Distribution of larval Razorback Sucker *Xyrauchen texanus* and associated larval fish community in the Colorado River, Grand Canyon, AZ

Razorback Sucker *Xyrauchen texanus*

Humpback Chub *Gila cypha*

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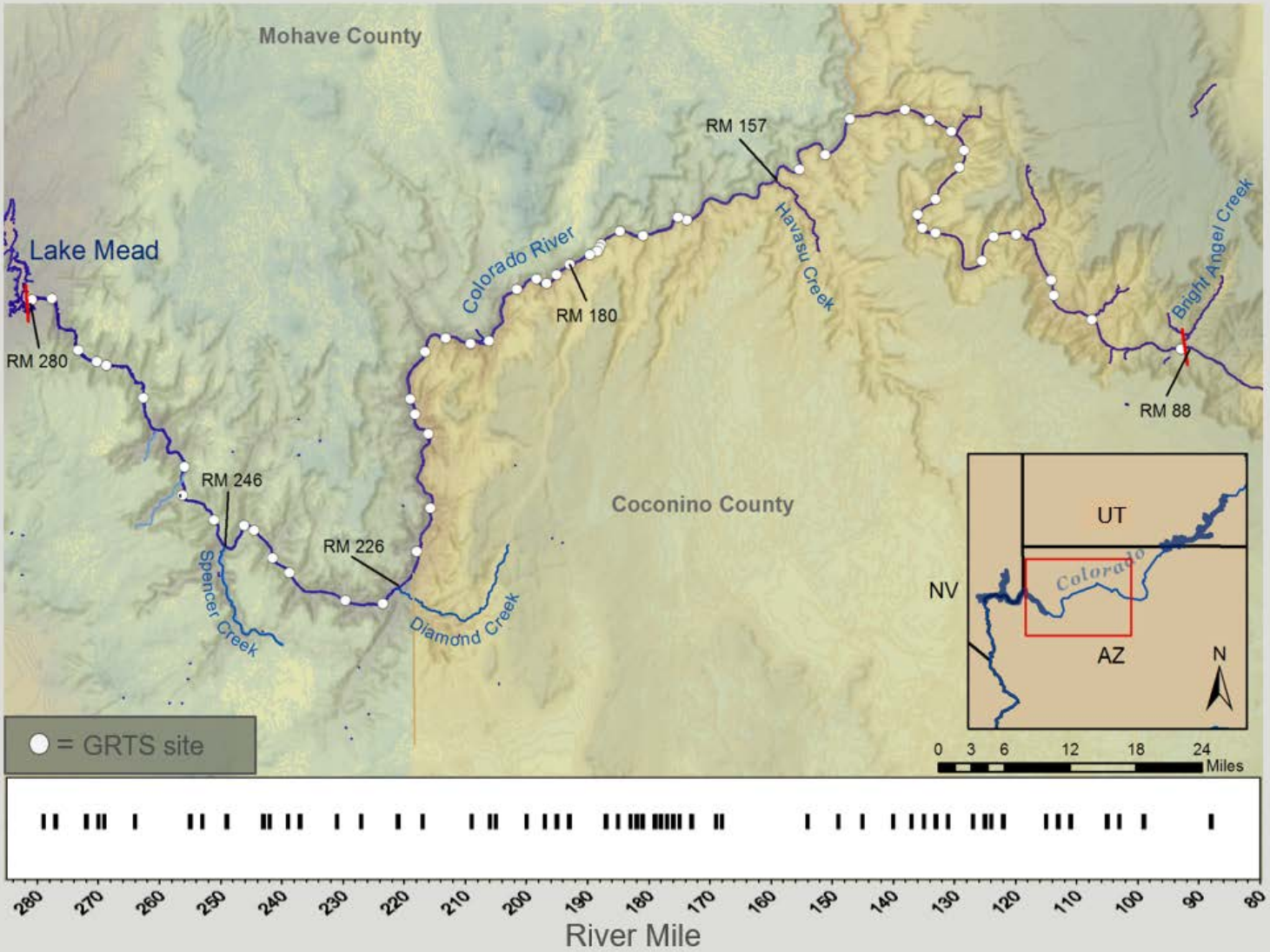
[2] BIO-WEST, Inc.;
[3] U.S. Bureau of Reclamation, Upper Colorado Region;
[4] U.S. National Park Service;
[5] Lower Colorado Multi-Species Conservation Program

Colorado River Aquatic Biologists: 10–11 January 2018

GRTS locations

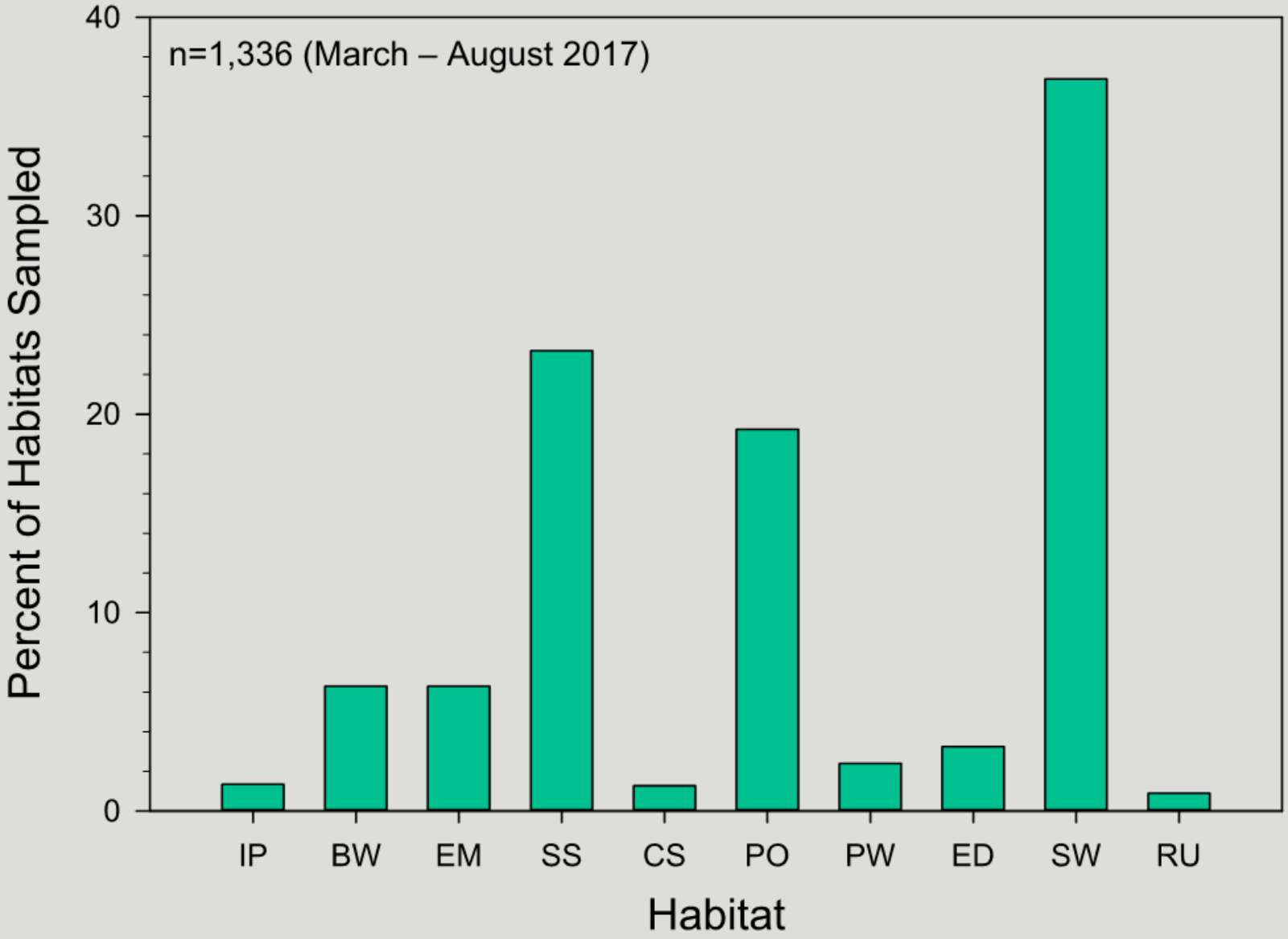


Larval Fish Sampling

- Monthly samples: Mar-Aug
- 191 river mile study area
- 56 random sites
- Age-0=spawned after Jan 1

- Small seine (1 m x 1 m x 0.8 mm mesh)
- Low-velocity shallow habitats
- Four hauls/site
- Specimens <20 mm retained

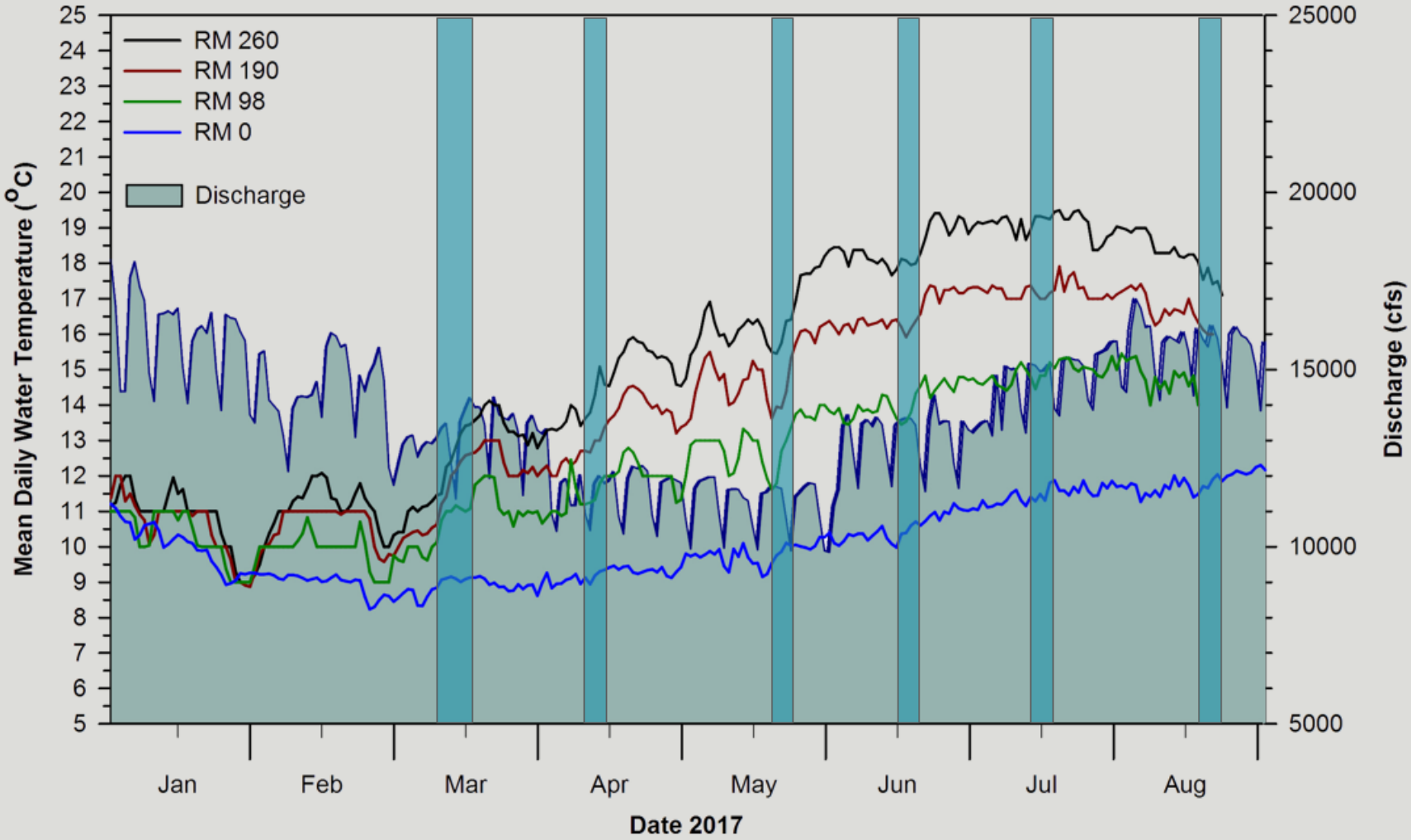
2017 Habitats Sampled



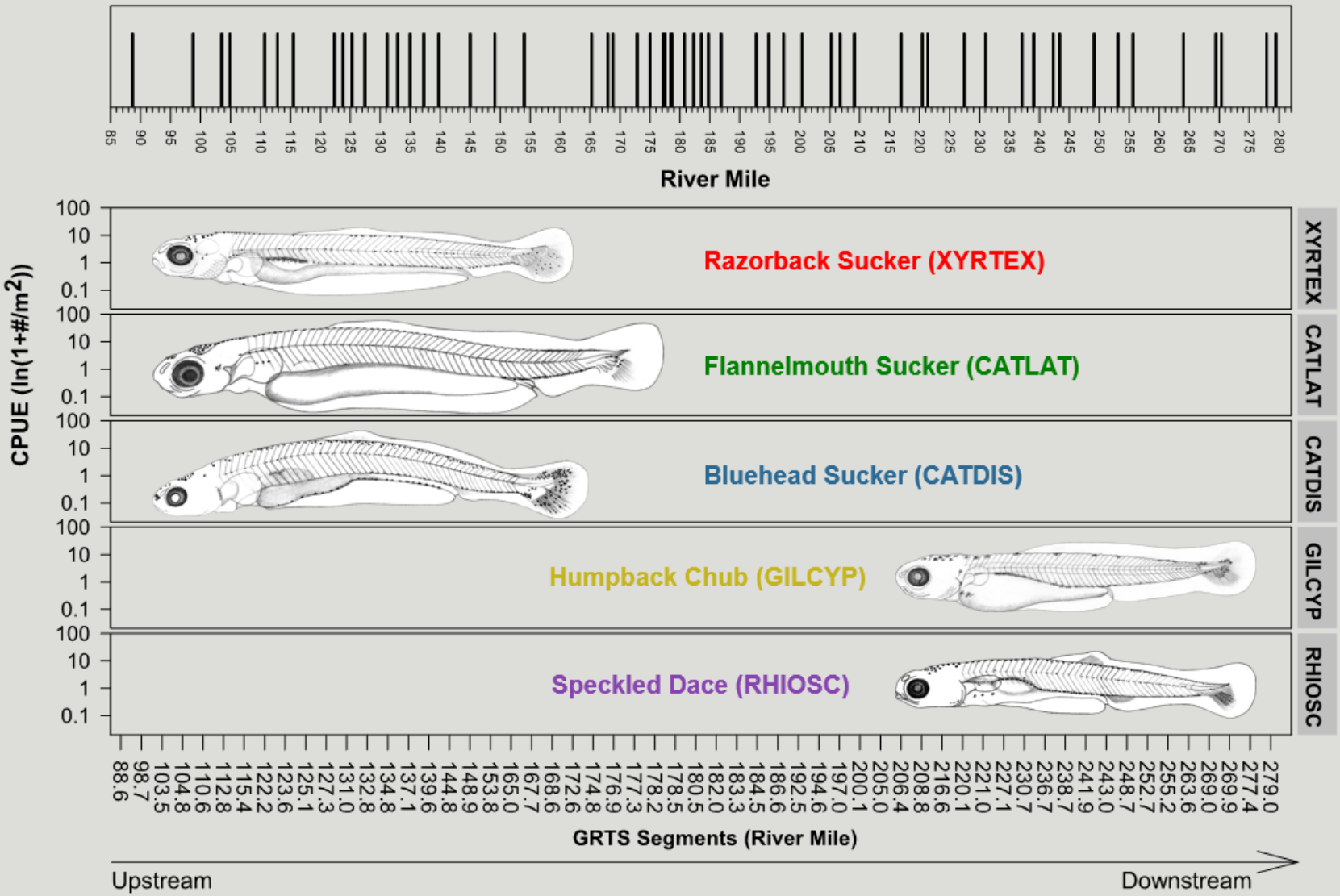
Larval Fish Survey Summary (2014–2017)

Year	Study area/study period	Native	Non-native	Razorback Sucker	Humpback Chub
2014	100 river miles/ Apr-Sep	98%	2%	n=459	n=200
2015	100 river miles/ Mar-Sep	99%	1%	n=81	n=67
2016	191 river miles/ Mar-Aug	99%	1%	n=46	n=41
2017	191 river miles/ Mar-Aug	99%	1%	n=27	n=129

2017 Survey Summary



Age-0 Monthly Captures



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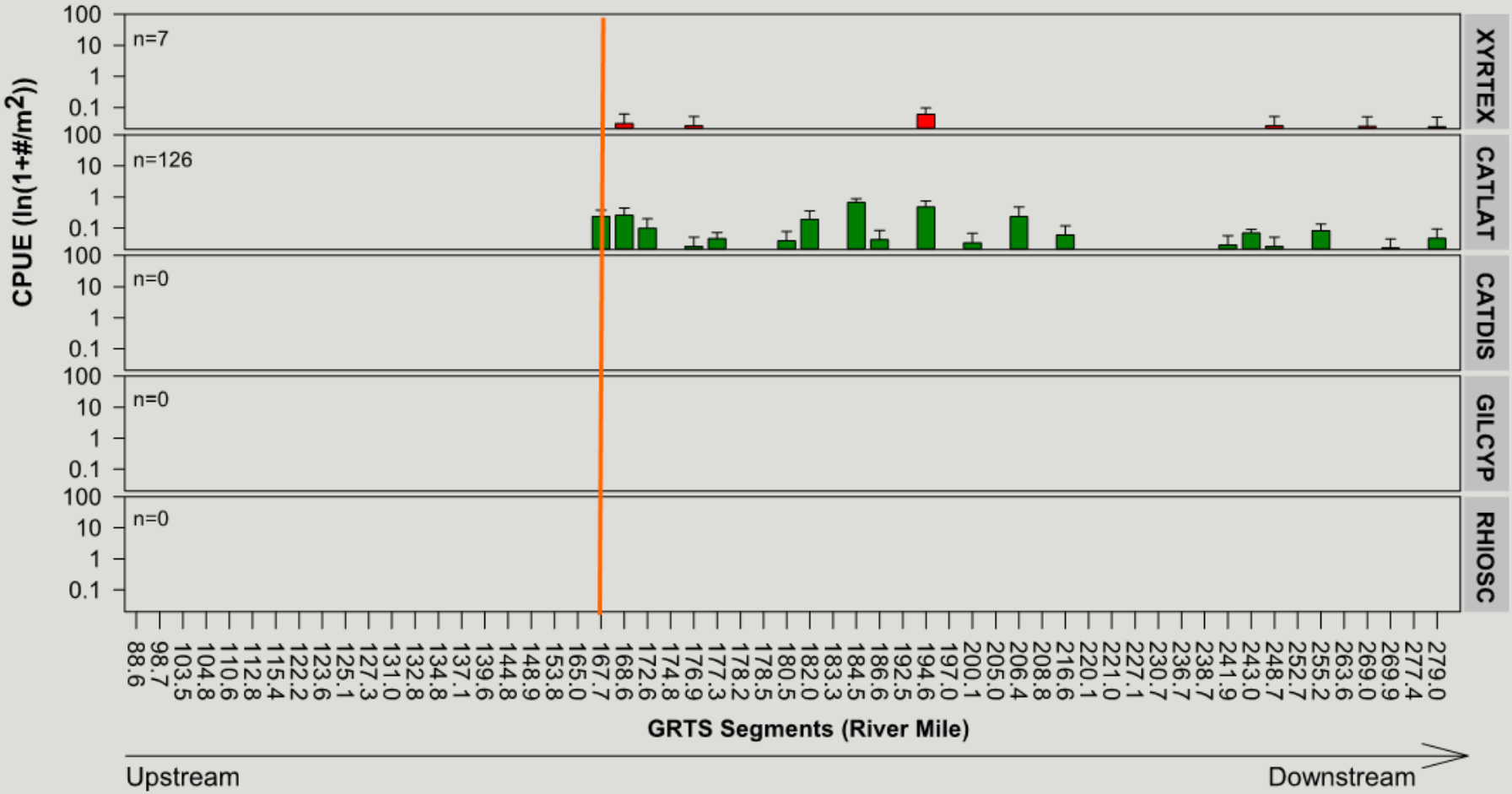
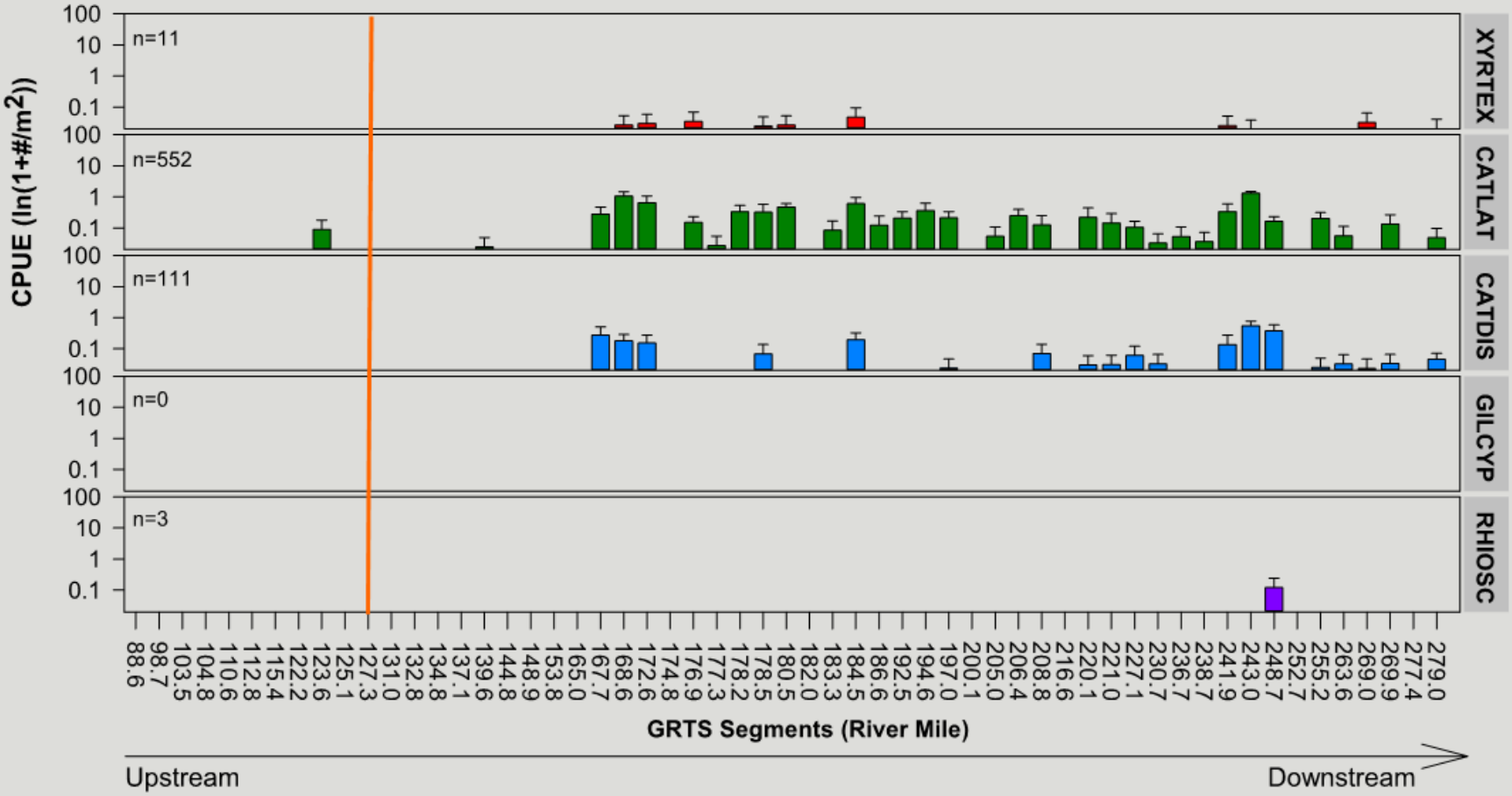
2017 Age-0 Fish Captures – March



9–17 March 2017
GRTS segments: 54
Effort: 1,993.4 m^2

2017 Age-0 Fish Captures – April



8–13 April 2017
GRTS segments: 56
Effort: 2,011.6 m^2

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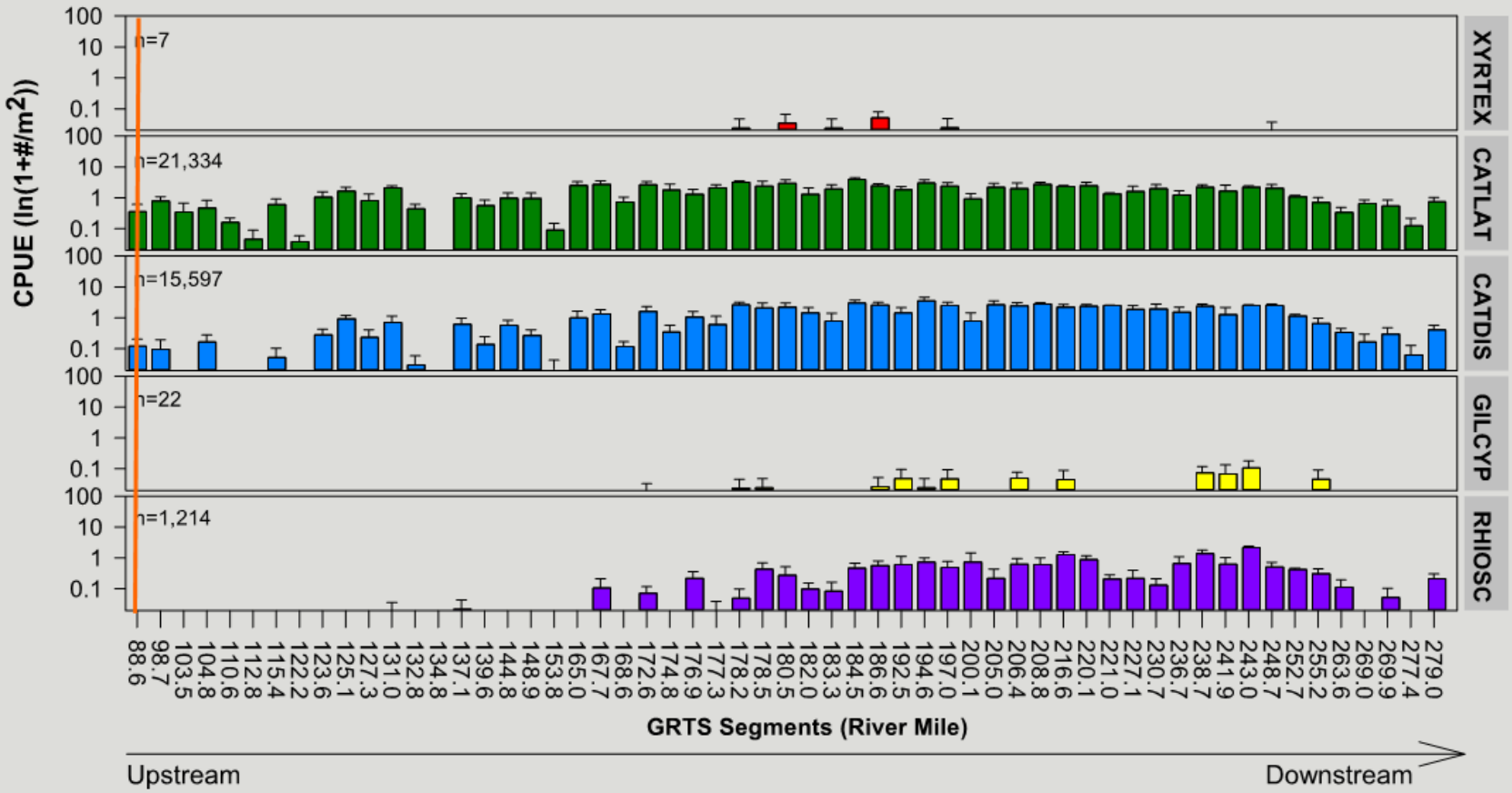
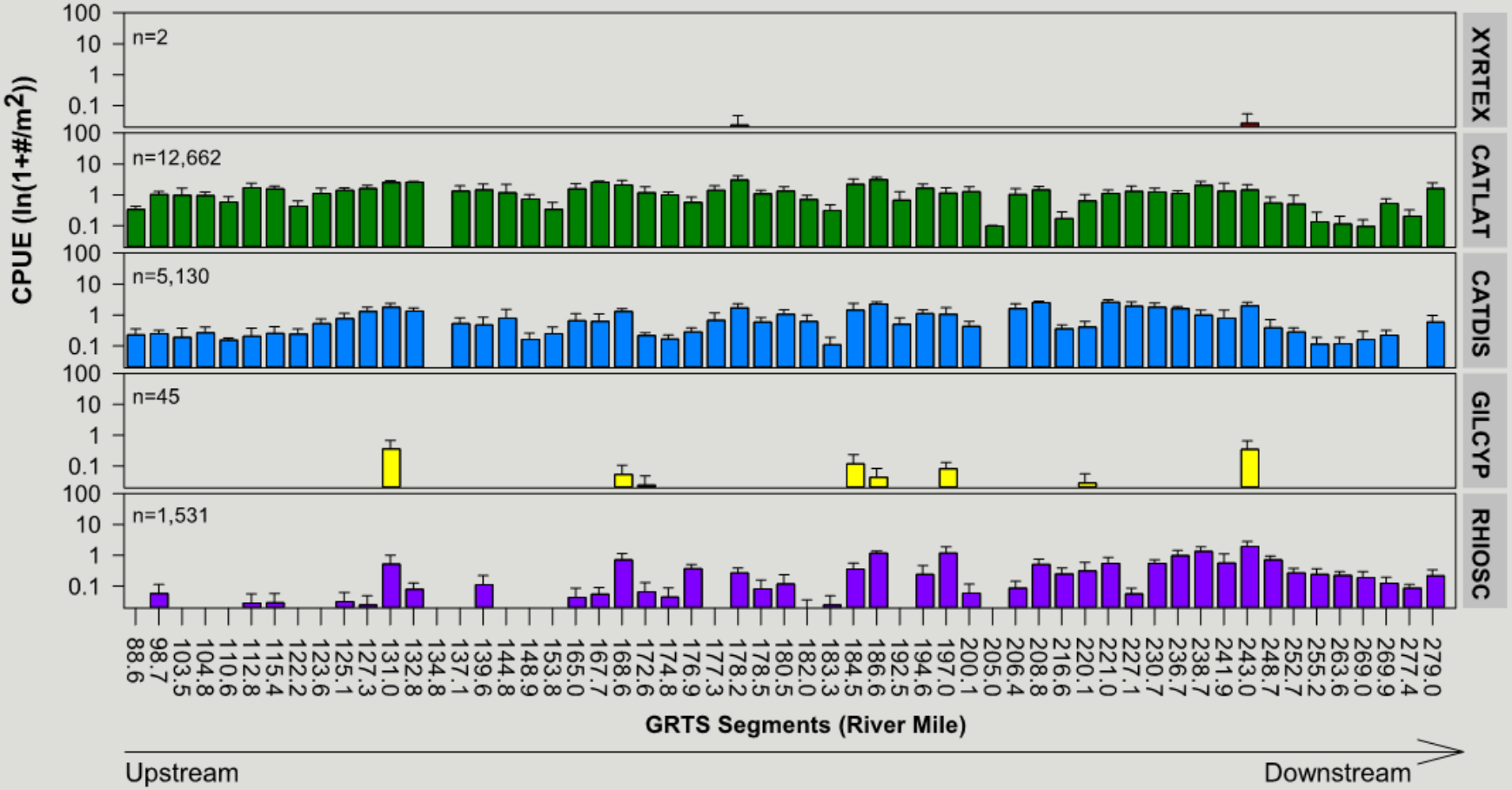
2017 Age-0 Fish Captures – May



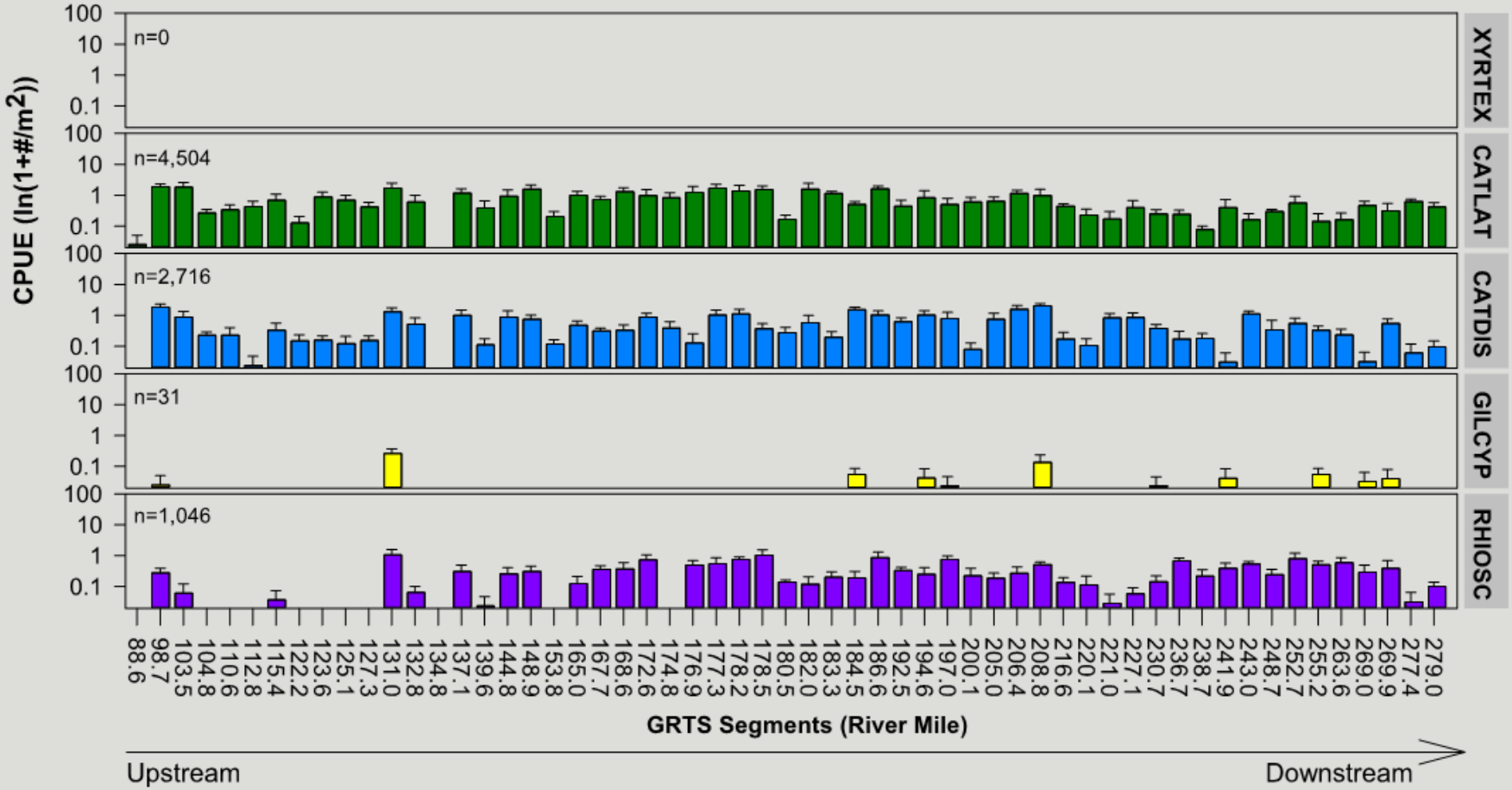
19–24 May 2017
GRTS segments: 56
Effort: 2,017.7 m^2

2017 Age-0 Fish Captures – June



14–19 Jun 2017
GRTS segments: 56
Effort: 1,976.5 m^2

2017 Age-0 Fish Captures – July



11–17 Jul 2017
GRTS segments: 56
Effort: 1,978.3 m^2

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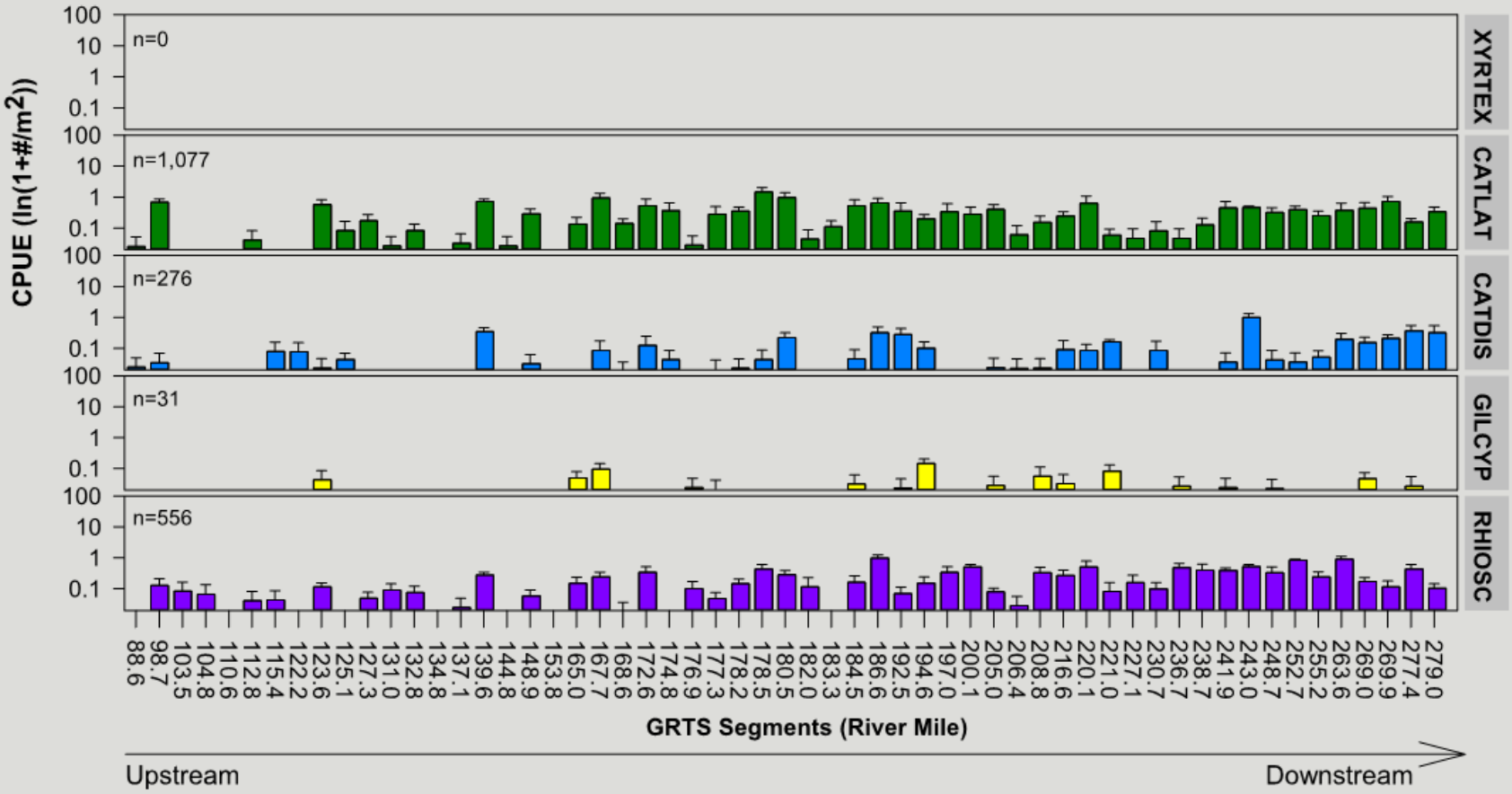
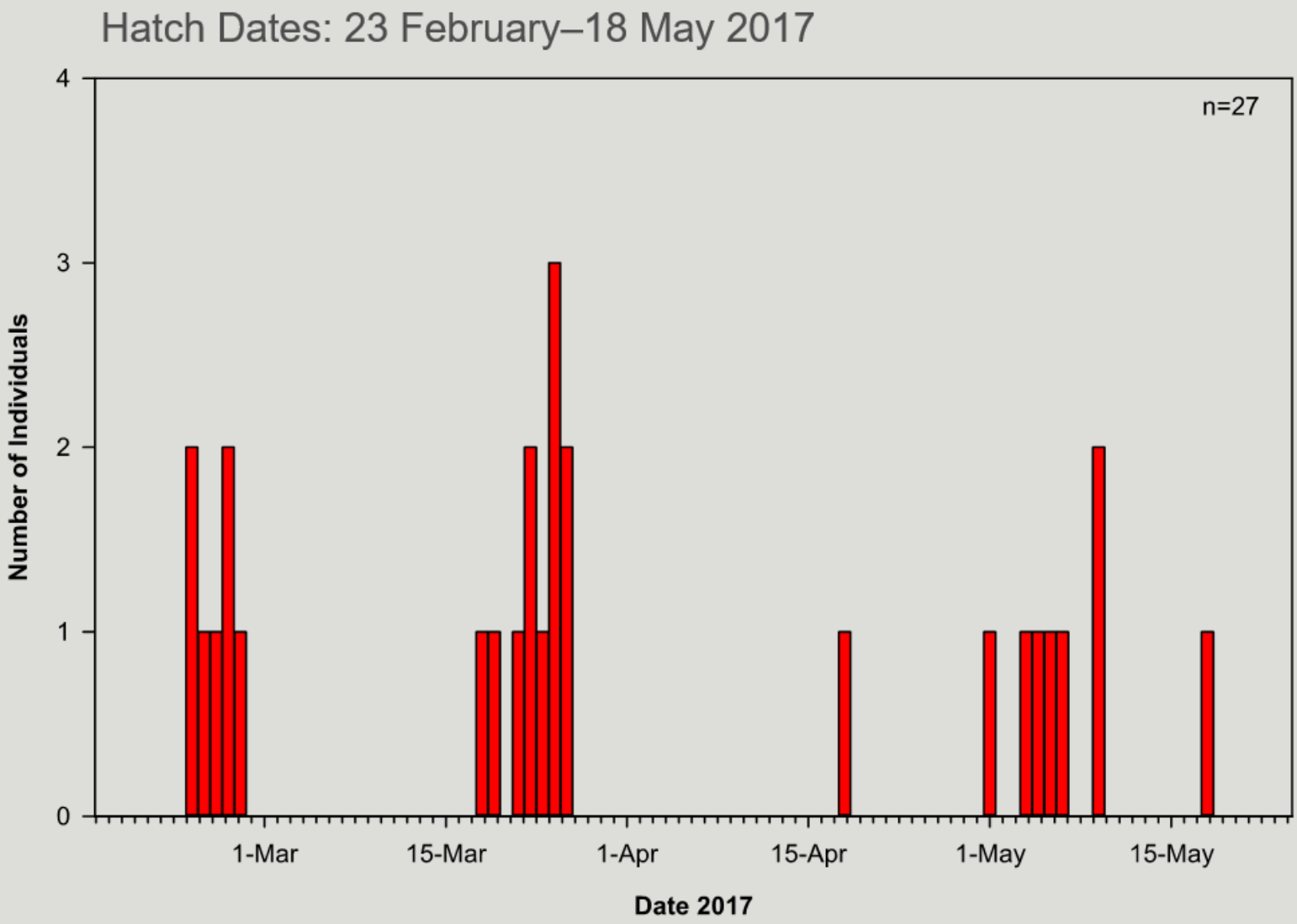
2017 Age-0 Fish Captures – August

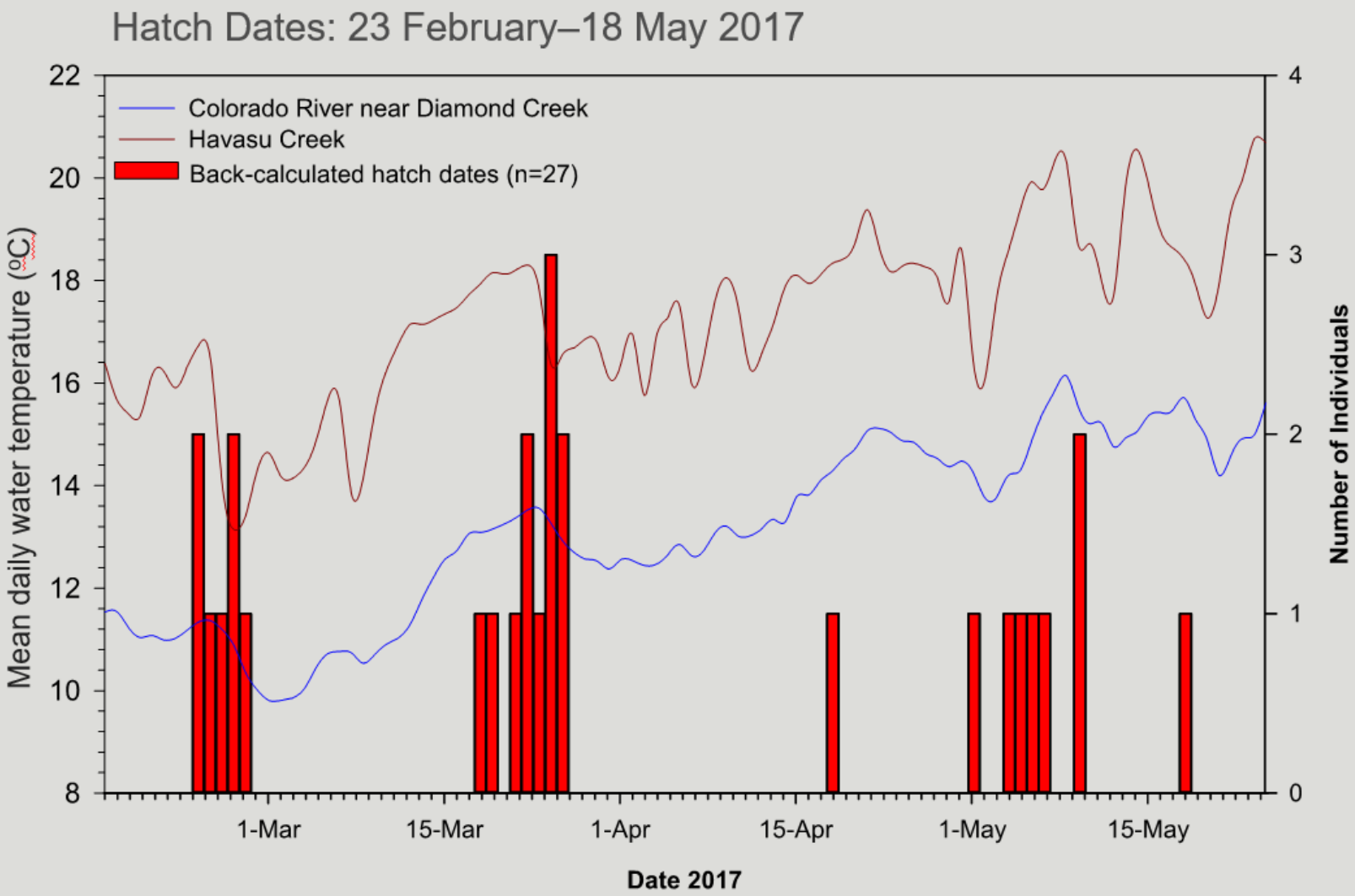


16–23 Aug 2017
GRTS segments: 56
Effort: 1,990.6 m^2

Back-calculated Hatching Dates

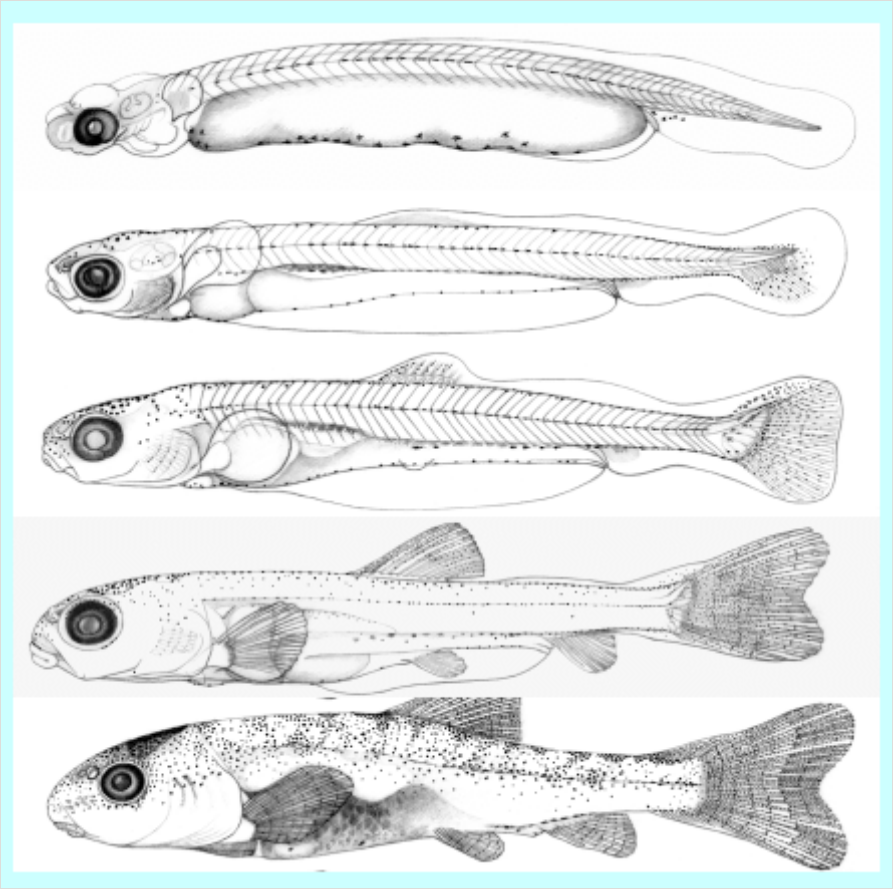


Back-calculated Hatching Dates



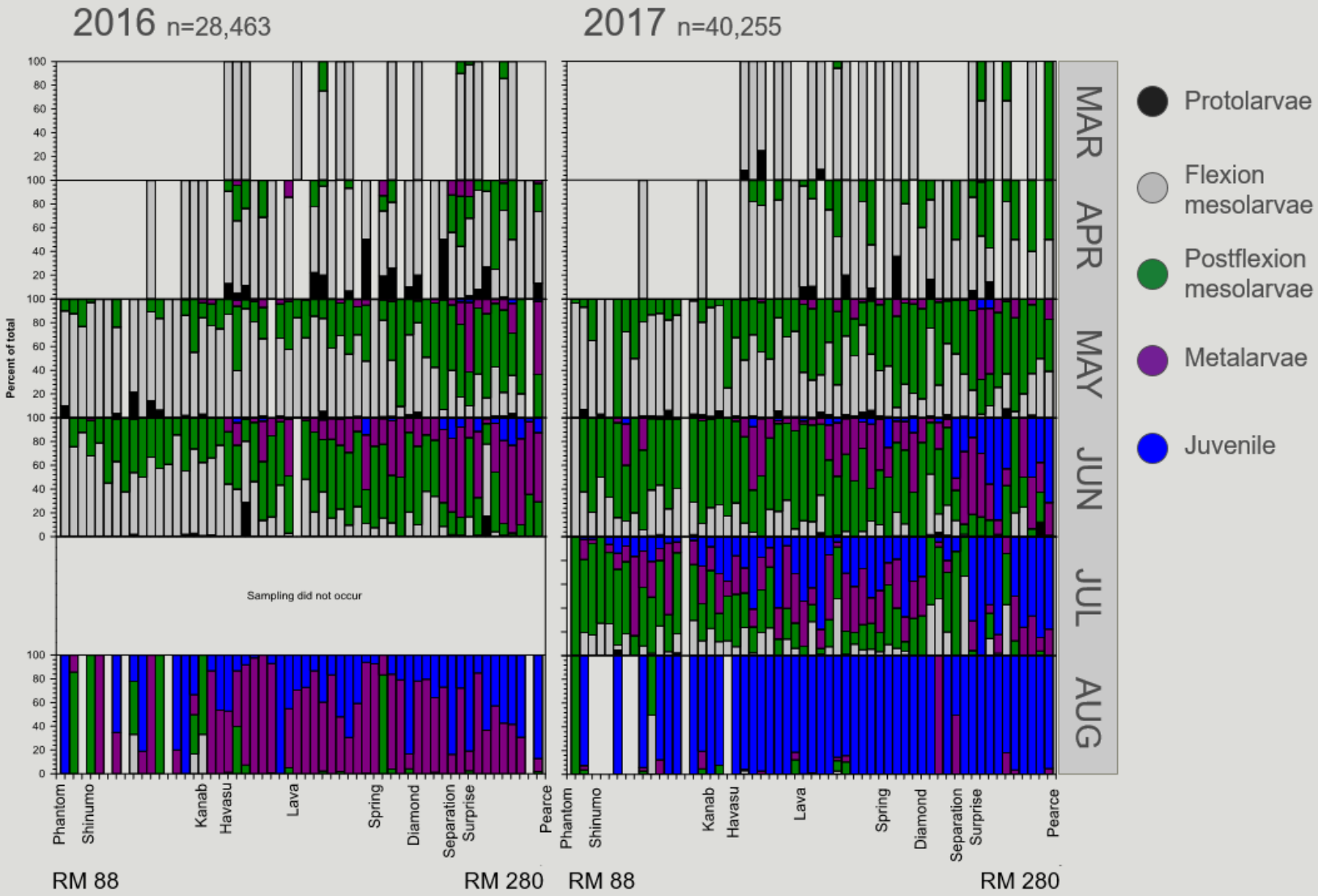
Larval Fish Ontogenetic Phases

PHASE	SUB-PHASE
Protolarvae	
Mesolarvae	Flexion
	Postflexion
Metalarvae	
Early juvenile	

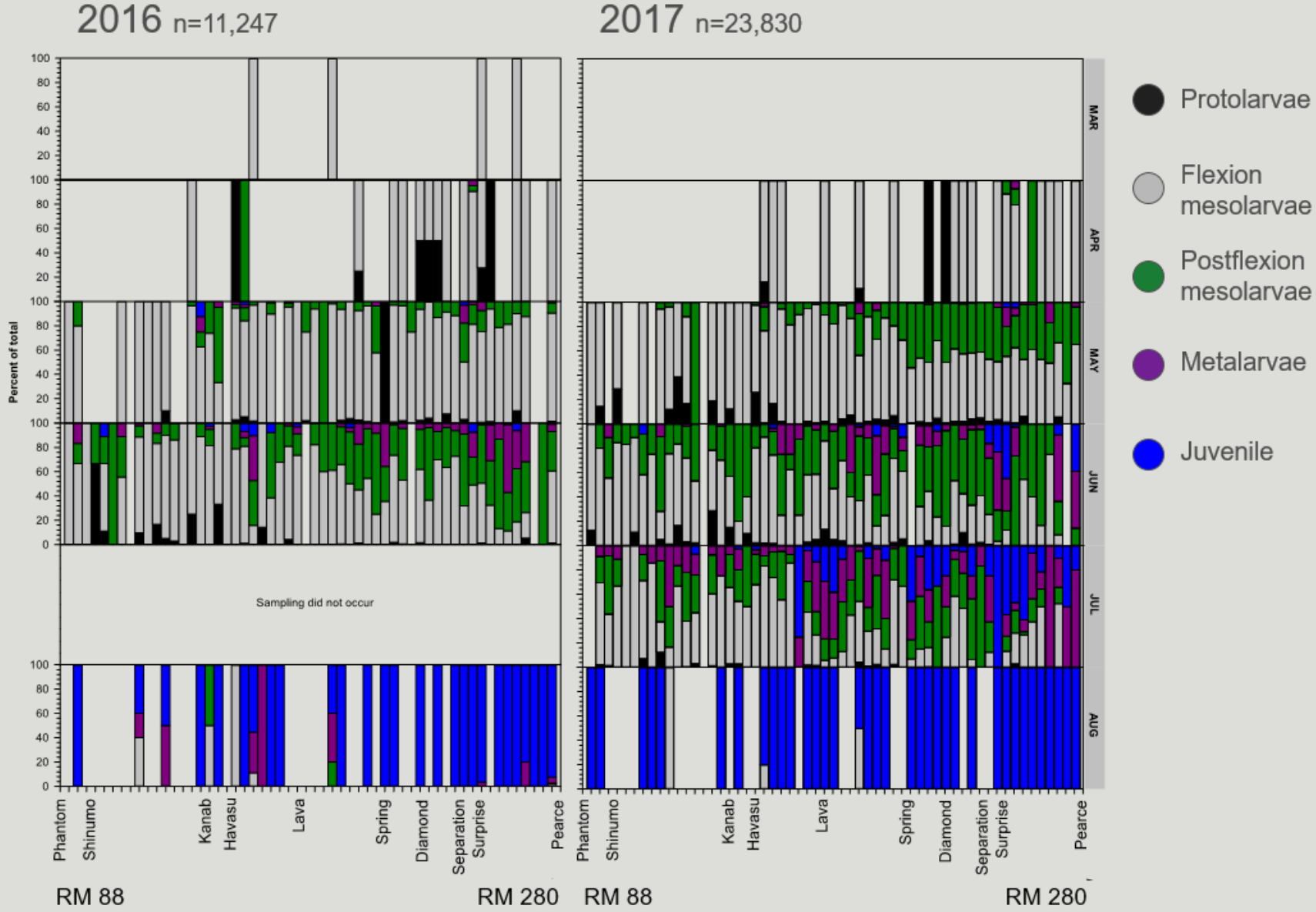


C.L.Bjork

Flannelmouth Sucker Phase Distribution



Bluehead Sucker Phase Distribution



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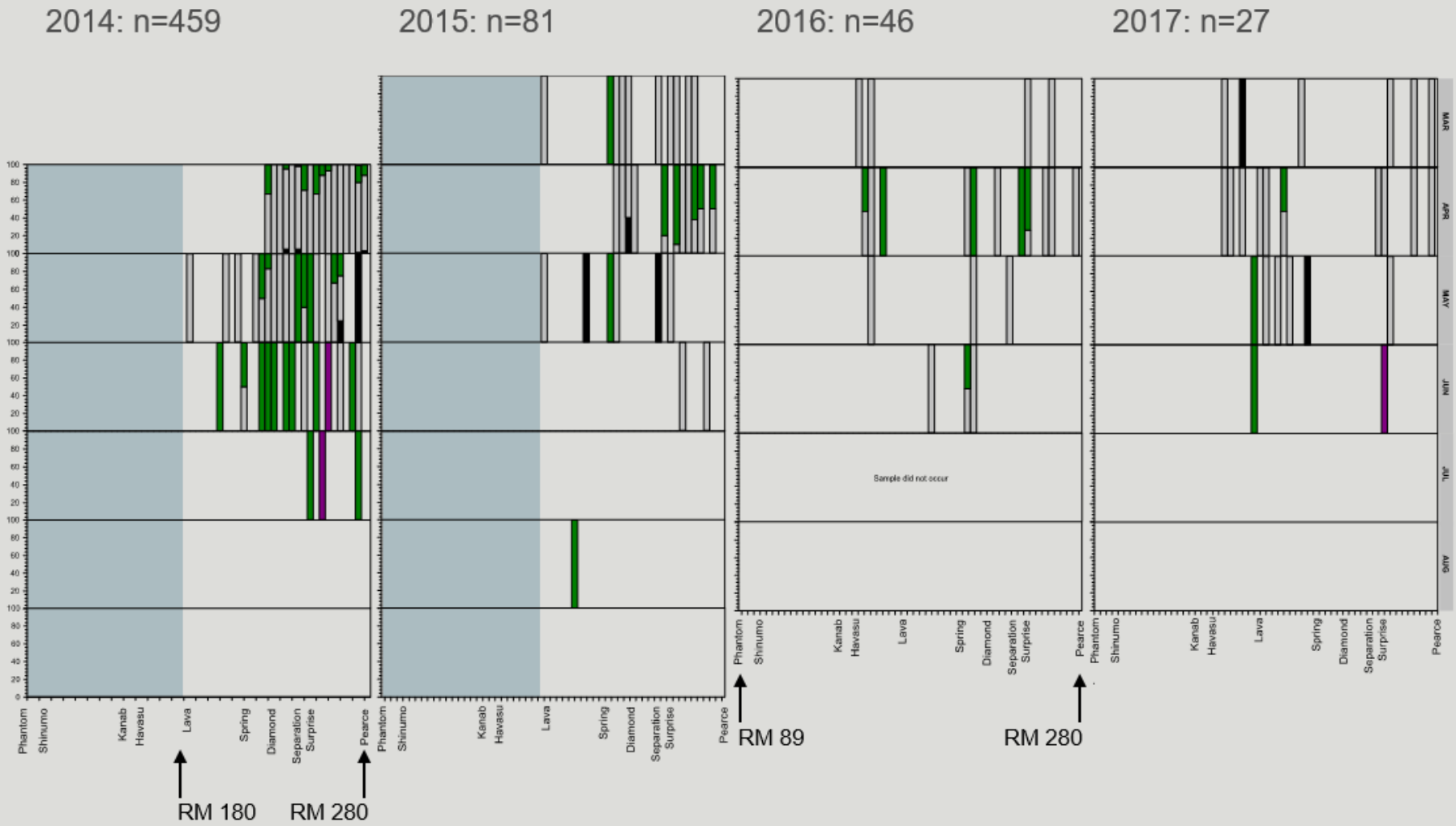
Razorback Sucker Phase Distribution



Protolarvae
Flexion mesolarvae
Postflexion mesolarvae
Metalarvae
Juvenile

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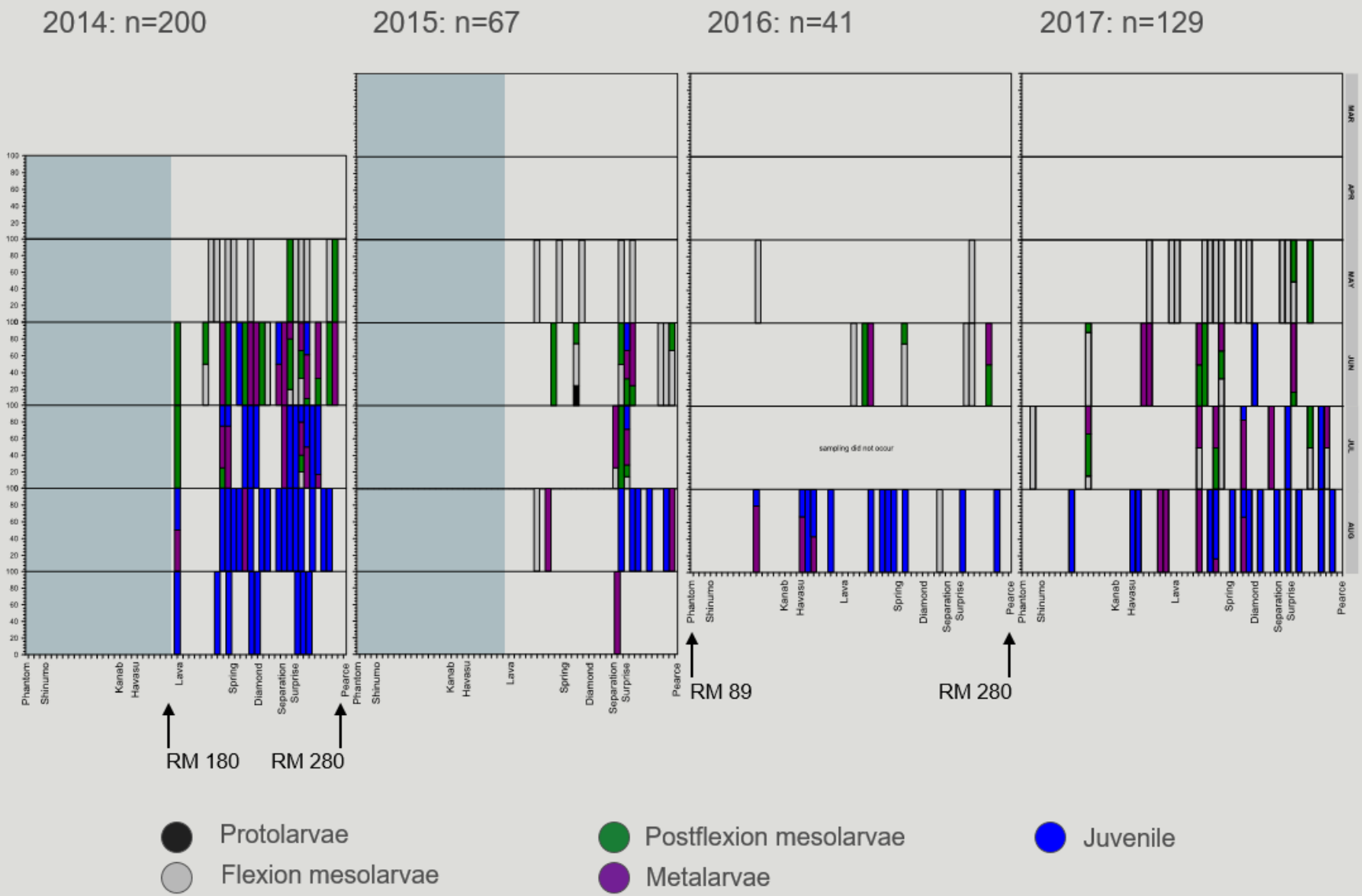
Humpback Chub Phase Distribution



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Razorback Sucker Conclusions

- Present in all sampling years (2014–2017).
- 2016 and 2017 had the same distribution of larvae (RM 168.8–279.0).
- 2017 back-calculated hatch dates encompass a 12 week period (23 Feb–18 May).
- All ontogenetic larval phases documented in 2017, however 88.9% were mesolarvae.
- Juveniles were not captured.

Acknowledgments

BIO-WEST

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

NATIONAL PARK SERVICE

Lower Colorado River Multi-Species Conservation Program

ARIZONA GAME & FISH

NEVADA DEPARTMENT OF WILDLIFE

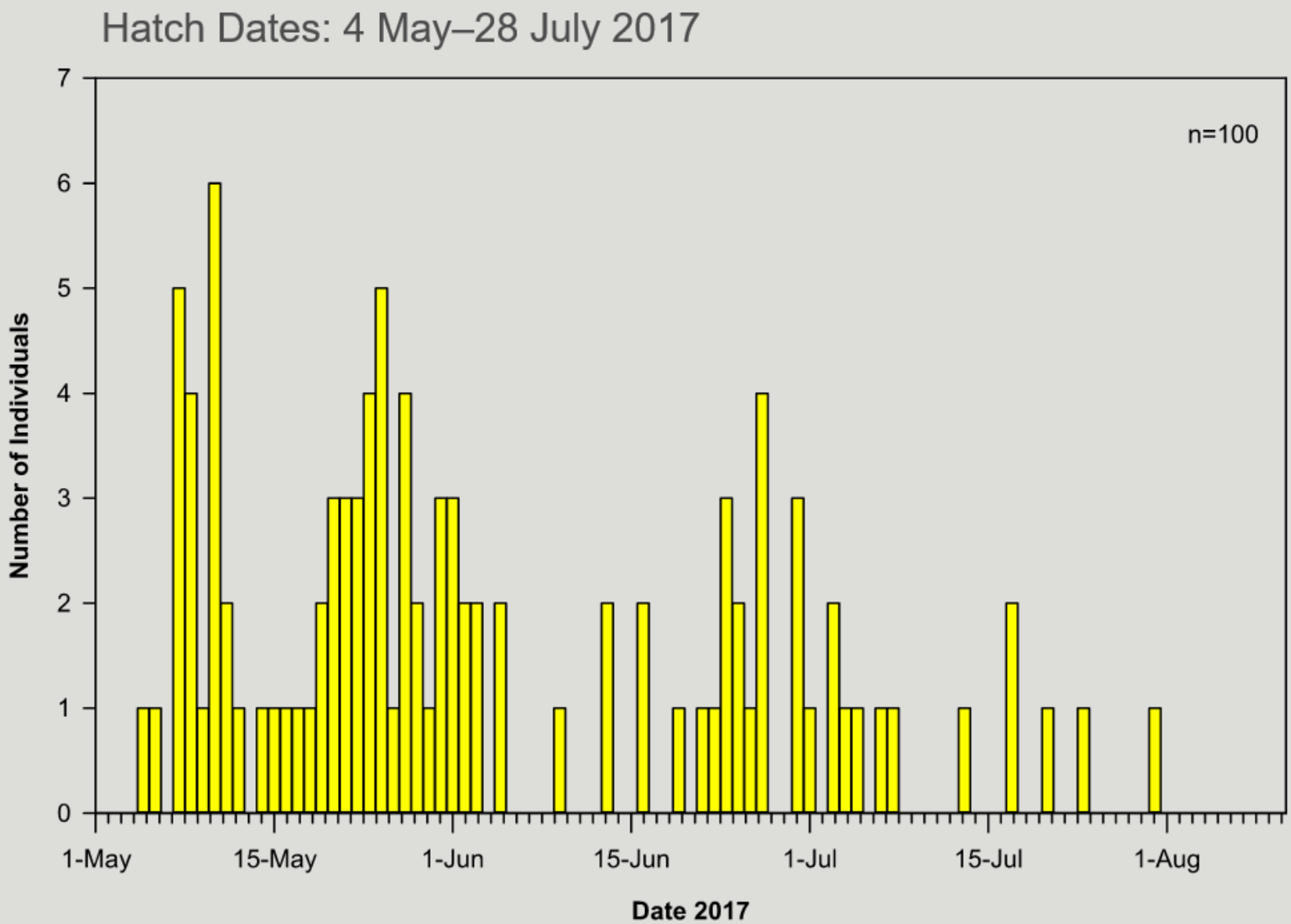
Museum of Southwestern Biology

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

Project history and Study alterations

Year	Study Area	Study Period	GRTS Sample Localities
2014	Lava Falls–Pearce Ferry RM 179–280	April–September	n=40
2015	Lava Falls–Pearce Ferry RM 179–280	March–September	n=40
2016	Phantom Ranch–Pearce Ferry RM 88–280	March–August	n=56
2017	Phantom Ranch–Pearce Ferry RM 88–280	March–August	n=56

Back-calculated Hatching Dates



Humpback Chub Conclusions

- Present in all sampling years (2014–2017).
- First larval captures occur during May.
- Back-calculated hatch dates range from 4 May–28 July 2017.
- Broad distribution throughout the study area.
- Larval and juvenile specimens documented regularly.