

**Demonstrating Runoff  
Capture from Poultry  
Houses to Improve Water  
Quality in 12-Digit HUCs of  
the Illinois River  
Watershed**



# Personnel

---

- Andrew Sharpley - Principal Investigator
- Tarra Simmons- Program Technician
- Tony Zambrano - Student Technician
- Ben Putnam - Student Technician
- April Price - Student Technician



# Objectives

---

- Demonstrate the effectiveness of BMPs that impound runoff from poultry houses to reduce phosphorus (P), nitrogen (N), and sediment loss in runoff
  - Differing N & P fate and transport
  - Land use management
  - Land management change





Ponds can be an alternative water source  
and trap nutrients and sediment











# Rationale

---

- Unmanaged runoff from and around poultry houses can be a source of nutrients and sediment to area waters
- On-farm reuse of captured runoff water
  - House coolant, drinking water, pasture irrigation
- A more closed, internal nutrient and water recycling system is developed, with less off-farm losses



Upper Ballard Creek  
111101030604

Lincoln

Moore's Creek-  
Muddy Fork  
111101030402

Headwaters  
Baron Fork  
111101030402

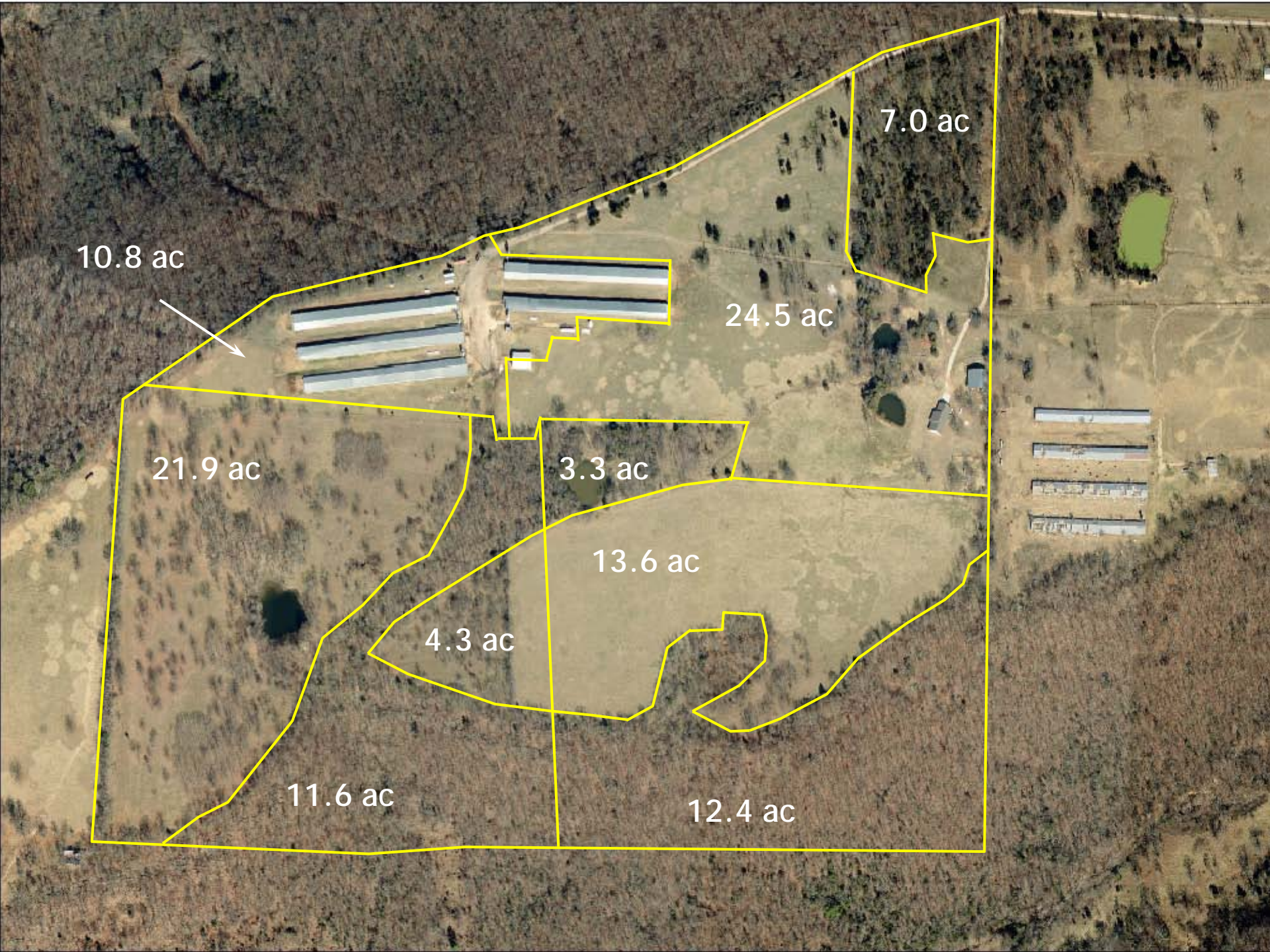


Study farm



0 1,000 2,000  
Feet





10.8 ac



7.0 ac

24.5 ac

21.9 ac

3.3 ac

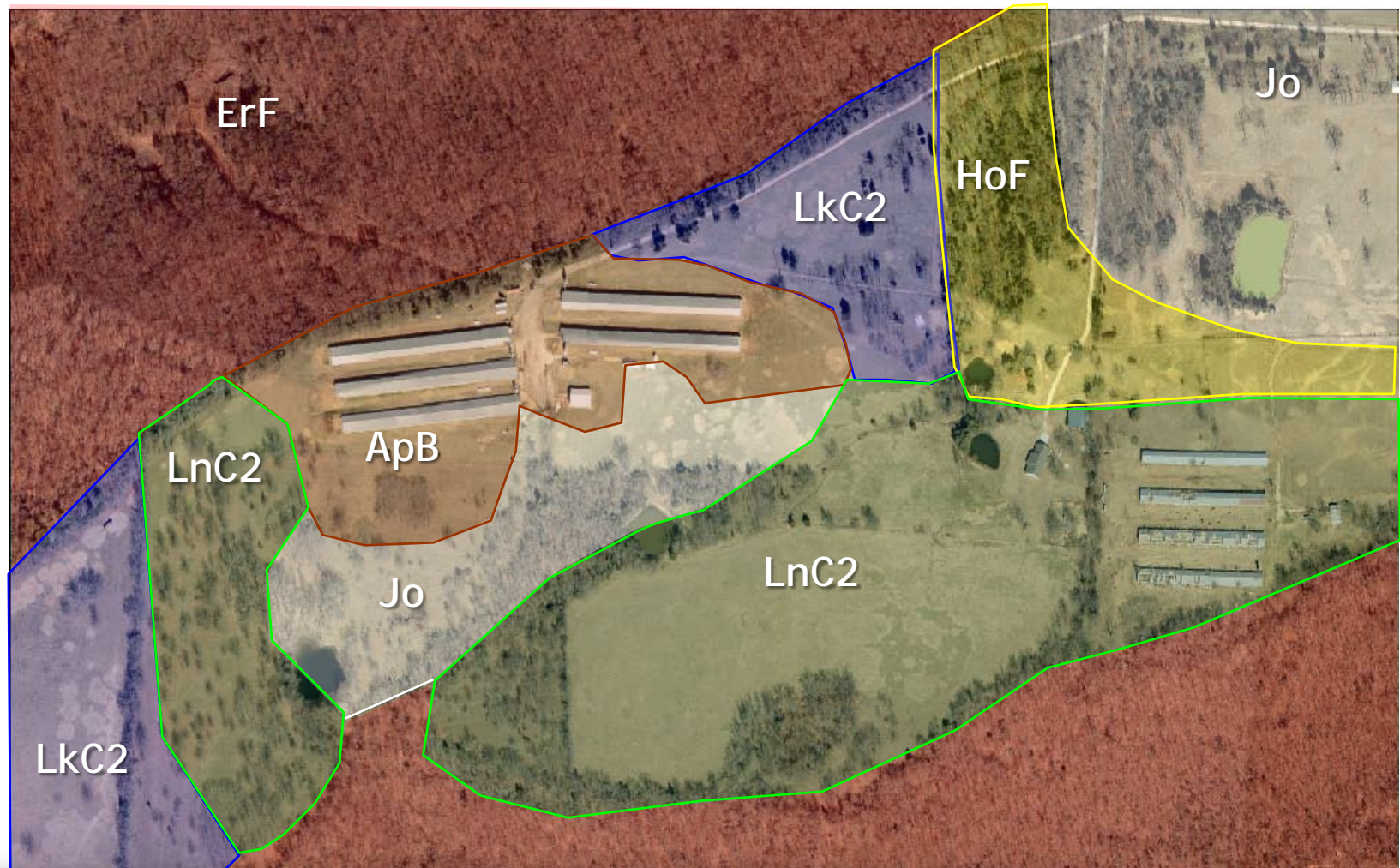
13.6 ac

4.3 ac

11.6 ac

12.4 ac

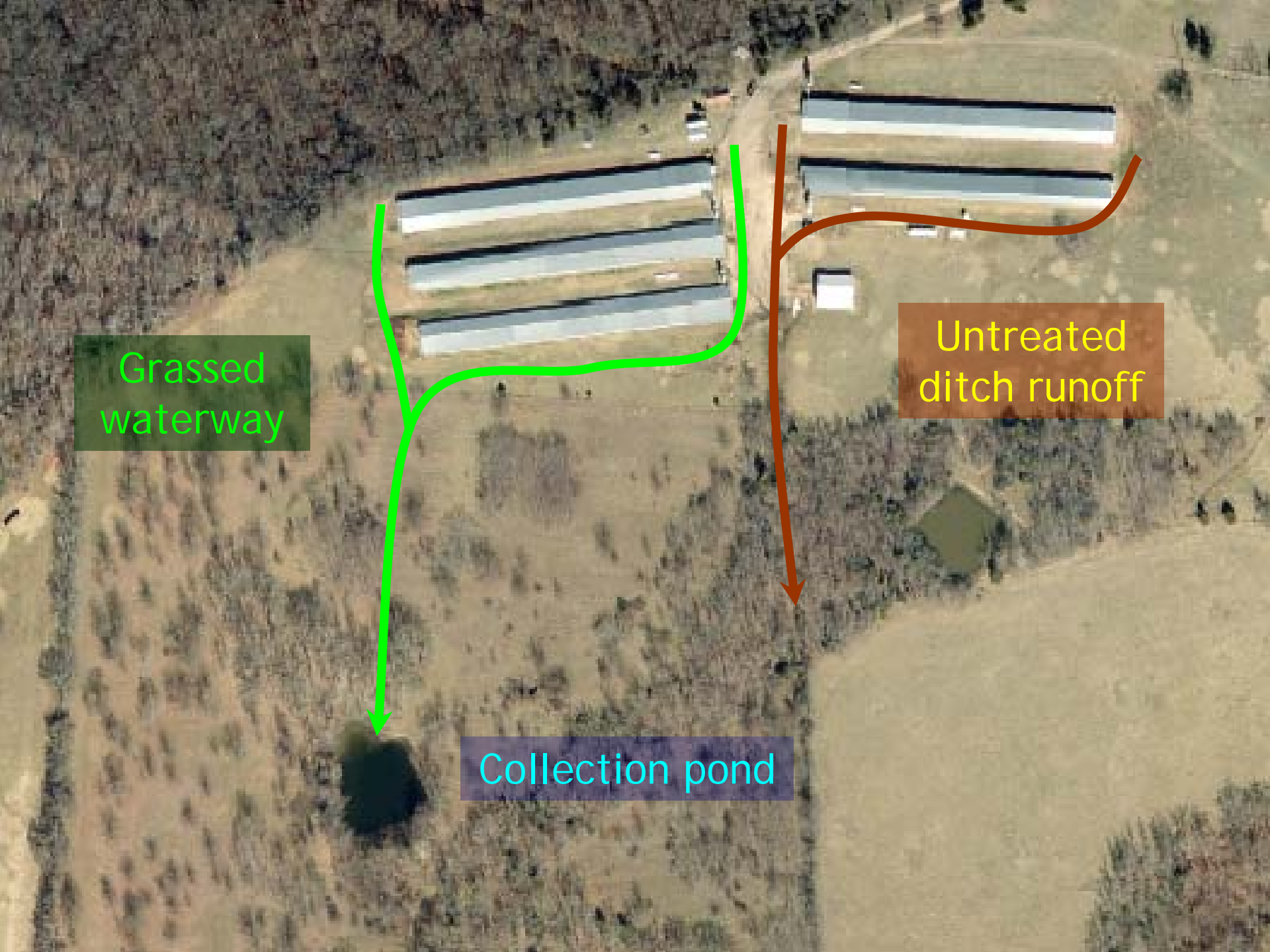




**Map unit    Map unit name**

- ApB    Apison loam, 1 to 3% slopes
- ErF    Enders - Allegheny complex, 20 to 40% slopes
- HoF    Hector-Mountainburg stony fine sandy loams, 3 to 40% slopes
- Jo    Johnsburg silt loam
- LkC2   Linker loam, 3 to 8% slopes, eroded
- Lnc2   Linker gravelly loam, 3 to 8% slopes, eroded





Grassed  
waterway

Untreated  
ditch runoff

Collection pond



# Plan of study

---

- Monitor P, N and sediment in runoff
- Monitor flow, P, N and sediment at
  - Untreated site
  - Treated site - grassed waterway collection
  - Pond volume and water quality





193

61

84

40

18

36

20

30

81

18

203

13

158

50

133

153

19

14

69

158

14

91

10

40

17

25

15

23

30

# Sampling sites













# Sampling sites















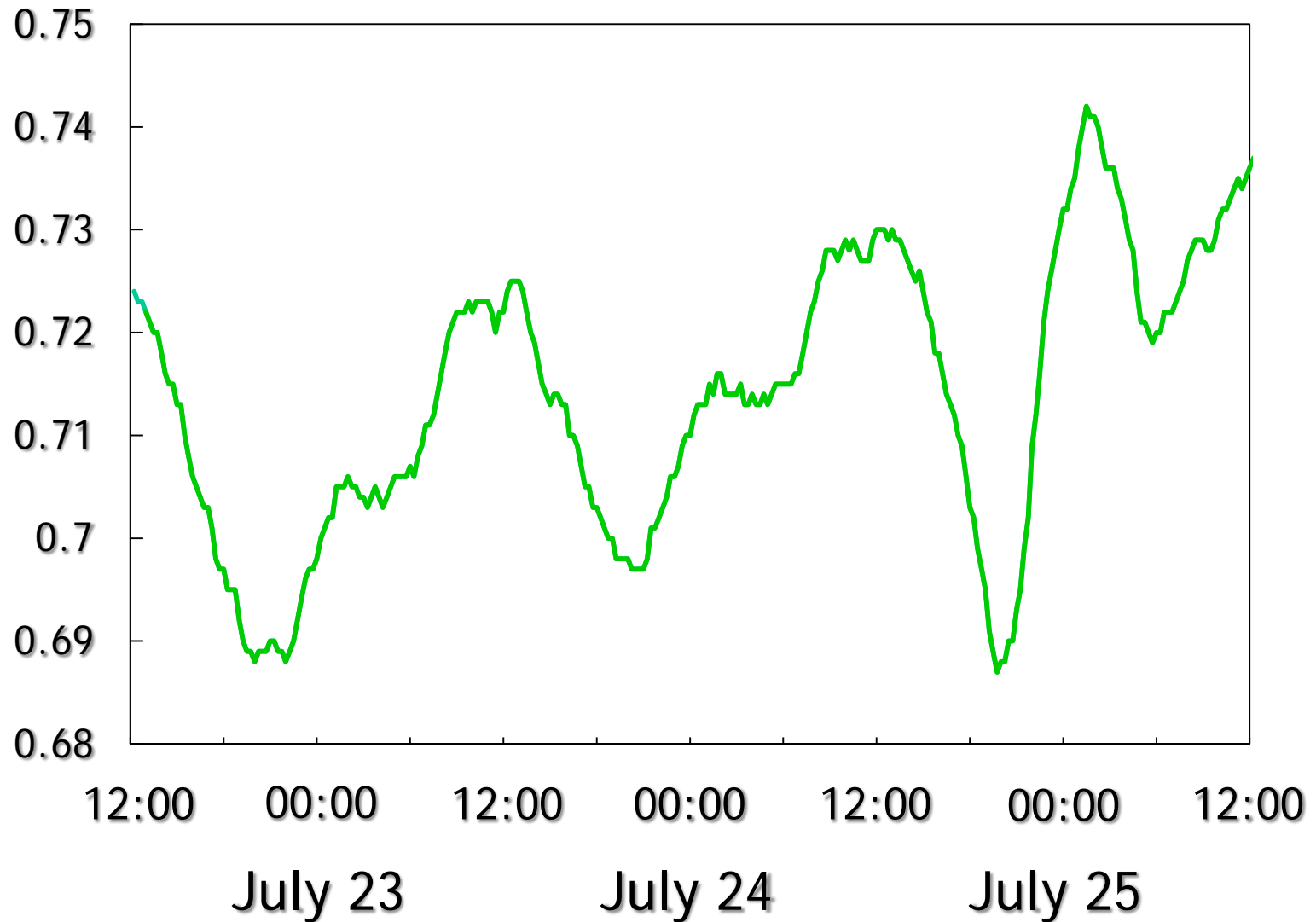






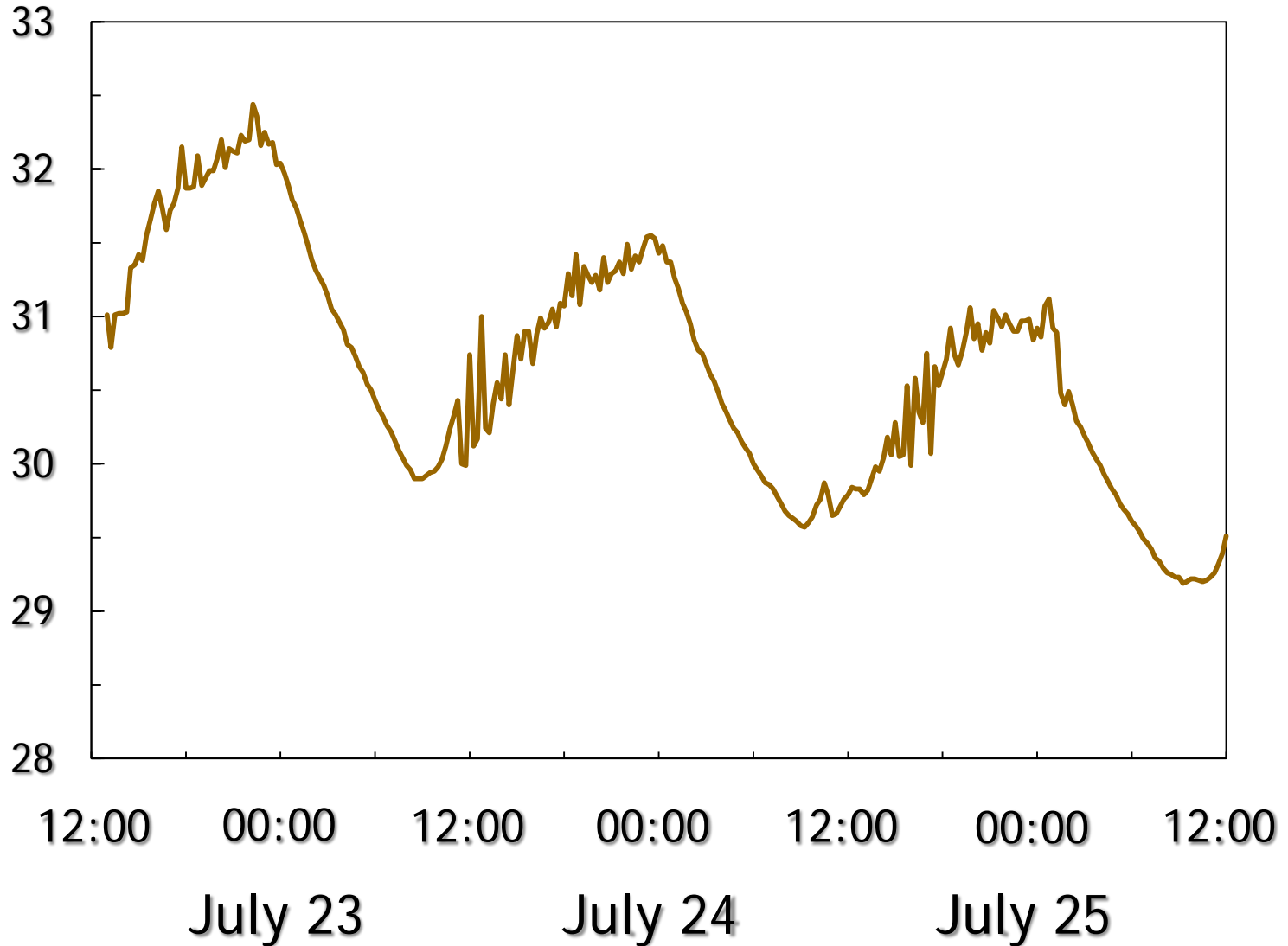


# Pond depth, m

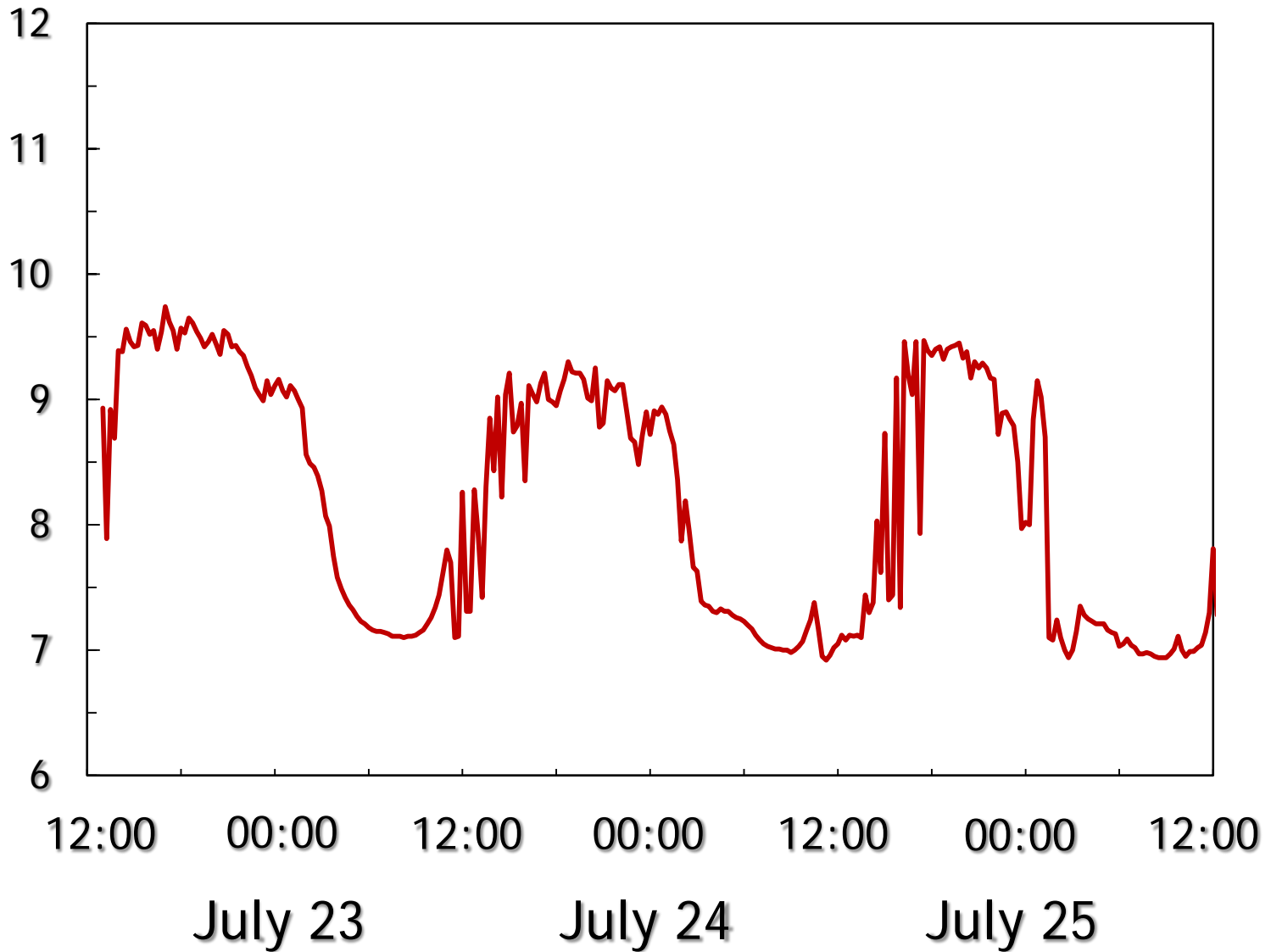




# Pond temperature, °C



# Pond water pH





# Dissolved Oxygen, mg/L

