

Brood Year 2019 Mark Characteristic Report



Prepared for:
Carol Volk
Seattle Public Utilities
Seattle, WA

Prepared by:
Sagilith
Michael Wunderlich

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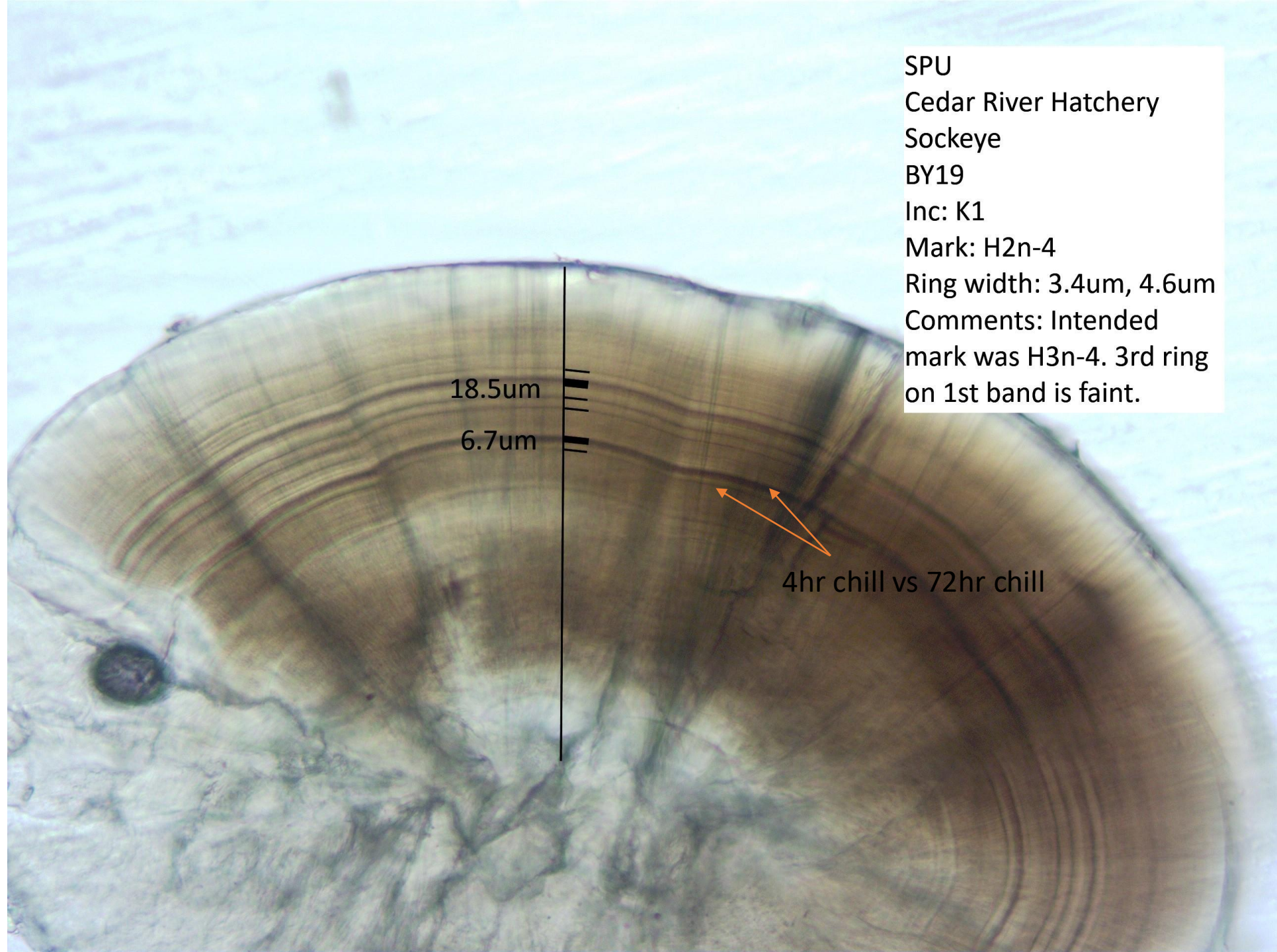
- Agency: Seattle Public Utilities
- Facility: Cedar River Hatchery
- Species: Sockeye
- Brood Year: 2019
- Number of fish released by mark pattern:
 - 797,812 early release: H3n-4
 - 1,009,262 middle release : H4n-2
 - 576,045 late release: H3-2n
- Ambient water temp: 8.9°C (48F)
- Marking system: Chill 4.4°C (40F)

Test Mark: H2n-4

This test mark was designed to determine the quality of efficiency marks (4hr chill) on both narrow and regular hatch code marks.

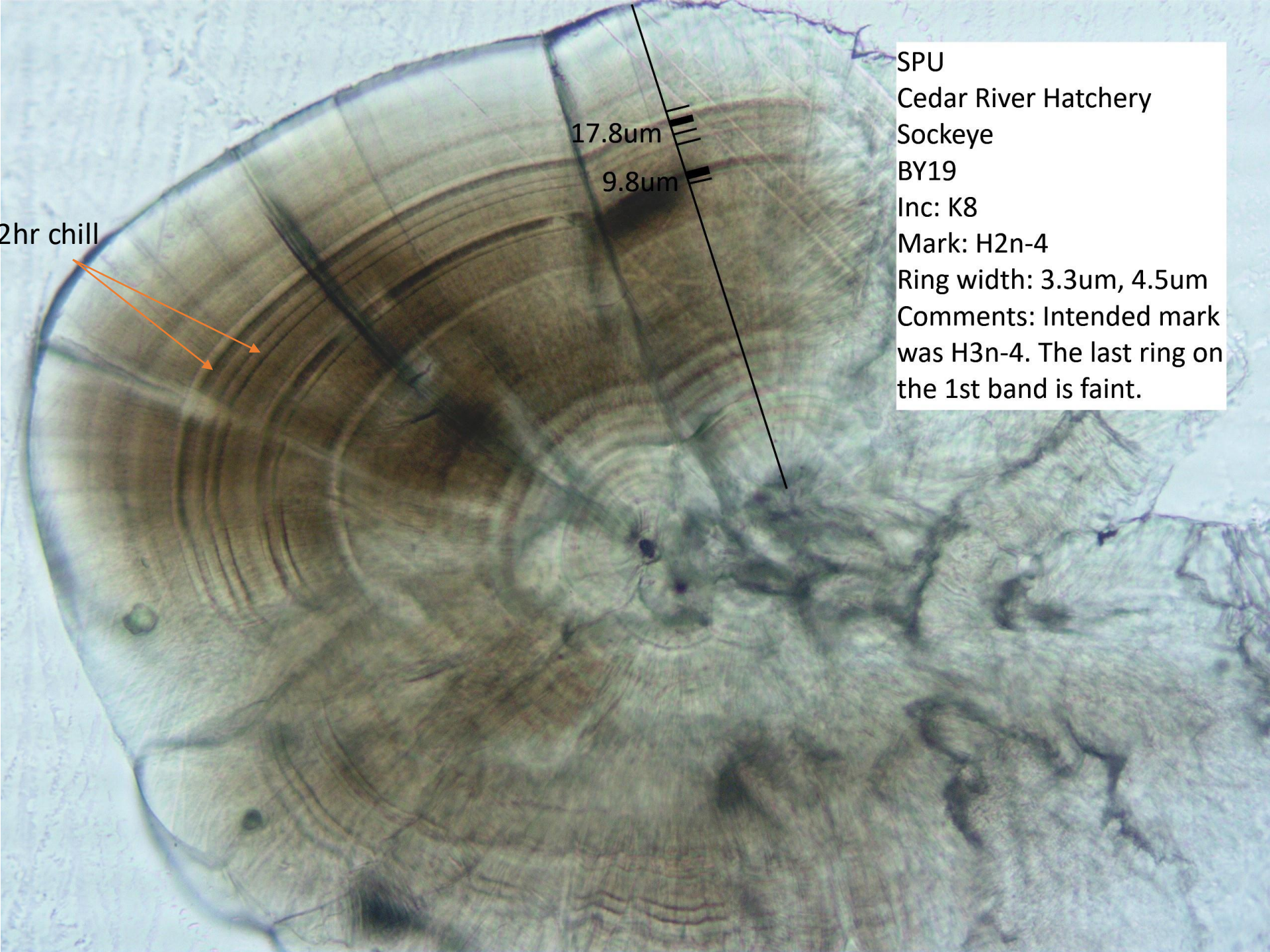
This mark also tested the assumption that wider 72hr rings could be easily distinguished from 4hr micro-rings in order to develop a modified hatch code marking system.

SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K1
Mark: H2n-4
Ring width: 3.4um, 4.6um
Comments: Intended
mark was H3n-4. 3rd ring
on 1st band is faint.



4hr chill vs 72hr chill

4hr chill vs 72hr chill



17.8um

9.8um

SPU

Cedar River Hatchery

Sockeye

BY19

Inc: K8

Mark: H2n-4

Ring width: 3.3um, 4.5um

Comments: Intended mark
was H3n-4. The last ring on
the 1st band is faint.

H3n-4

SPU

Cedar River Hatchery

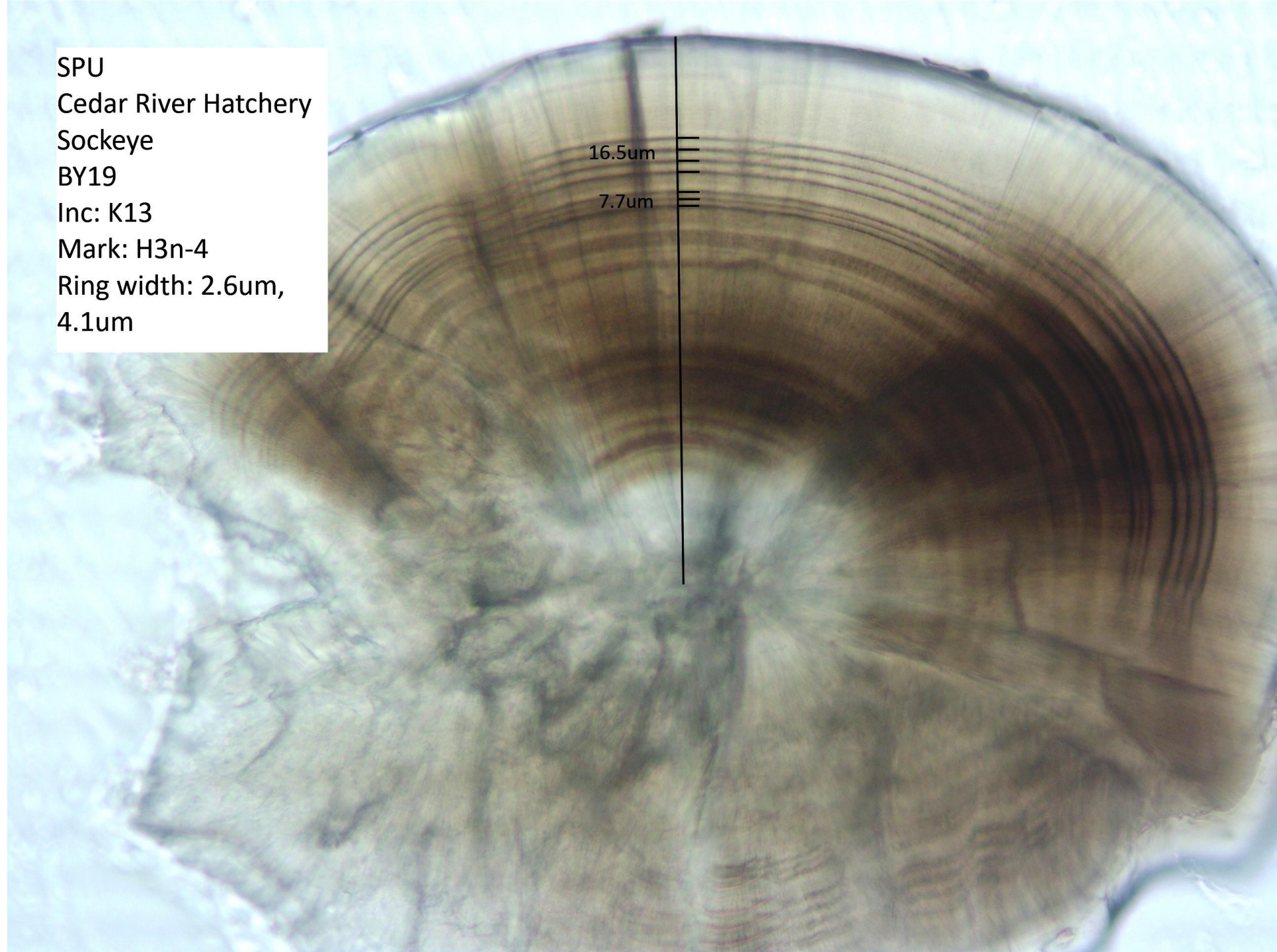
Sockeye

BY19

Inc: K13

Mark: H3n-4

Ring width: 2.6um,
4.1um



16.5um

7.7um

SPU

Cedar River Hatchery

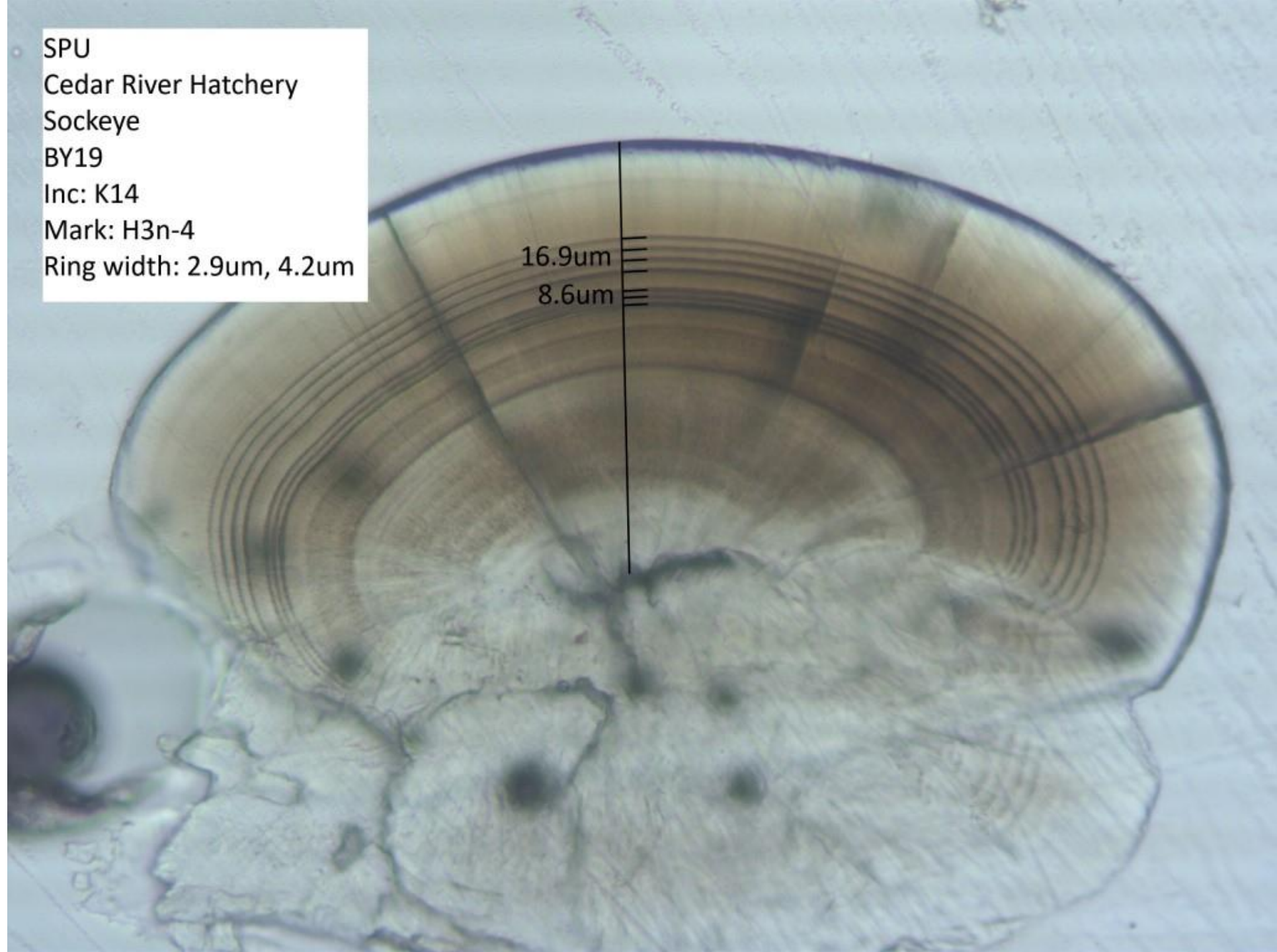
Sockeye

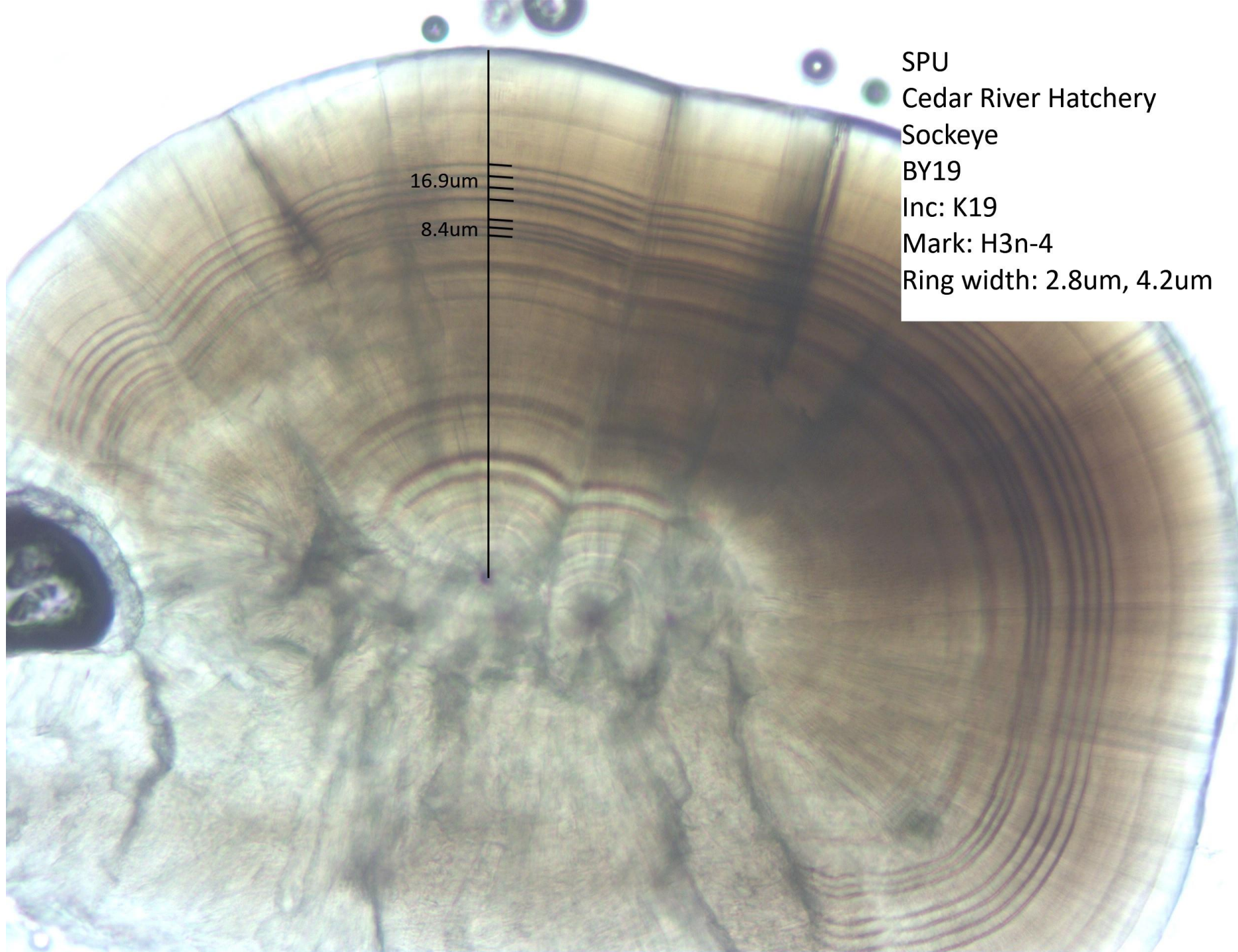
BY19

Inc: K14

Mark: H3n-4

Ring width: 2.9um, 4.2um





SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K19
Mark: H3n-4
Ring width: 2.8um, 4.2um

SPU

Cedar River Hatchery

Sockeye

Brood year: 2019

Inc: K20

Mark: H3n-4

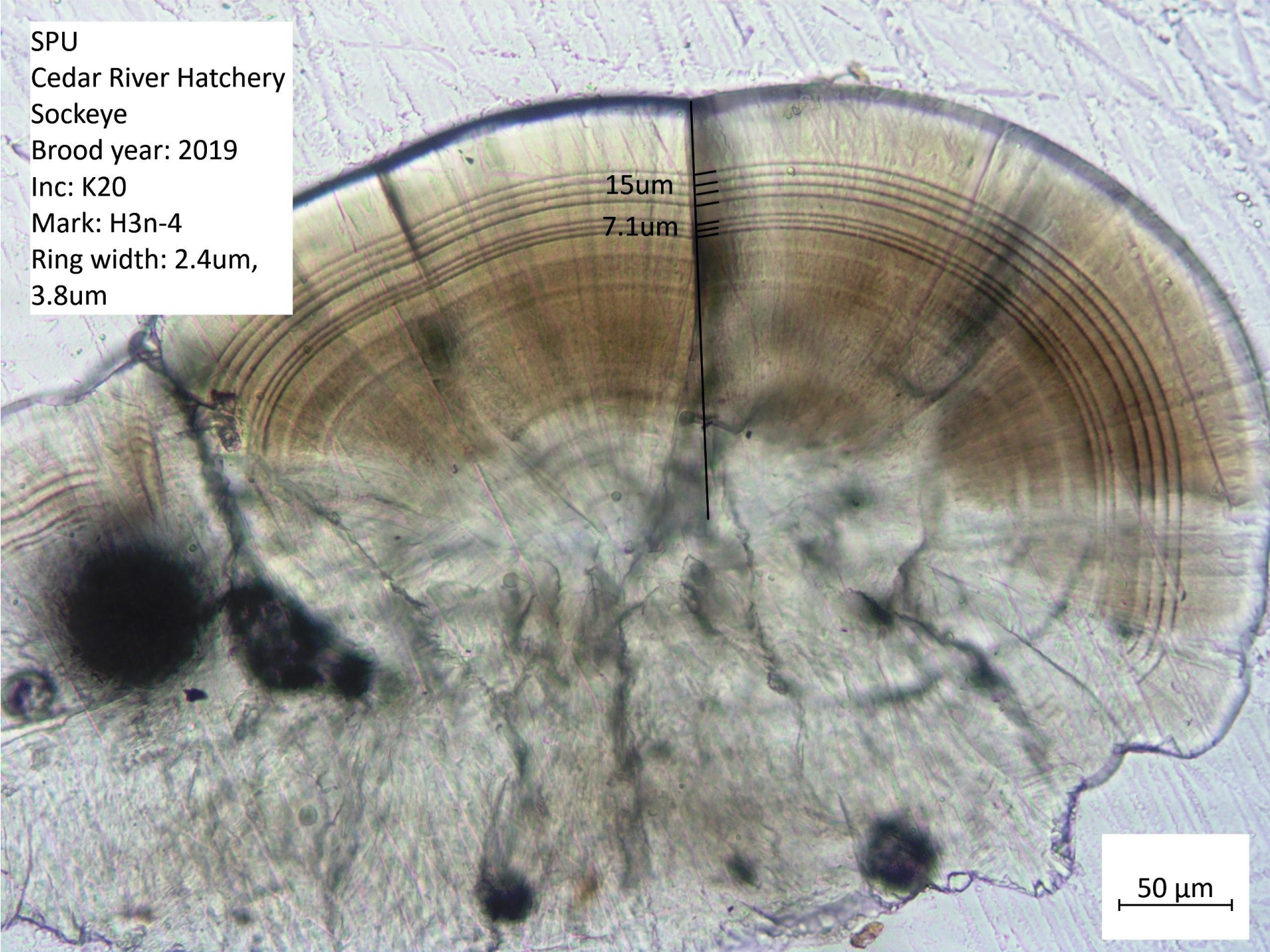
Ring width: 2.4um,

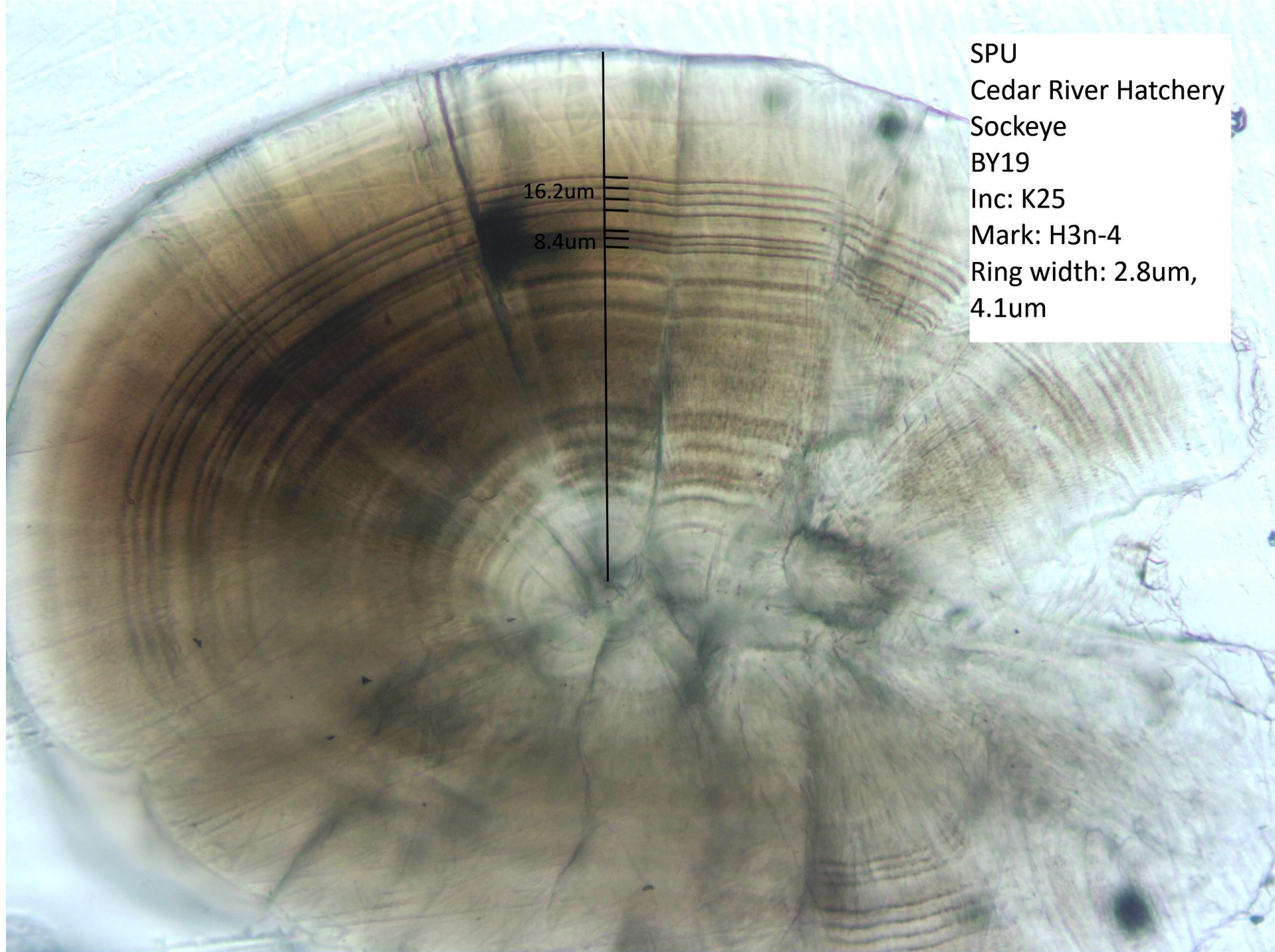
3.8um

15um

7.1um

50 μ m





SPU

Cedar River Hatchery

Sockeye

BY19

Inc: K25

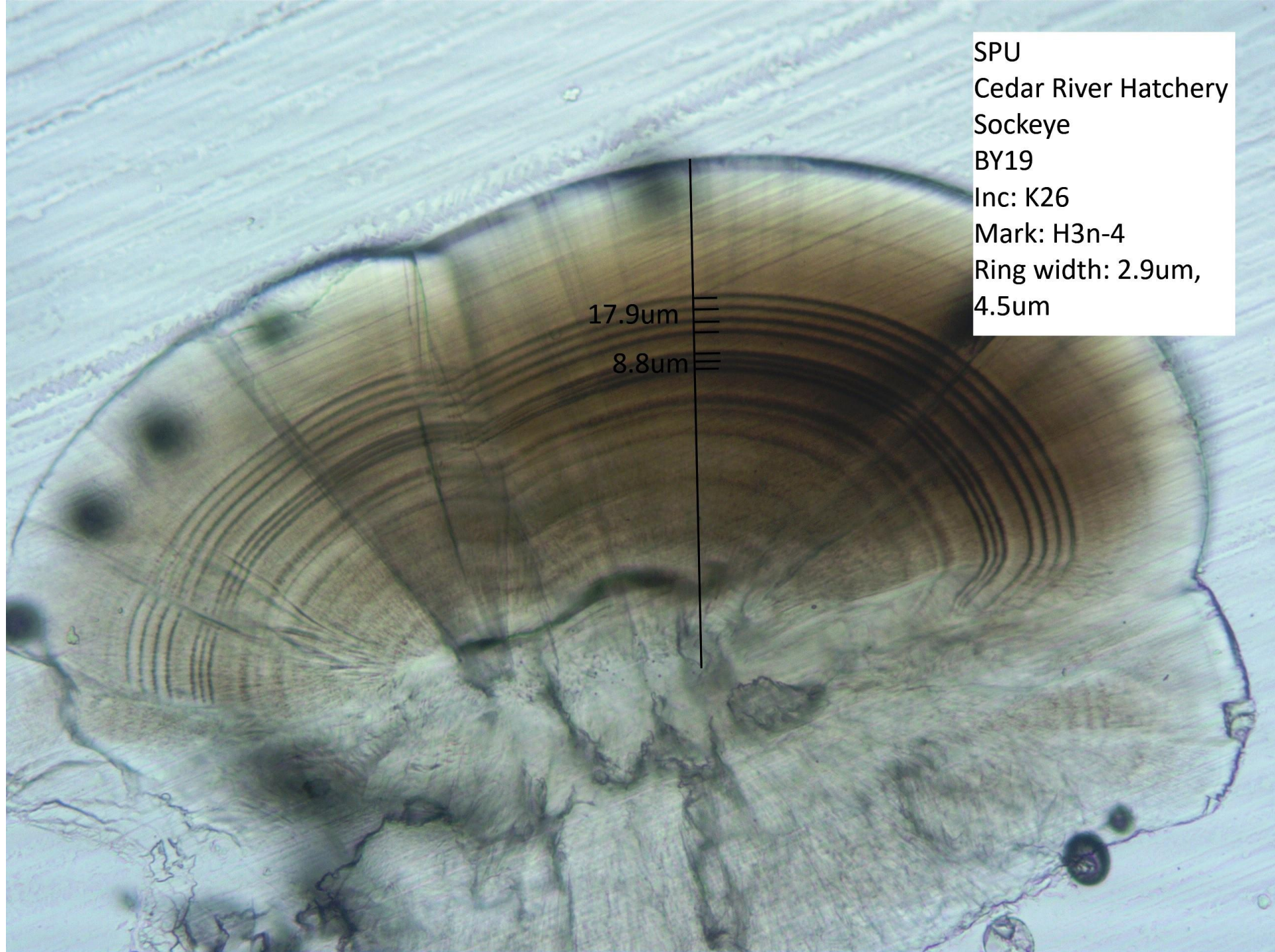
Mark: H3n-4

Ring width: 2.8um,

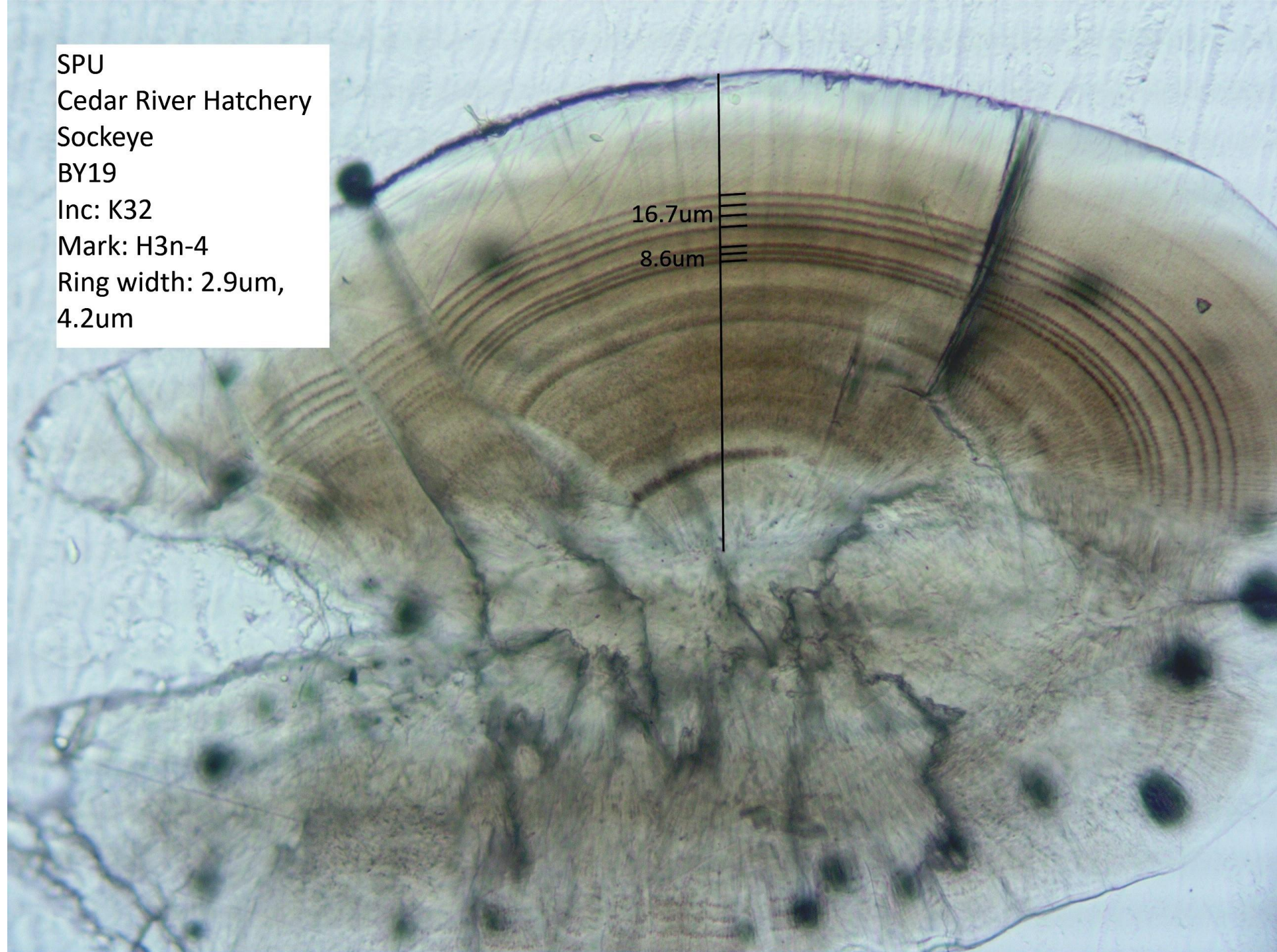
4.1um

SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K26
Mark: H3n-4
Ring width: 2.9um,
4.5um

17.9um
8.8um



SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K32
Mark: H3n-4
Ring width: 2.9um,
4.2um



H4n-2

SPU

Cedar River Hatchery

Sockeye

BY19

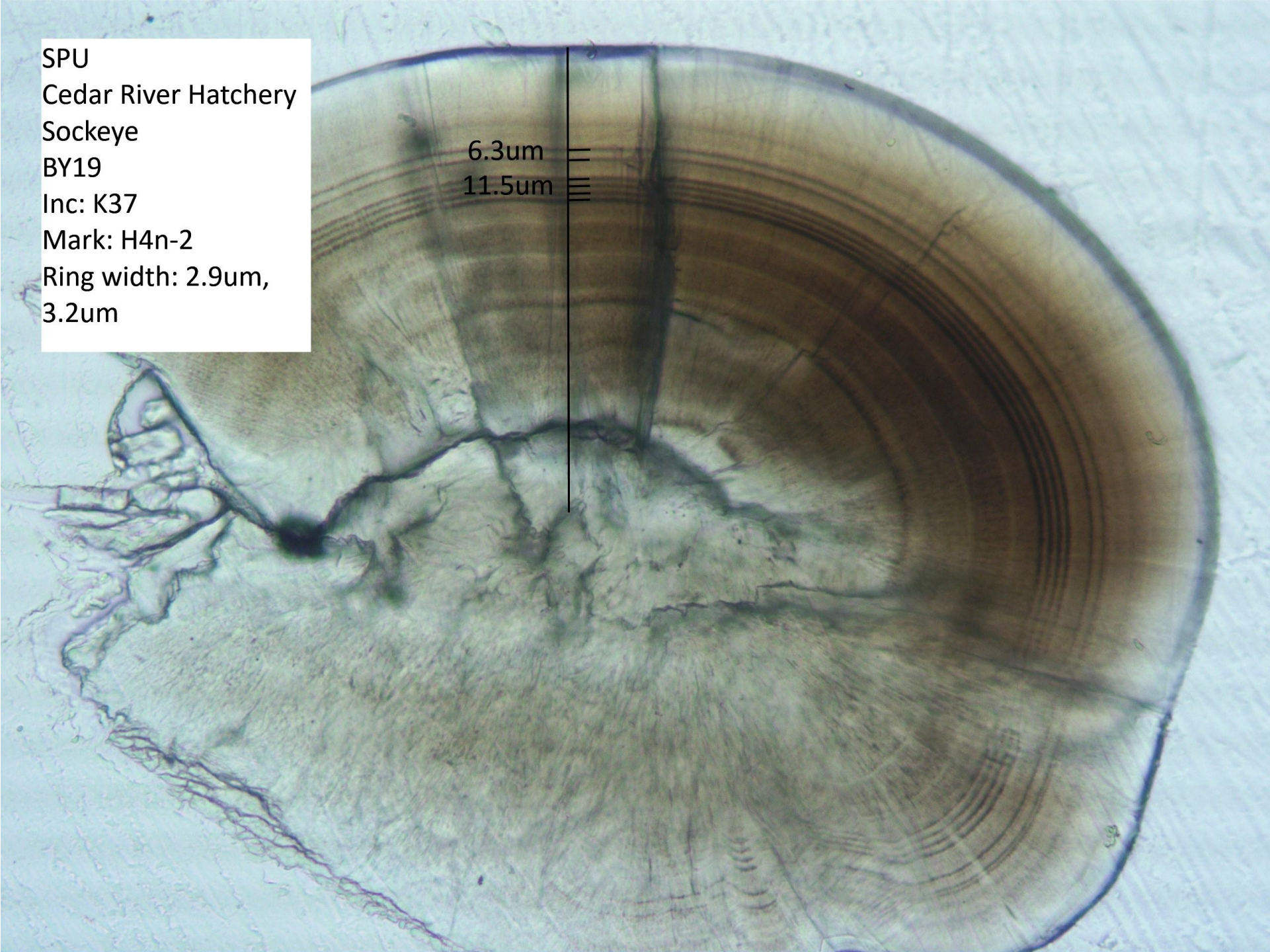
Inc: K37

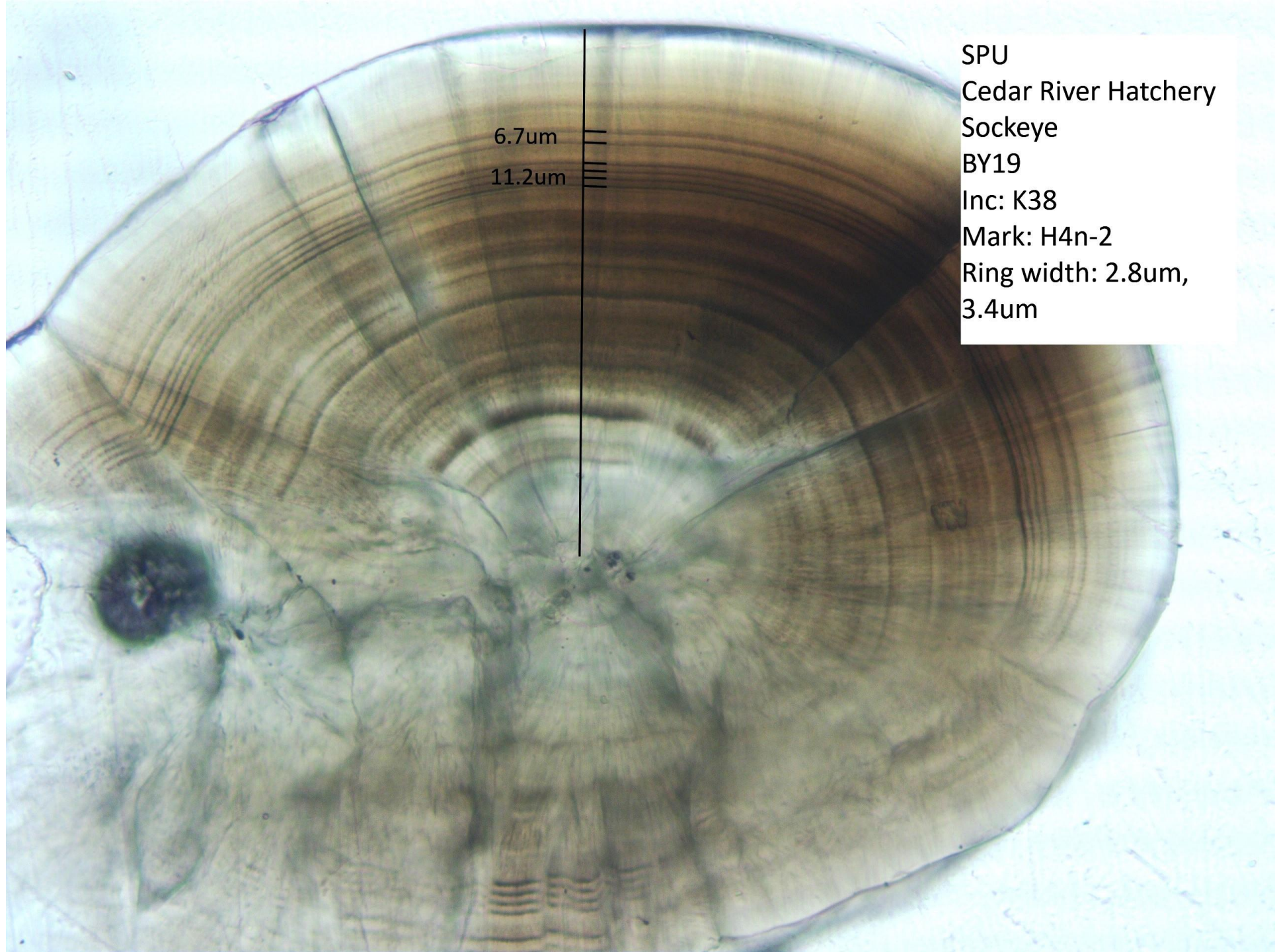
Mark: H4n-2

Ring width: 2.9um,
3.2um

6.3um

11.5um





SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K38
Mark: H4n-2
Ring width: 2.8um,
3.4um

SPU

Cedar River Hatchery

Sockeye

BY19

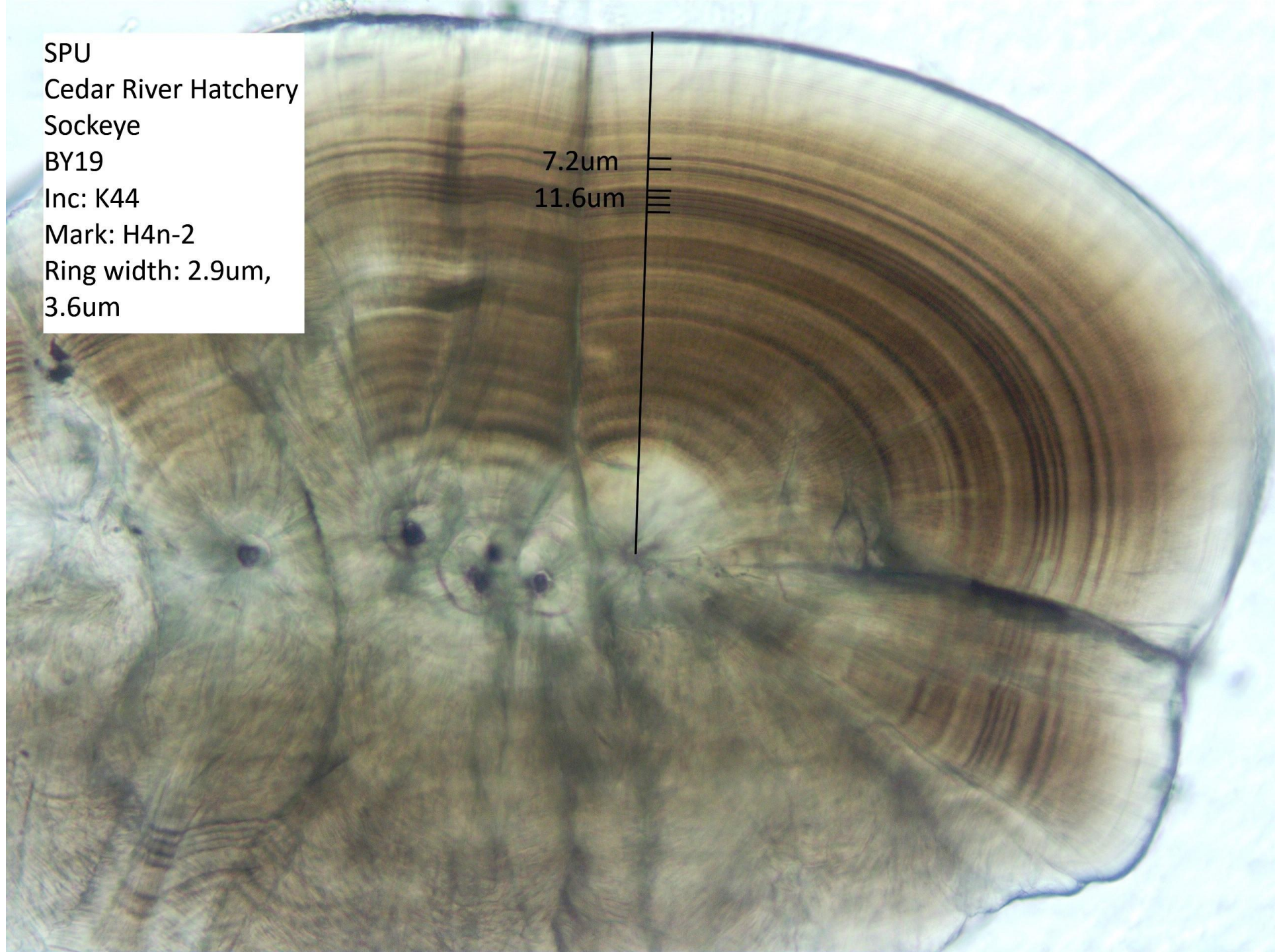
Inc: K44

Mark: H4n-2

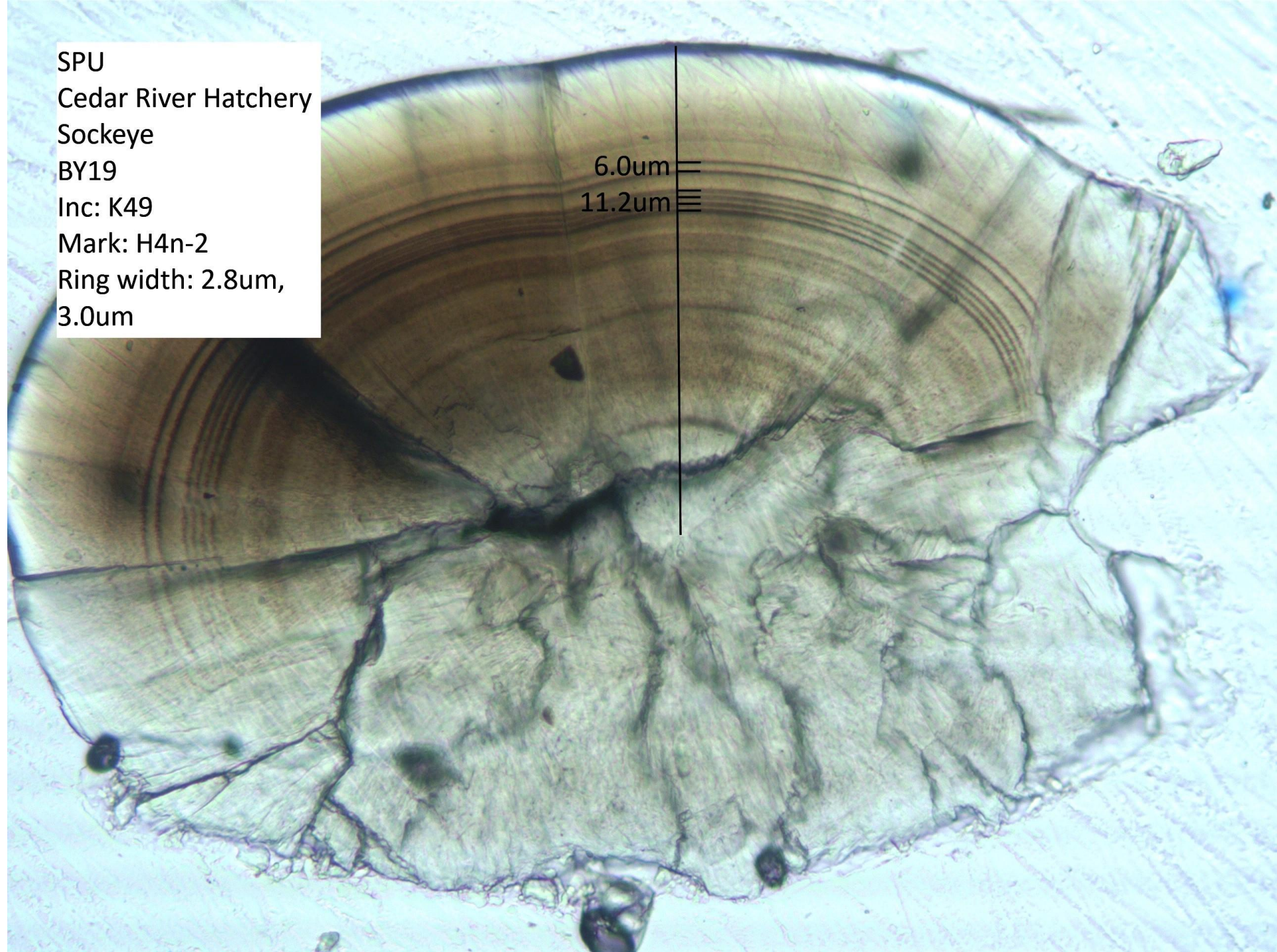
Ring width: 2.9um,
3.6um

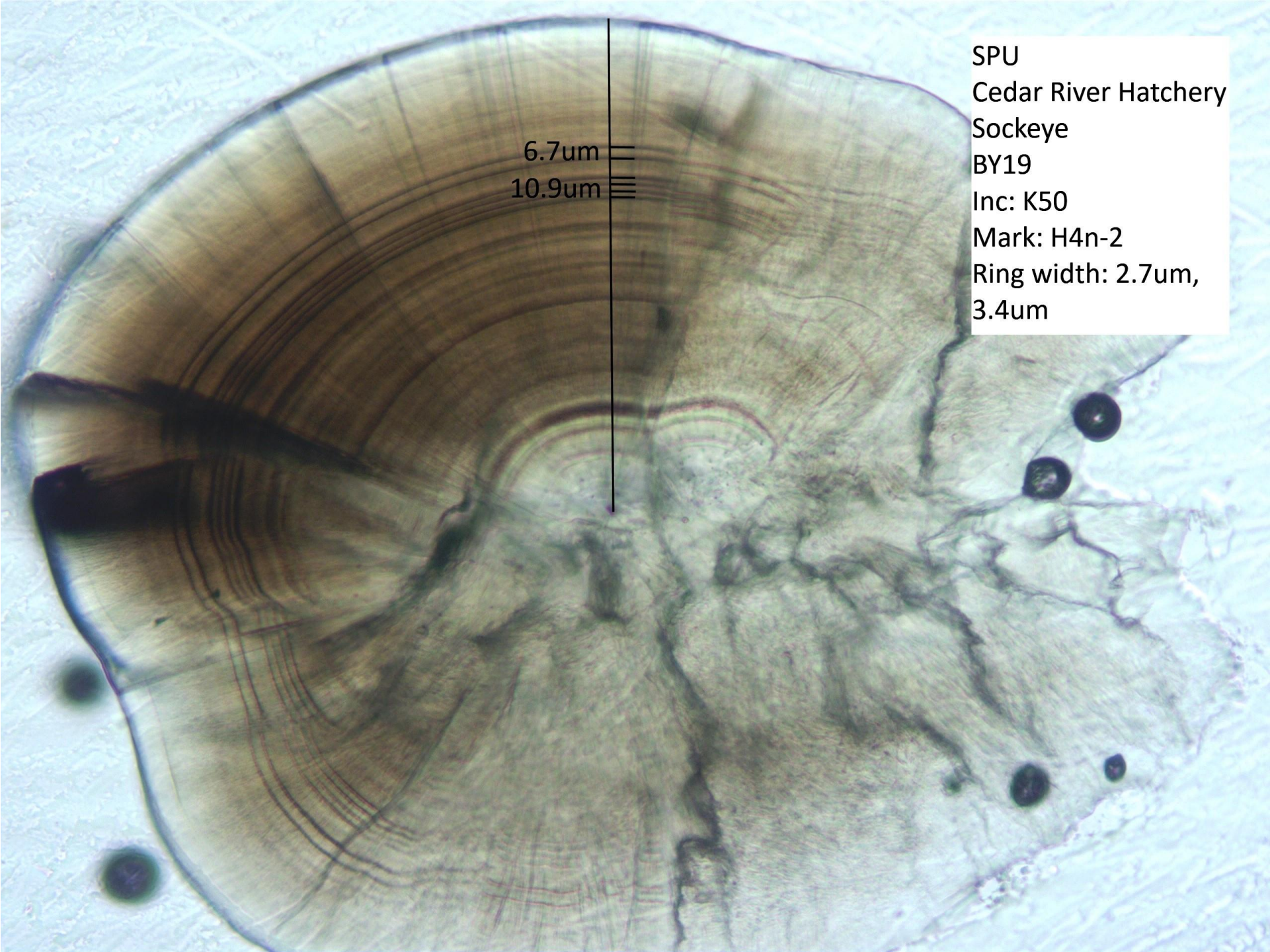
7.2um

11.6um



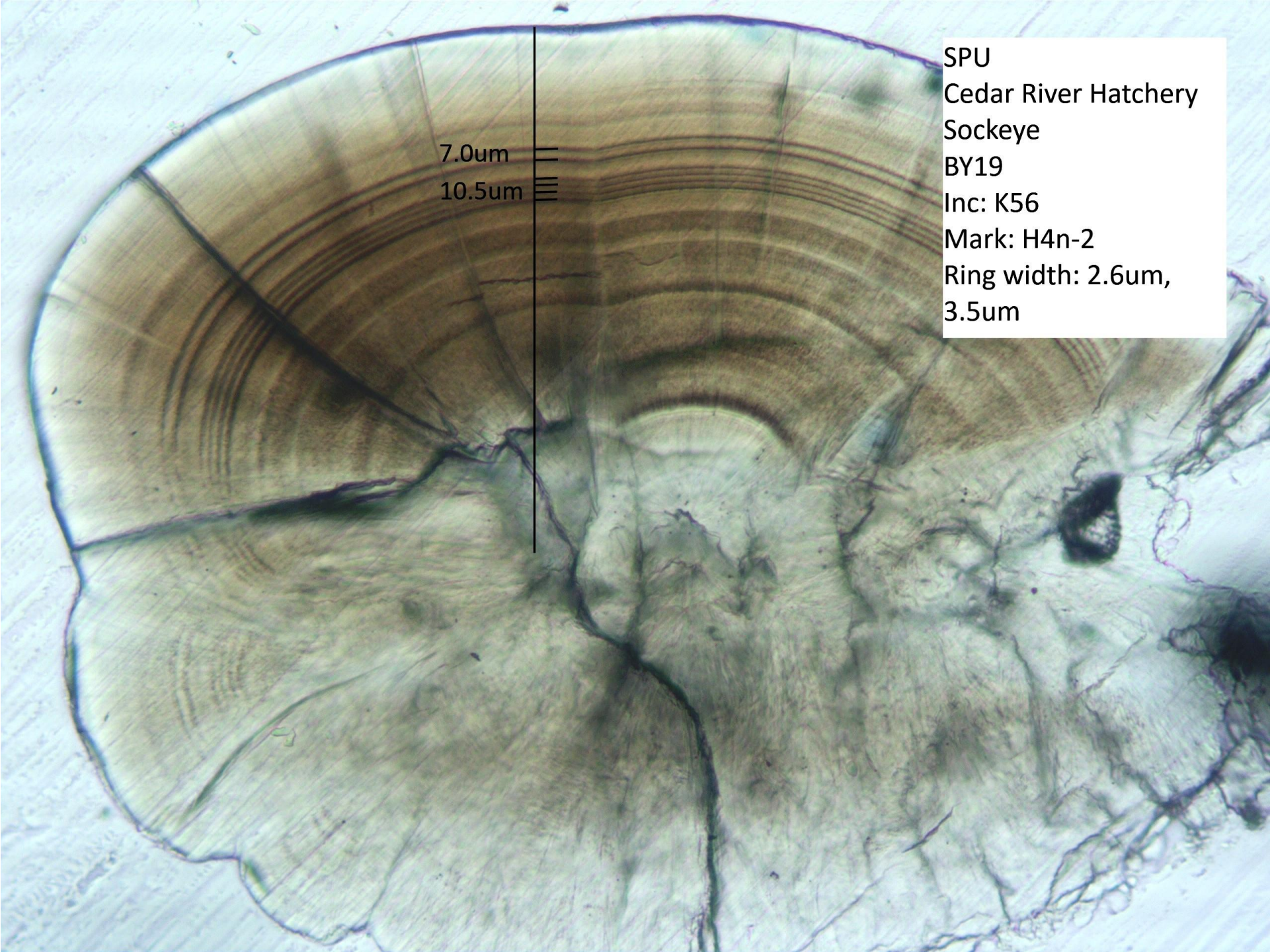
SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K49
Mark: H4n-2
Ring width: 2.8um,
3.0um



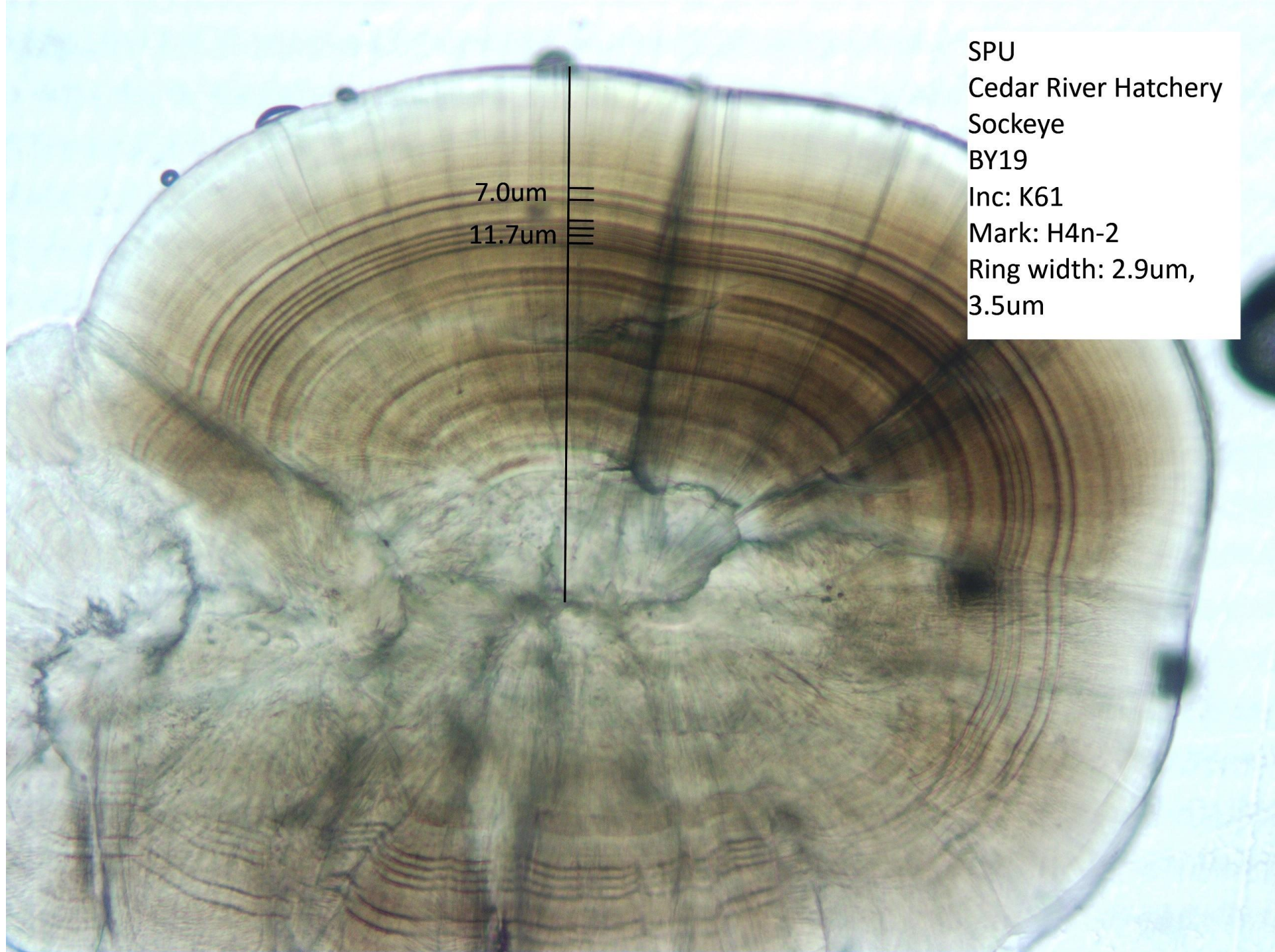


6.7um
10.9um

SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K50
Mark: H4n-2
Ring width: 2.7um,
3.4um



SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K56
Mark: H4n-2
Ring width: 2.6um,
3.5um



SPU

Cedar River Hatchery

Sockeye

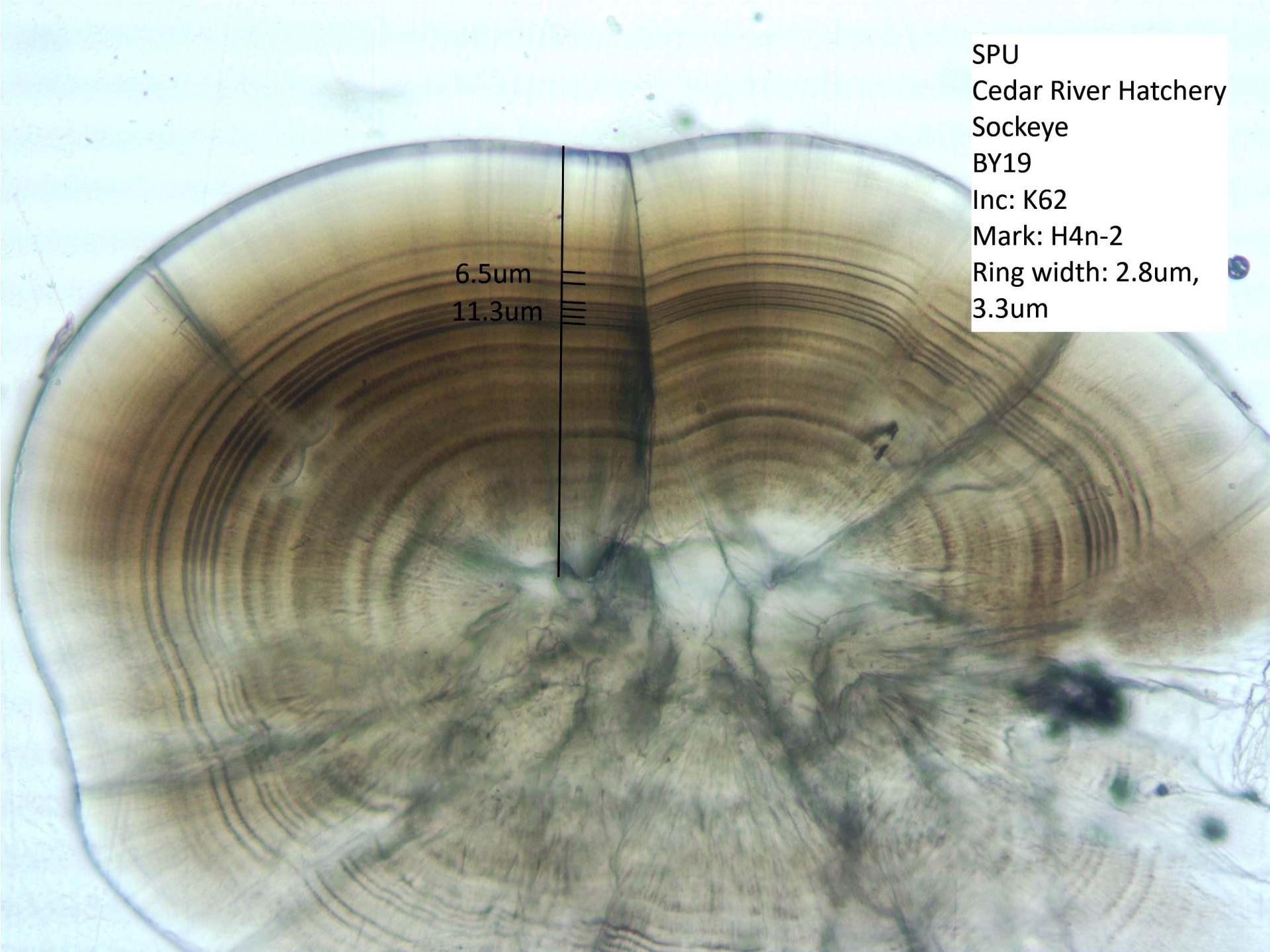
BY19

Inc: K61

Mark: H4n-2

Ring width: 2.9um,

3.5um



SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K62
Mark: H4n-2
Ring width: 2.8um,
3.3um

SPU

Cedar River Hatchery

Sockeye

BY19

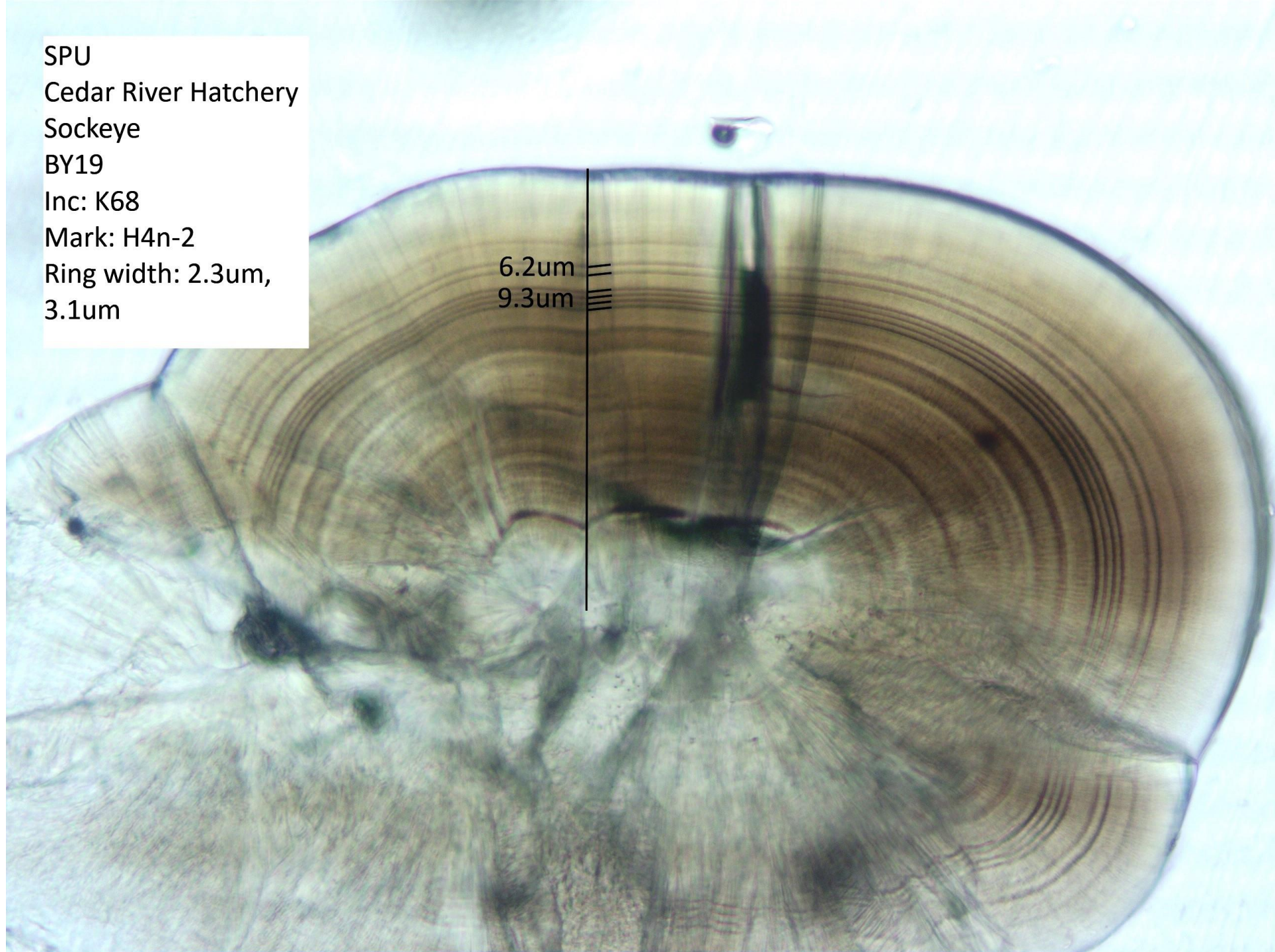
Inc: K68

Mark: H4n-2

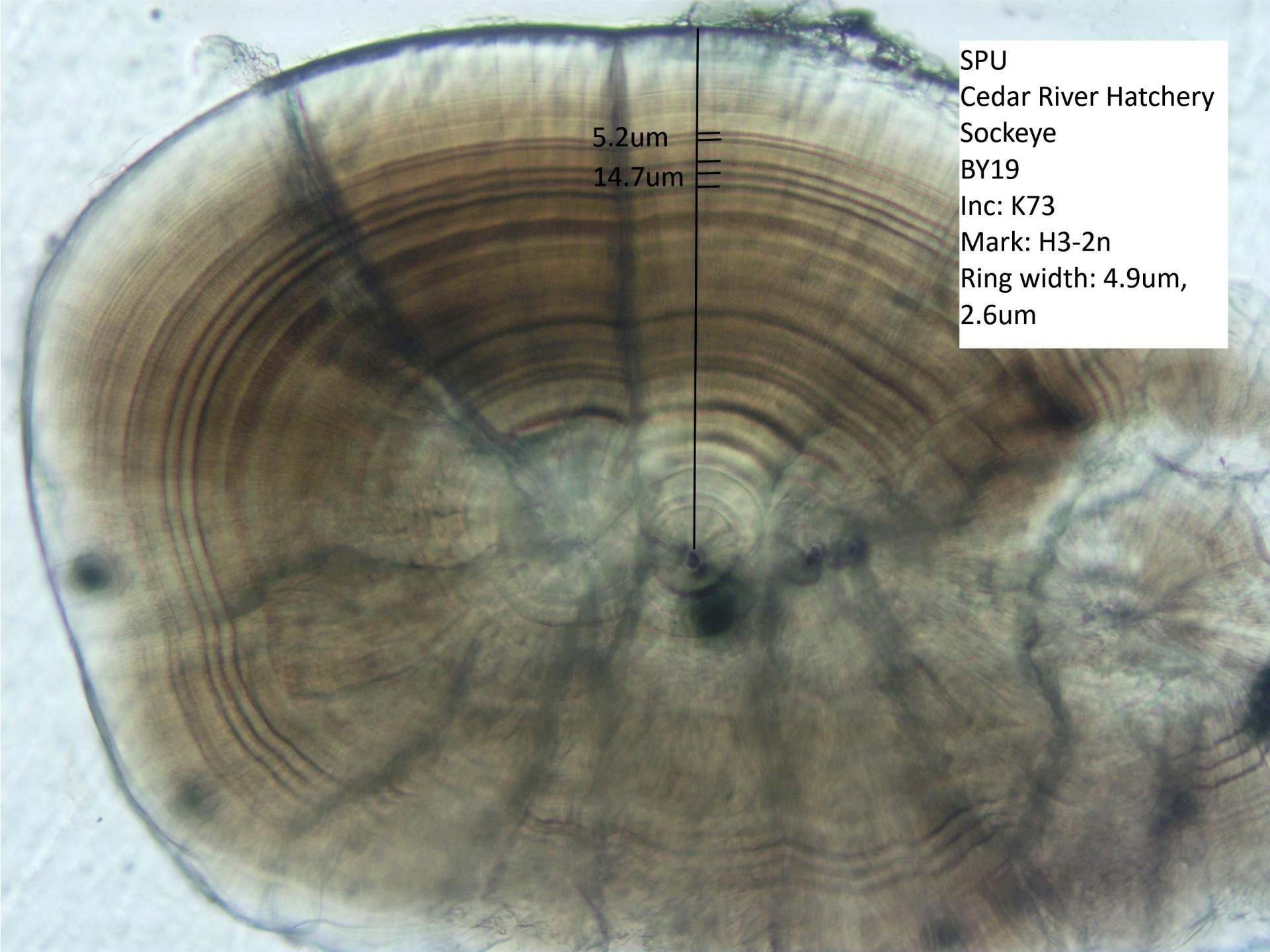
Ring width: 2.3um,
3.1um

6.2um

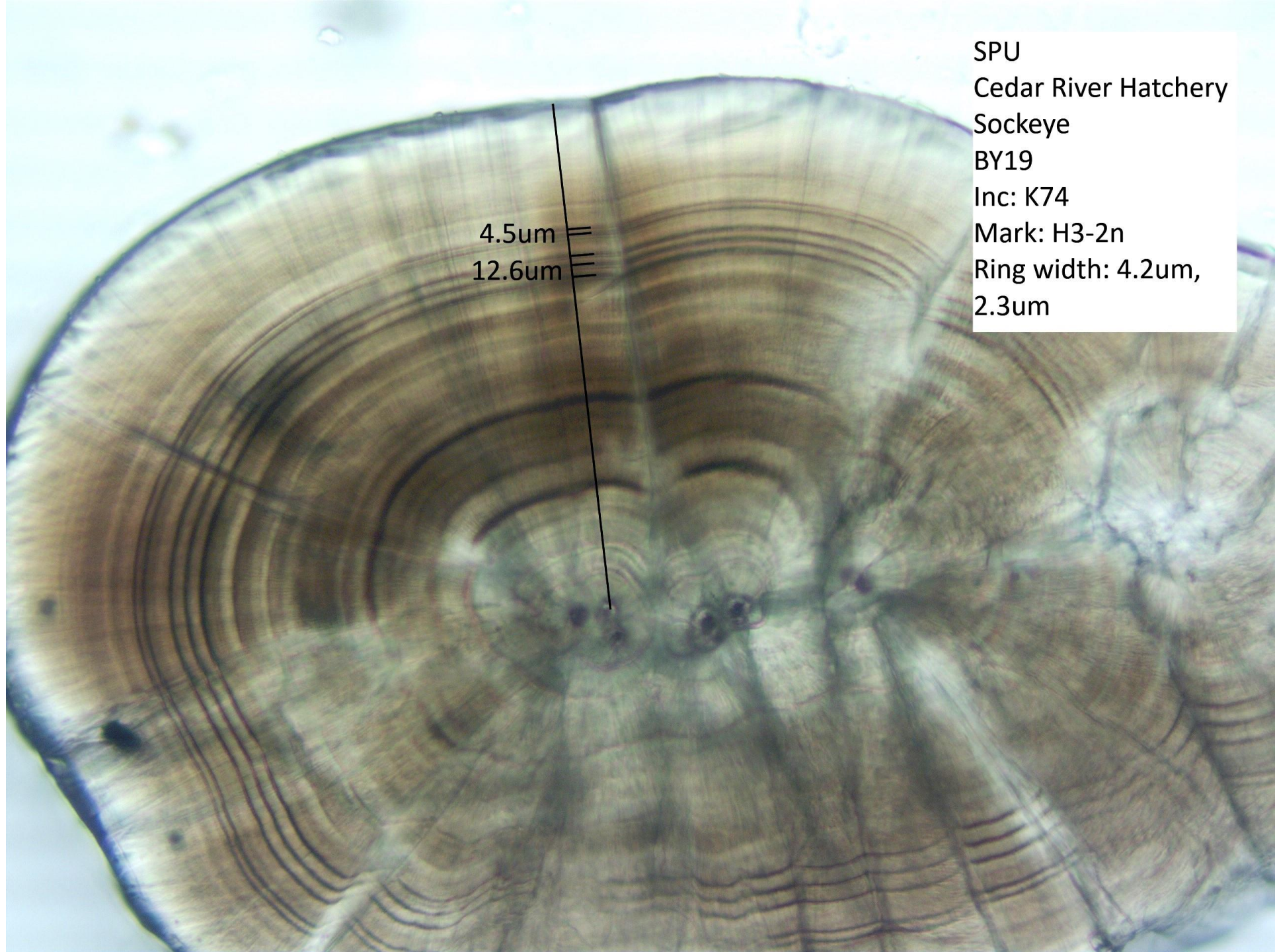
9.3um



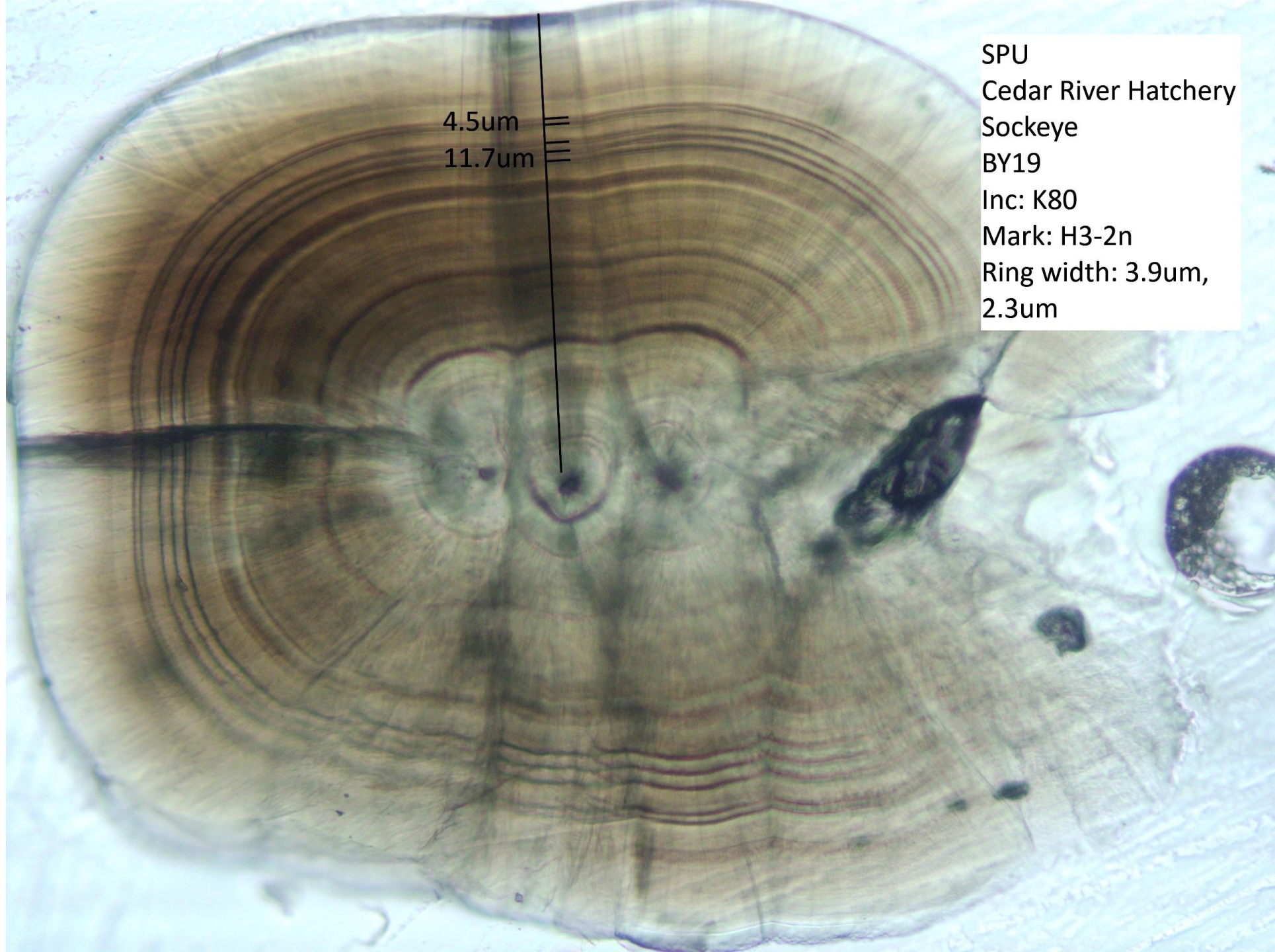
H3-2n



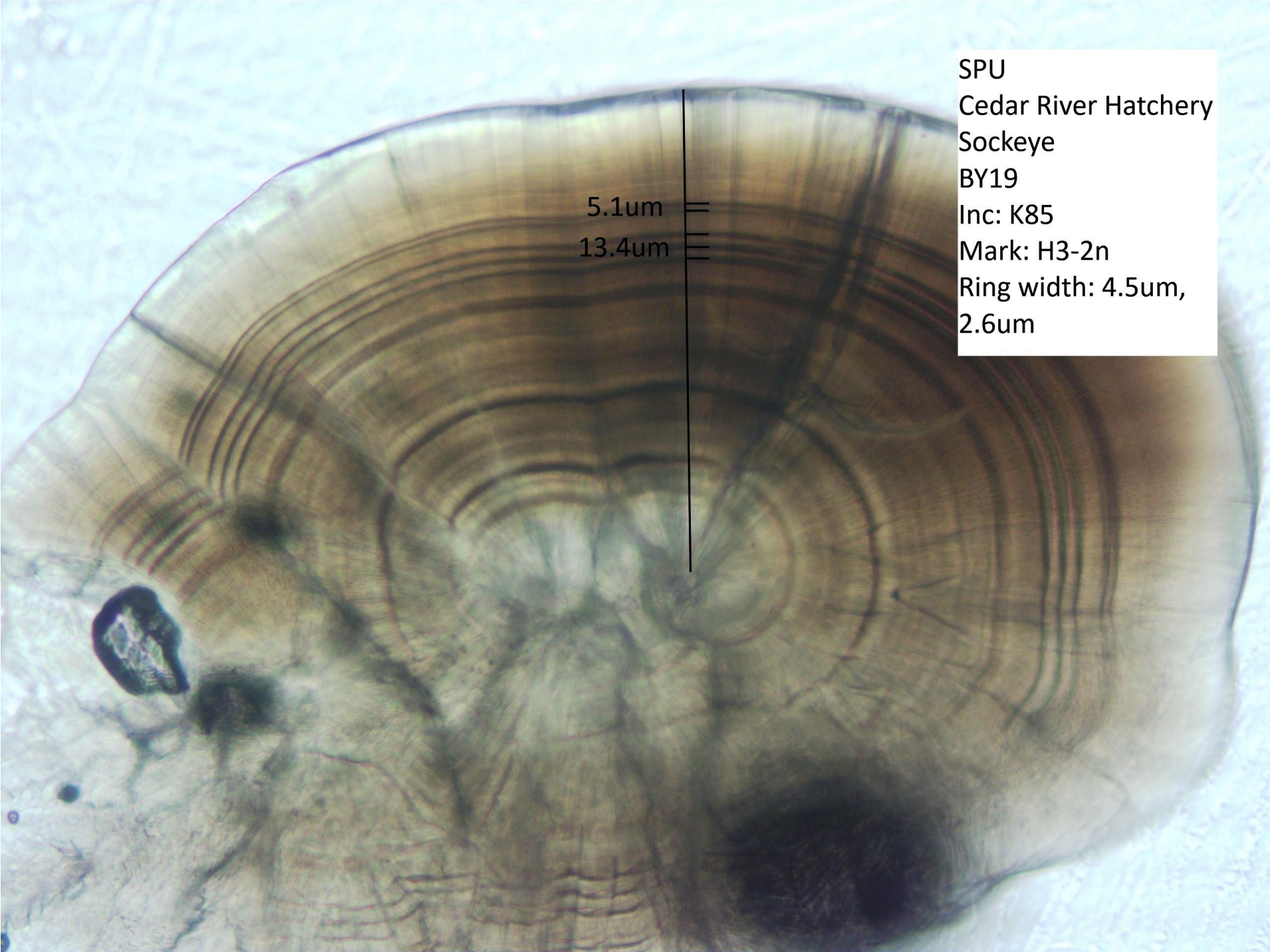
SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K73
Mark: H3-2n
Ring width: 4.9um,
2.6um



SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K74
Mark: H3-2n
Ring width: 4.2um,
2.3um



SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K80
Mark: H3-2n
Ring width: 3.9um,
2.3um



SPU

Cedar River Hatchery

Sockeye

BY19

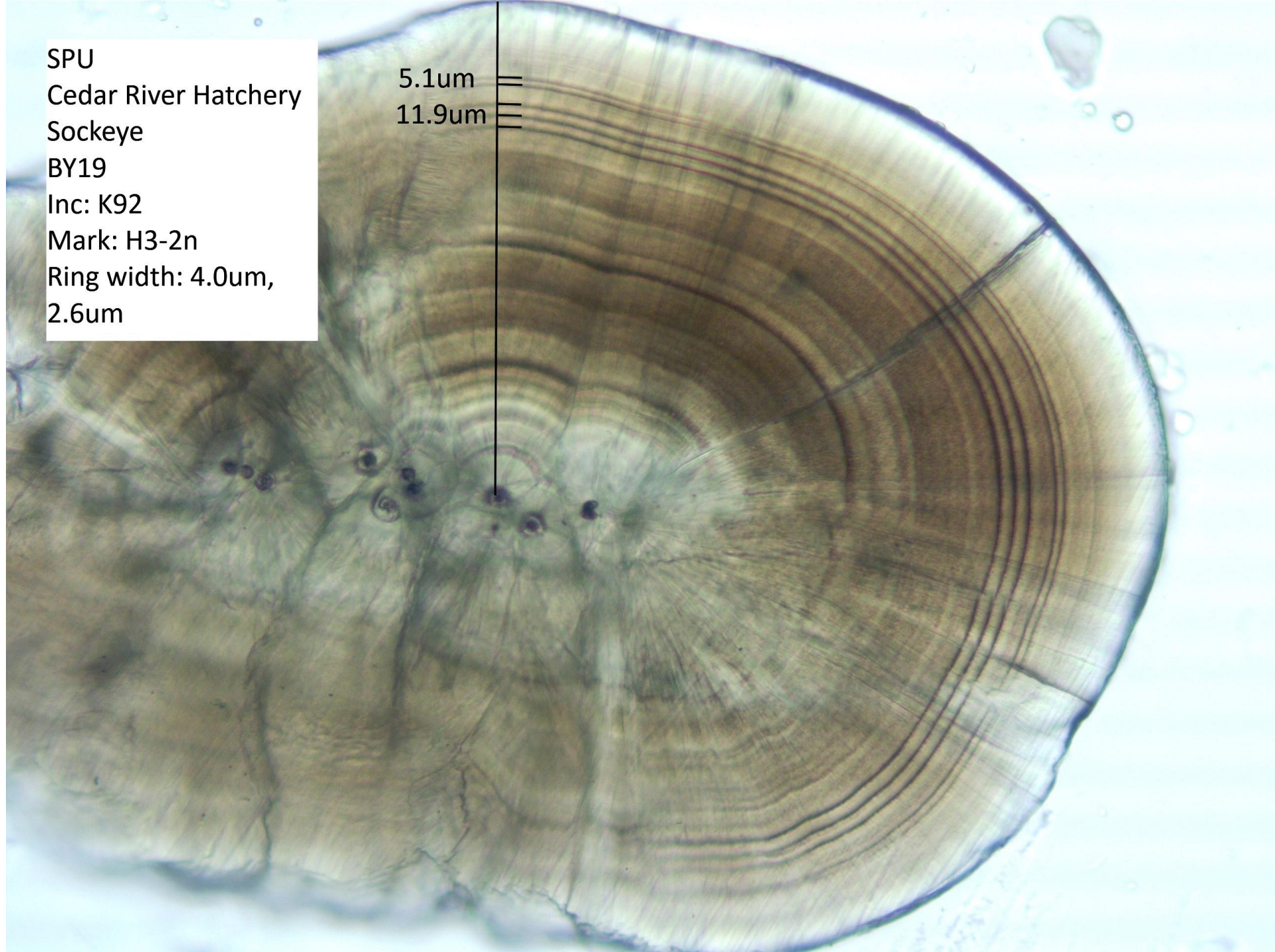
Inc: K85

Mark: H3-2n

Ring width: 4.5um,
2.6um

SPU
Cedar River Hatchery
Sockeye
BY19
Inc: K92
Mark: H3-2n
Ring width: 4.0um,
2.6um

5.1um
11.9um



SPU

Cedar River Hatchery

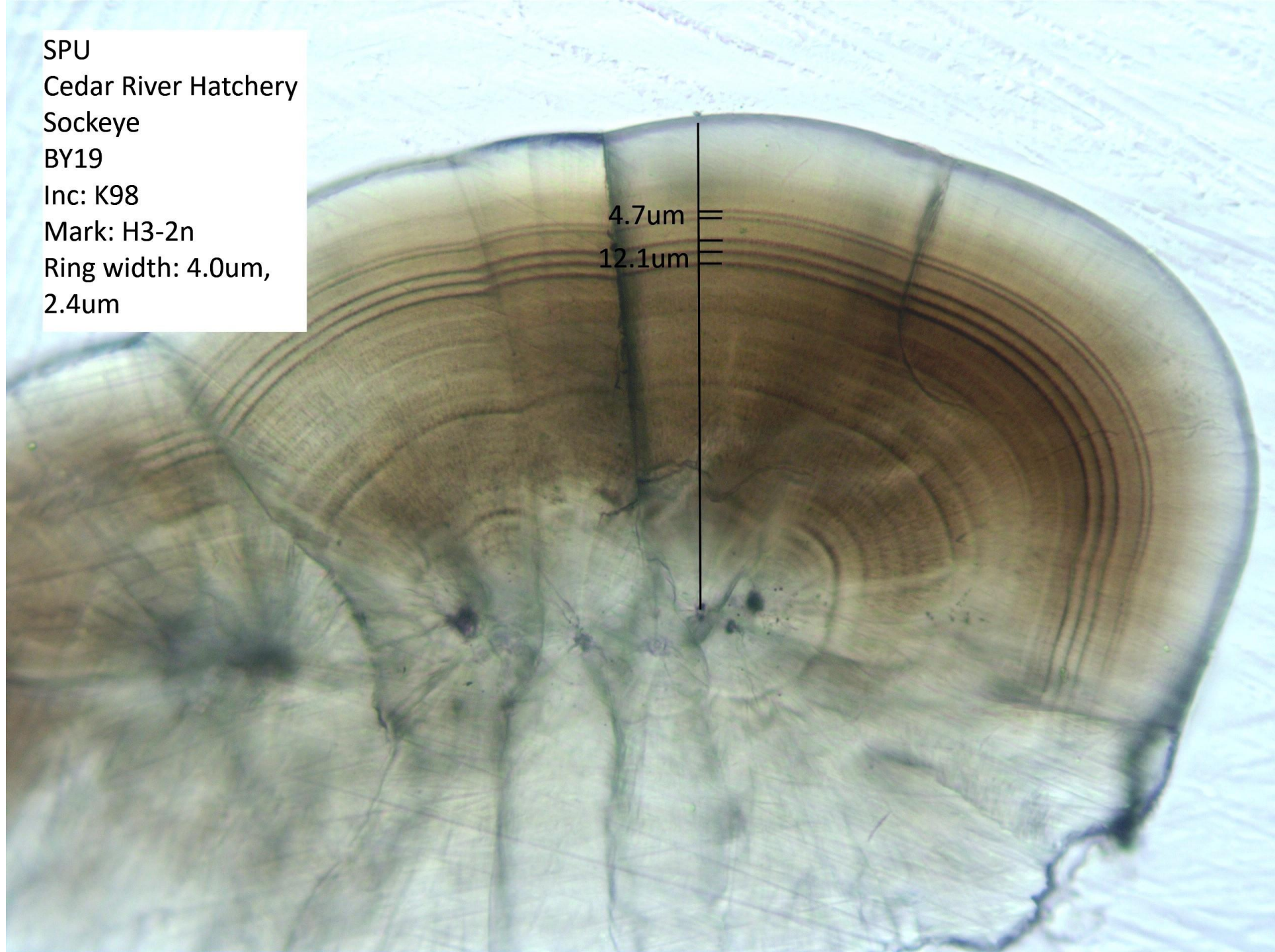
Sockeye

BY19

Inc: K98

Mark: H3-2n

Ring width: 4.0um,
2.4um



SPU

Cedar River Hatchery

Sockeye

BY19

Inc: K104

Mark: H3-2n

Ring width: 4.1um,
2.3um

4.6um

12.2um

