

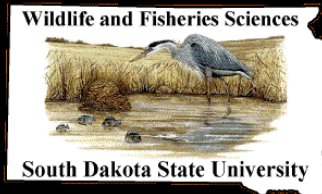
# Pelagophil reproduction in eastern South Dakota

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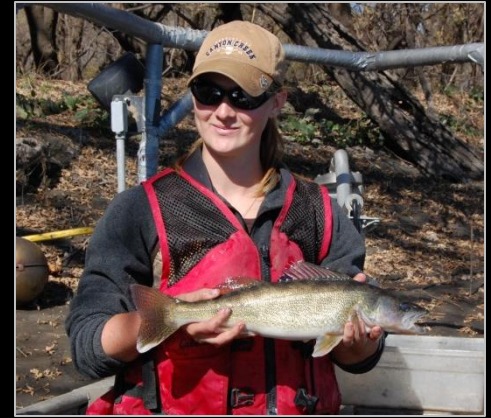
# Pelagophils

- Spawn in open water
  - Buoyant, semi-buoyant, or neutrally buoyant eggs
  - Larvae hatch in open water, drift downstream
  - Migrate upstream to spawn
    - Imperiled in many areas
- In eastern South Dakota:
  - Freshwater drum
  - Emerald shiner
  - **Bighead and silver carp**



# Drifting larvae

- Litho-pelagophils
  - Gizzard shad, goldeye
- Lithophils
  - Sander spp., blue sucker, buffalos, white sucker
- Psammophils
  - Sand shiner, carpsuckers

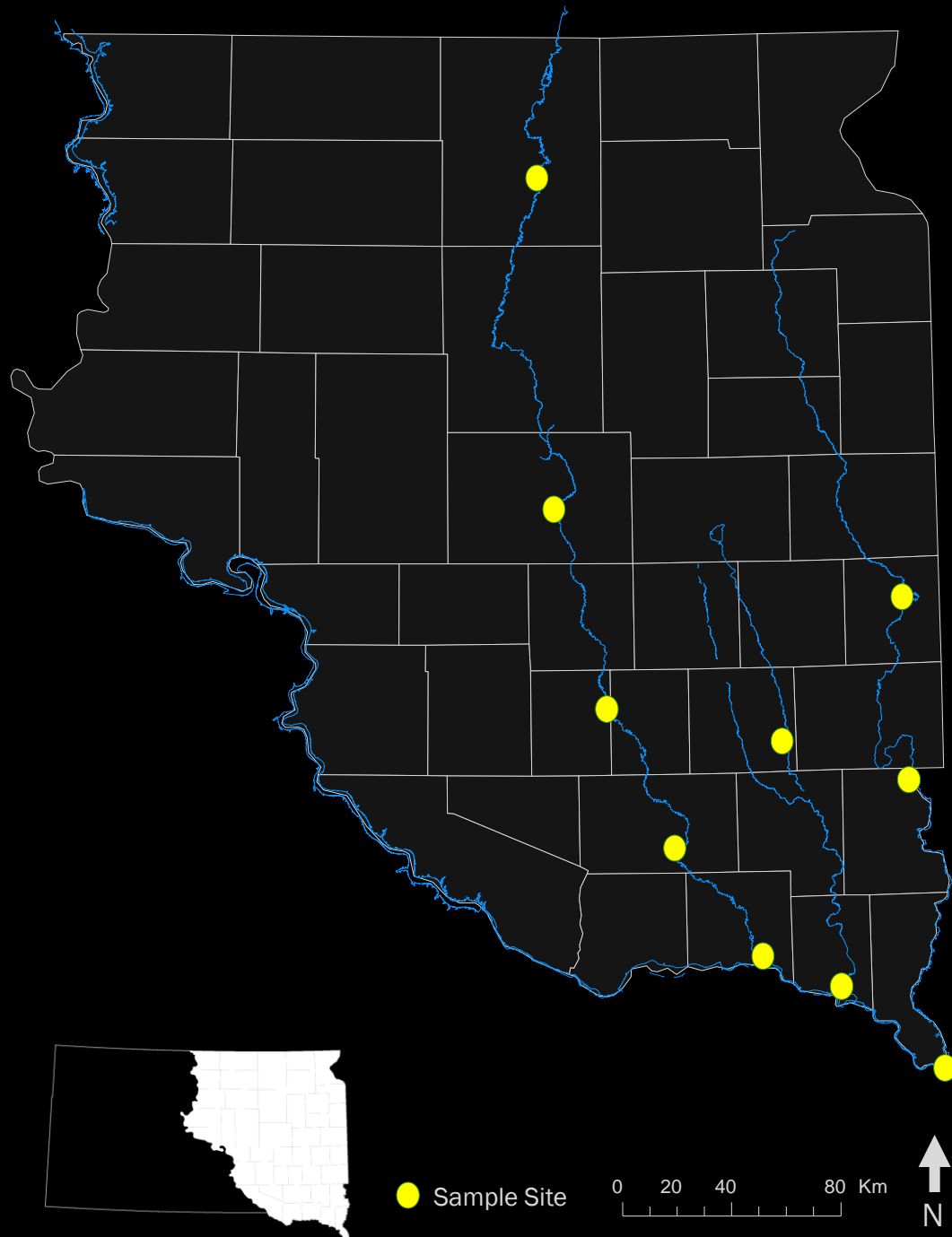


# Objectives

1. Characterize the larval drifting assemblage by reproductive guild
2. Assess success of pelagophils in varying flood years  
(including bighead and silver carp)

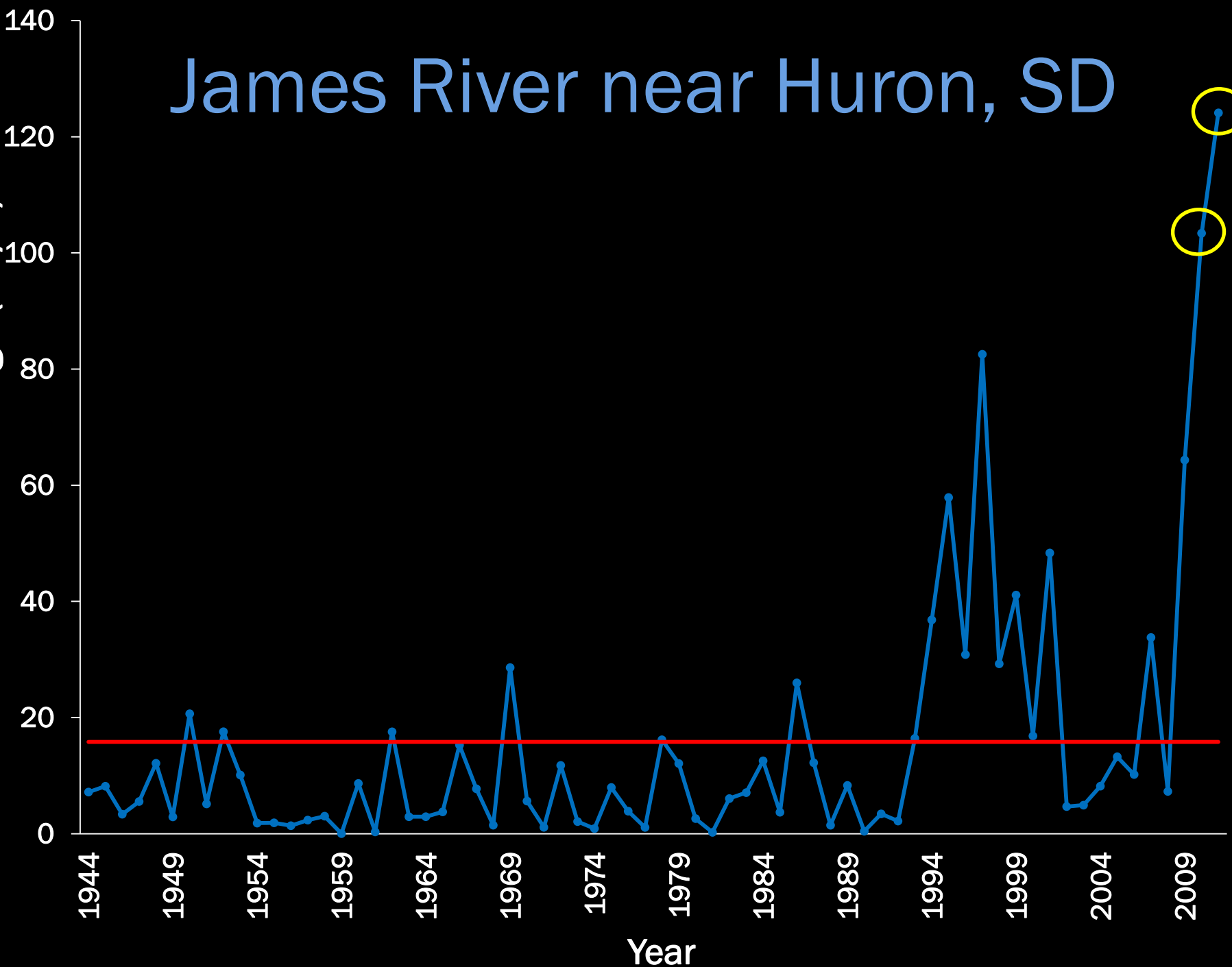
# Methods

- Drift net
  - 10 minute sets (3x)
  - 500  $\mu\text{m}$  mesh
  - 0.5 m by 1 m mouth
  - Flowmeter
- Model
  - Validate sites

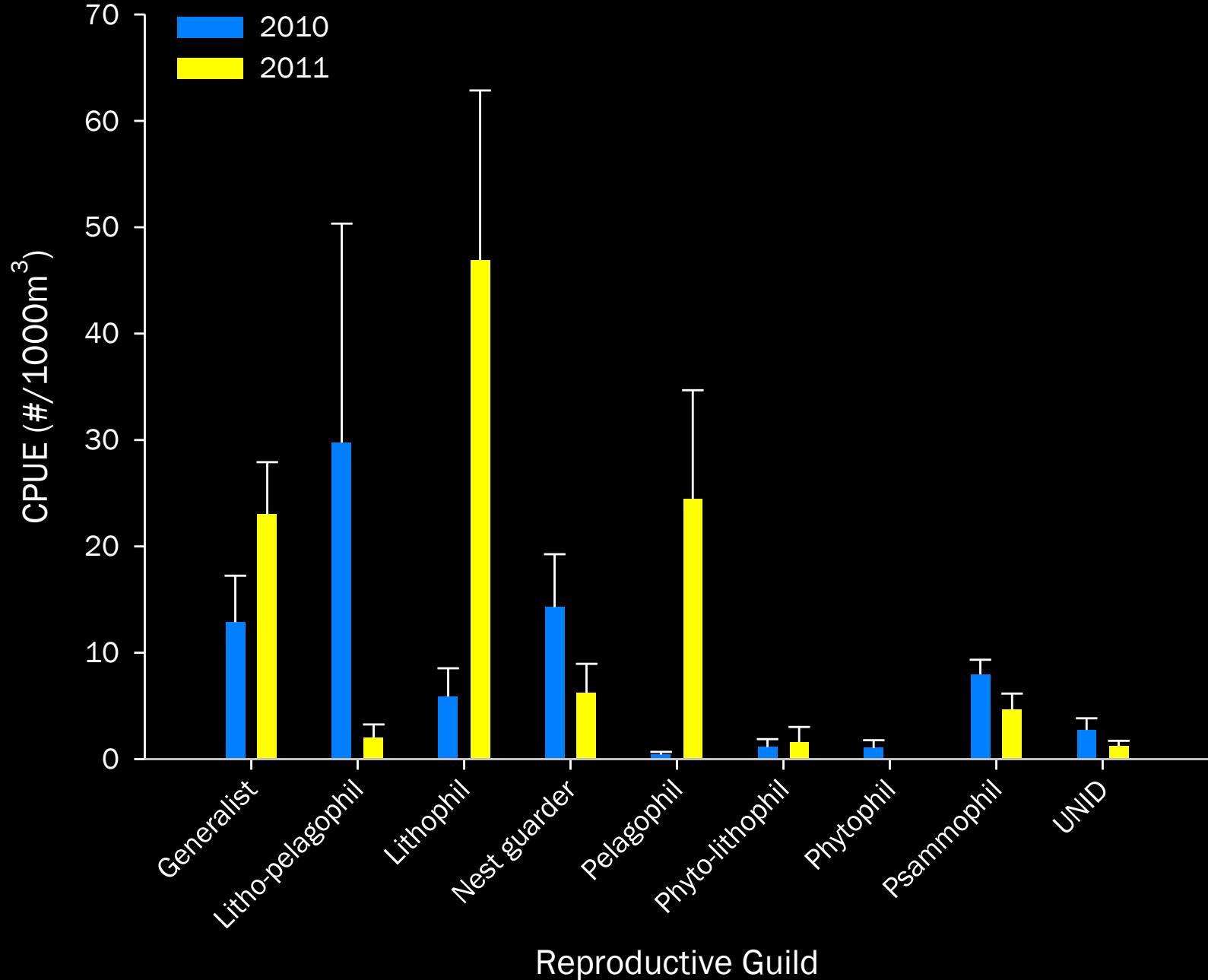


# James River near Huron, SD

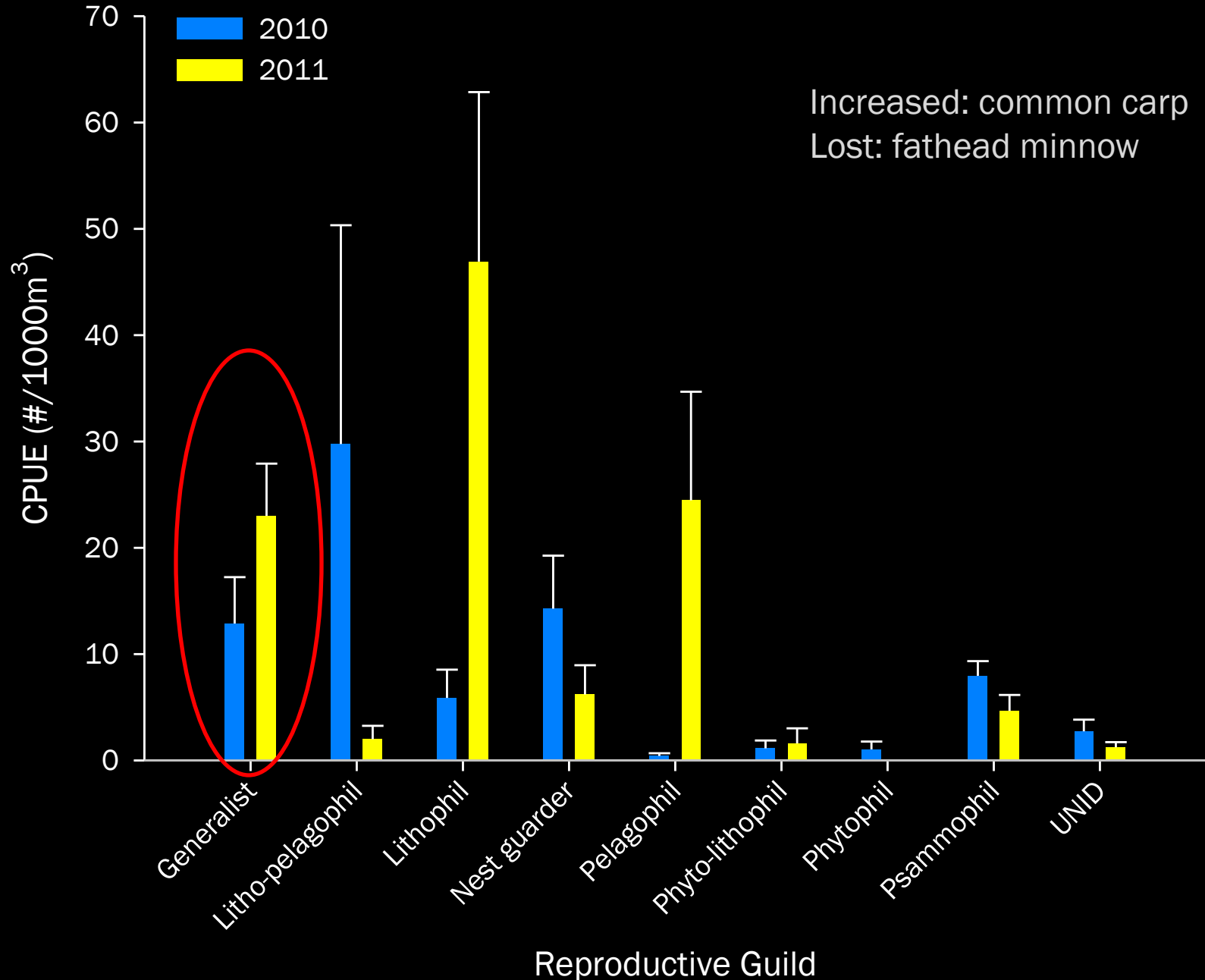
Mean Annual Discharge (m<sup>3</sup>/s)



# Guild collections

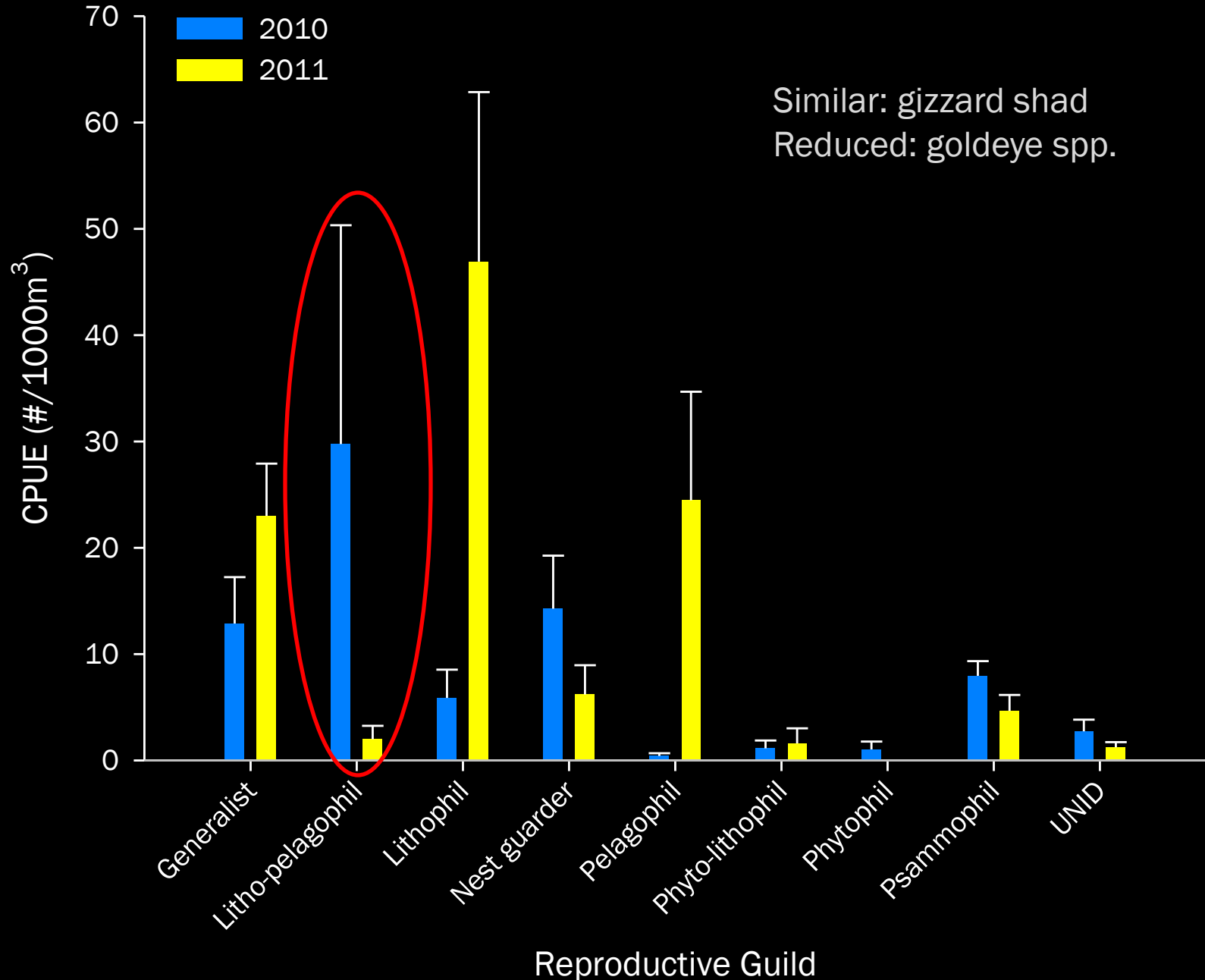


# Guild collections

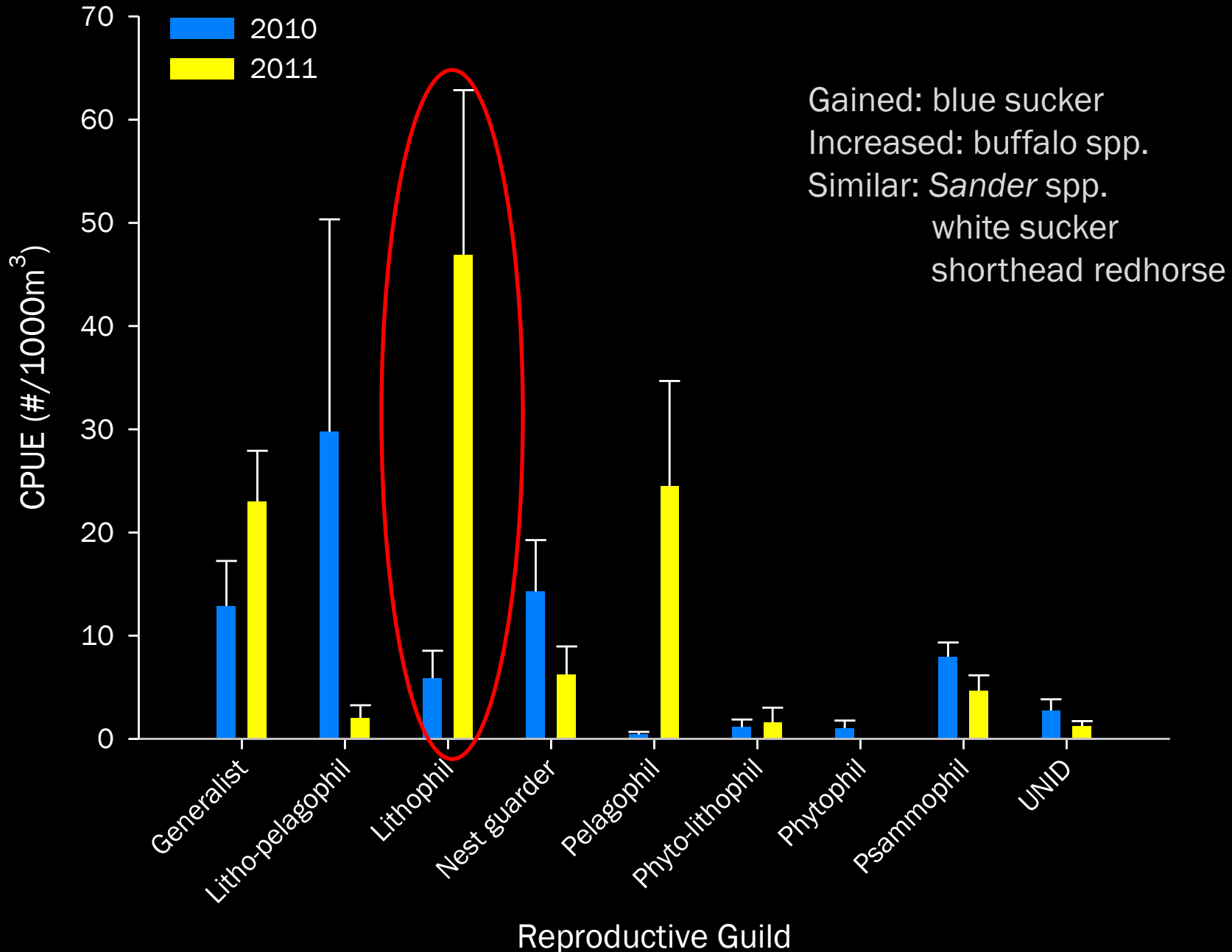




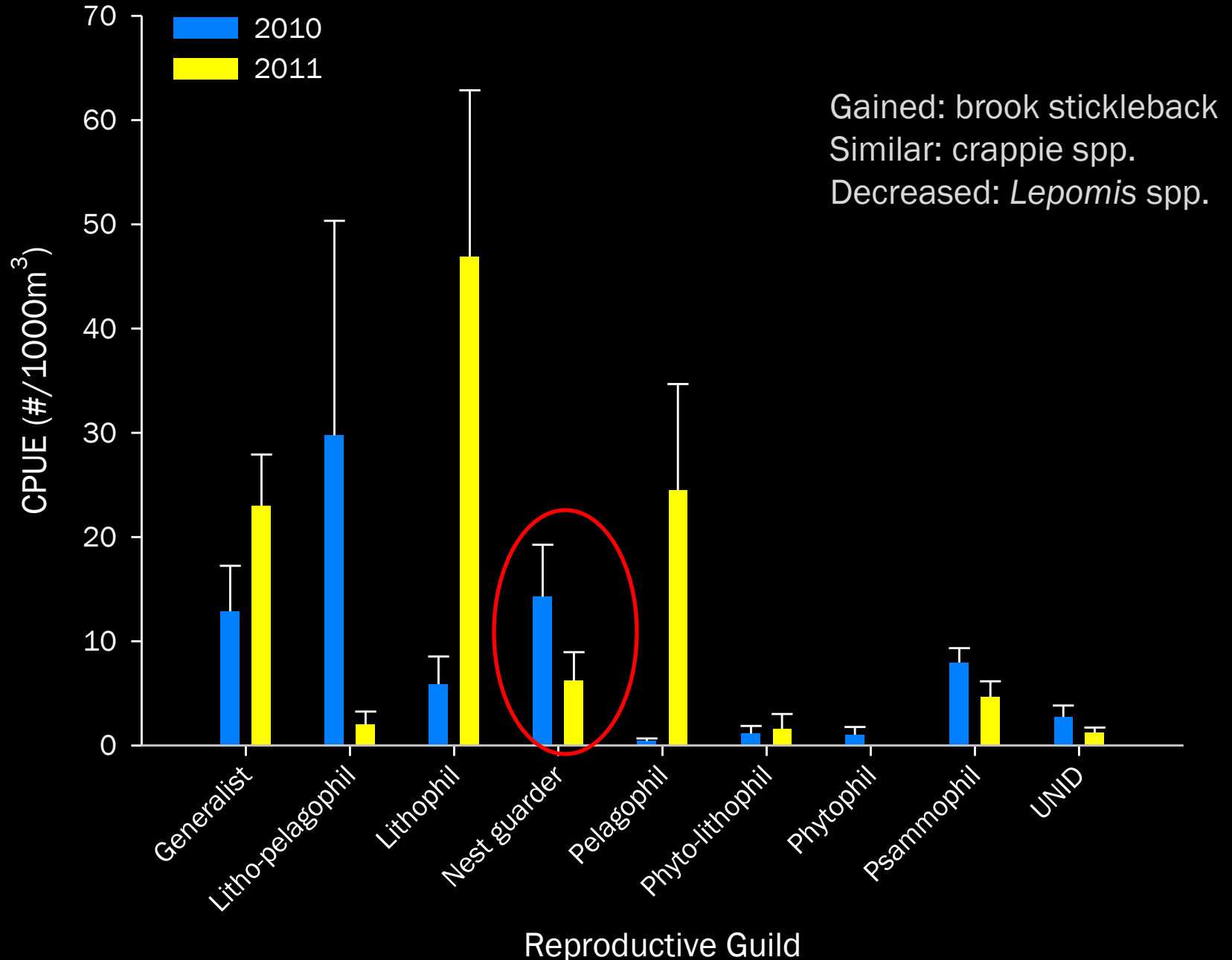
# Guild collections



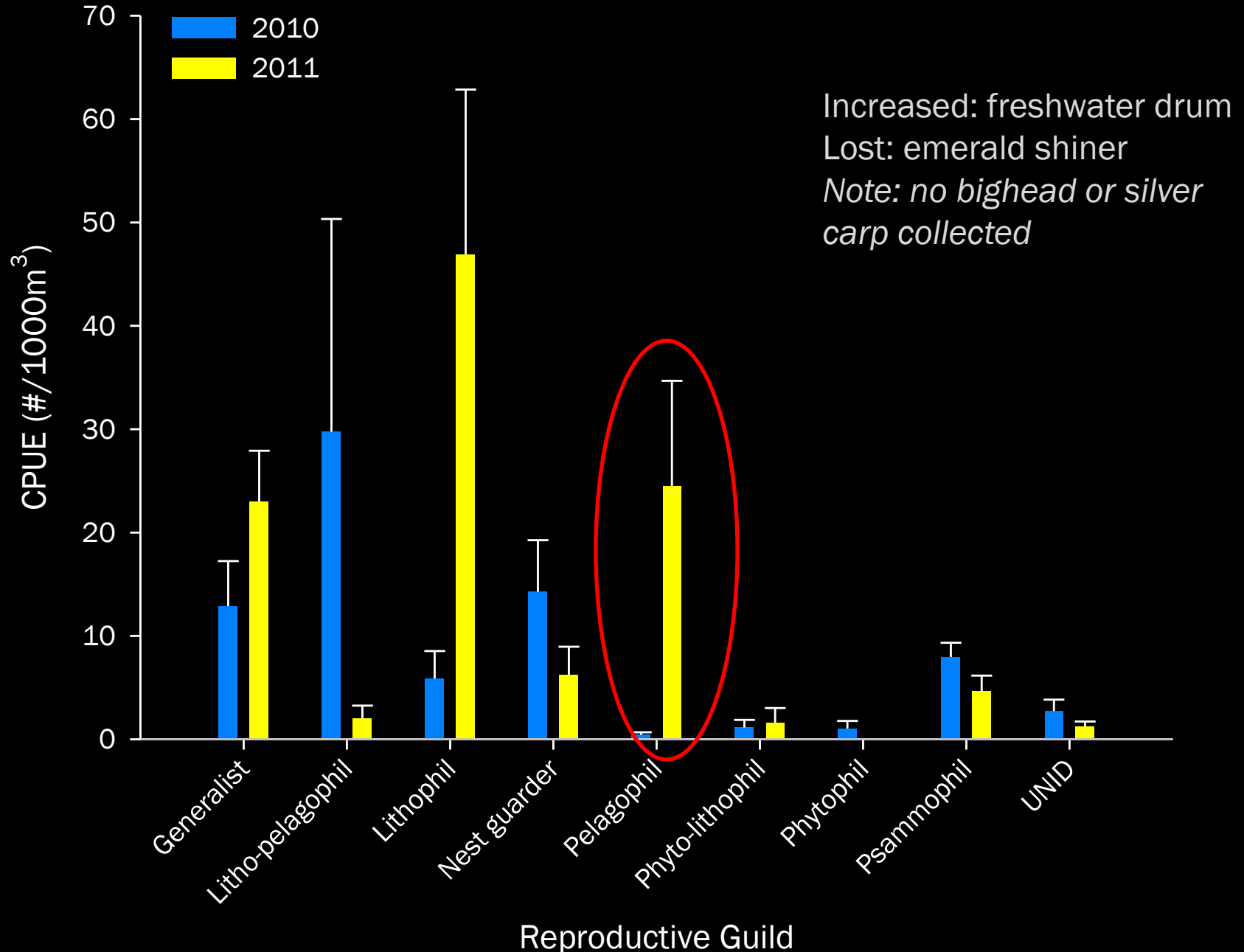
# Guild collections



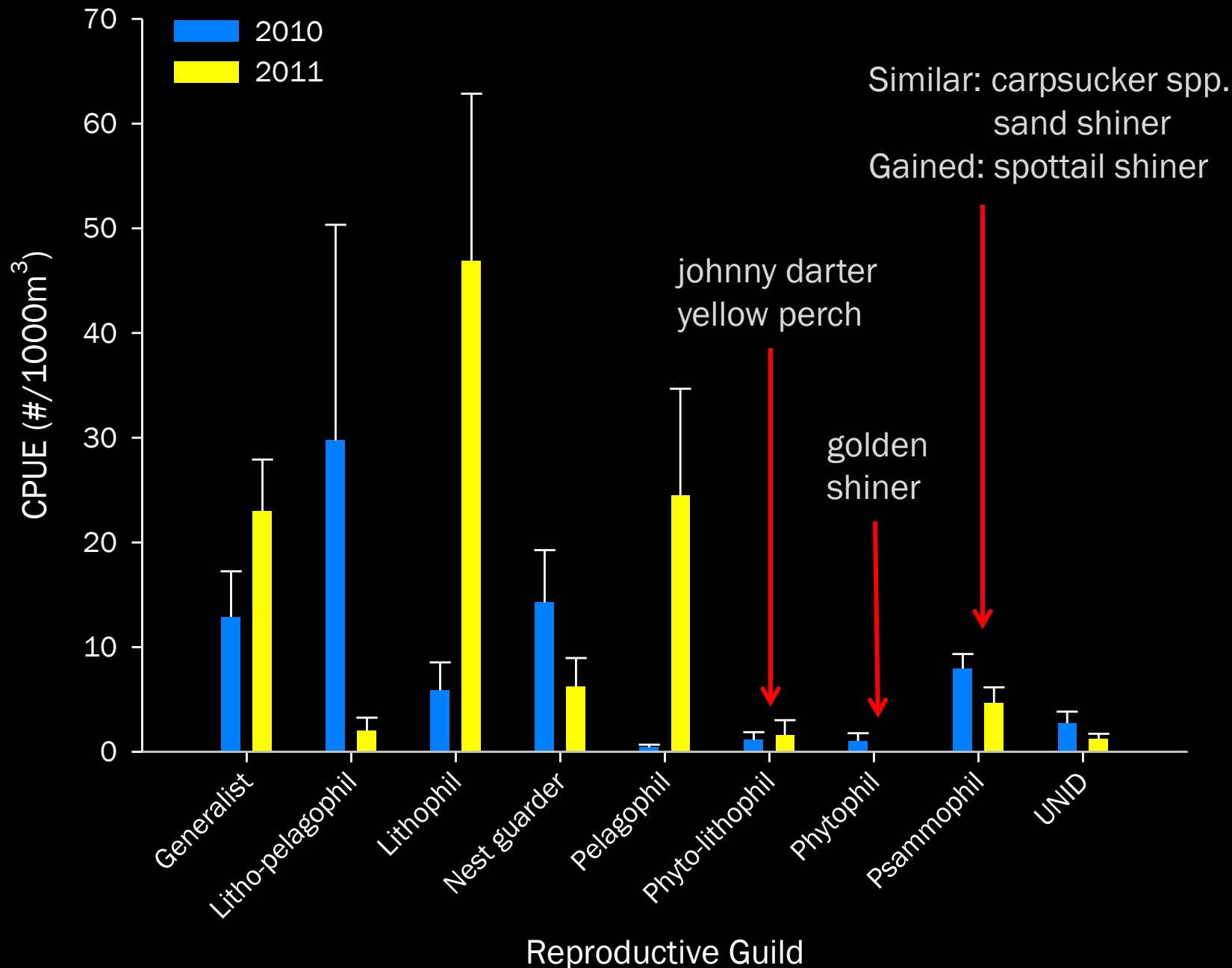
# Guild collections



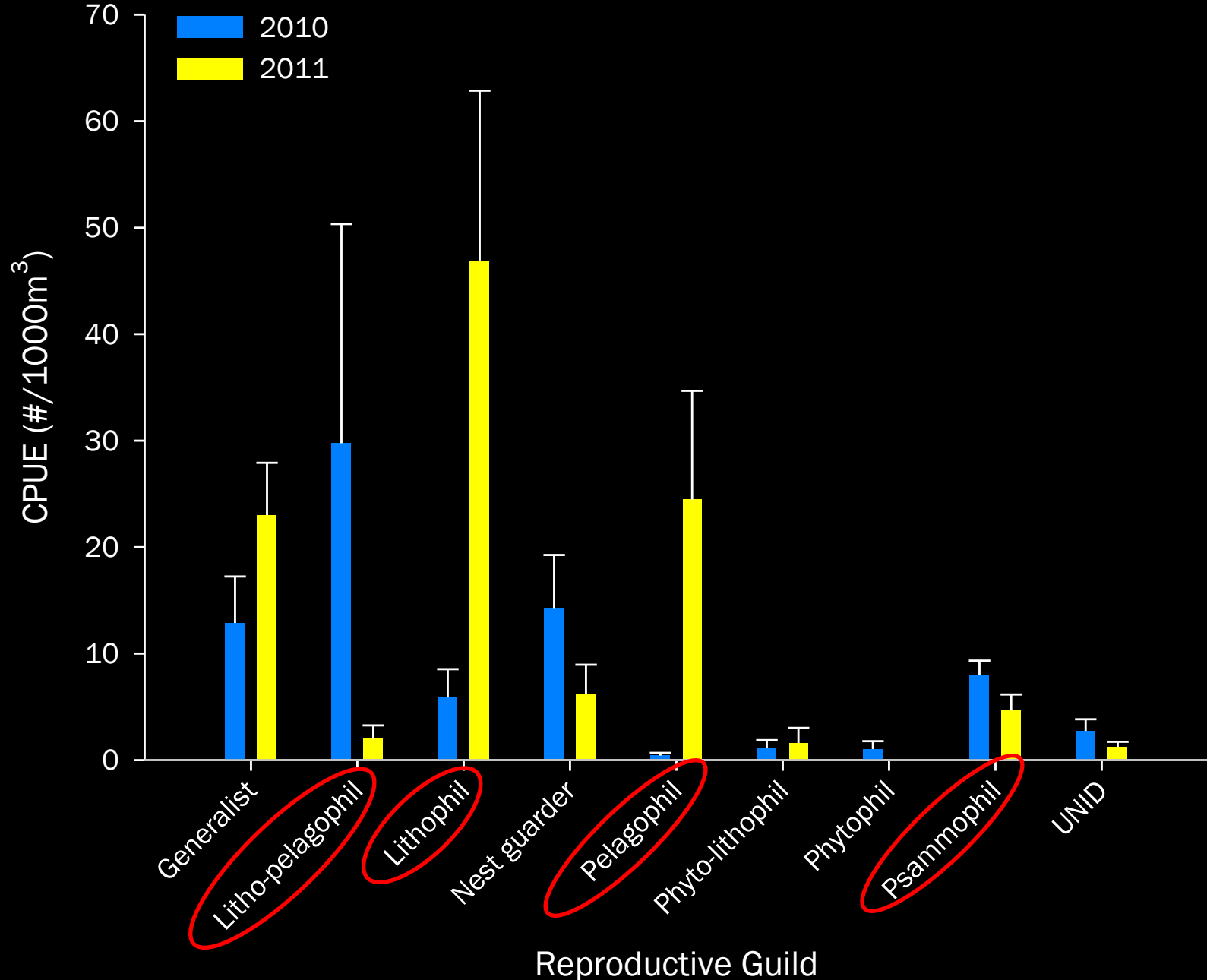
# Guild collections



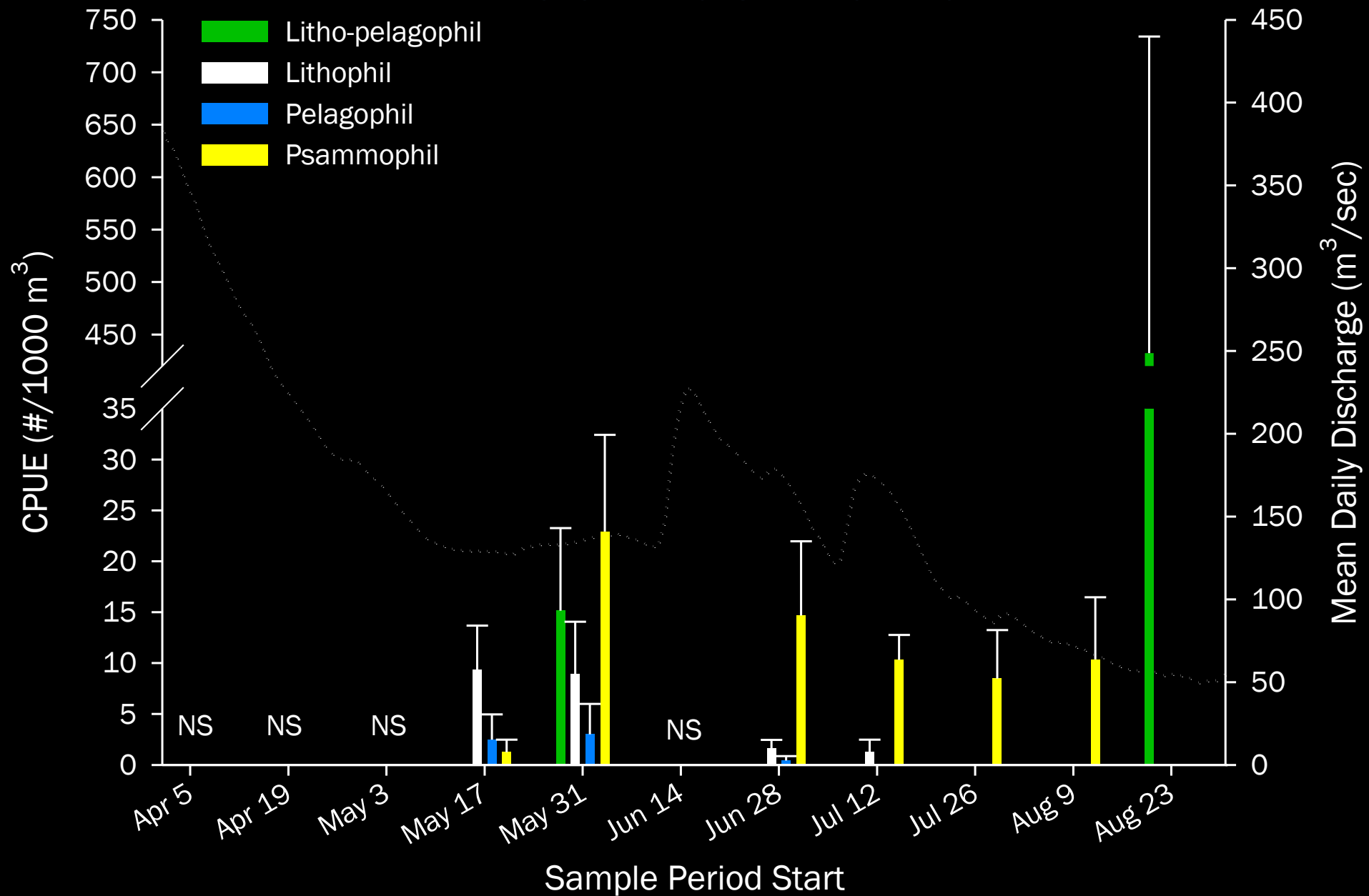
# Guild collections



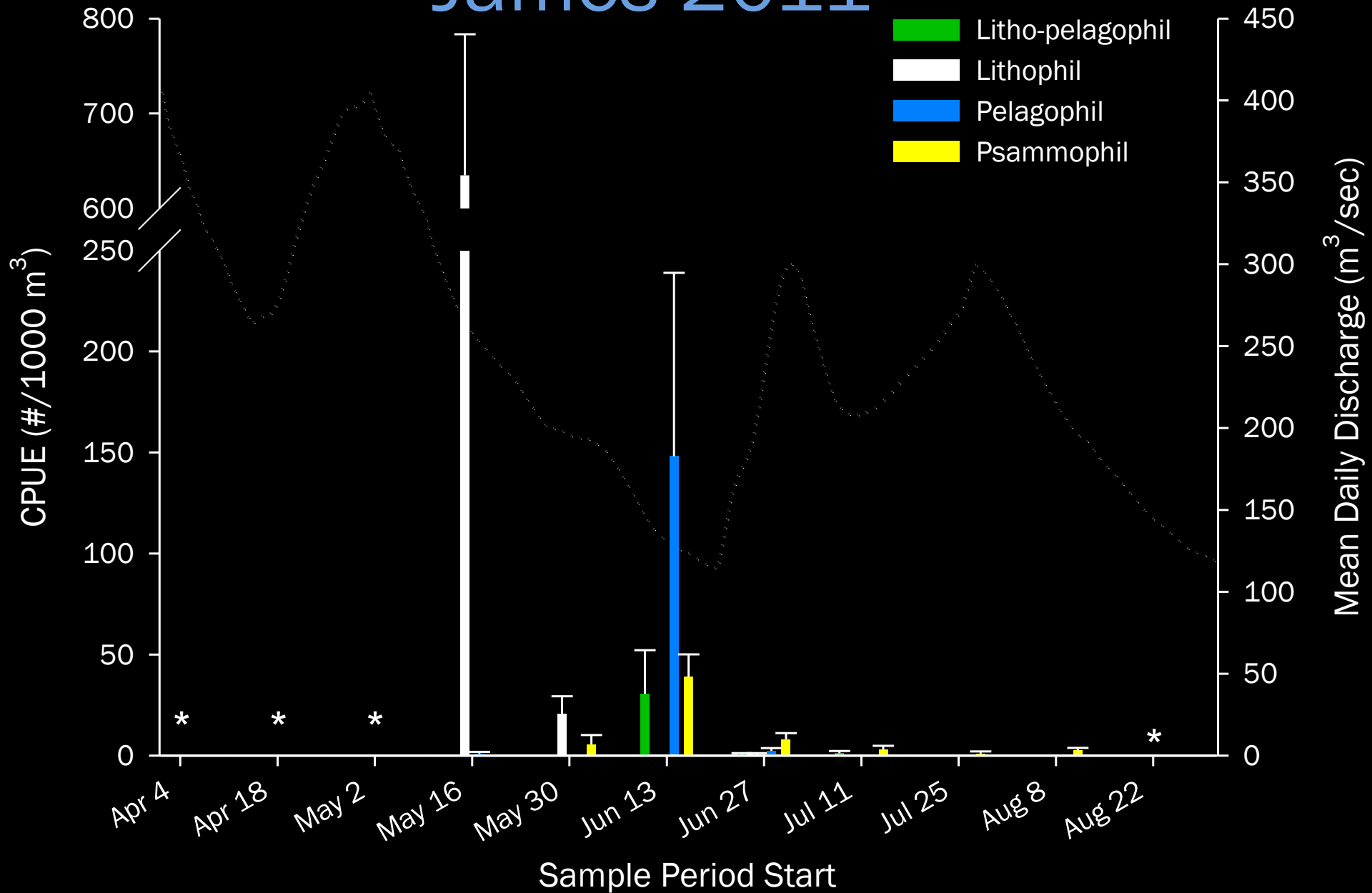
# Guild collections



# James 2010

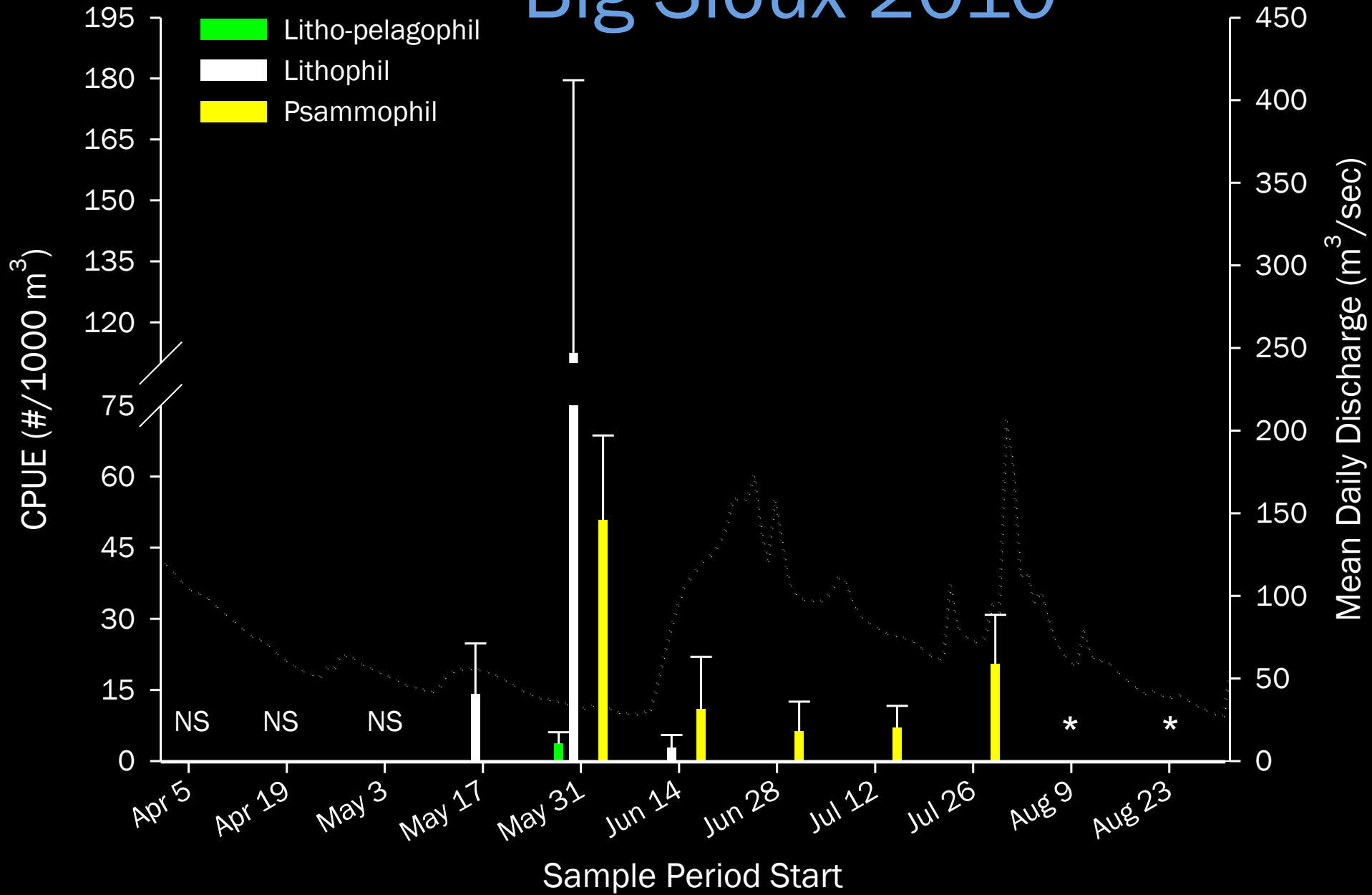


# James 2011

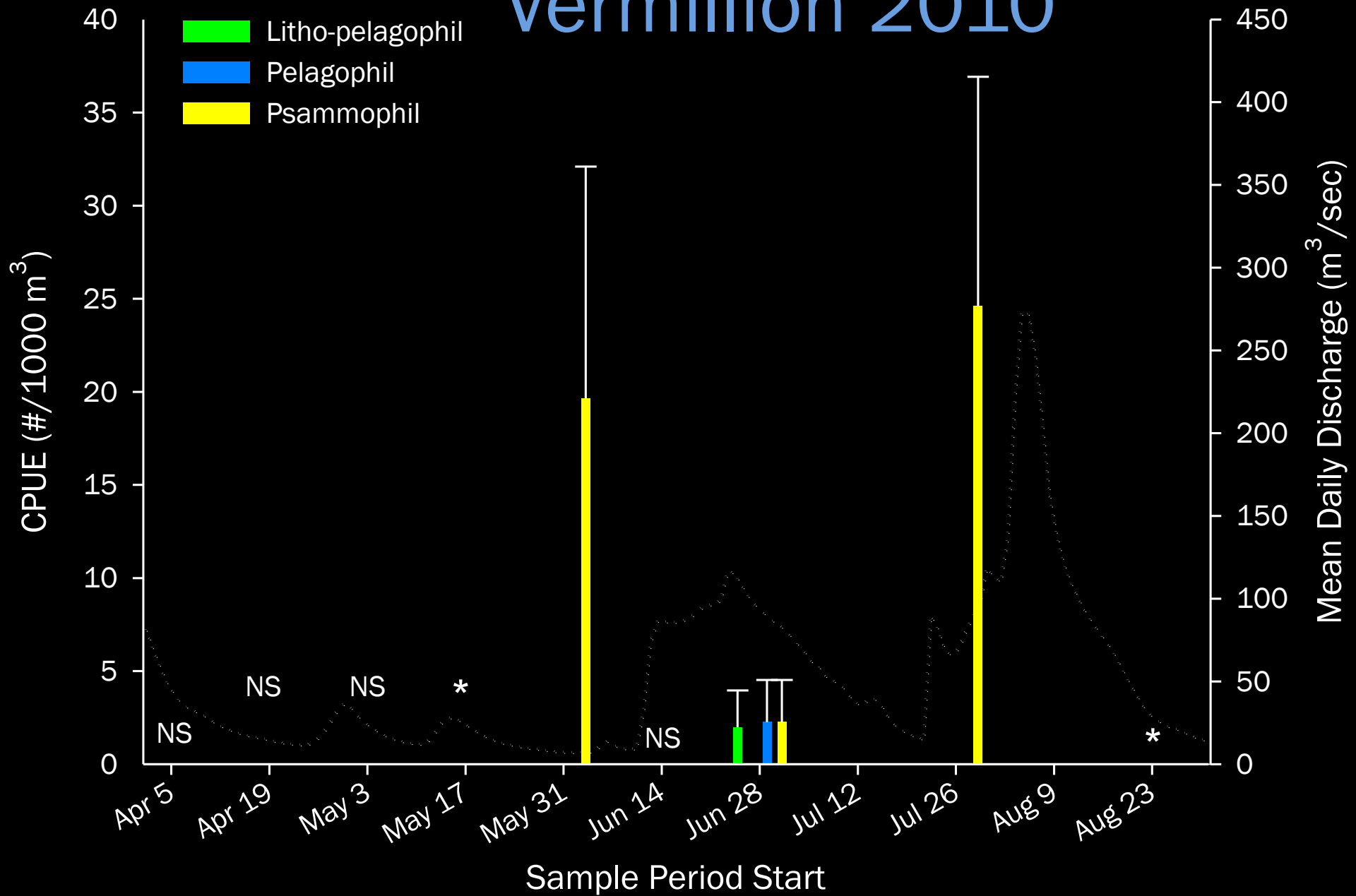




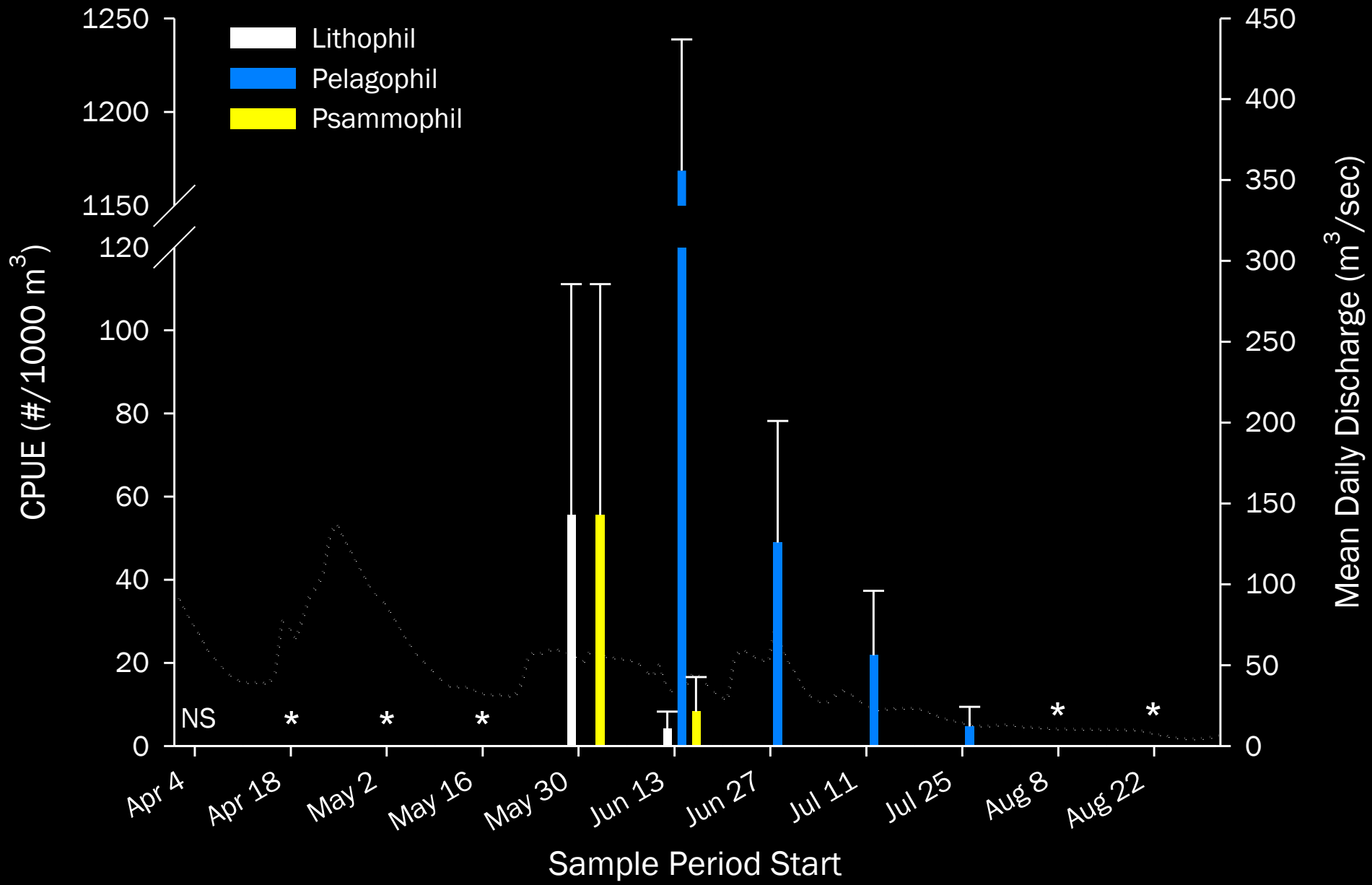
# Big Sioux 2010



# Vermillion 2010



# Vermillion 2011



# Summary

- Increased discharge, increased CPUE
  - 72 to 110 fish 1000m<sup>-3</sup>
- Freshwater drum catches (<1 to 24)
- Gained three, lost three
- No bighead or silver carp larvae
  - Cannot verify reproduction
  - Two YOY collected in trib to James
  - Front of invasion

- Previous slide is end of presentation:  
following slides are to answer questions if  
necessary only.

# 2010 CPUE (#/1000m<sup>3</sup>)

## **Lithophils – 6**

*Ictiobus* spp. – 5  
*Moxostoma macrolepidotum* – <1  
*Catostomus commersoni* – <1  
Sander spp. – <1

## **Litho-pelagophils – 30**

*Hiodon* spp. – 29  
*Dorosoma cepedianum* – 1

## **Pelagophils – <1**

*Aplodinotus grunniens* – <1  
*Notropis atherinoides* – <1  
*Hypophthalmichthys* spp. – 0

## **Nest Guardians – 20**

*Lepomis* spp. – 14  
*Pomoxis* spp. – <1  
Sander spp. – 15

## **Psammophils – 1**

*Etheostoma nigrum* – 1  
*Perca flavescens* – <1

## **Generalists – 13**

**Psammophils – 8**  
**Phytophils – 1**  
**Phyto-lithophils – 1**  
**UNID – 3**

# 2011 CPUE (#/1000m<sup>3</sup>)

## **Lithophils – 49 (+43)**

*Ictiobus* spp. – 38 (+33)  
*Moxostoma macrolepidotum* – 1  
*Catostomus commersoni* – <1  
Sander spp. – 3 (+2)

## **Pelagophils – 24 (+23)**

*Aplodinotus grunniens* – 24 (+23)  
*Notropis atherinoides* – 0  
*Hypophthalmichthys* spp. – 0

## **Psammophils – 5 (+4)**

*Etheostoma nigrum* – 1  
*Perca flavescens* – <1

## **Litho-pelagophils – 2 (-28)**

*Hiodon* spp. – <1 (-28)  
*Dorosoma cepedianum* – 2 (+1)

## **Nest Guardians – 6 (-8)**

*Lepomis* spp. – 4 (-10)  
*Pomoxis* spp. – 2 (+1)  
*Culaea inconstans* – <1 (+1)

## **Generalists – 23 (+10)**

*Psammophils* – 5 (-3)  
*Phytophils* – 0 (-1)  
Phyto-lithophils – 2 (+1)  
UNID – 1 (-2)