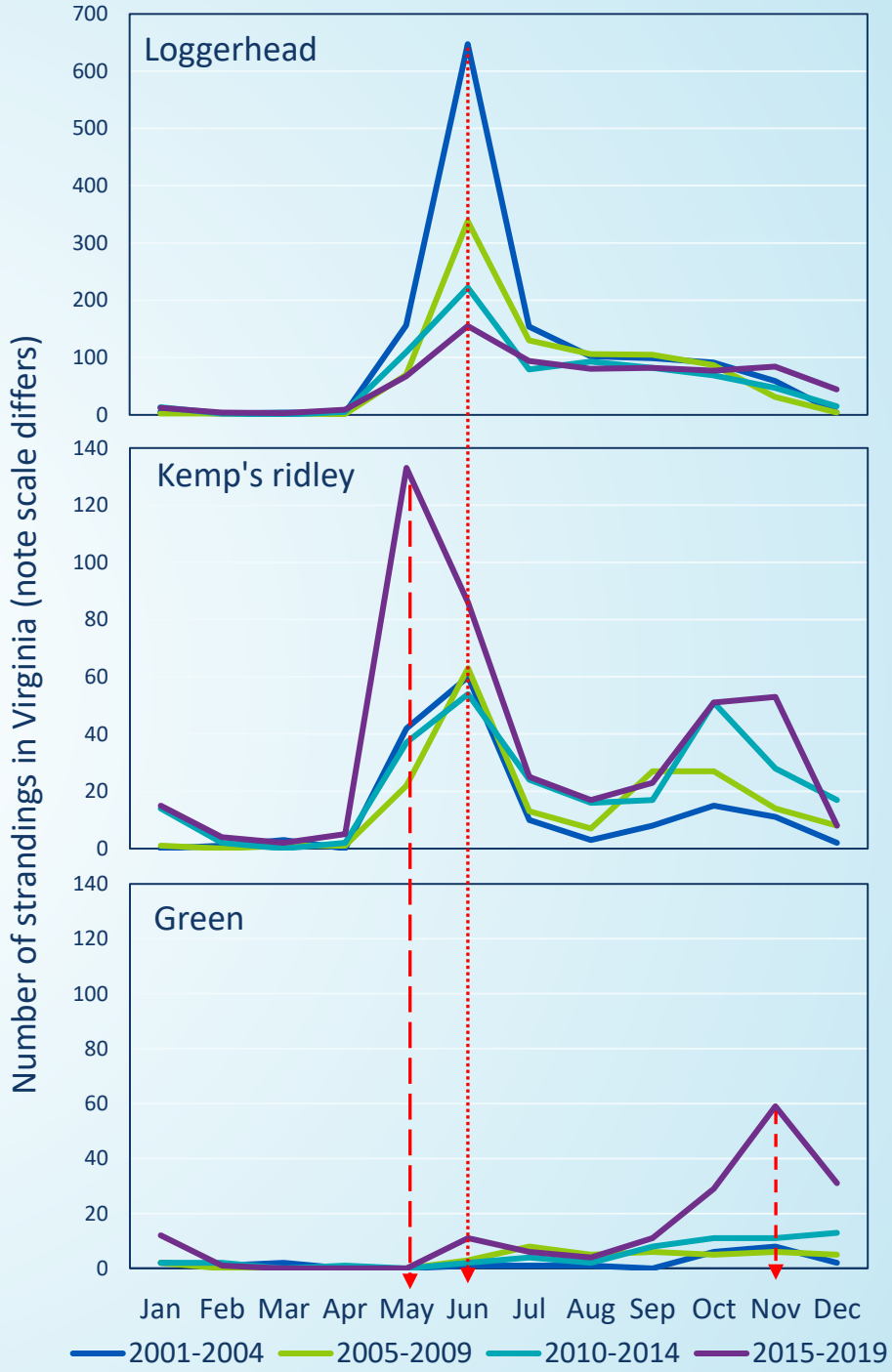
Stranding Data Trends

Timing of Occurrence (~20 years)

- Timing varies among species
  - Kemp's ridleys arrive earlier in season
  - Greens arrive later in season
- Temporal consistency varies
  - Kemp's ridleys shifted since 2015
  - Green peak in fall increasing
  - Loggerheads fairly consistent



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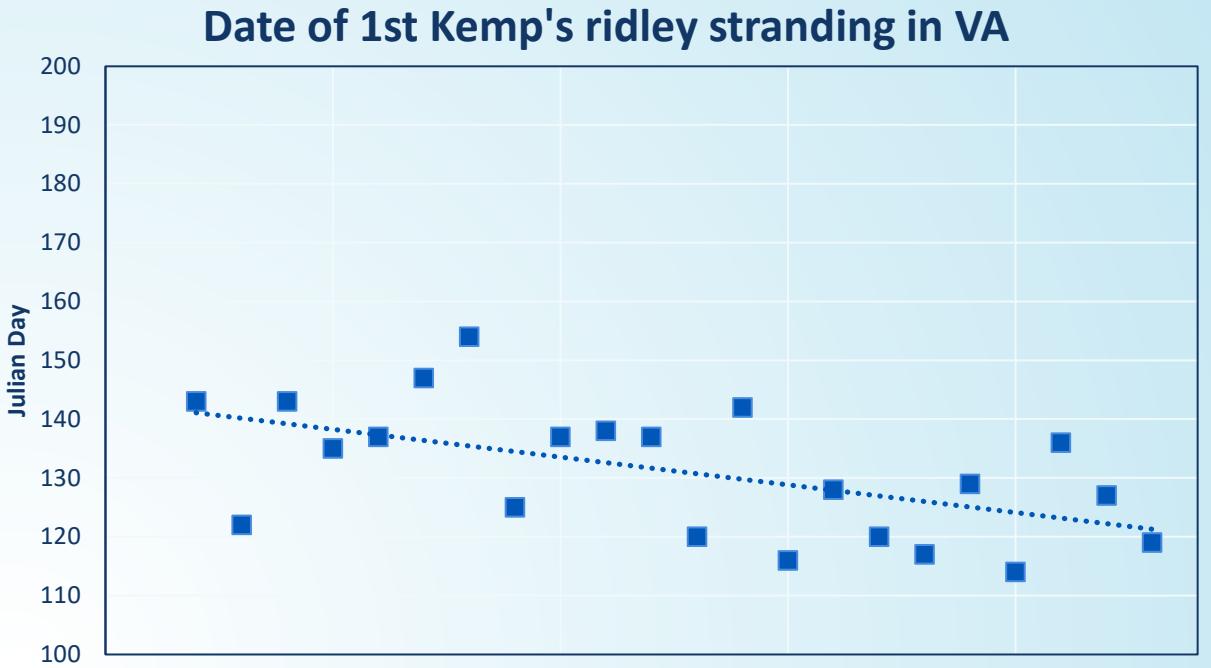
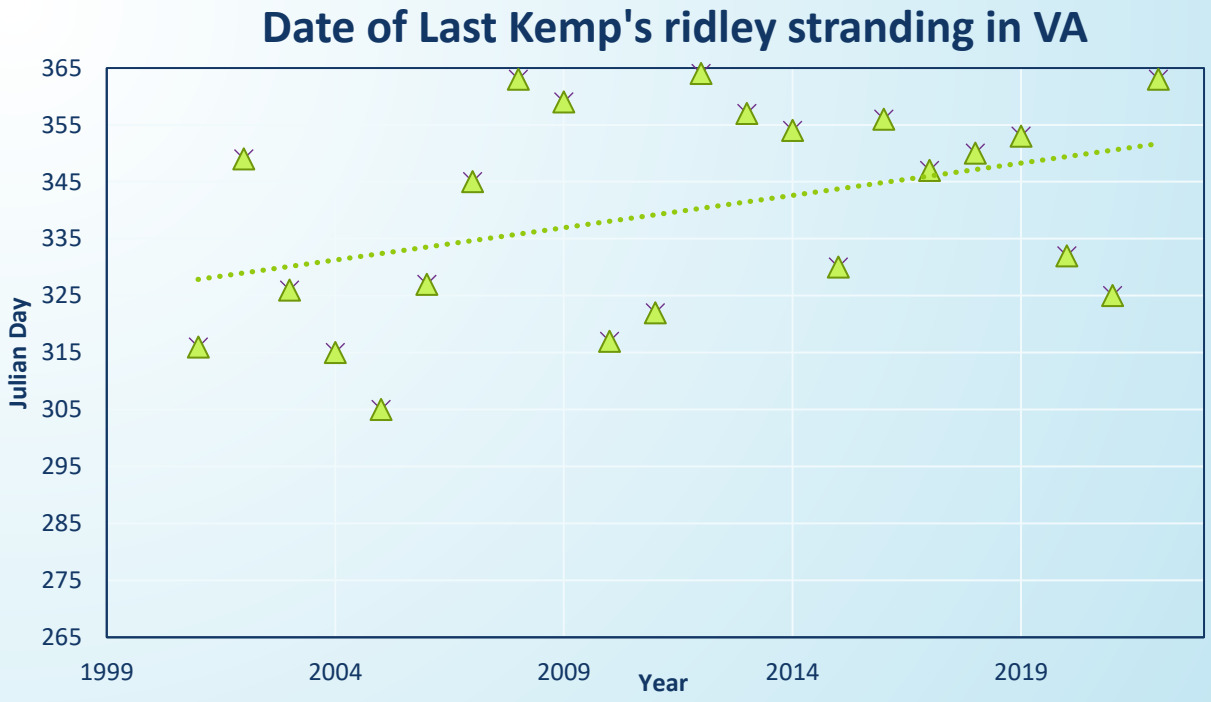
Stranding Data Trends

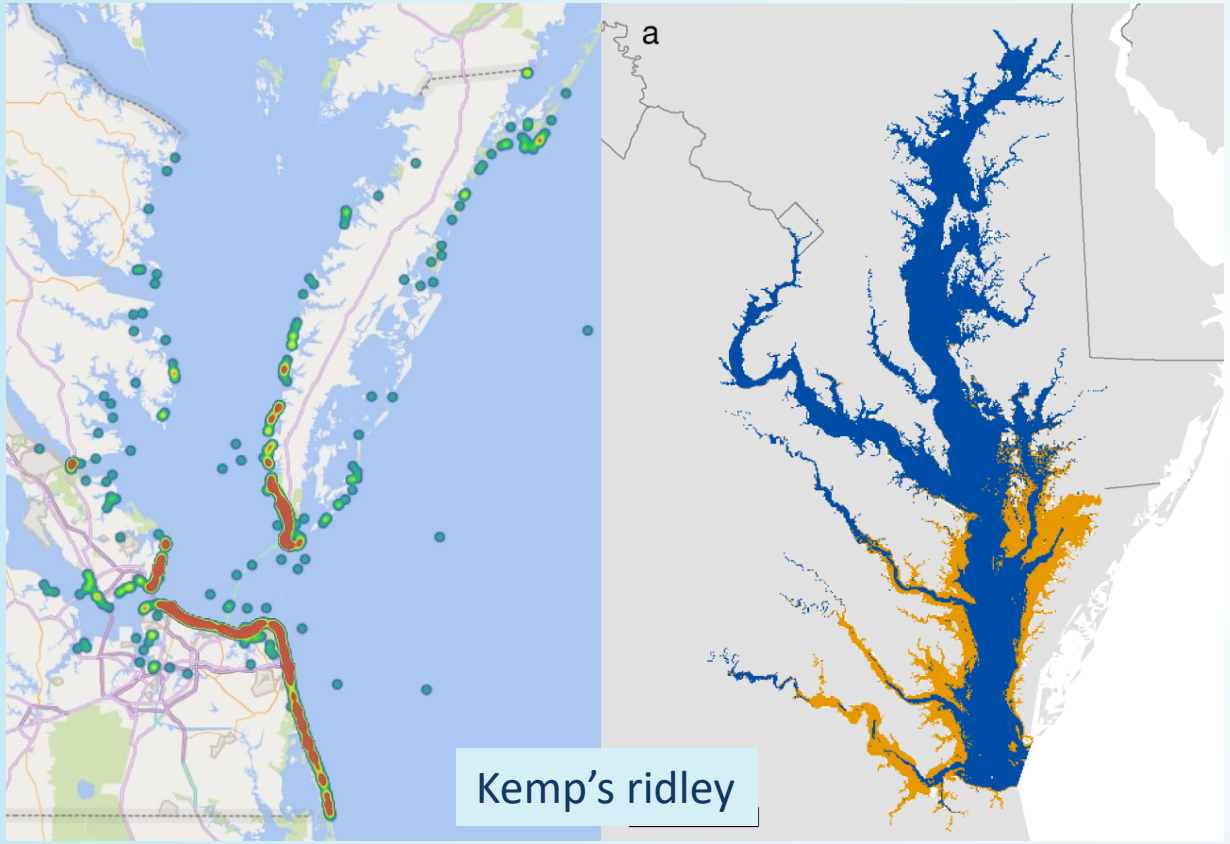
Kemp's ridley time range broadening

- ***Suggests*** population may be arriving earlier and staying later
- ↑ Susceptibility to cold stunning?
- Δ Exposure to fishery, vessel & dredge interactions

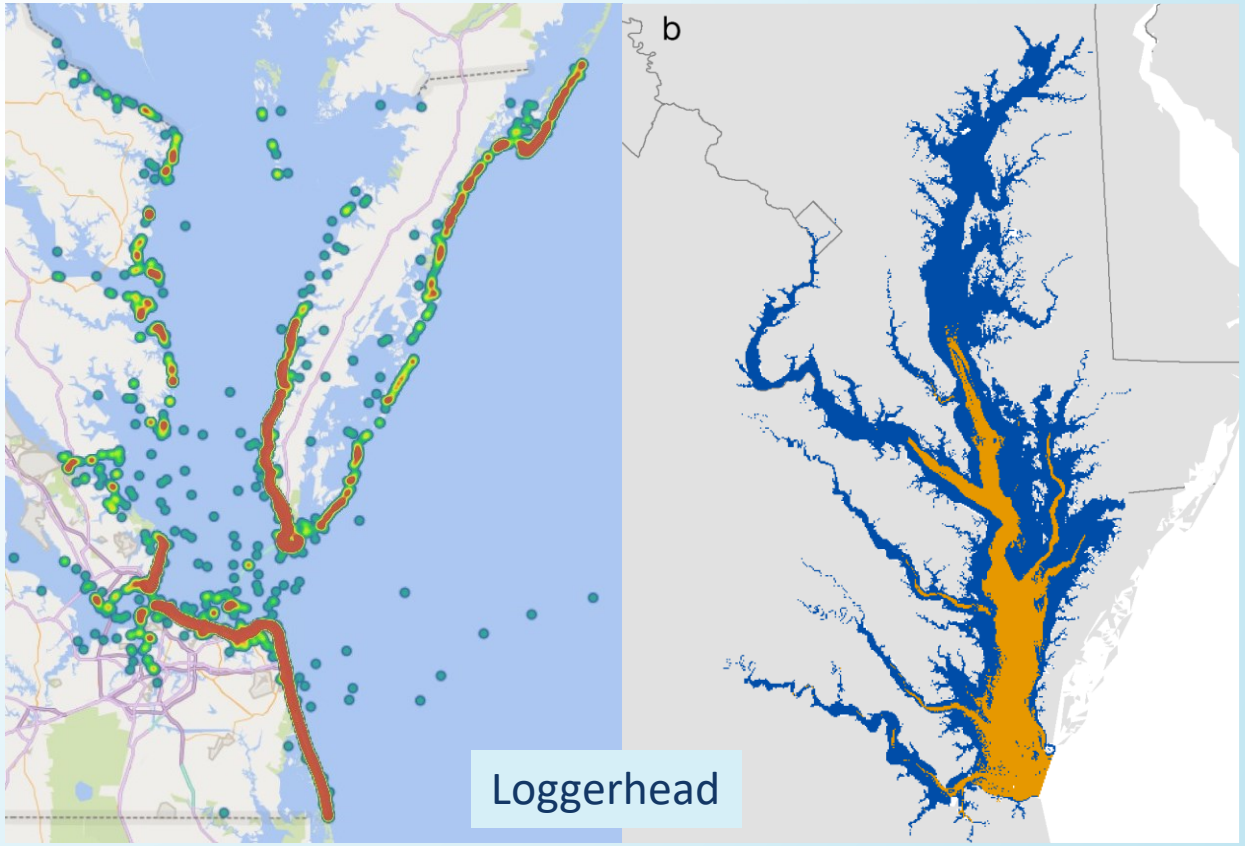




Map layers from long term data sets



Stranding heat maps (L) compared with important habitat (R-orange area) from satellite tag data (DiMatteo et al. 2022)

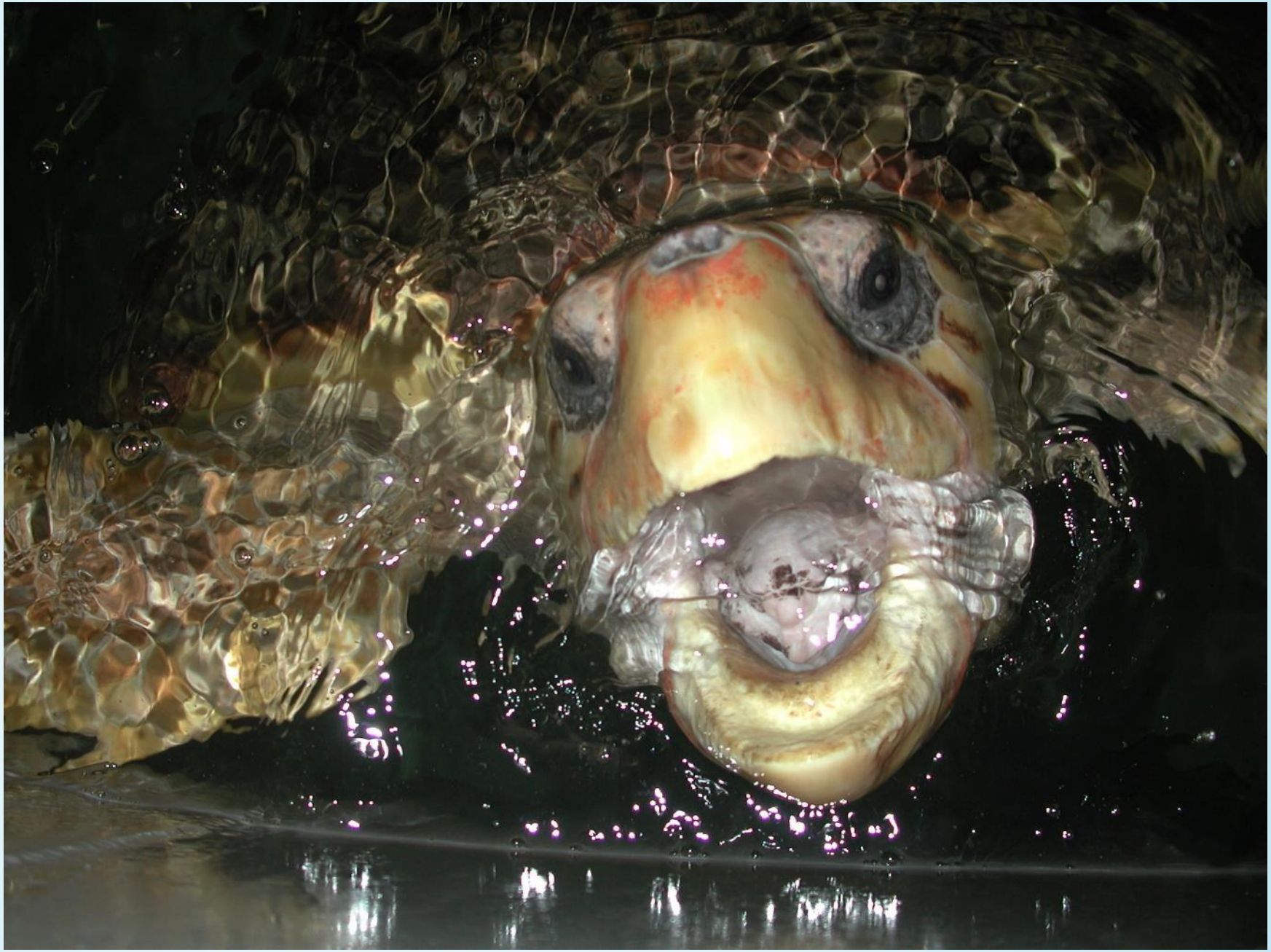


Wise Use of Long-term Data Sets for Ocean Planning

- Understand limitations of the data (*e.g.* sea turtle stranding data)
  - Stranding data are RESPONSE data – must be reported
  - Strandings mostly represent mortalities – some animals were not healthy
  - Data are often collected by volunteers, some with limited training
  - Dead stranded turtles (>80%) did not necessarily die where they stranded
  - Not every dead turtle will strand (distance from shore, size, predators/scavengers)
- Use long term data sets to form questions or provide support where other data are insufficient (*e.g.* Kemp's ridley & green turtle occurrence in Cape Cod Bay)
- Talk to data collectors, other users, & managers, about (mis)interpretation of data

Questions?

Many thanks to all of the Virginia Aquarium staff, volunteers, students & cooperators who responded to these animals & to the many members of the public who reported stranded animals.



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