



Quantification of the number of ascending salmon and trout in Piteälven 2015

Luleå 2016-08-23
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County Administrative Board of Norrbotten



Länstyrelsen
Norrbotten

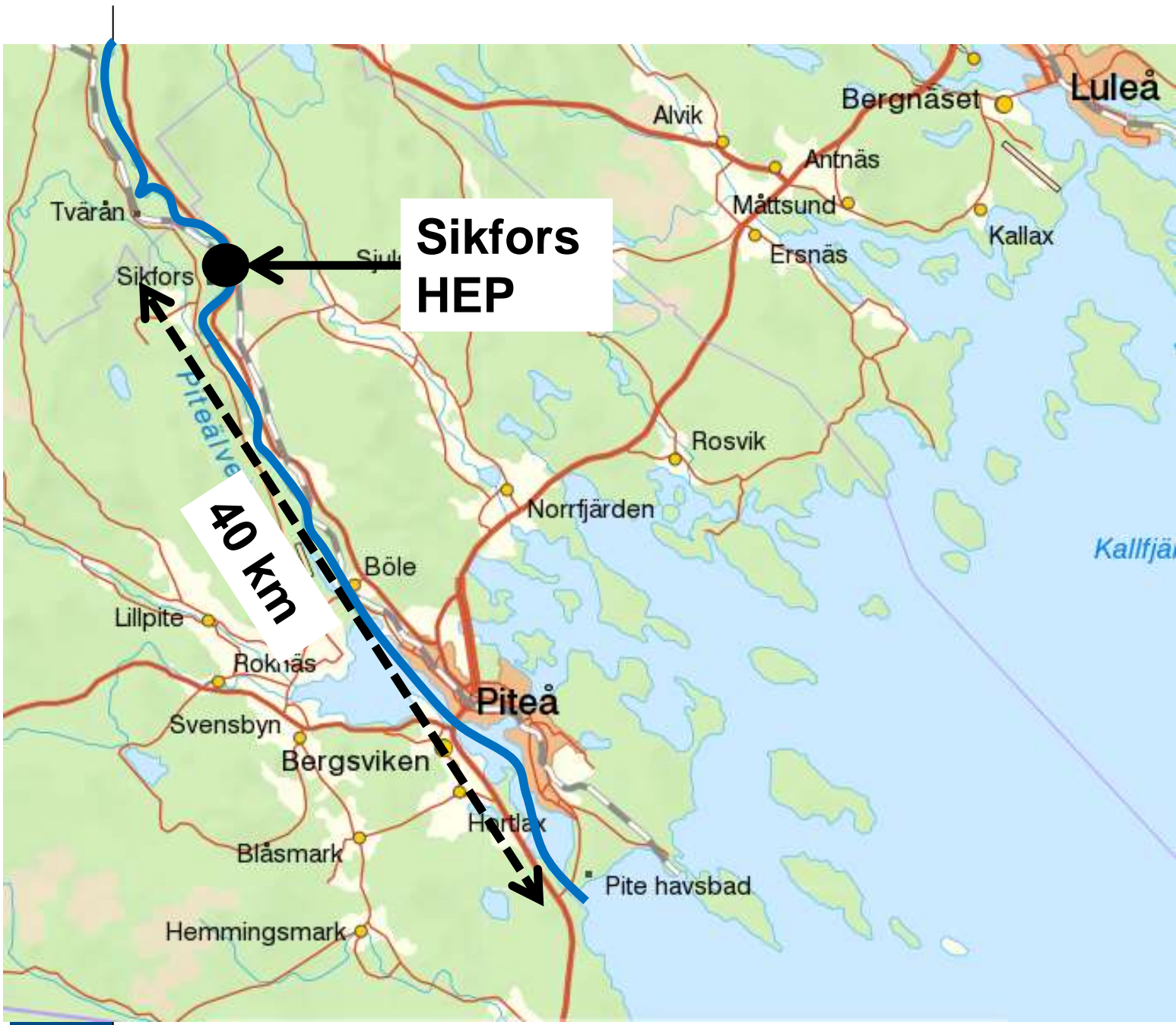












**Sikfors
HEP**

40 km



Länstyrelsen
Norrbotten



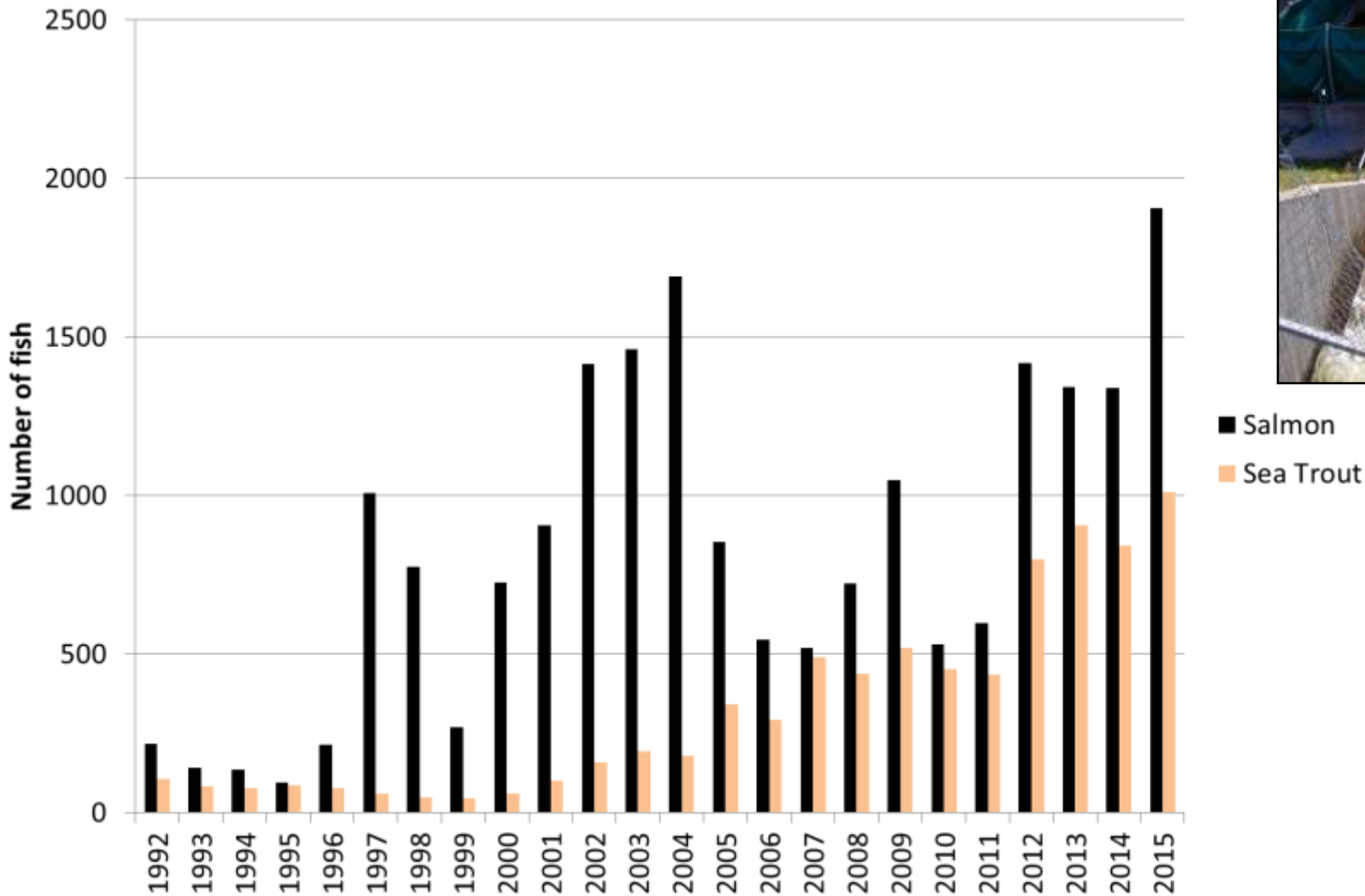
Ägare: Skellefteå kraft AB
Byggt år: 1912, ombyggt 1990
Aggregat: 2 kaplan
Fallhöjd: 19.5 m
MQ: 174 m³/s
Turbin Q: ca 250 m³/s
Minimitappning: 15 m³/s



Fiskväg:

- Byggår 1992
 - Bassäntyp med överfallsöppningar
1 m³/s + lockvatten ca 1 m³/s
 - Fiskräknare Riverwatcher 1998
 - Lax och öring
 - Fiskavledare, flytande 2010
- Smoltproduktion 20 000 (ICES)

Salmon and trout passing the fishway Piteälven 1992-2015



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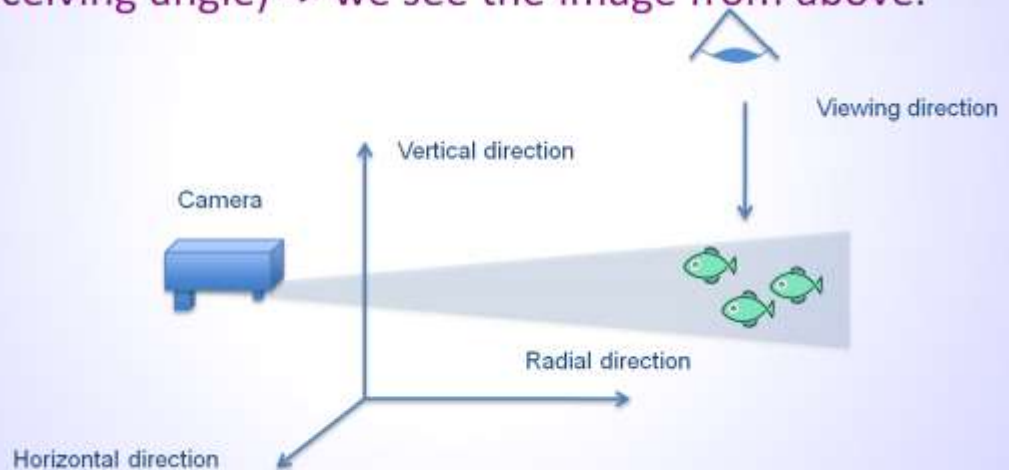
Ultrasound Camera



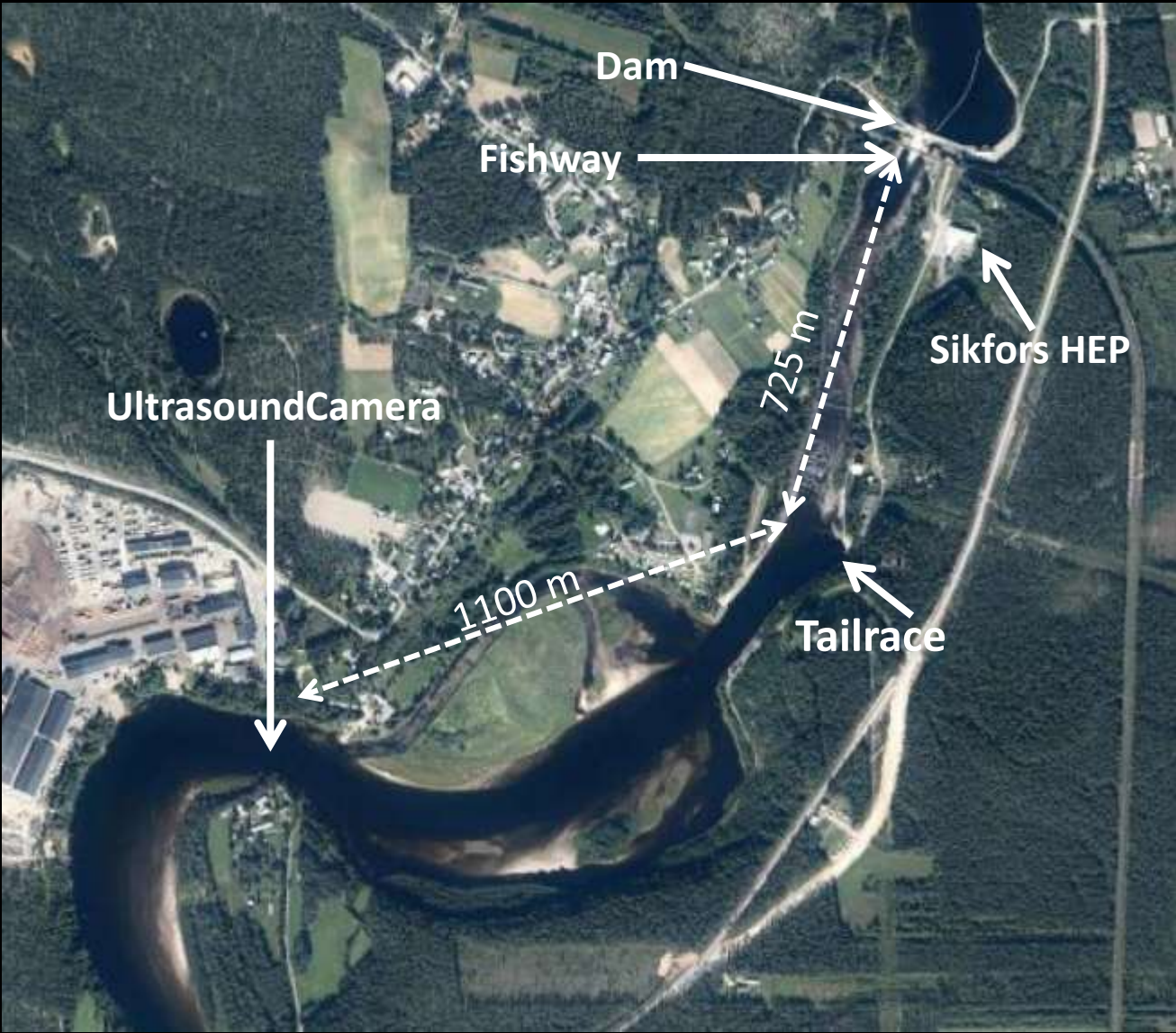
Simsonar Oy

Environment

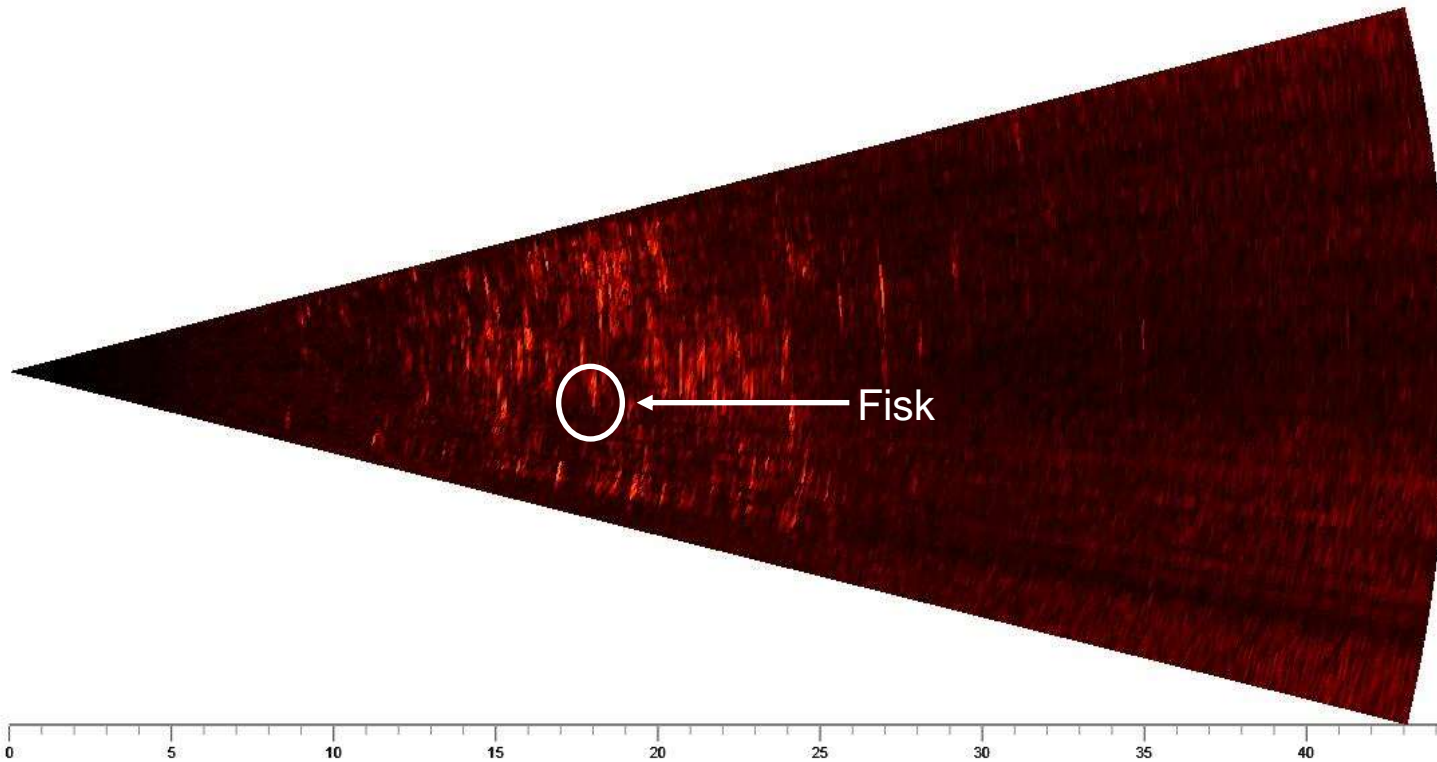
- Image is based on echoes (travelling time and receiving angle) -> we see the image from above.



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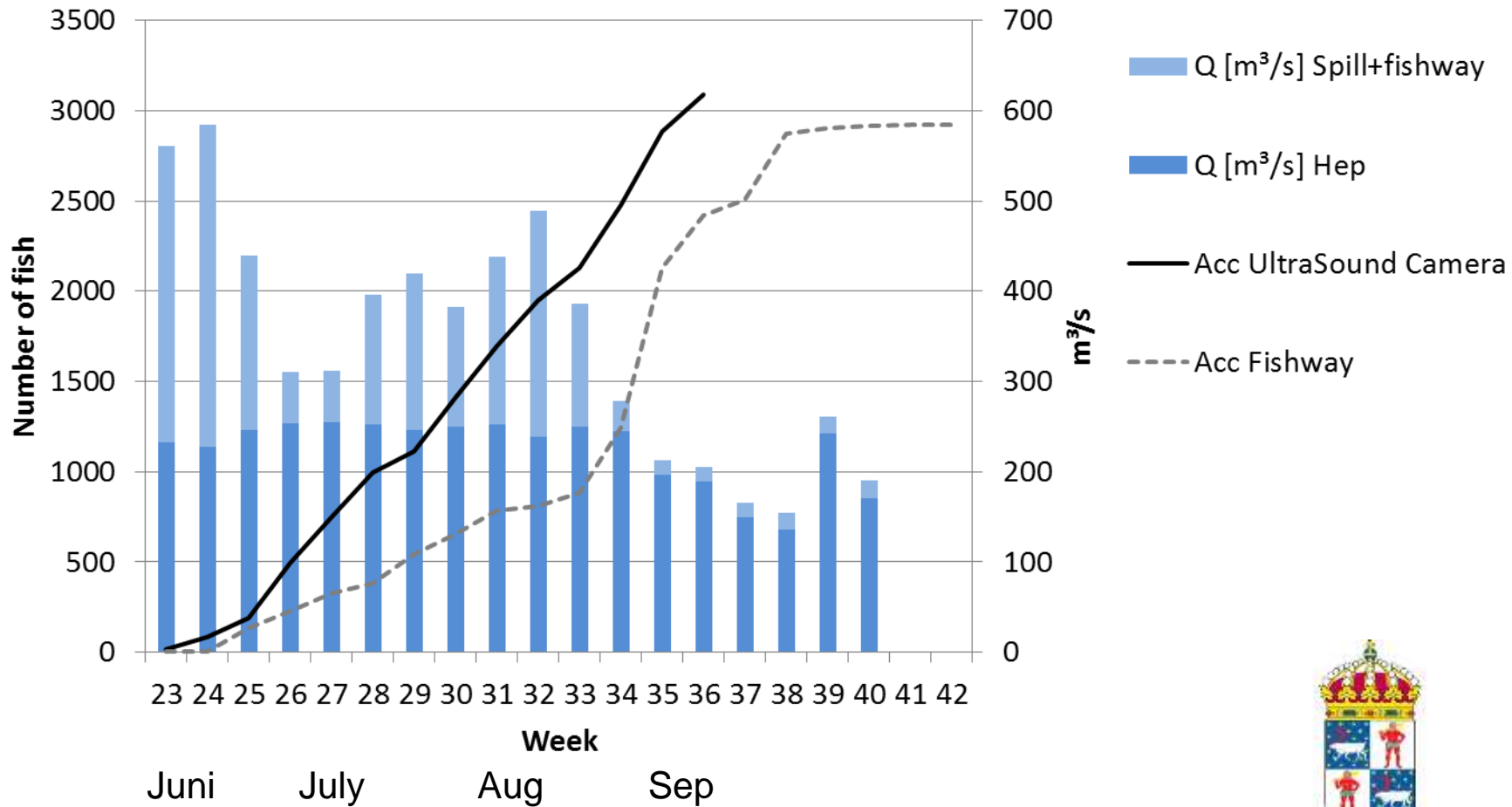




Filename	Date	Week	Time	Frame nr	Length	Distance	Angle1	Angle2	Direction	Heading
uvcrec20150608_143805.zim	2015-06-08		24 15:20:33	14881	0,54	16,35	5	3	Up	349
uvcrec20150608_163805.zim	2015-06-08		24 16:57:21	6754	0,83	6,62	11	4	Up	348
uvcrec20150610_185142.zim	2015-06-10		24 19:06:27	4982	0,49	19,77	1	-1	Up	349
uvcrec20150610_205142.zim	2015-06-10		24 20:51:59	99	0,57	8,95	2	-1	Up	349
uvcrec20150610_215142.zim	2015-06-10		24 21:52:10	162	0,58	7,05	2	7	Down	347
uvcrec20150610_215142.zim	2015-06-10		24 22:17:42	8784	0,54	4,39	3	-4	Up	348
uvcrec20150611_033123.sim	2015-06-11		24 03:43:08	4006	0,59	19,97	-4	-5	Up	349
uvcrec20150611_064632.sim	2015-06-11		24 07:01:40	5183	0,52	22,11	-8	-9	Up	349
uvcrec20150611_105541.zim	2015-06-11		24 11:10:34	5083	0,53	5,26	2	-4	Up	349
uvcrec20150611_180921.zim	2015-06-11		24 18:26:50	5883	0,62	15,58	10	8	Up	349
uvcrec20150611_180921.zim	2015-06-11		24 19:00:16	17148	0,64	14,99	7	4	Up	349

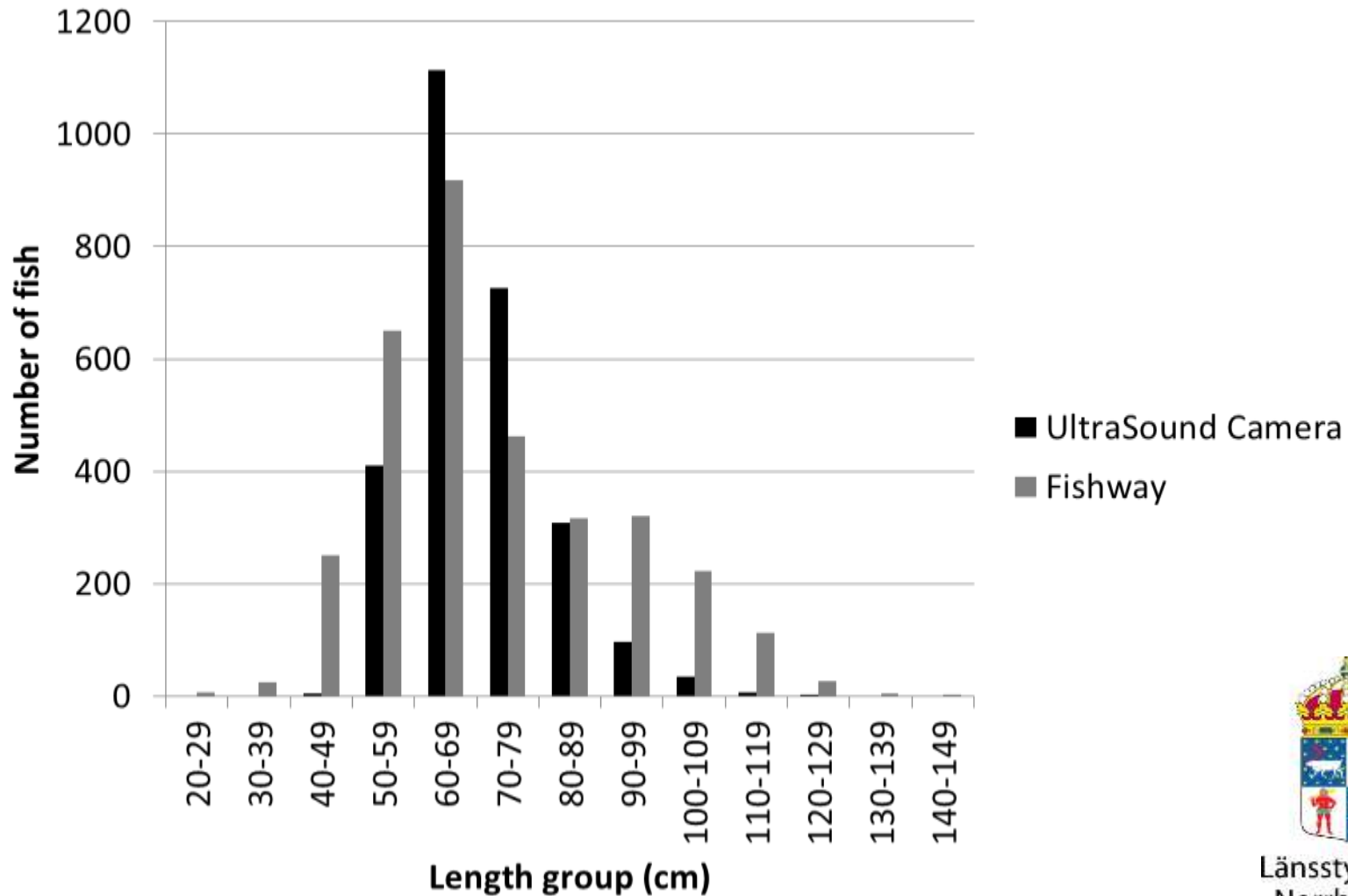


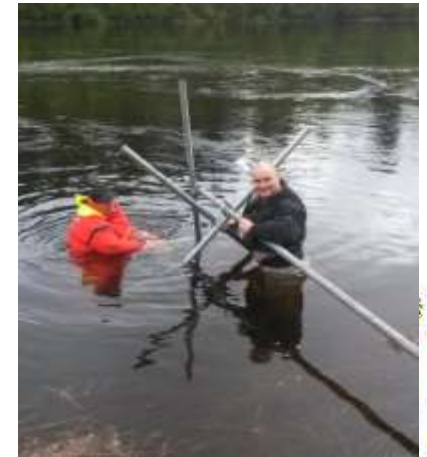
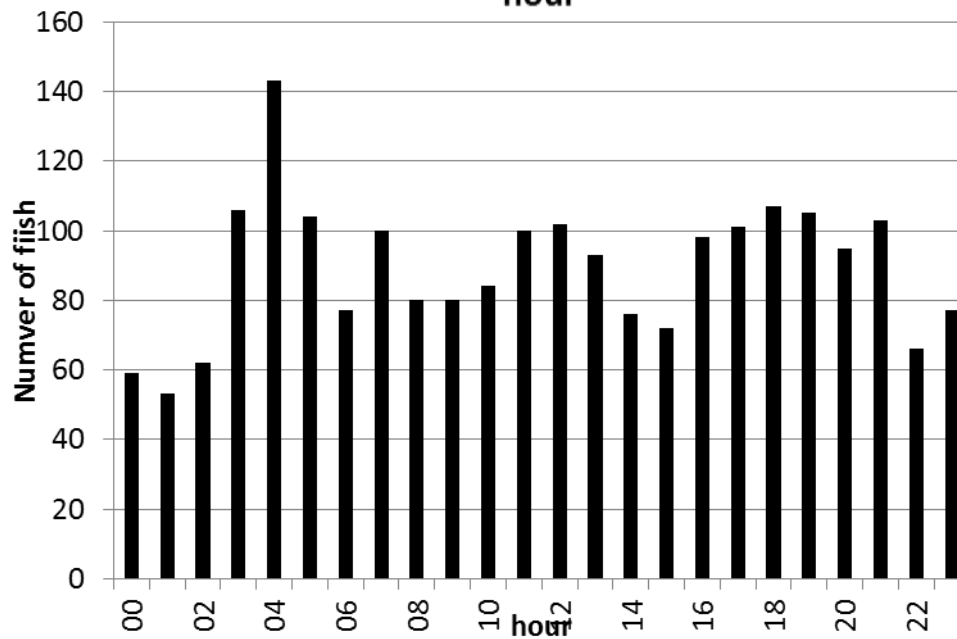
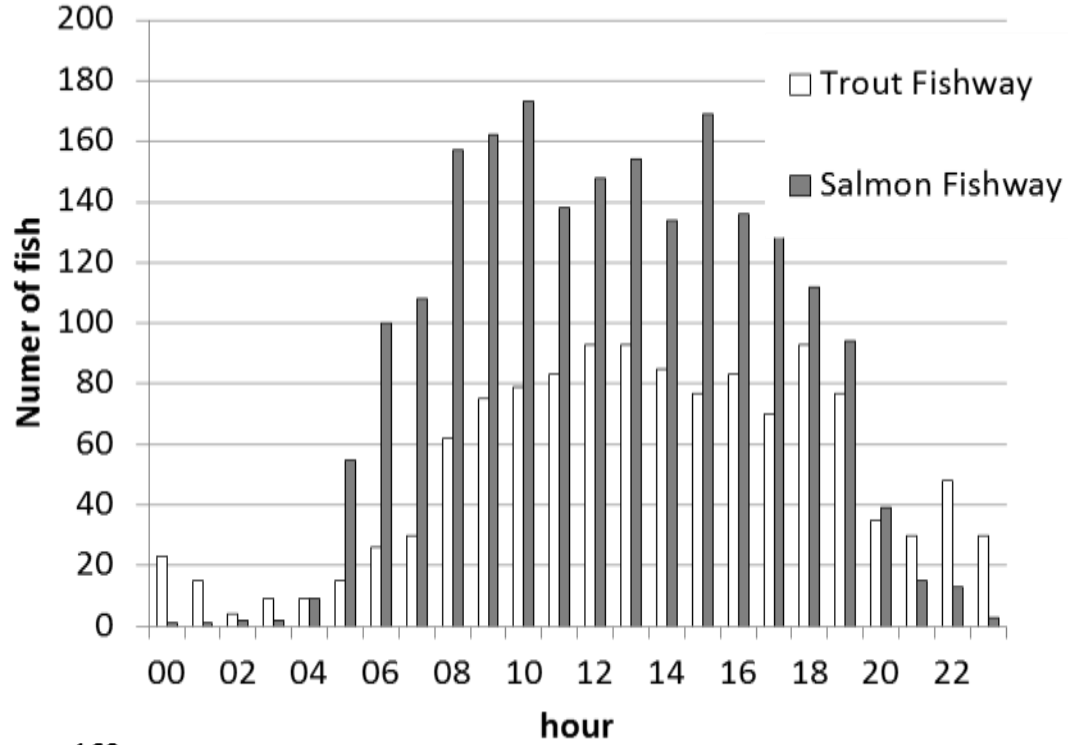
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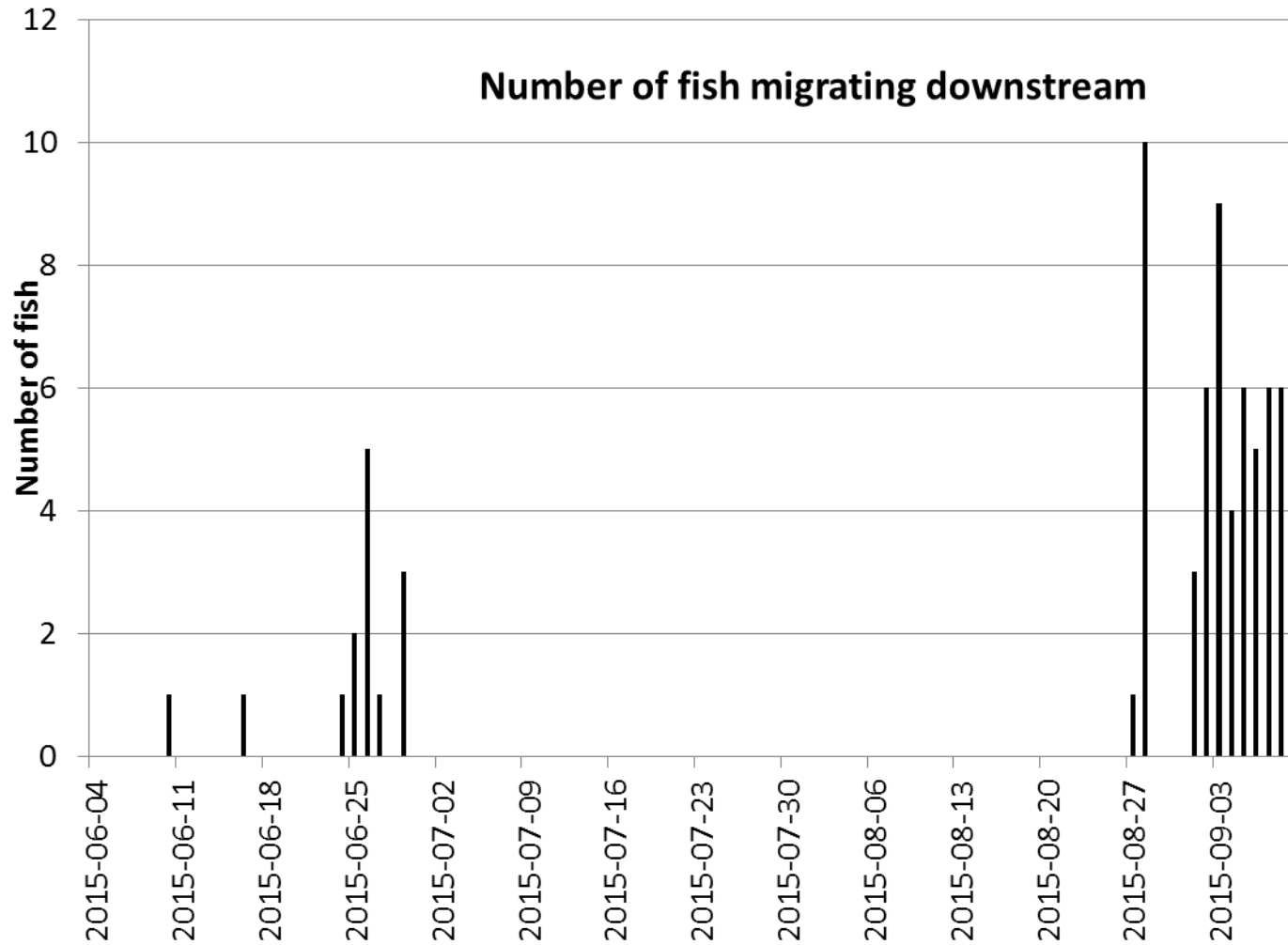
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Length distribution

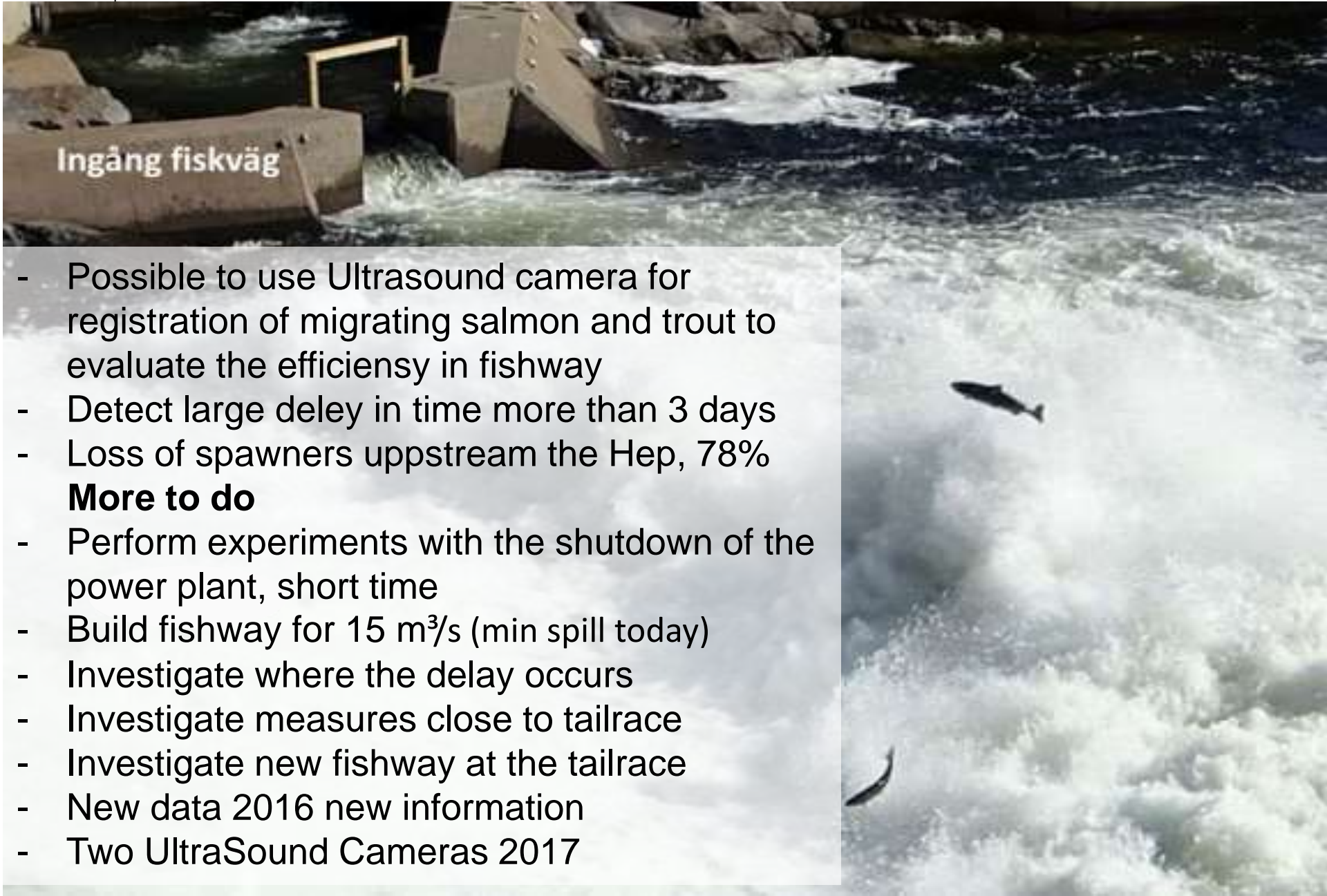




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Conclusion



Ingång fiskväg

- Possible to use Ultrasound camera for registration of migrating salmon and trout to evaluate the efficiency in fishway
- Detect large delay in time more than 3 days
- Loss of spawners upstream the Hep, 78%

More to do

- Perform experiments with the shutdown of the power plant, short time
- Build fishway for 15 m³/s (min spill today)
- Investigate where the delay occurs
- Investigate measures close to tailrace
- Investigate new fishway at the tailrace
- New data 2016 new information
- Two UltraSound Cameras 2017

A photograph of a calm body of water, likely a river or lake, with a dense forest of green trees in the background. The water reflects the sky and the surrounding greenery. In the foreground, a metal structure, possibly a water sampling station or a small boat, is visible, partially obscured by tall grasses. The text "Thank you for your attention" is overlaid in white on the water.

Thank you for your attention