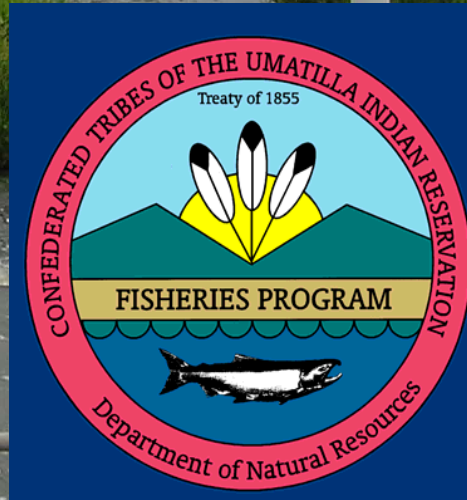


# Identification of impediments to adult Pacific lamprey migration in the Umatilla River.



National Oceanic  
and Atmospheric  
Administration

National Marine  
Fisheries Service

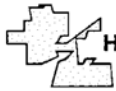


# Columbia River

Washington  
Oregon

McNary Dam

Umatilla

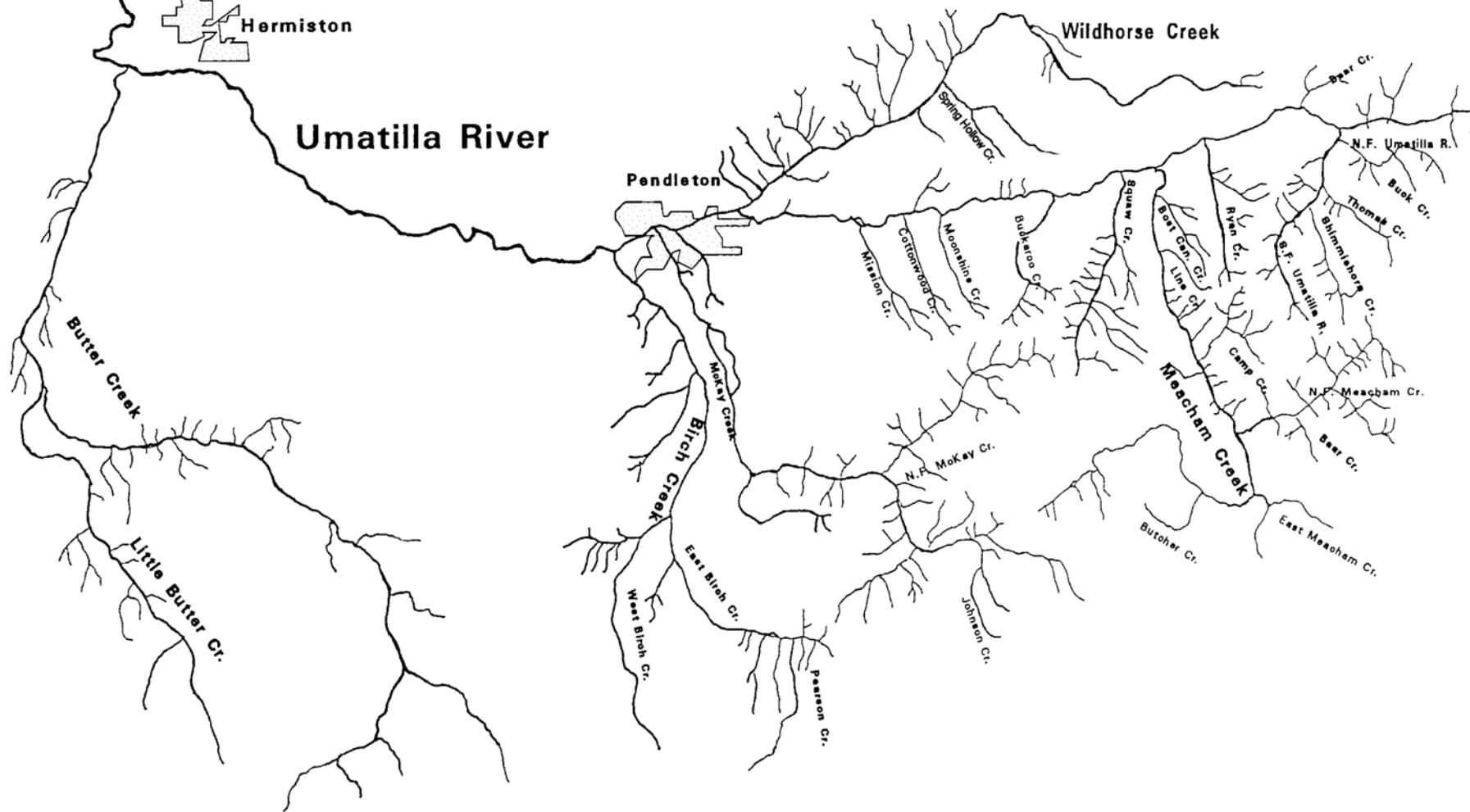


Hermiston

# Umatilla River

Pendleton

Wildhorse Creek

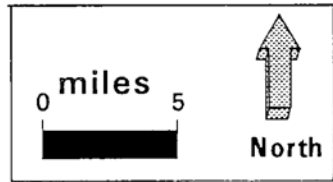




Columbia River

Washington  
Oregon

McNary Dam



Umatilla

Study Area

Hermiston

Umatilla River

Pendleton

Wildhorse Creek

Bear Cr.

N.F. Umatilla R.

Book Cr.

Thomas Cr.

T. Blinnelborg Cr.

B.F. Umatilla R.

Camp Cr.

N.F. Meacham Cr.

Bear Cr.

Butcher Cr.

East Meacham Cr.

Meacham Creek

Butcher Cr.

East Meacham Cr.

Butcher Cr.

East Meacham Cr.

Butcher Cr.

East Meacham Cr.

Spring Hollow Cr.

Mooshine Cr.

Buckaroo Cr.

Mooshine Cr.

Mooshine Cr.

Mooshine Cr.

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Mooshine Cr.

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Mooshine Cr.

Milton Cr.

Cottontail Cr.

Mooshine Cr.

Mooshine Cr.

Mooshine Cr.

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Mooshine Cr.

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Mooshine Cr.

Mooshine Cr.

Mooshine Cr.

Mooshine Cr.

Butter Creek

Little Butter Cr.

Birch Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

Mokey Creek

East Birch Cr.

West Birch Cr.

Pearson Cr.

Johnson Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

N.F. Mokey Cr.

Butter Cr.

Butter Cr.

Butter Cr.

Butter Cr.

Butter Cr.

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Butter Cr.

Butter Cr.

Butter Cr.

Butter Cr.

## Objective

To identify impediments to adult lamprey passage success in the lower Umatilla River.















Releases	2005	2006
Spawning-phase (April)	30	40
New migrants (June)	51	36



# Columbia River

McNary Dam

Umatilla

Rkm 5.0  
Three Mile Falls Dam Rkm 6.0  
Rkm 8.0

 Dam  
 Release location

Boyd's Diversion Rkm 16.1

Hermiston

Rkm 22.0

Maxwell Diversion Rkm 24.5

Dillon Diversion Rkm 39.6

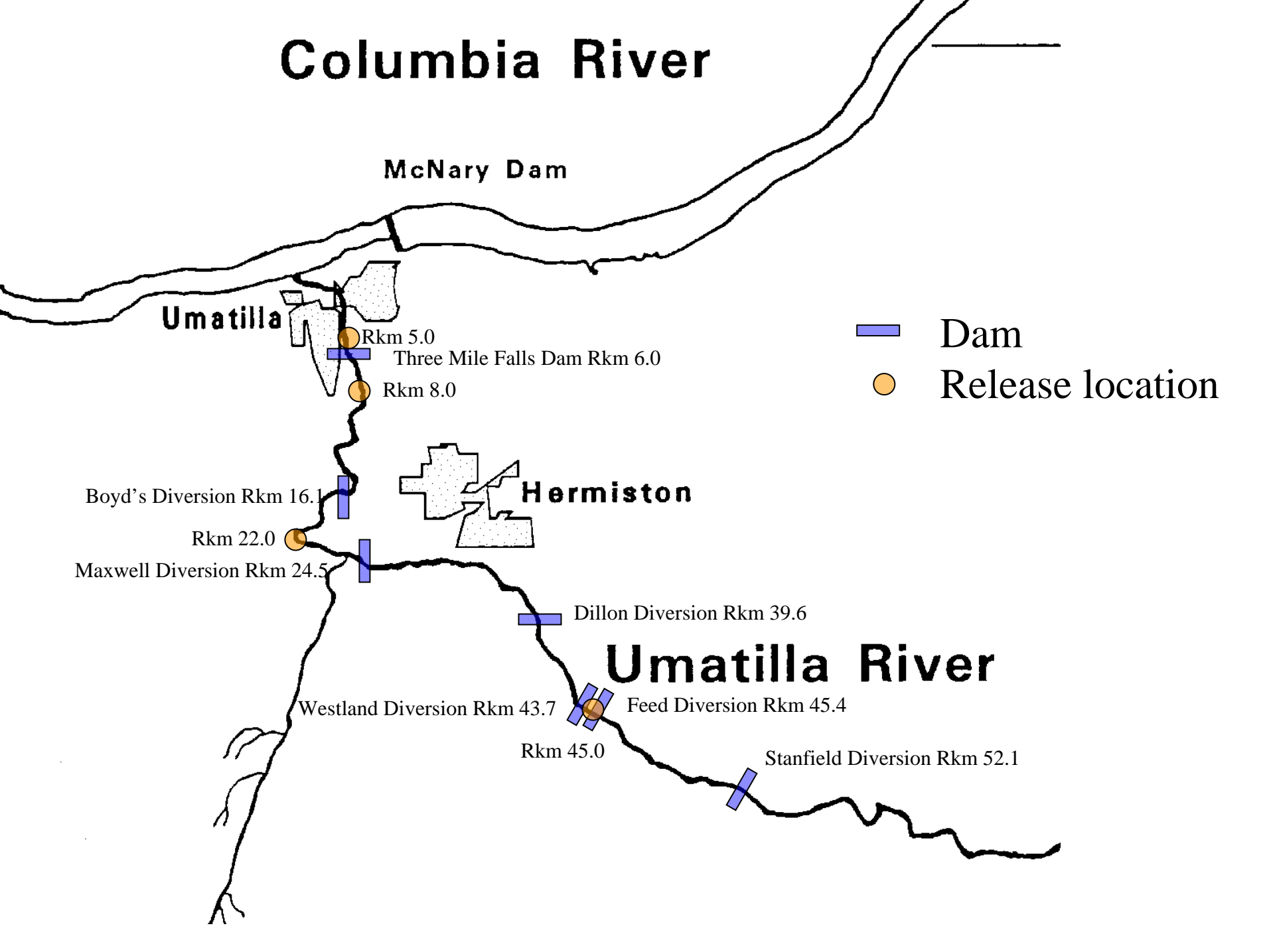
## Umatilla River

Westland Diversion Rkm 43.7

Feed Diversion Rkm 45.4

Rkm 45.0

Stanfield Diversion Rkm 52.1



# Fixed site receivers





Fixed Wing  
Overflights

3 Mile

Boyd's

Maxwell

Dillon

	3 Mile		Boyd's		Maxwell		Dillon	
<b>2005</b>	12	6	5	2	2			
<b>2006</b>	11	4	4					
<b>2005</b>	9	1	1	1	1	1	1	
<b>2006</b>	9	2	2	2	2	1	1	
<b>2005</b>			12	3	1	1	1	
<b>2006</b>			20	5	5	4	4	3
<b>2006</b>			9	4	4	4	4	
<b>2006</b>					7	7	7	

# Passage Efficiency



Three Mile

Boyd's

Maxwell

Dillon

44

24

50

60

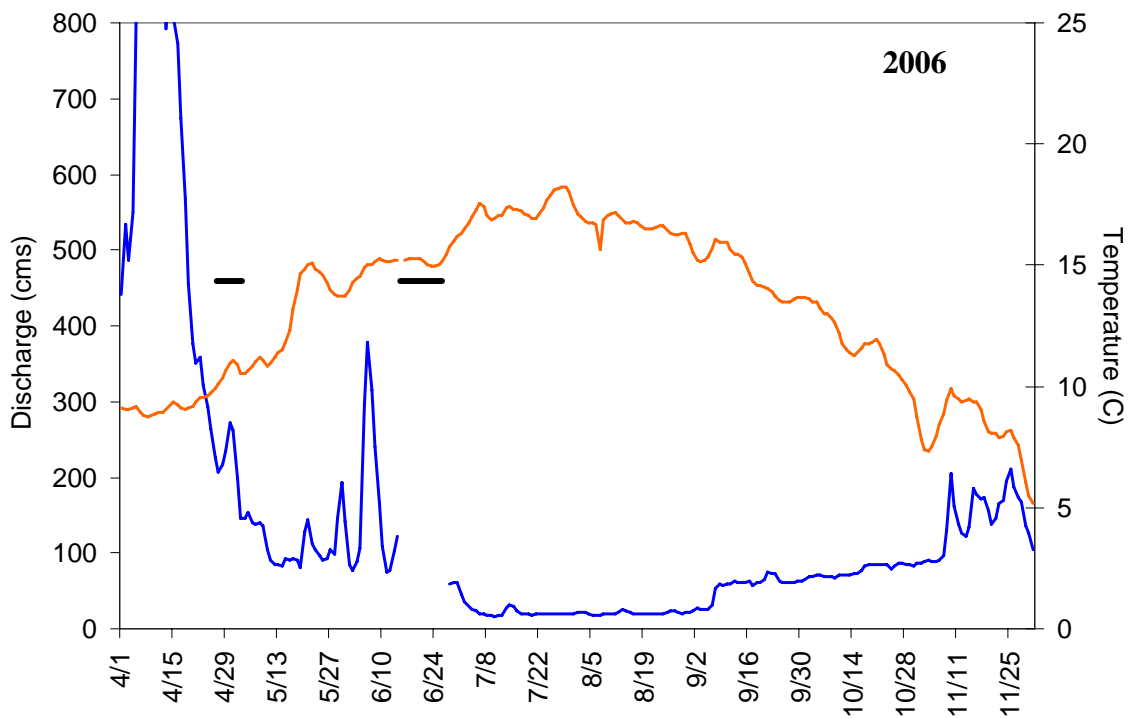
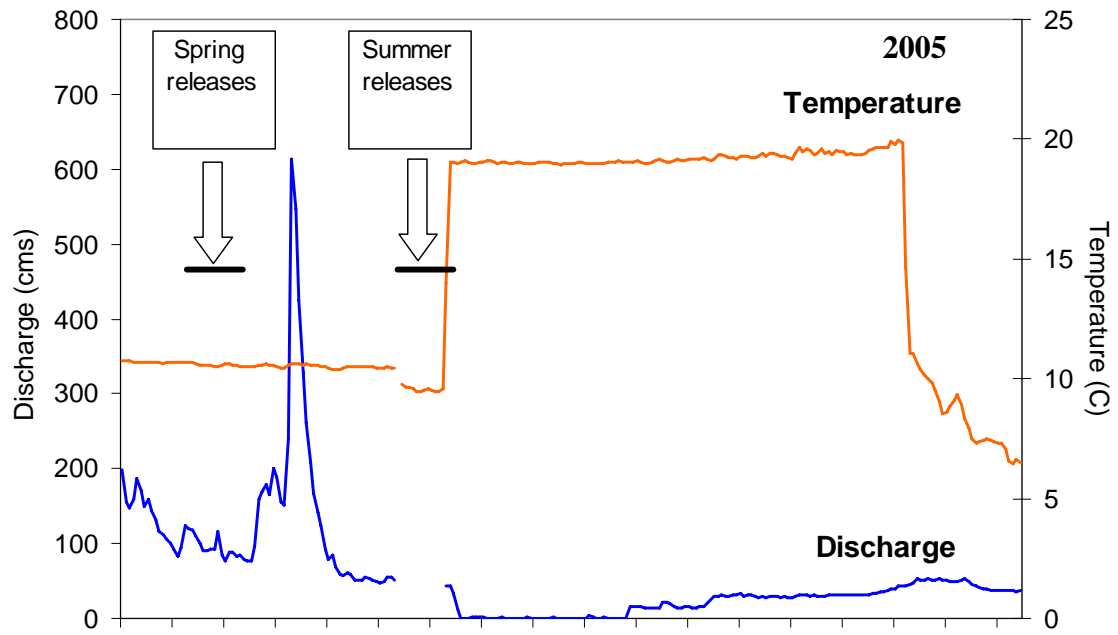
17

58

93

0









# Passage Efficiency



Westland

67

0



Feed

50

35



Stanfield

100\*

83\*

\* Six fish were last detected at Rkm 64-80.

# Conclusions

Low-elevation dams in the lower Umatilla River block adult lamprey passage.

Passage success varies with the amount of discharge during the migration period.

Restoration of Pacific lamprey in this drainage may require very minor modifications to irrigation diversions.

# Boyd's Diversion Dam Breached





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