



WATERBIRD RESPONSES TO CONTROLLED WATER LEVEL MANAGEMENT IN IOWA

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STUDY OBJECTIVES

Two primary objectives:

- **Measure waterbird responses (species diversity and abundance) to dropping water levels in late summer and early fall**
- **Document timing of fall migrating waterbirds**

STUDY AREA

Western extent of Red Rock Reservoir in central Iowa

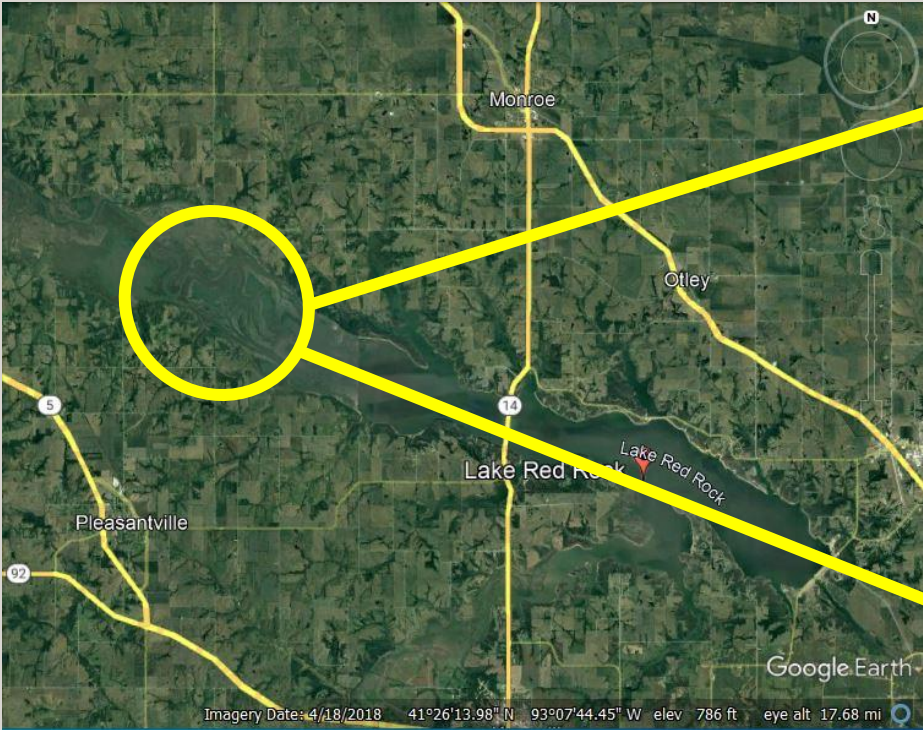


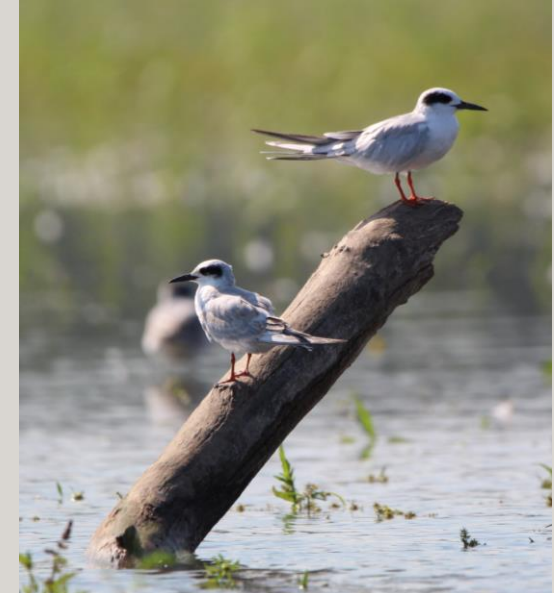
Photo acknowledgment: Google Earth (both images)

METHODS

- Counted waterbirds between mid-July and mid-September
- Survey season:
 - Began when draw-period initiated
 - Concluded when water was intentionally being held
- Surveys conducted minimally once per week
- Surveyed using the “standardized search” method
- Observations were made using binoculars and a spotting scope



Method used for waterbird observations



Forster's Tern, Red Rock Reservoir
2022

WATERBIRDS

Will include all migratory non-breeding bird species that are ecologically dependent on wetlands

Bird groups defined in our surveys were:

- Shorebirds
- Waterfowl
- Gulls and terns
- American White Pelicans
- All other waterbirds (herons, rails, grebes, cormorants)

PRELIMINARY FINDINGS

Here, we report preliminary summaries of waterbird survey data for:

- Species diversity
- Species abundance
- Species composition by group

RESULTS (WATERBIRD SURVEY SUMMARY)

2021

- 14 surveys: 20 July to 23 September
- 49 spp.; ~175,200 ind.
- Avg: 30 spp. (SD = 6); 12,500 ind. (SD= 5,350)
 - American White Pelican: ~73,200 (41.8%)
 - Franklin's Gull: ~30,700 (17.5%)
 - Ring-billed Gull: ~21,300 (12.1%)
 - Pectoral Sandpiper: ~20,200 (11.5%)
 - Green-winged Teal: ~5,300 (3.0%)
 - Least Sandpiper: ~4,500 (2.6%)

2022

- 13 surveys: 16 July to 18 September
- 44 spp.; ~160,300 ind.
- Avg: 26 spp.; (SD = 6); 12,300 ind. (SD = 6,970)
 - American White Pelican: ~65,000 (40.7%)
 - Pectoral Sandpiper: ~27,800 (17.4%)
 - Franklin's Gull: ~27,000 (16.9%)
 - Ring-billed Gull: ~16,500 (10.3%)
 - Killdeer: ~5,600 (3.5%)
 - Least Sandpiper: ~4,600 (2.9%)

LISTED WATERBIRD SPECIES

Federal Threatened

Piping Plover

Red Knot

State Endangered

Piping Plover

Species of Greatest Conservation Need

Blue-winged Teal

American Wigeon

Northern Pintail

Redhead

Common Gallinule

Black-bellied Plover

American Golden-Plover

Hudsonian Godwit

Marbled Godwit

Ruddy Turnstone

Sanderling

White-rumped Sandpiper

Buff-breasted Sandpiper

Pectoral Sandpiper

Semipalmated Sandpiper

Short-billed Dowitcher

Lesser Yellowlegs

Wilson's Phalarope

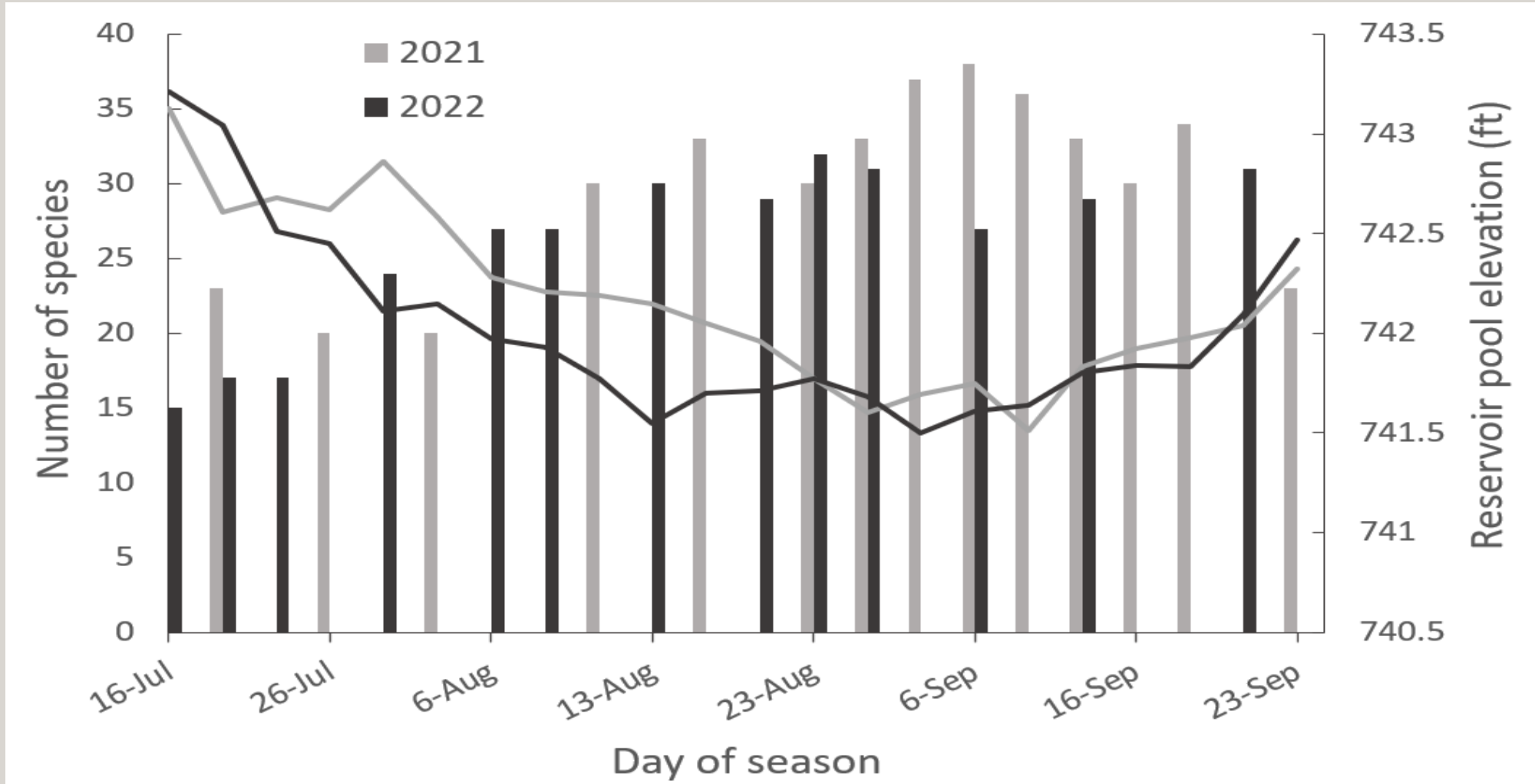
Franklin's Gull

Black Tern (SC)

Forster's Tern (SC)

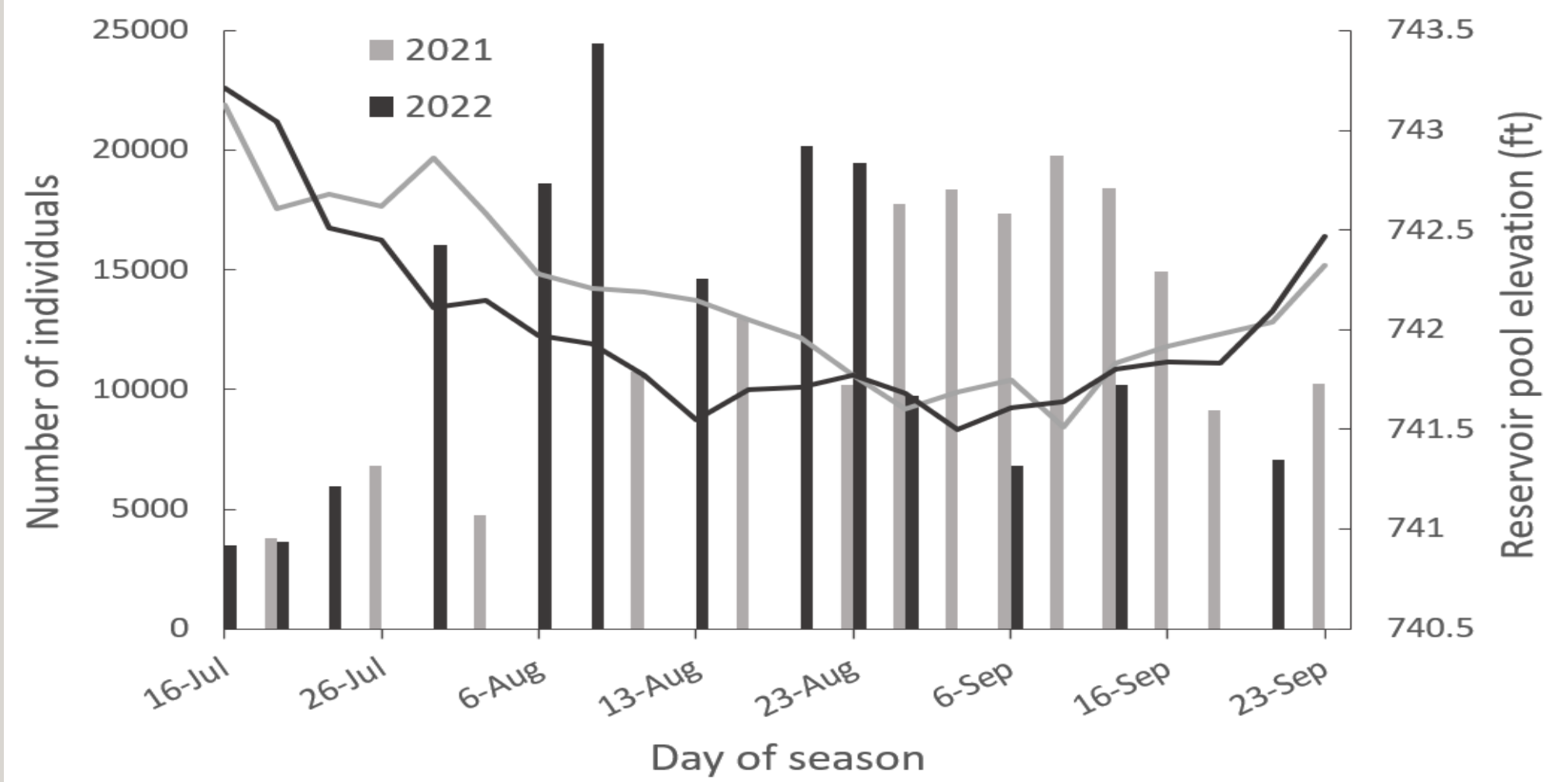
American White Pelican

RESULTS (WATERBIRD DIVERSITY)



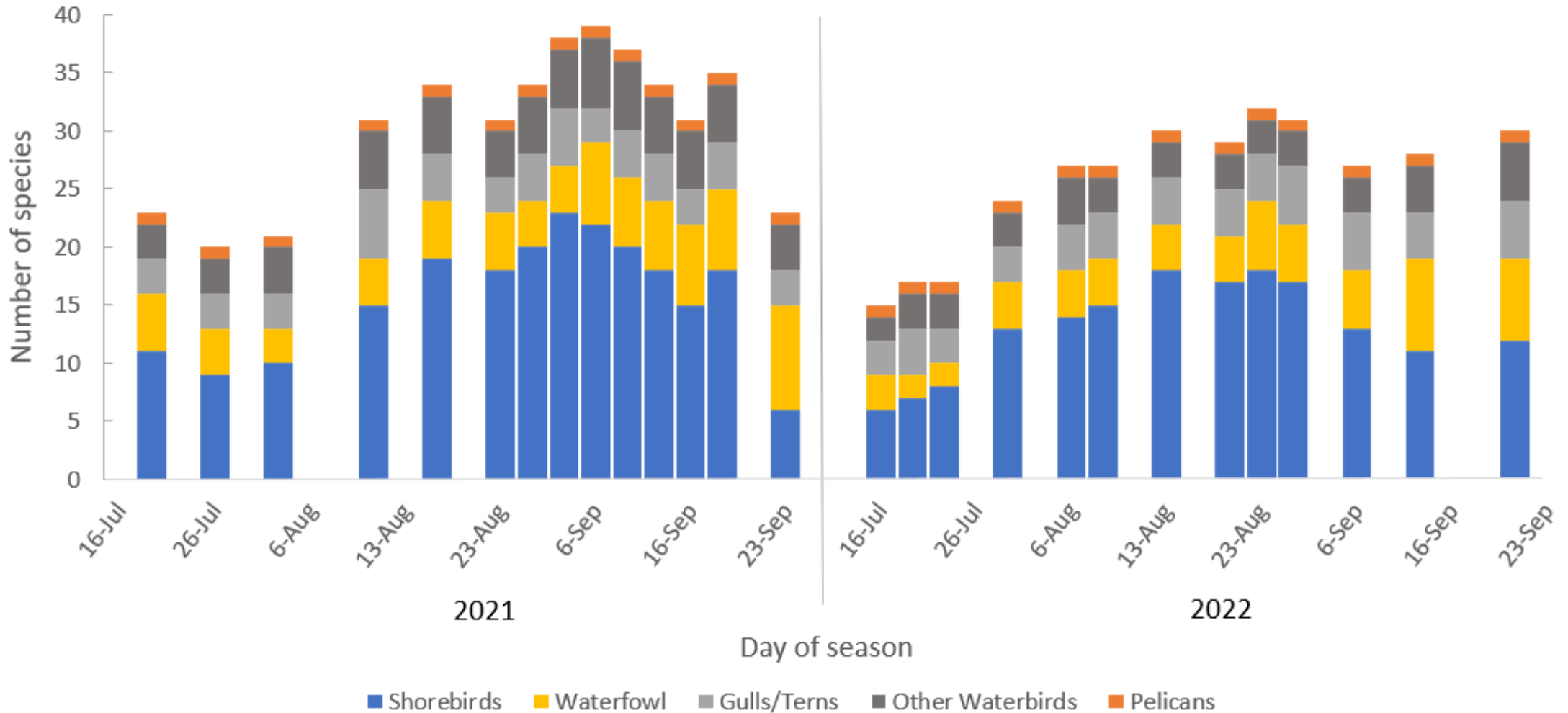
Total number of waterbird species recorded and the reservoir water level elevation, 2021-2022.

RESULTS (WATERBIRD ABUNDANCE)



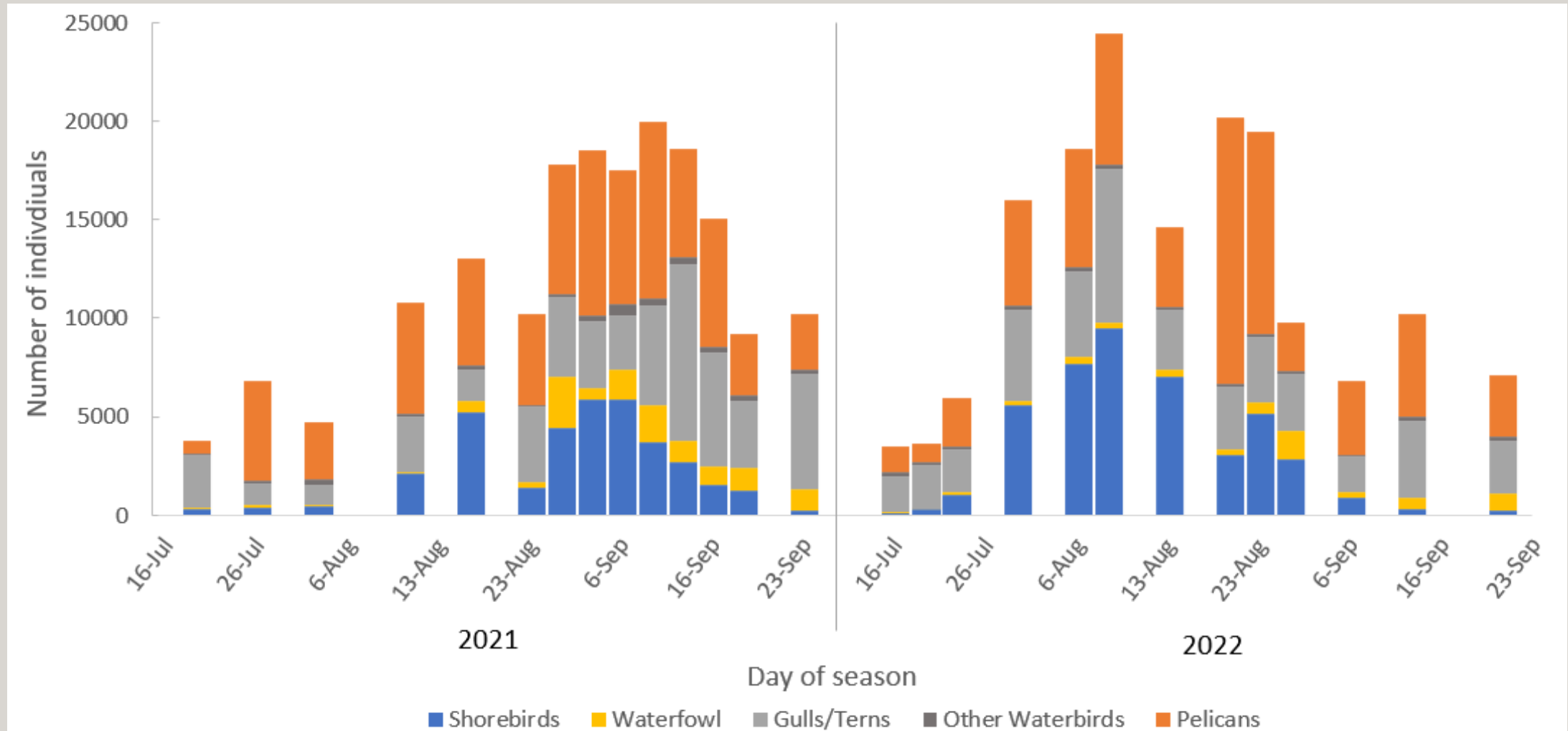
Total count of individuals from all waterbird species recorded and the reservoir water level elevation, 2021-2022.

RESULTS (WATERBIRD DIVERSITY BY GROUP)



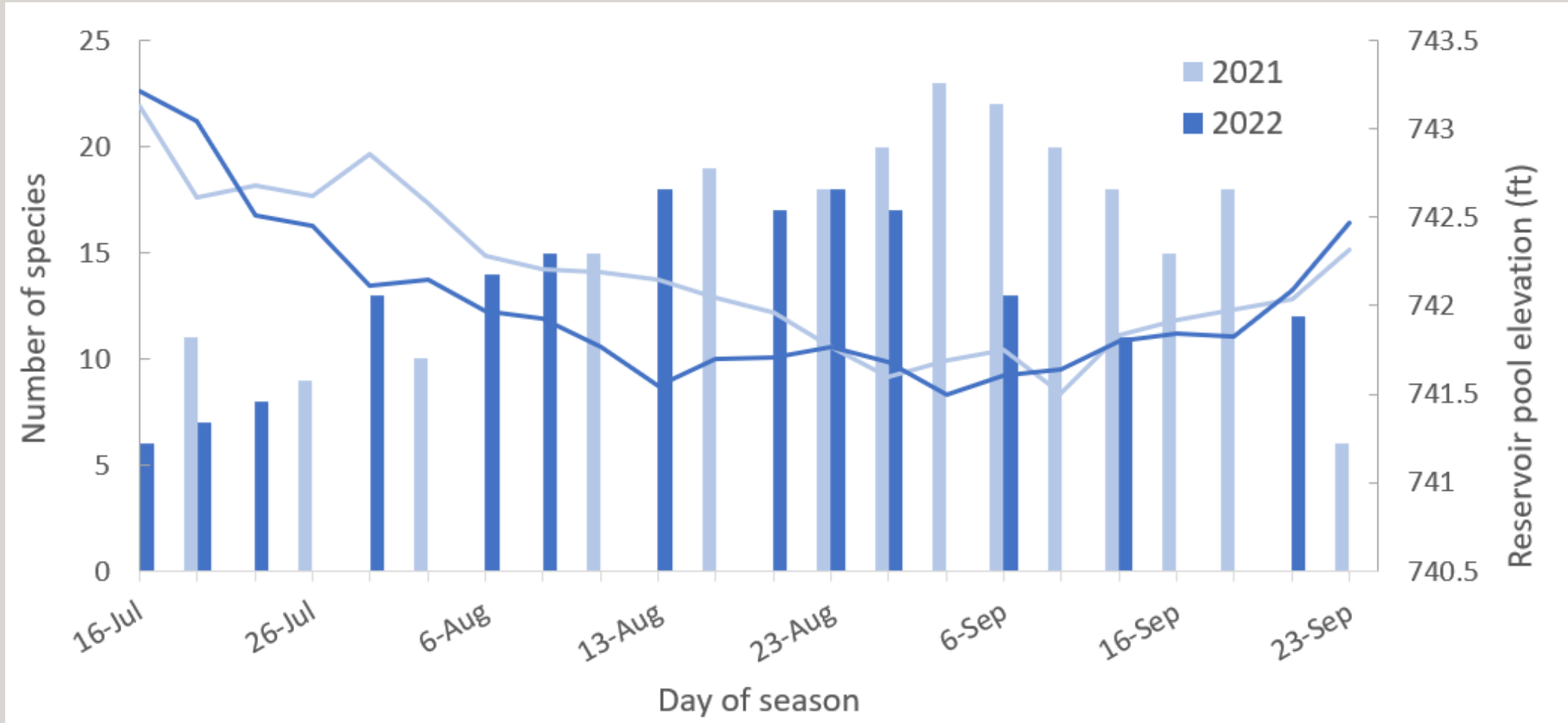
Number of species observed by waterbird group, 2021-2022.

RESULTS (WATERBIRD ABUNDANCE BY GROUP)



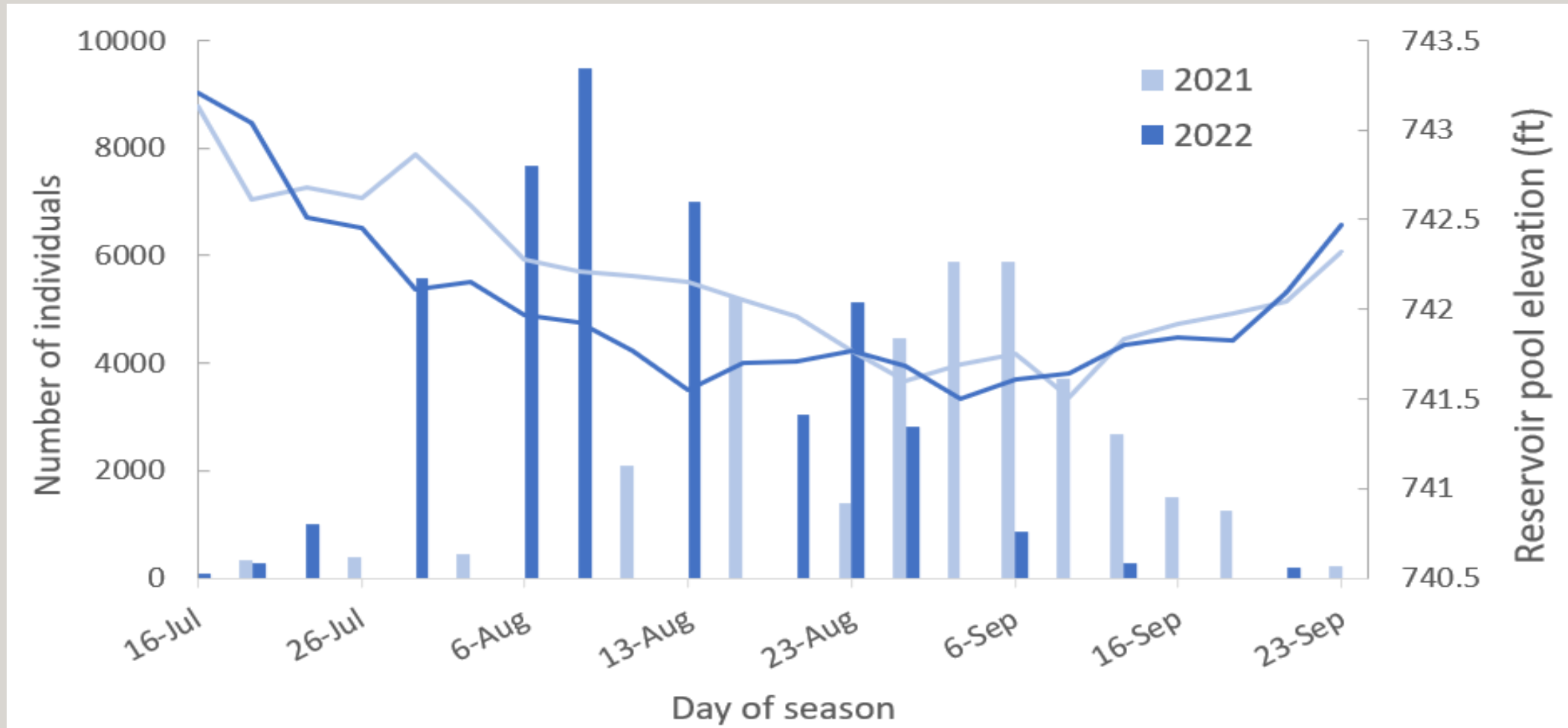
Total count of individuals by waterbird group, 2021-2022.

RESULTS (SHOREBIRD DIVERSITY)



Number of shorebird species recorded and the reservoir water level elevation, 2021-2022.

RESULTS (SHOREBIRD ABUNDANCE)



Total count of individuals from all shorebird species recorded and the reservoir water level elevation, 2021-2022.

DISCUSSION

- Our surveys documented a diverse waterbird response to SRP environmental flows, especially by shorebirds
- Many conservation priority species used the site
- Numerical response was impressive, and total use may be much higher because of turnover during migration

FUTURE WORK

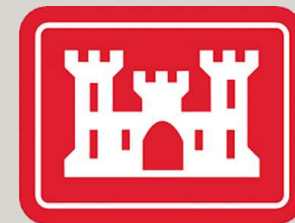
- Waterbird surveys will continue in 2023 and 2024
- On-going data analyses will explore relationships between waterbird counts and explanatory variables (pool level, season, etc.)
- Waterbird responses are an important metric for gauging SRP wildlife benefits
- Waterbird surveys, stopover ecology, and vegetation data will jointly assess wildlife use and benefits of SRP environmental flows



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QUESTIONS?

