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Differentiation of pseudo-nitzschia species (Baccillariophyceae) in seawater samples from the Salish Sea using the compound microscope

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DIFFERENTIATION OF PSEUDO-NITZSCHIA SPECIES IN SEAWATER SAMPLES FROM THE SALISH SEA USING THE COMPOUND MICROSCOPE

NICOLA HAIGH, DEVAN JOHNSON, AND TAMARA BROWN



MICROTHALASSIA

OVERVIEW

- WHY
- HOW
- KEY

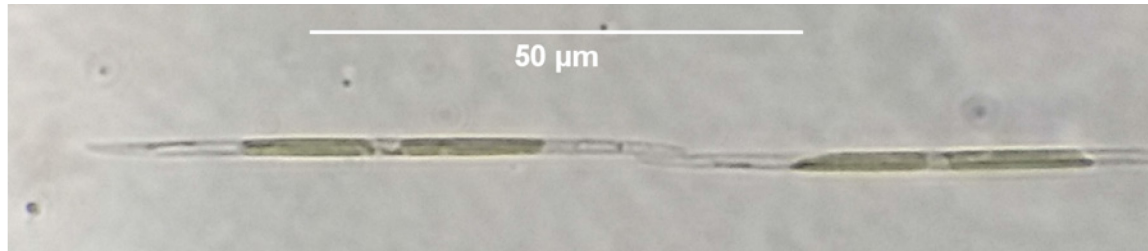
WHY

- Routine phytoplankton sample analysis for monitoring programs is still done with the compound microscope
- There is a perception that differentiating between different *Pseudo-nitzschia* species using the light microscope is “impossible”
- Grouping *Pseudo-nitzschia* into a few easily-differentiated groups increases useful data from routine monitoring
- However: most *Pseudo-nitzschia* keys start with presence/absence of central interspace, which requires acid-cleaned material

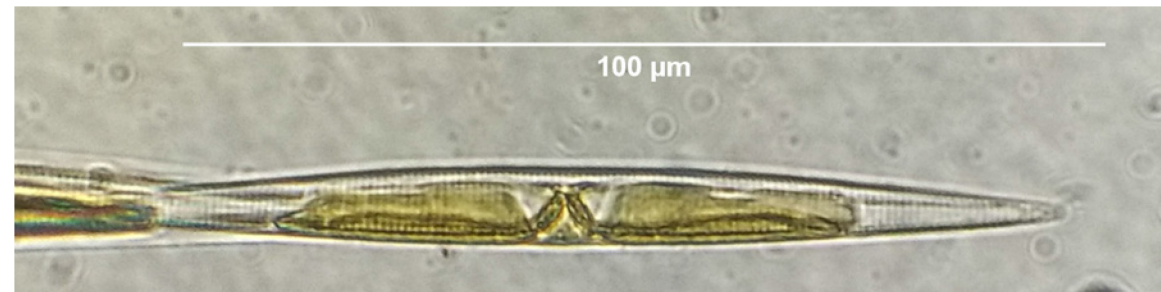
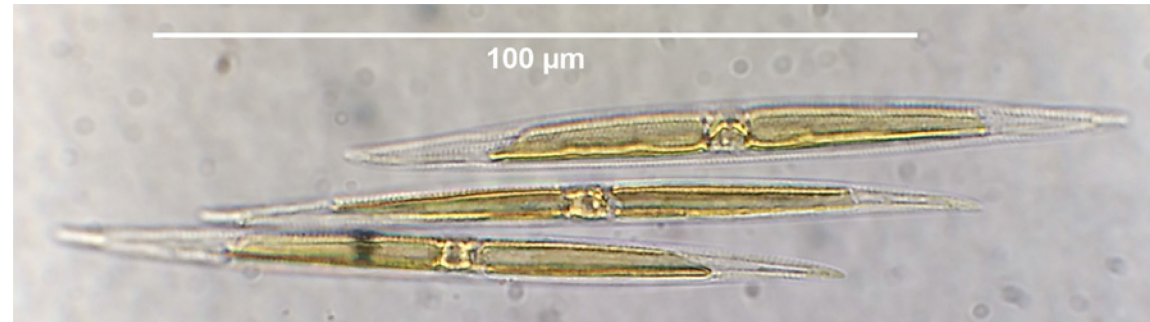
HOW: KEY FEATURES

- Cell size: cell length and width
- Cell shape
- Cell overlap in chains
- Visibility of interstriae (“stripes”)
- Cell end shape

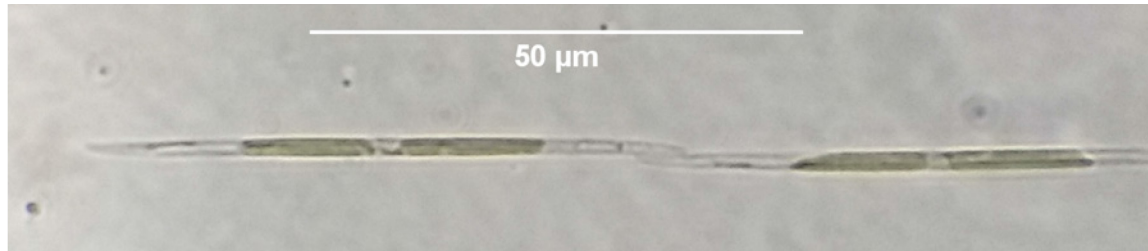
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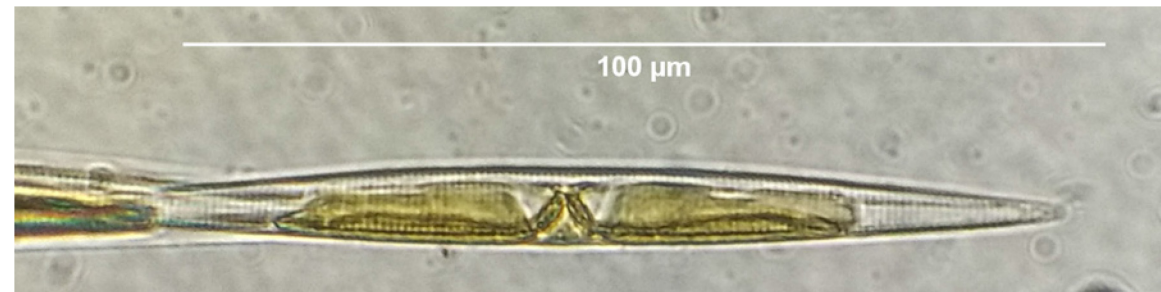
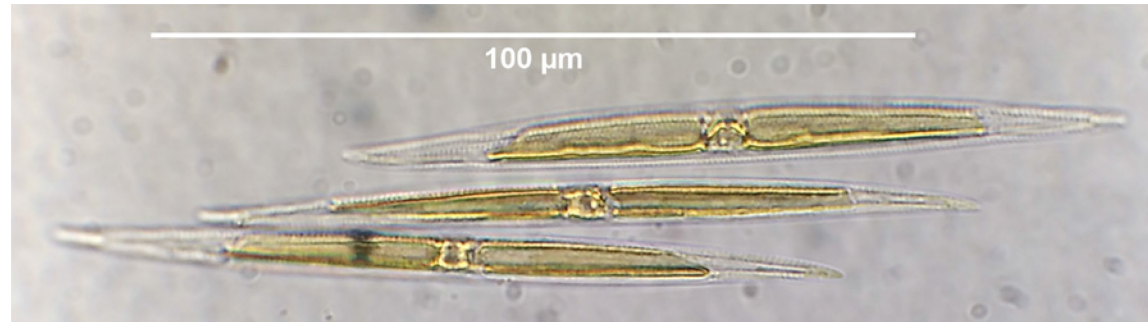
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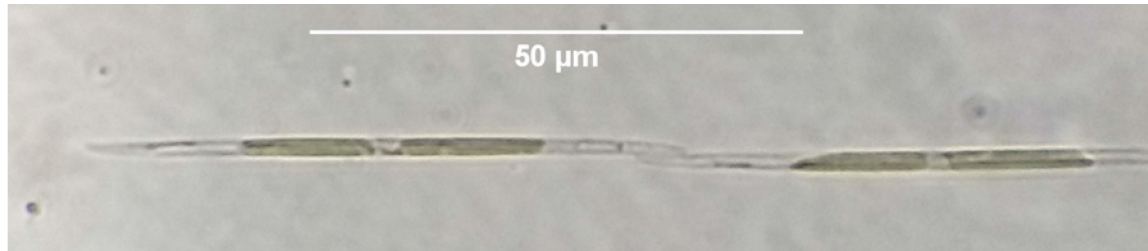
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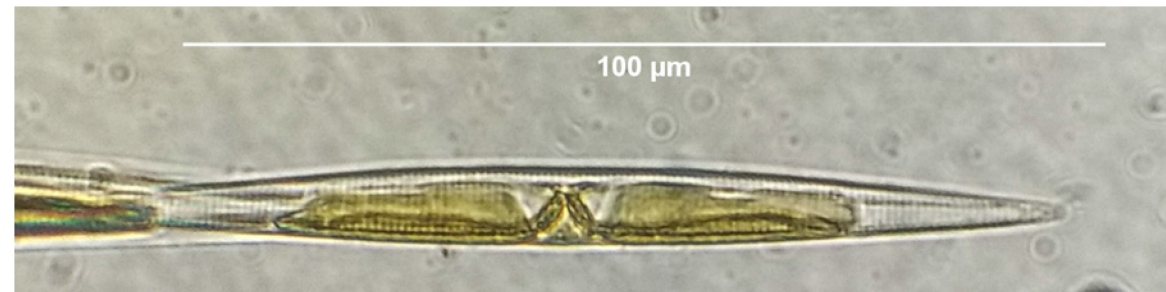
- Cell size: cell length and width
- Cell shape: valve view



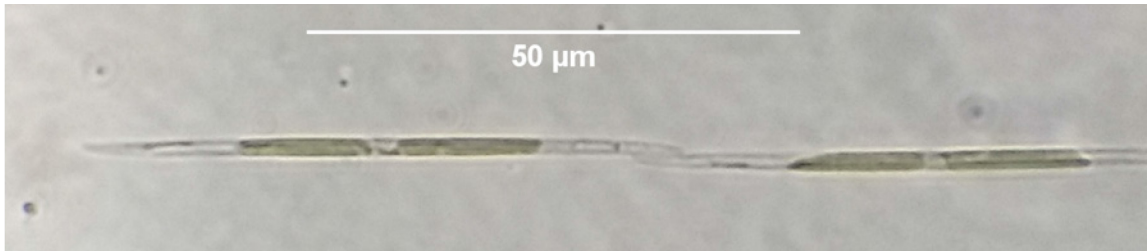
HOW: KEY FEATURES



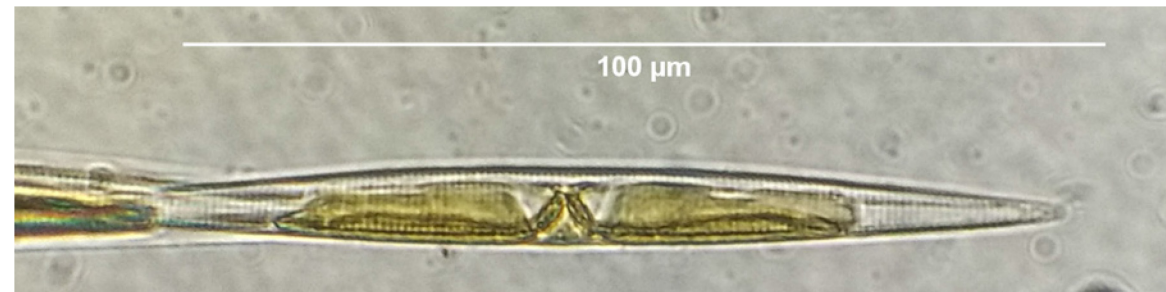
- Cell size: cell length and width
- Cell shape: valve view
- Cell overlap in chains



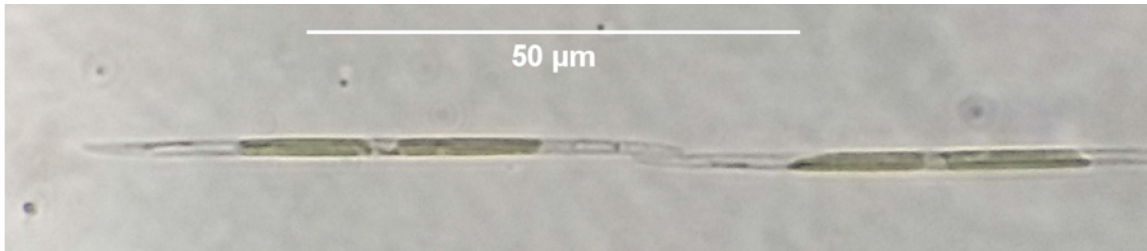
HOW: KEY FEATURES



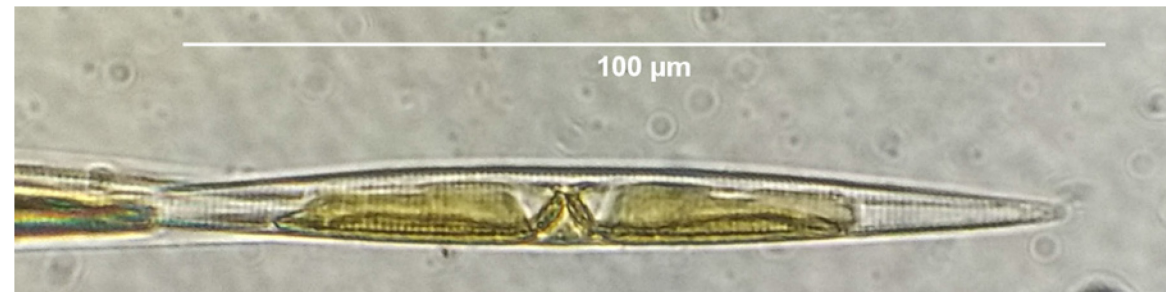
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HOW: KEY FEATURES



- Cell size: cell length and width
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- Cell overlap in chains
- Visibility of interstriae (“stripes”)
- Cell end shape

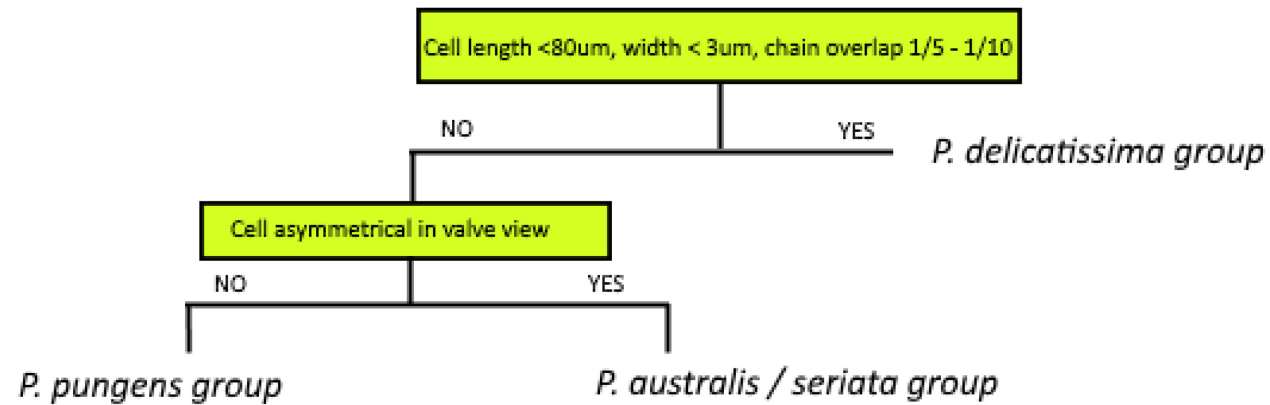


HOW: KEY SPECIES

- *Pseudo-nitzschia pungens* group
- *P. delicatissima* group
- *P. australis*
- *P. seriata*
- *P. heimii*
- *P. fraudulenta*

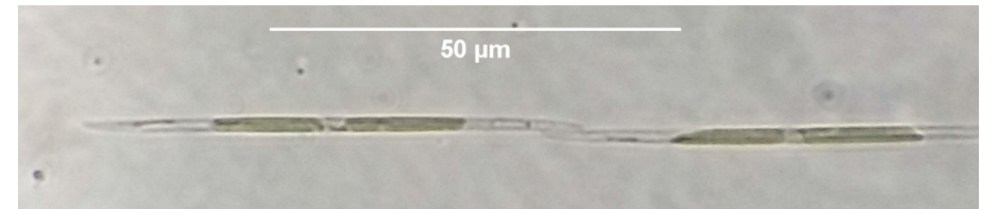
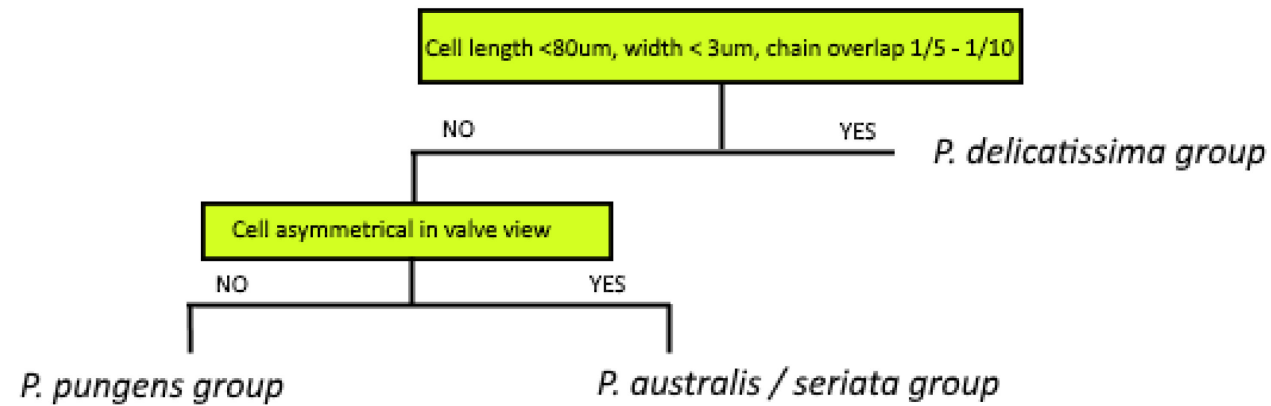
KEY – SIMPLE 3 GROUPS

SALISH SEA PSEUDO-NITZSCHIA SPECIES FLOWCHART



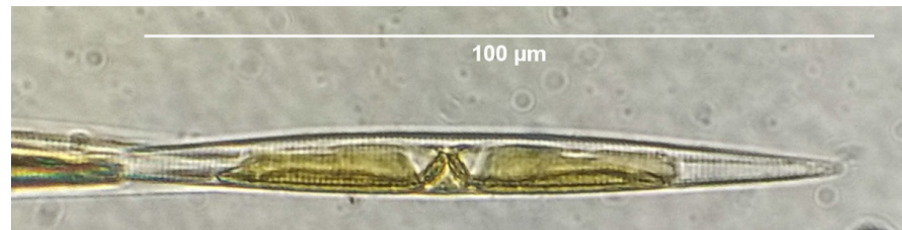
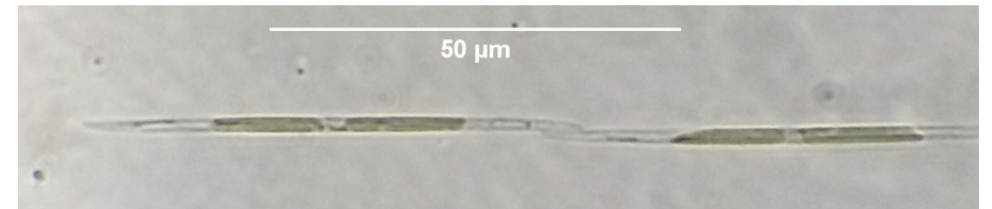
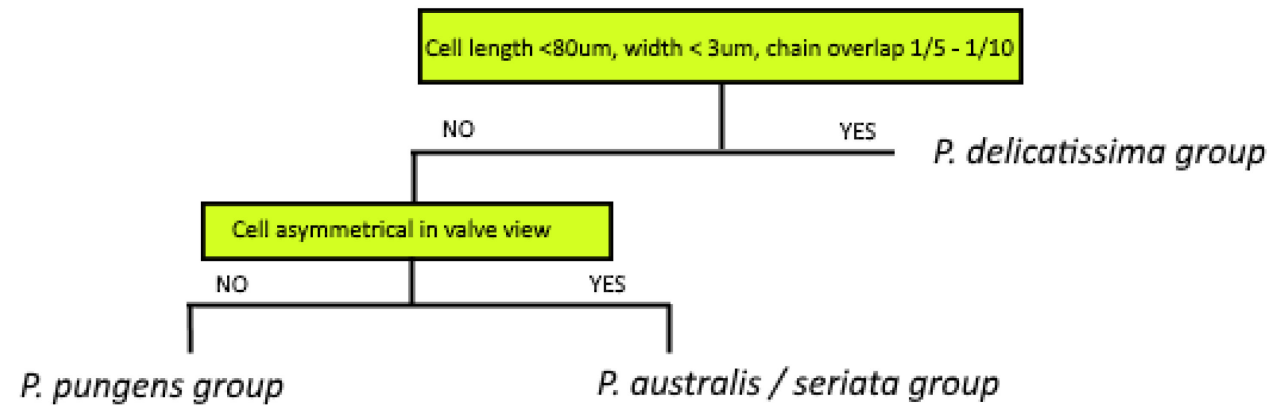
SIMPLE 3 GROUPS

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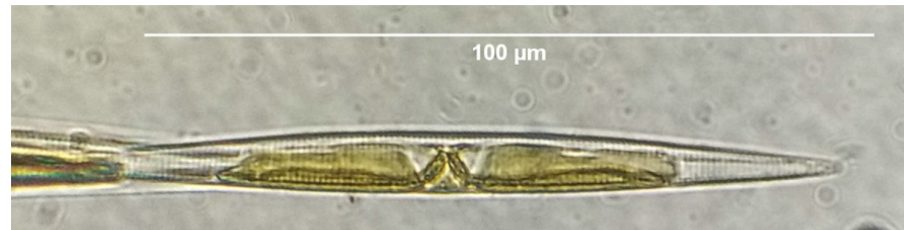
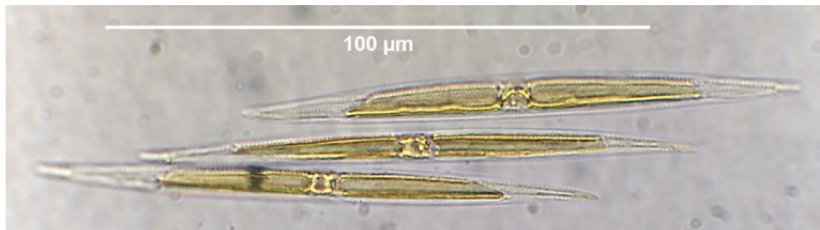
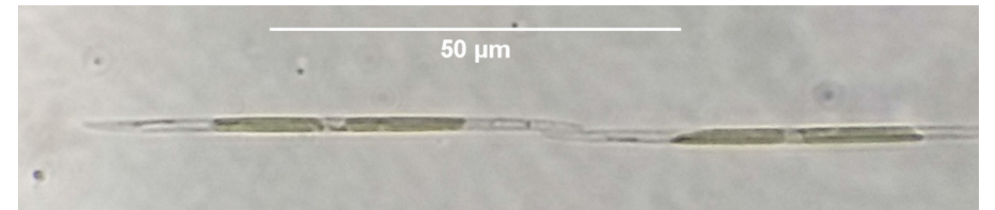
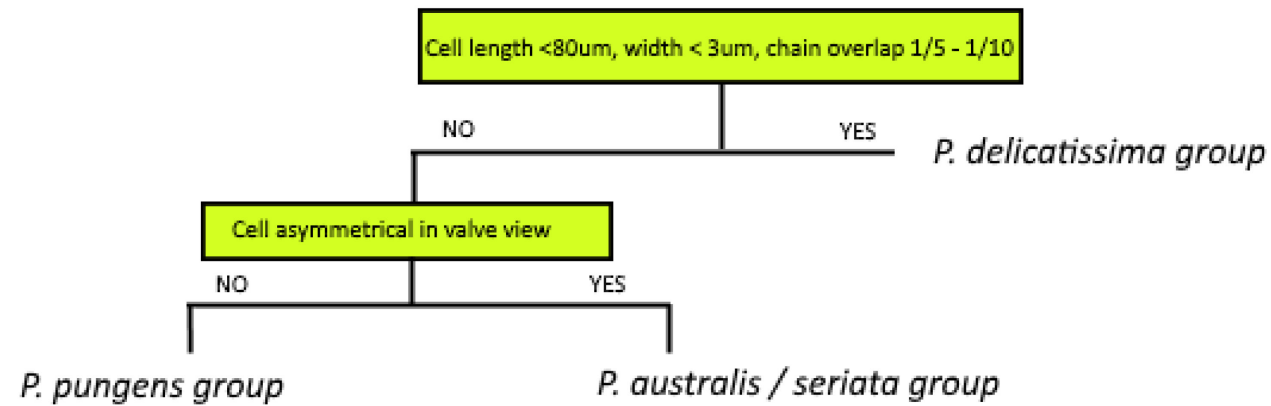
KEY – SIMPLE 3 GROUPS

SALISH SEA PSEUDO-NITZSCHIA SPECIES FLOWCHART



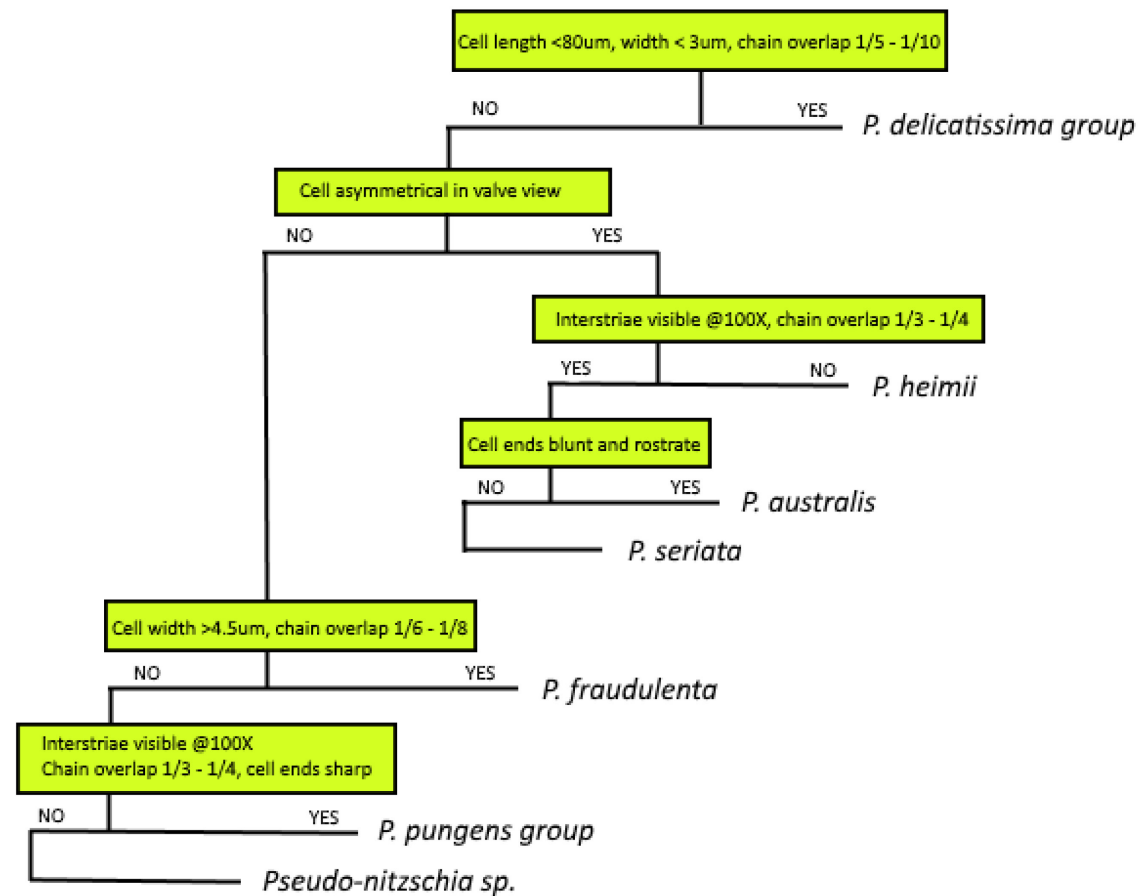
KEY – SIMPLE 3 GROUPS

SALISH SEA PSEUDO-NITZSCHIA SPECIES FLOWCHART



KEY – A FEW MORE SPECIES

SALISH SEA PSEUDO-NITZSCHIA SPECIES FLOWCHART



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