

# Inland Avian Predation Management Plan Adaptive Management Work Group

## Blalock Islands Complex

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US Army Corps of Engineers  
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# IAPMP Meeting

## Adaptive Management Work Group

- IAPMP Update

- 2016 Activities
  - Crescent Island Planting
  - Columbia Plateau Implementation & Monitoring
  - Don Edwards NWR

- **Adaptive Management Plan**

- **Blalock Islands Complex**
- Discuss potential future AMP actions



# Blalock Islands Complex Location



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# Blalock Islands Complex

## ■ **Island Complex History**

- Corps Property (Portland District)
- Managed by USFWS
  - Wildlife conservation and management
  - Fish and Wildlife Coordination Act
  - 1969 Agreement

## ■ **Potential mgmt options for CATE habitat**

- Partial Inundation of nesting habitat
- On-the-ground dissuasion
- Authorities & options being investigated





# Blalock Islands Complex





# Blalock Islands Complex

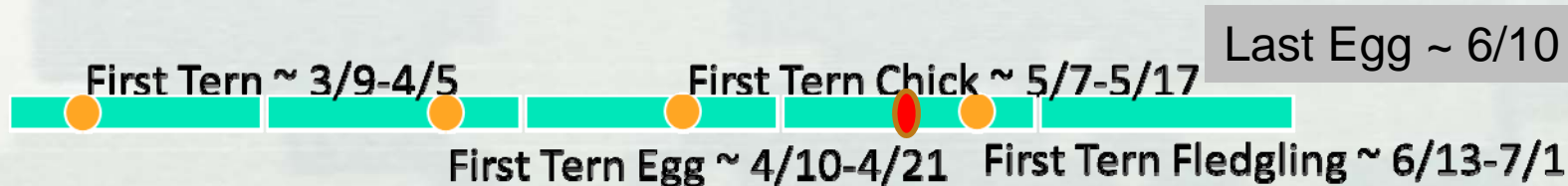


Anvil Island, 2010



# Discussion Points

- Current JDA Operations per Water Management Plan
- 6.15 John Day Dam, 6.15.1 Reservoir Operations
  - John Day pool will operate within a **1.5 foot range** of the minimum level that provides irrigation pumping (262.5-264.0 feet) from April 10 to September 30. The purpose of this action is to provide a smaller reservoir cross section to reduce juvenile salmon travel time.
- Proposed JDA Forebay Operations
  - Intent is to maintain a minimum water surface elevation at the Blalock Island Complex late March through June, annually
  - Between 1 April and 15 June annually





# Habitat Area vs Operation

Blalock Islands Complex													
Approximate Nesting Area Subject to Inundation (acres)													
John Day Forebay (ft)													
McNary Discharge (kcf/s)													
	262.5	262.75	263	263.25	263.5	263.75	264	264.25	264.5	264.75	265	265.25	265.5
100				25.3	23.8	19.9	15.6	11.7	8.3	5.7	3.4	1.7	0.6
125				24.0	20.4	16.1	12.1	8.5	5.8	3.5	1.7	0.5	
150				21.3	16.9	12.8	9.1	6.2	3.8	1.9	0.6		
175				18.0	13.7	9.9	6.8	4.3	2.3	0.9	0.1		
200				14.7	10.8	7.5	4.9	2.8	1.3	0.3			
225				11.7	8.2	5.6	3.4	1.7	0.5				
250				9.1	6.3	4.1	2.2	0.9	0.2				
275			9.7	6.9	4.7	2.8	1.4	0.4					
300		9.9	7.2	5.1	3.2	1.7	0.7	0.1					
325	9.6	7.2	5.2	3.4	2.1	1.0	0.3						
350	6.8	5.0	3.4	2.2	1.2	0.5	0.1						
375	4.4	3.1	2.1	1.2	0.6	0.2							
400	2.4	1.6	1.0	0.5	0.2								

Blalock Island Complex													
Available Nesting Habitat - South, Middle, and Long Islands (m <sup>2</sup> )													
John Day Forebay (ft)													
McNary Discharge (kcf/s)													
	262.5	262.75	263	263.25	263.5	263.75	264	264.25	264.5	264.75	265	265.25	265.5
100				8207	7928	6108	3768	1831	907	427	142	30	5
125				7976	6373	4046	2008	967	445	145	30	5	
150				6760	4509	2363	1123	519	185	42	6		
175				5070	2824	1340	631	251	68	12			
200				3316	1584	763	332	101	20	3			
225				1821	897	418	138	29	4				
250	6381	4178	2218	1115	547	221	64	13	2				
275	4363	2464	1277	654	298	100	22	4					
300	2477	1338	715	351	127	30	8	1					
325	1265	712	370	144	54	15	3						
350	627	344	142	63	20	4	1						
375	262	121	53	20	5	2							
400	75	28	15	4	2								



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# DRAFT JDA Operation

## ■ Between April 1<sup>st</sup> & June 15<sup>th</sup>

0. Above 400 kcfs, maintain JDA forebay between 262.5' and 264.0'
1. Between 350 and 400 kcfs, maintain JDA forebay above 263.0'  
(range 263.0' to 264.5')
2. Between 300 and 350 kcfs, maintain JDA forebay above 263.5'  
(range 263.5' to 265')
3. Between 250 and 300 kcfs, maintain JDA forebay above 263.75'  
(range 263.75' to 265.25')
4. Between 200 and 250 kcfs, maintain JDA forebay above 264.25'  
(range of 264.25' to 265.75')
5. Between 150 and 200 kcfs, maintain JDA forebay above 264.75'  
(range of 264.75' to 266.25')
6. Below 150 kcfs, maintain JDA forebay above 265.0'  
(range of 265.0' to 266.5')





# Expected Frequency of Proposed Operation

(76 Days)

Action	Frequency of Occurrence April 1 to June 15 (Days)	
	2015	2005-2015 (Ave)
Maintain JDA forebay above:		
(0) No Action (262.5'-264.0')	0	4
(1) 263.00' between 350-400 kcfs	0	8
(2) 263.50' between 300-350 kcfs	0	11
(3) 263.75' between 250-300 kcfs	0	18
(4) 264.25' between 200-250 kcfs	22	16
(5) 264.75' between 150-200 kcfs	47	12
(6) 265.0' below 150 kcfs	7	7



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# Blalock Island Complex

Middle Island 2016-03-26 @ 1446



JDA @ 264.21' MCN @ 192k cfs

Long Island 2016-03-26 @ 1645



JDA @ ~264.2' MCN @ 192k cfs

Middle Island 2016-04-01 @ 1514



JDA @ 264.11' MCN @ 213k cfs

Long Island 2016-04-01 @ 1514



JDA @ 264.11' MCN @ 213k cfs



# Blalock Islands Complex Water Level Monitoring

- **Water Level Monitoring In-Progress**



# Model Refinement Path Forward

- **Collect water surface elevation data**
- **Collect observational data (daily to weekly photos)**
- **Compare operational data with available habitat**
  
- **Collect additional topographic & MCN/JDA elevation data**
  - What level of precision is necessary?
  
- **Further validate & refine hydraulic/land availability model**





# Potential Impacts Associated With Operation Changes

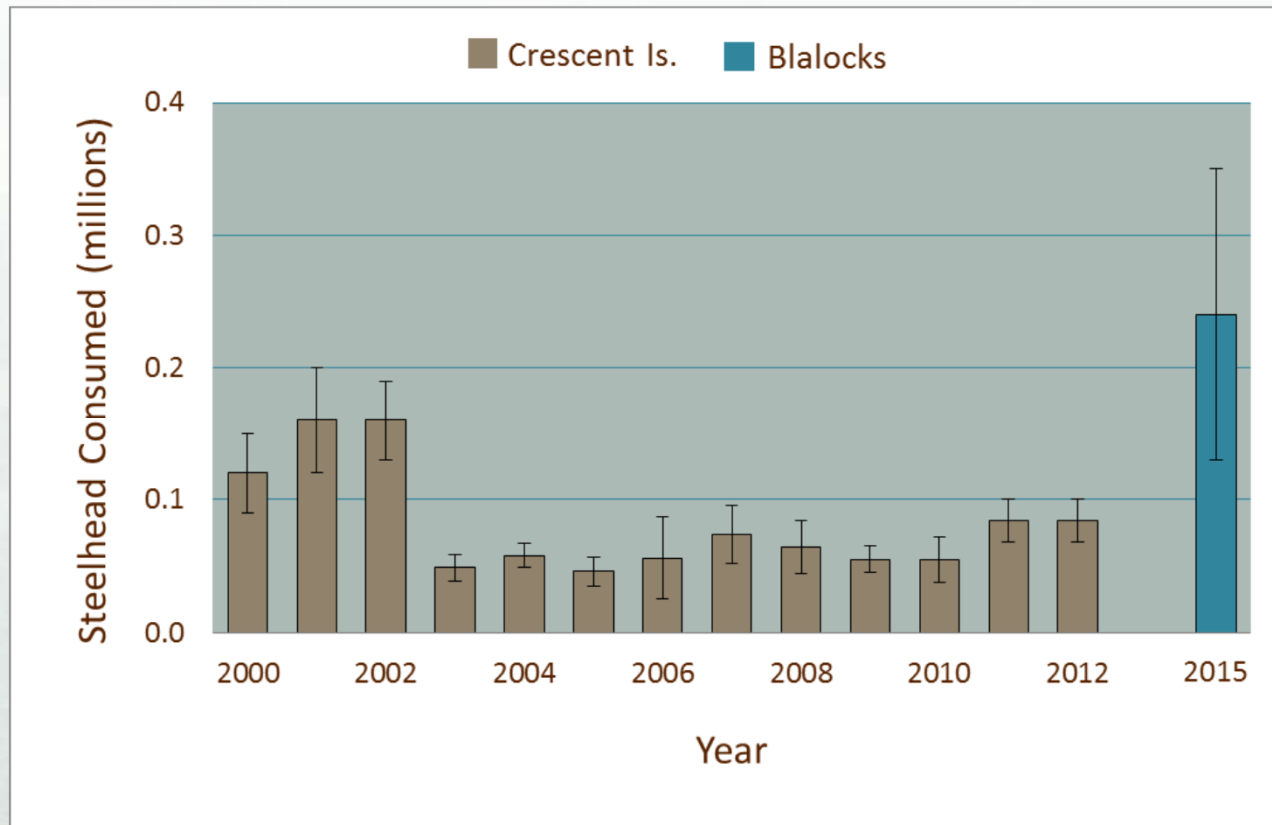
- **Juvenile Fish Passage and Survival**
  - **Anticipate reduction in predation losses to CATE**

Blalock Islands Complex Tern Colony	2007-2013	2014 (Phase 1)	2015 (Phase 2)
SR Sockeye	0.3% (0.1-0.4)	0.4% (0.1-1.1)	1.3% (0.7-2.5)
SR Spr/Sum Chinook	0.1% (<0.1-0.2)	0.1% (0.1-0.2)	1.4% (1.1-2.2)
UCR Spr Chinook	< 0.1%	0.2% (0.1-0.4)	0.9% (0.5-1.5)
SR Fall Chinook	< 0.1%	0.3% (0.2-0.5)	0.4% (0.2-0.8)
SR Steelhead	0.6% (0.5-0.7)	0.4% (0.2-0.7)	8.0% (6.0-11.8)
UCR Steelhead	0.6% (0.4-0.8)	0.6% (0.3-1.2)	8.2% (5.9-12.4)

Estimated predation rates (95% credible interval) on PIT-tagged salmonid populations by Caspian terns nesting at the Blalock islands. Predation rates were adjusted to account for tag loss due to on-colony detection efficiency and deposition rates. Only salmonid populations (Snake River [SR], Upper Columbia River [UCR]) with > 500 PIT-tagged smolts available (i.e. detected passing) at McNary Dam are included herein.

# Potential Impacts Associated With Operation Changes

## Comparison of CATE consumption rates



\*Estimated total annual consumption of juvenile steelhead by Caspian terns nesting on Crescent Island (200-2012) and the Blalock Island (2015) in the mid-Columbia River.

\*Estimates are based on fish identified in tern bill-loads on-colony and bioenergetics calculations. Error bars represent 95% confidence intervals for the number of smolts consumed.

# Potential Impacts Associated With Operation Changes

## Preliminary Comparison of Predation Losses

DRAFT		2007-2013			2014			2015		
		Goose & Crescent	Blalocks	C.P.	Goose & Crescent	Blalocks	C.P.	Goose & Crescent	Blalocks	C.P.
UCR Steelhead	Predation Rate		0.6% (0.3-0.8)		4.7% (3.7-6.9) <sup>1</sup>	0.6% (0.3-1.2)			8.2% (5.9-12.4)	
	# Consumed									
SR Steelhead	Predation Rate		0.6% (0.5-0.7)		6.4% (4.3-8.2) <sup>1</sup>	0.4% (0.2-0.7)			8.0% (5.9-12.4)	
	# Consumed									
<p>Cummaltive annual predation rate estimates (95% credible interval) on Upper Columbia River (UCR) and Snake River (SR) steelhead by Caspian terns nesting on Goose Island and Crescent Islands. Fish availability is based on the number of PIT tagged fish detected passing Rock Island (UCR steelhead) or Lower Monumental (SR) dams.</p> <p>DATA ARE PRELIIMINARY</p> <p><sup>1</sup> Assumes no predation by Goose Island terns; a small precentage (ca. 0.1%) of SR steelhead, however, were annually consumed by terns nesting on Goose Island (BRNW 2015).</p>										





# Potential Impacts Associated With Operational Changes

- **Juvenile Salmonid Travel Time**
  - **NOAA running COMPASS to provide model insights on salmon travel times**
- **Adult Fish Passage – No Impacts Anticipated**
  - **Within Operating Ranges of JDA and MCN**
- **JDA Tailrace and Spillway Weir Conditions**
  - **OK above ~ >XXXk cfs (???)**
  - **Update based on Monday's discussion**



# Potential Impacts Associated With Operation Changes

- **Power Generation and FCRPS Operations**
  - 1.5' JDA Operating Range needs to be maintained
- **Other Concerns / Issues with inundating CATE habitat**
  - Address in supplemental NEPA, if/as warranted
  - FCRPS BiOp concerns – FPOM, TMT



# Blalocks Adaptive Mgmt Summary / Path Forward

## ■ Reservoir Mgmt Efforts

- Water level monitoring
- Additional topographic survey
- Observational Data Collection
- Refine hydraulic / land elevation model
- Supplemental/tiered NEPA
- FCRPS BiOp Coordination
  - FPOM, TMT, Water Mgmt Plan

## ■ Other Adaptive Mgmt Efforts

- Coordination w/USFWS Refuge
- Some potential Corps/Reclamation actions addressed in Plan
- Potentially address add'l actions in tiered NEPA





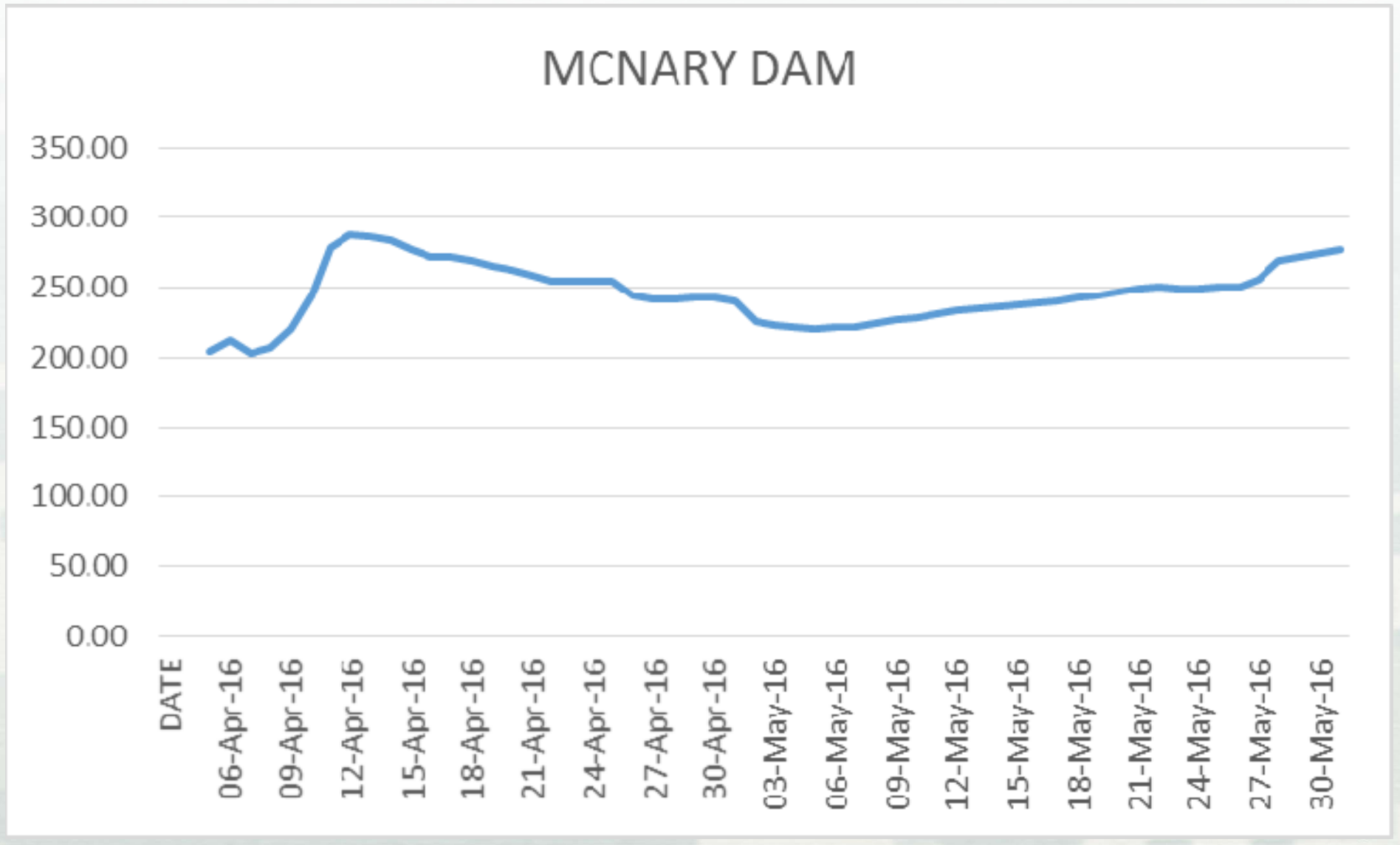
# Questions?



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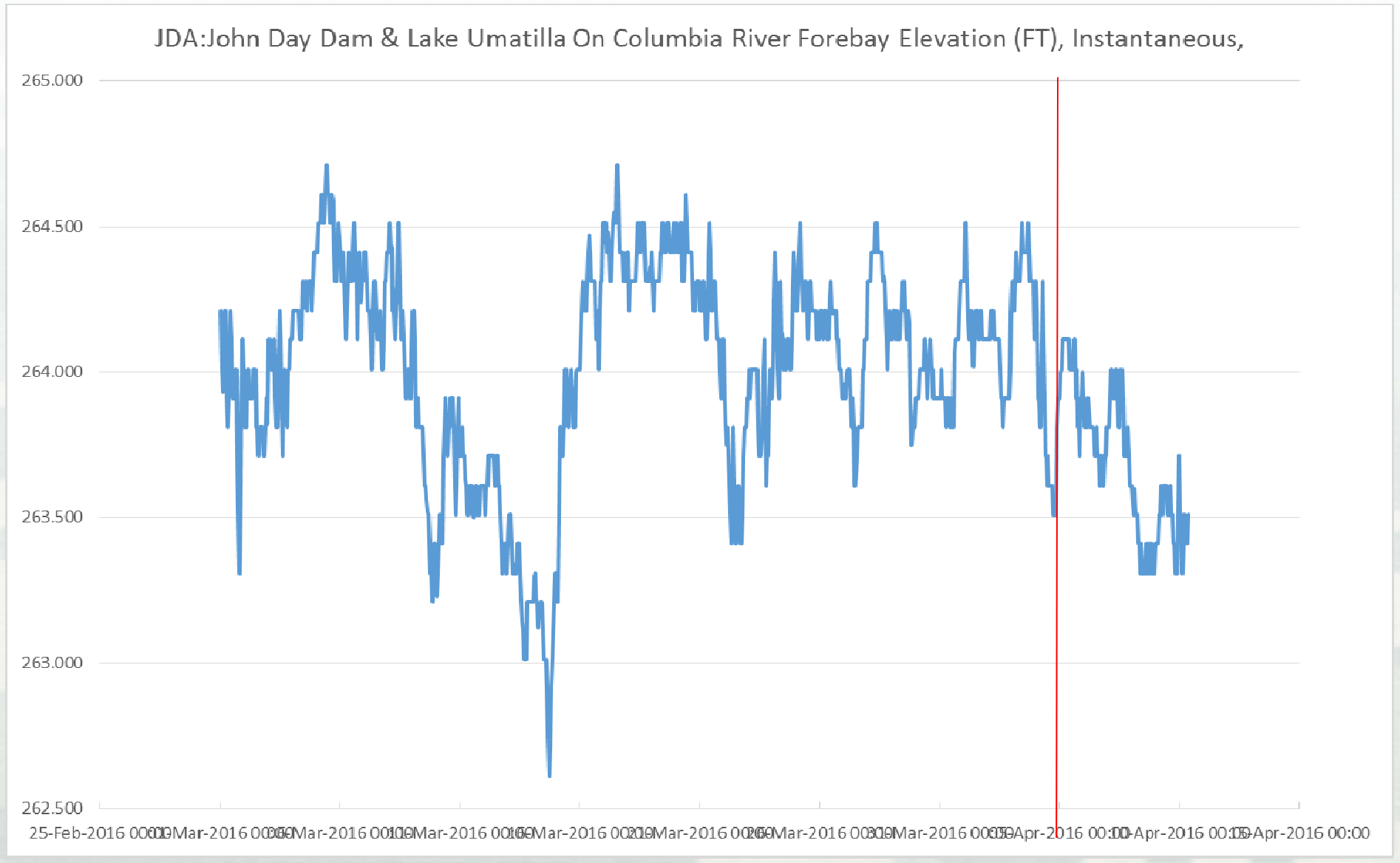
# MCN Projected Inflows

06 April - 30 May 2016



# JDA Forebay

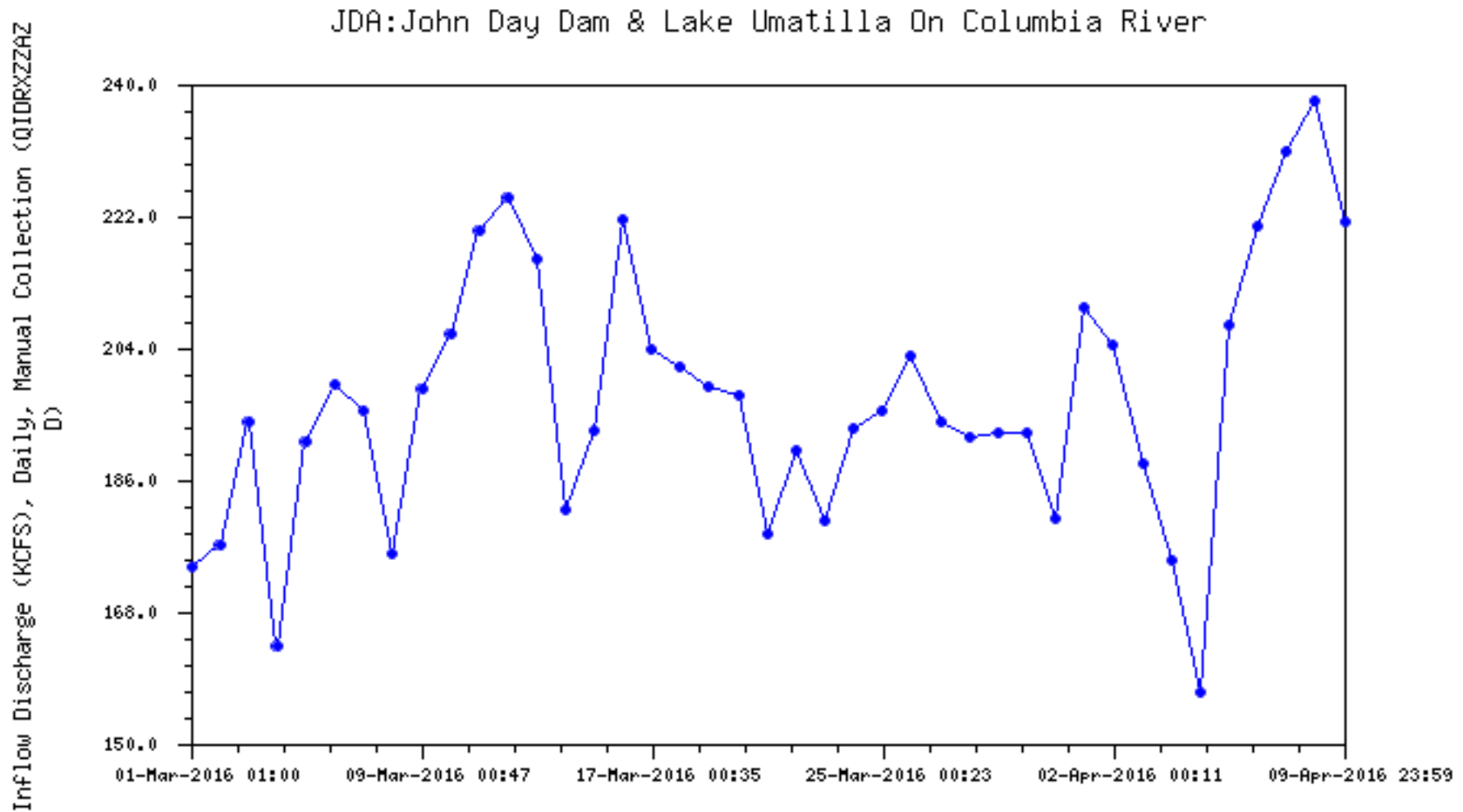
1 March to 9 April 2016





# JDA 2016 Inflows (kcfs)

1 March - 09 April



	UCR steelhead				SR Steelhead <sup>1</sup>		
Year	median	lw.bd	up.bd		median	lw.bd	up.bd
2008	<b>14.5%</b>	11.8%	19.6%		<b>5.9%</b>	4.7%	8.5%
2009	<b>25.6%</b>	20.2%	35.9%		<b>4.6%</b>	3.7%	6.6%
2010	<b>16.2%</b>	12.8%	22.7%		<b>4.0%</b>	3.1%	5.9%
2011	<b>15.7%</b>	12.4%	21.9%		<b>2.7%</b>	2.1%	4.0%
2012	<b>20.5%</b>	15.7%	29.5%		<b>2.8%</b>	2.1%	4.1%
2013	<b>17.7%</b>	14.2%	24.2%		<b>2.9%</b>	2.2%	4.3%
2014	<b>6.4%</b>	4.3%	8.2%		<b>4.7%</b>	3.7%	6.9%

Cummaltive annual predation rate estimates (95% credible interval) on Upper Columbia River (UCR) and Snake River (SR) steelhead by Caspian terns nesting on Goose Island and Crescent Islands. Fish availability is based on the number of PIT tagged fish detected passing Rock Island (UCR steelhead) or Lower Monumental (SR) dams. DATA ARE PRELIIMINARY

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