

Acoustic foraging behavior of beluga whales via combined technology:

Satellite telemetry, passive acoustics, accelerometry, and stomach temperature sensing

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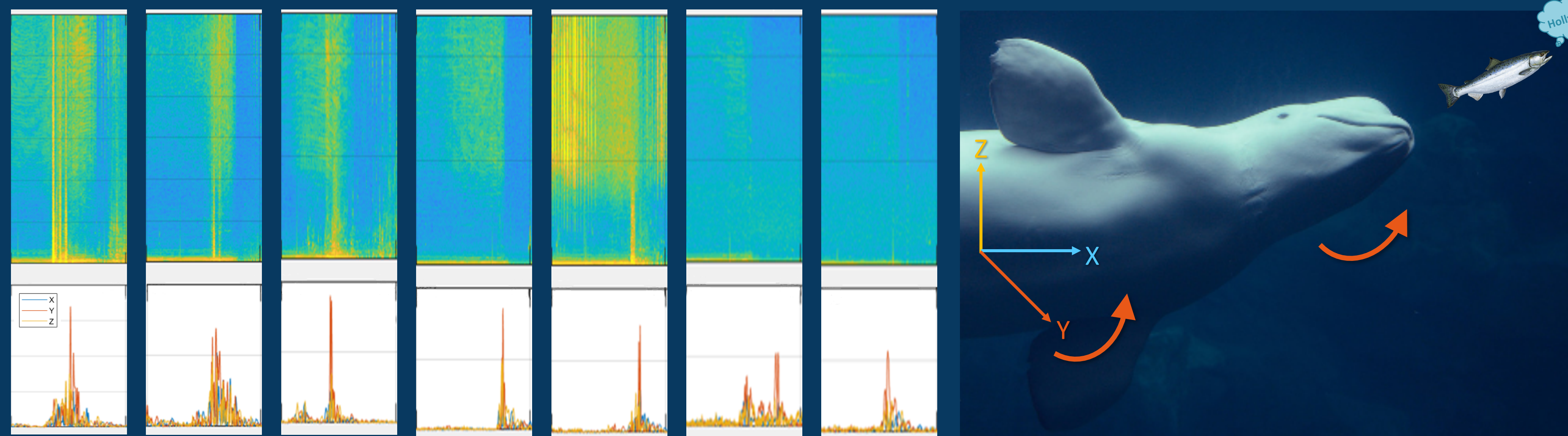
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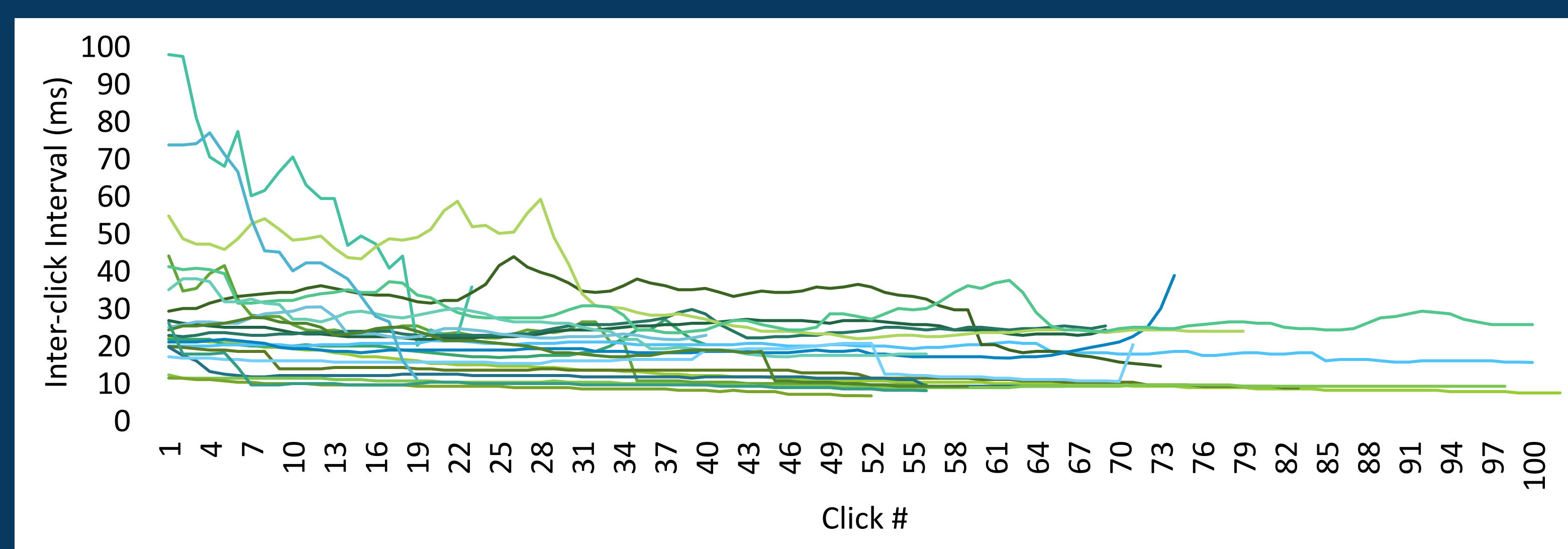
Bristol Bay (AK) belugas instrumented with satellite tag, Dtag, & stomach temperature pill. Feeding behavior is confirmed by drops in stomach temperature and the acoustic signature and foraging kinematics are documented

Prey capture is dominated by Y axis jerks suggesting rotation at capture rather than forward sprint

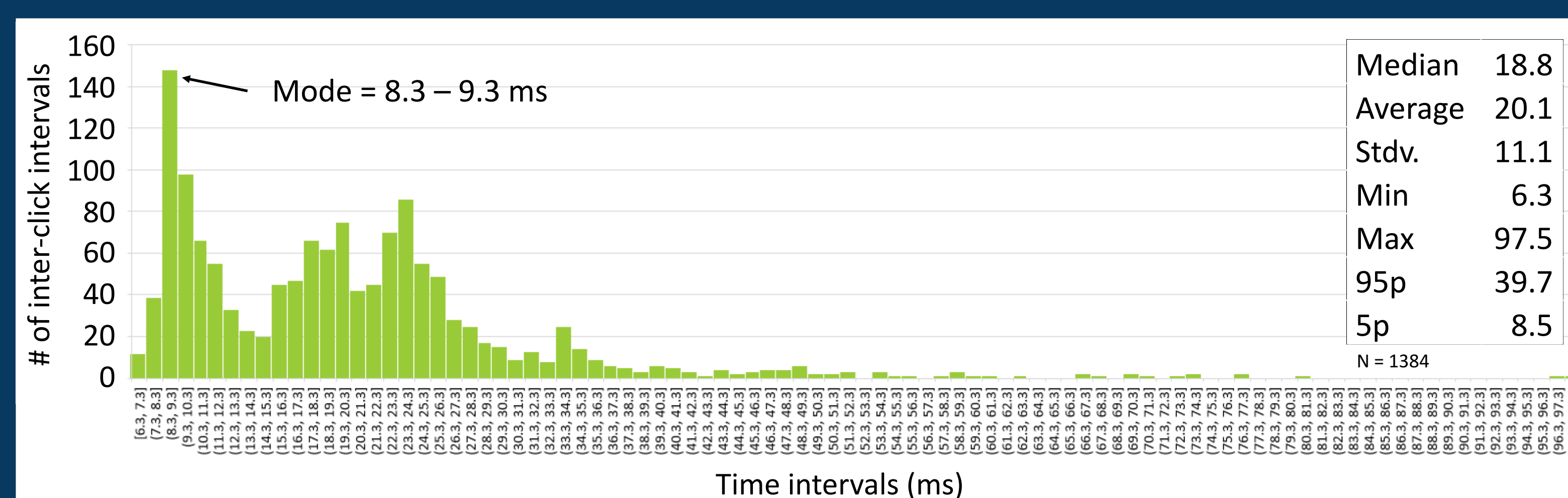


7 examples of acceleration jerks at prey capture (confirmed by prey crunch noise & stomach T drop)

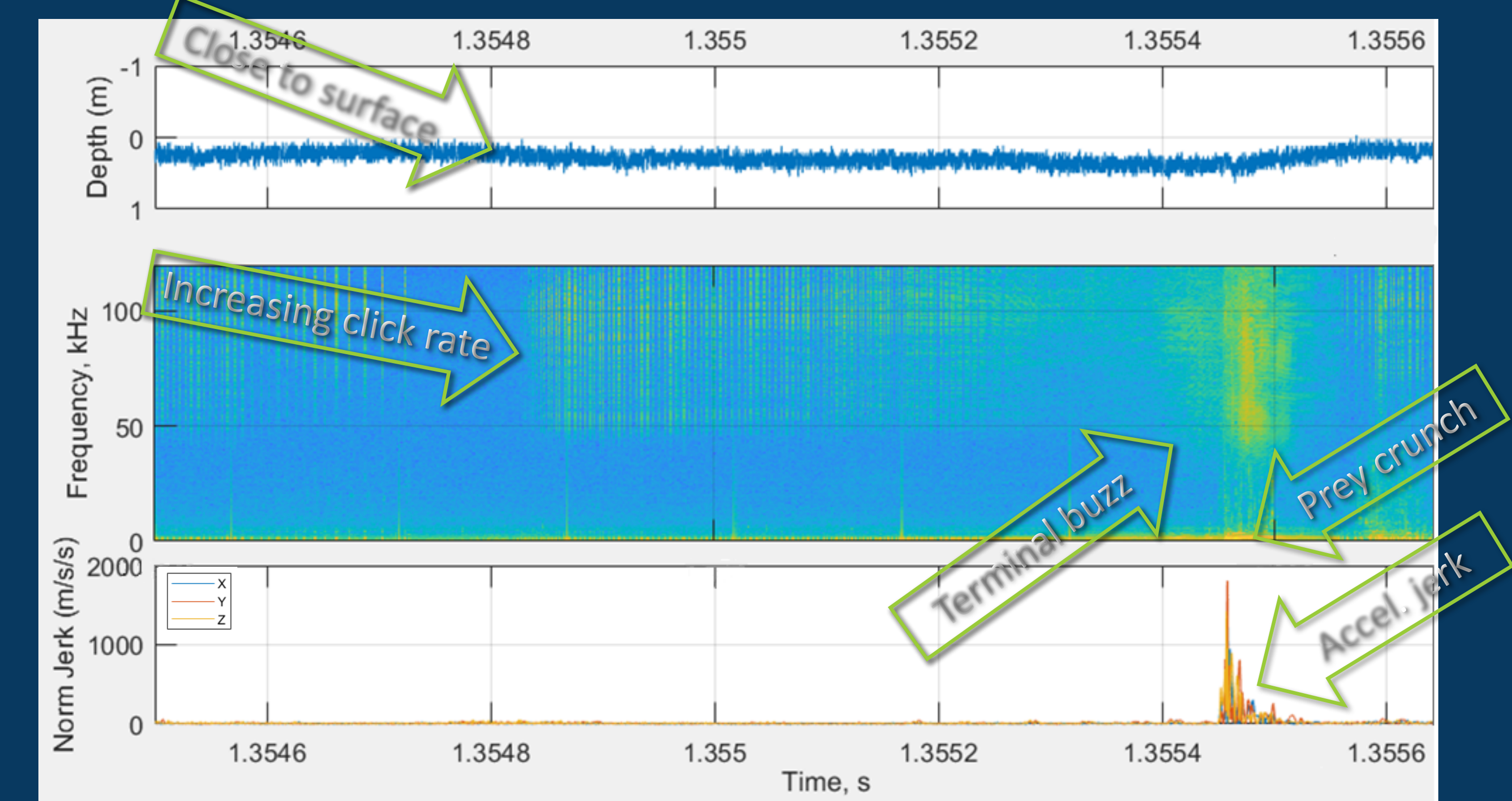
Inter-click intervals from successful terminal buzzes down to 6 ms



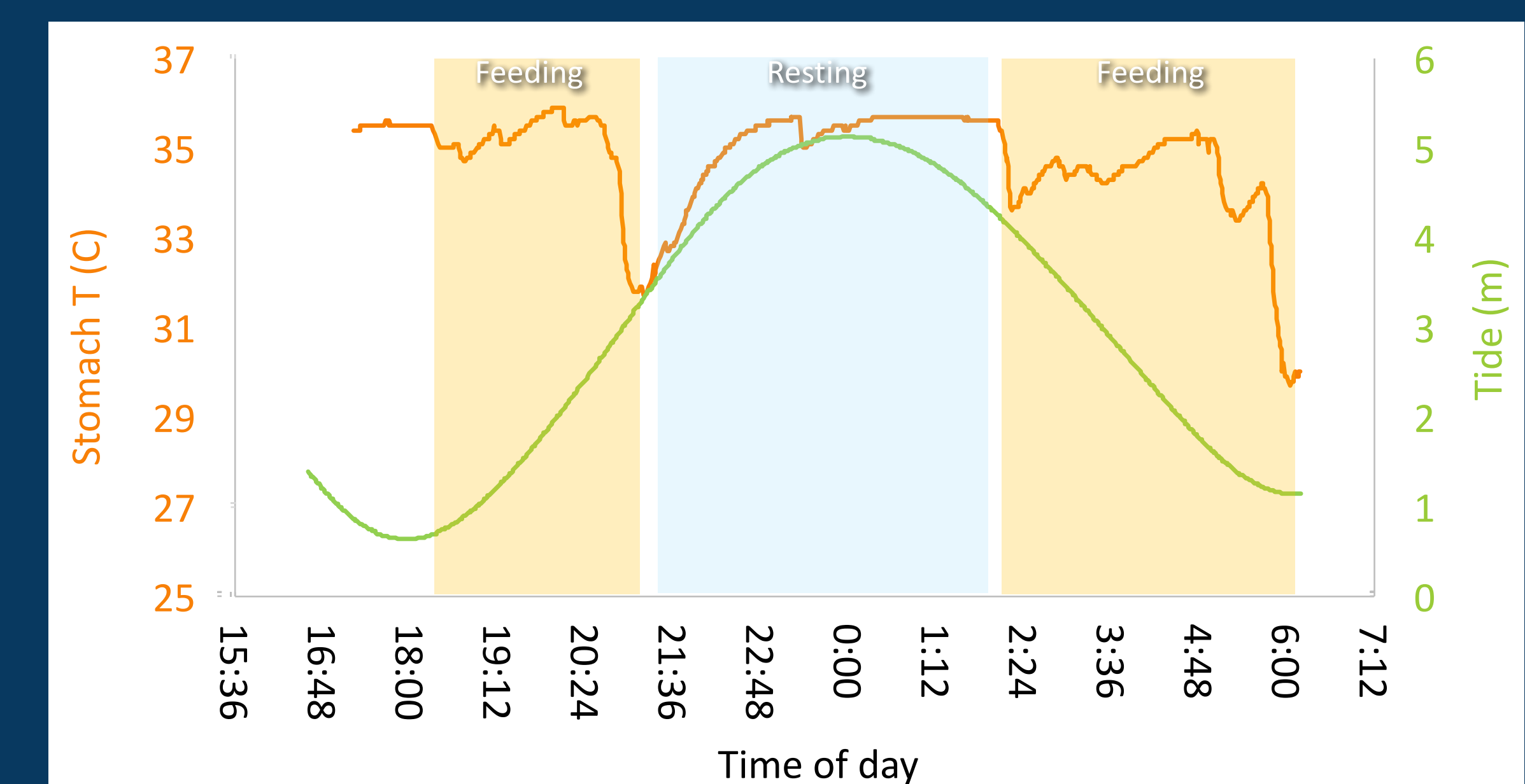
21 examples of ICI from terminal buzzes ending in prey capture (confirmed by prey crunch noise & stomach T drop)



Typical beluga prey capture sequence



Feeding episodes are related to tide



Main findings

- Feeding episodes occur at flooding and ebbing tide periods
- Preference for shallow waters (mud flats) or river channels
- Terminal buzzes are related to prey capture like in other odontocetes
- Buzzes are longer and emitted more often than other odontocetes
- Inter-click interval can be used to identify feeding events
- Body rotation might facilitate prey capture in shallow water

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