

# Heterotrophic Bacterial Production

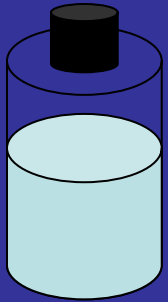
Benjamin Van Mooy

Cruise prep, rad logistics, DNA precipitation (ALOHA), data analysis

Karen Casciotti, Carl Lamborg  
Incubations (ALOHA)

Philip Boyd  
Incubations, DNA precipitation (K2)

# Thymidine incorporation rates

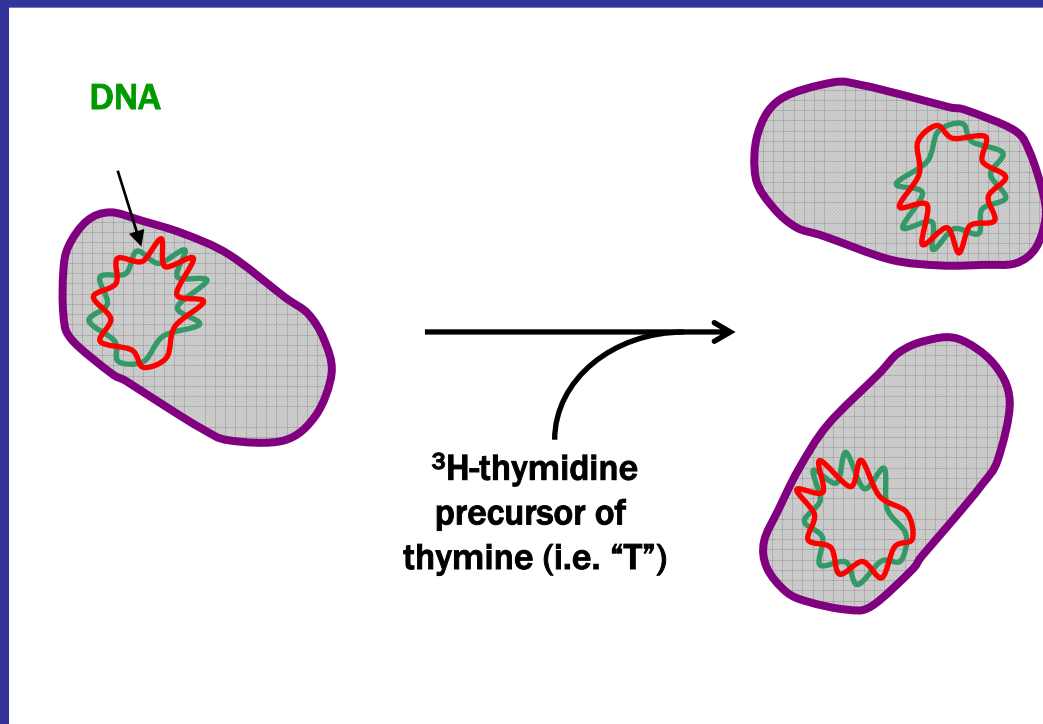


add  $^3\text{H}$ -thymidine  
→  
incubate

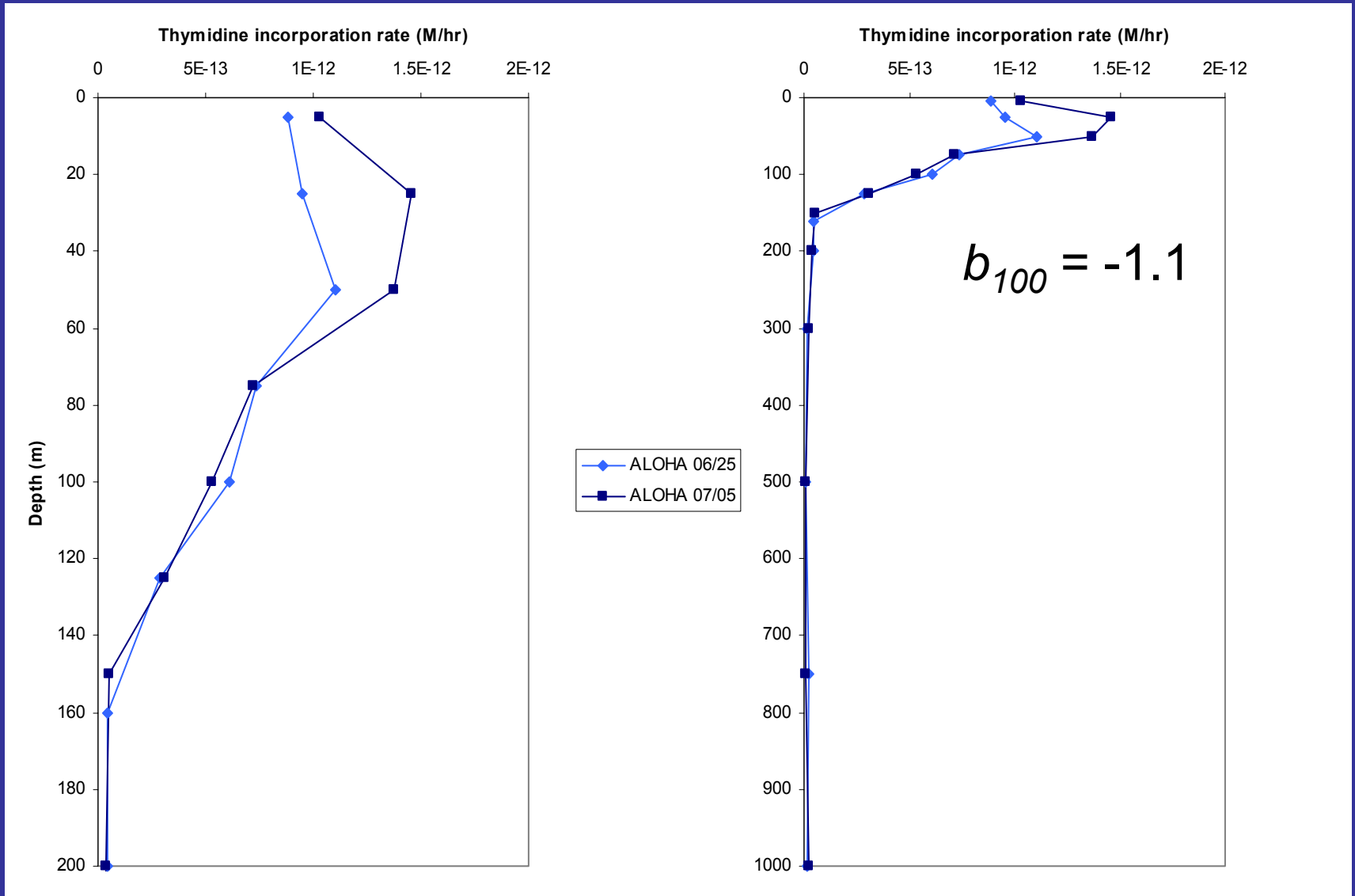
precipitate DNA  
→  
by TCA/filtration

radioactivity  
→  
by scint. counting

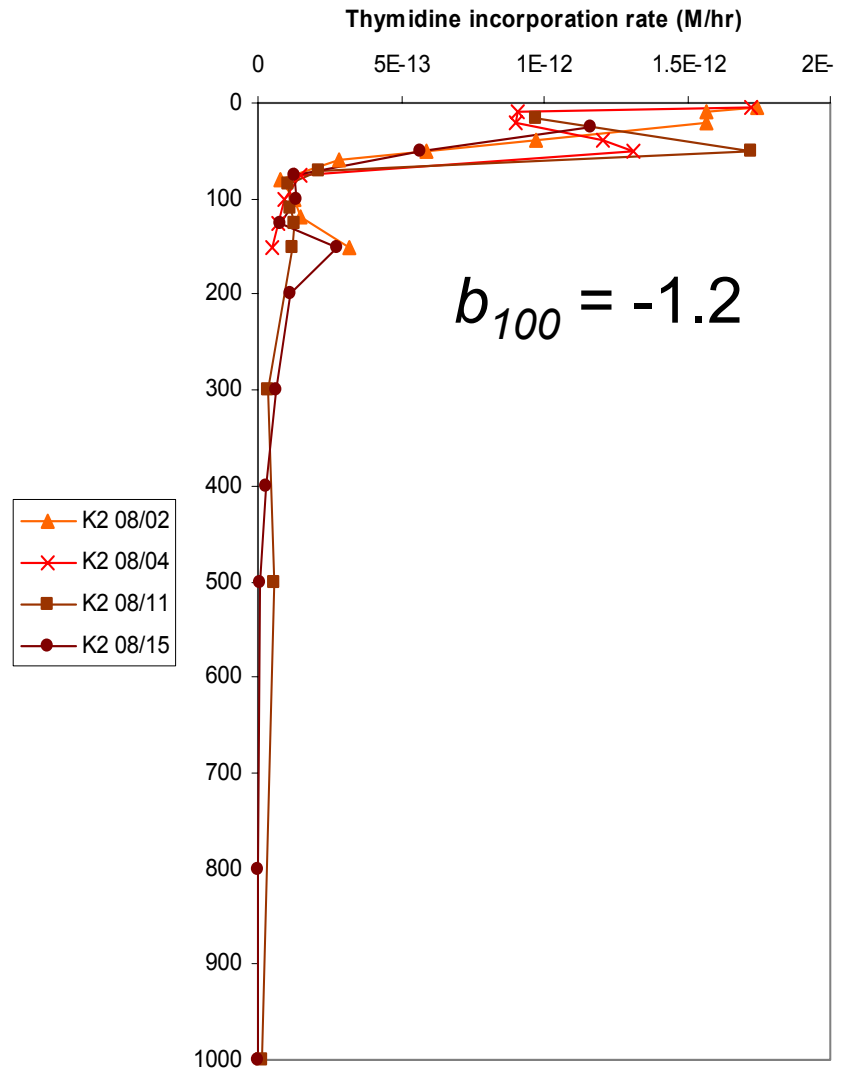
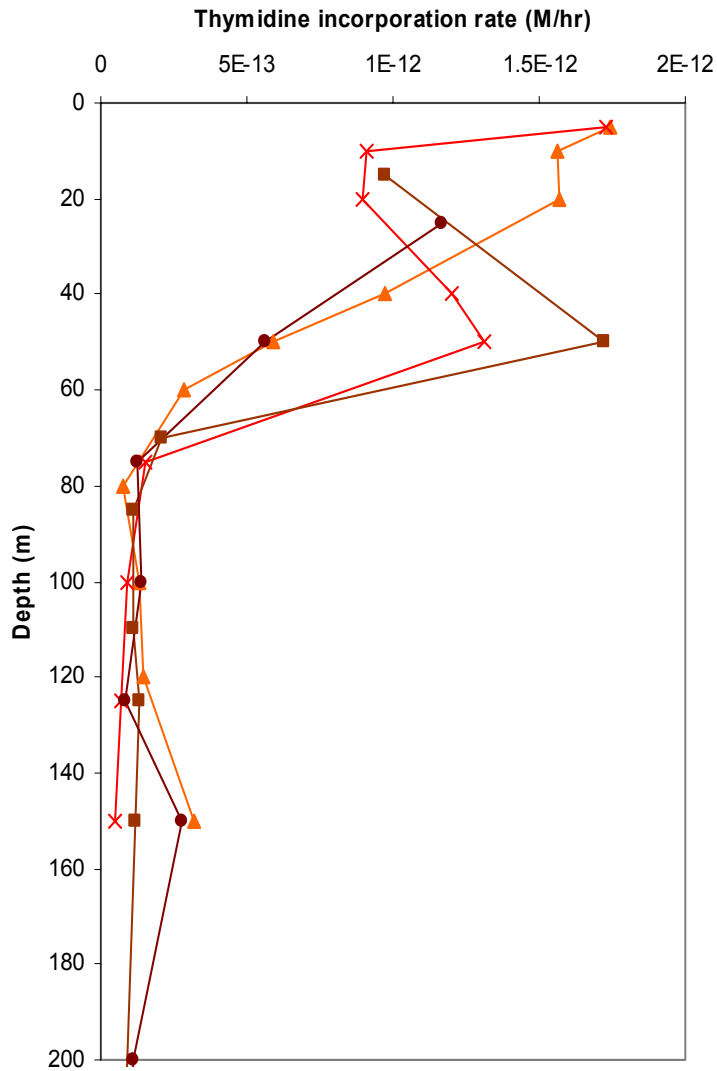
***Thymidine  
Incorporation  
Rate***



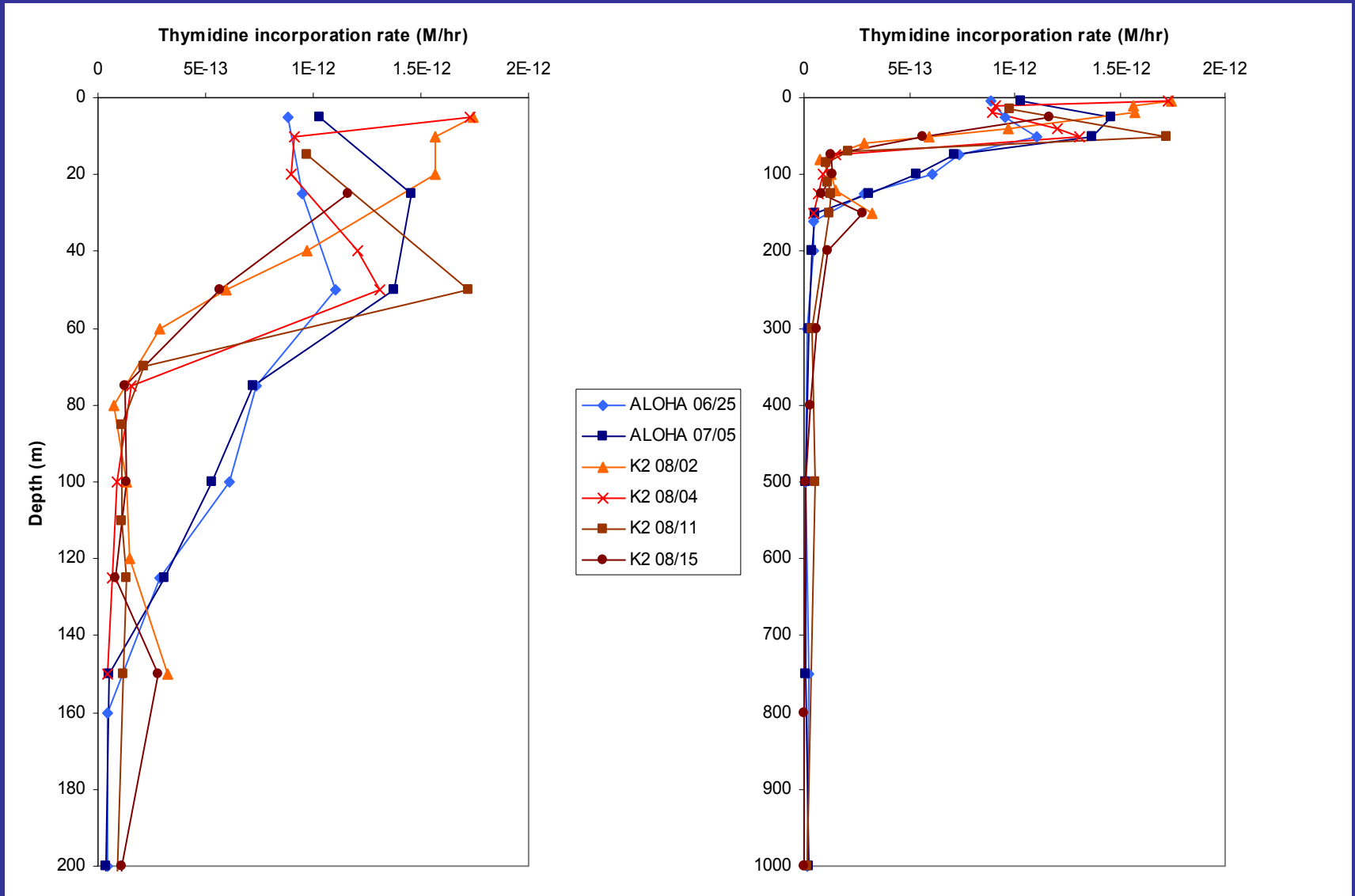
# Thymidine incorporation rates



# Thymidine incorporation rates



# Thymidine incorporation rates



# Heterotrophic bacterial production rates

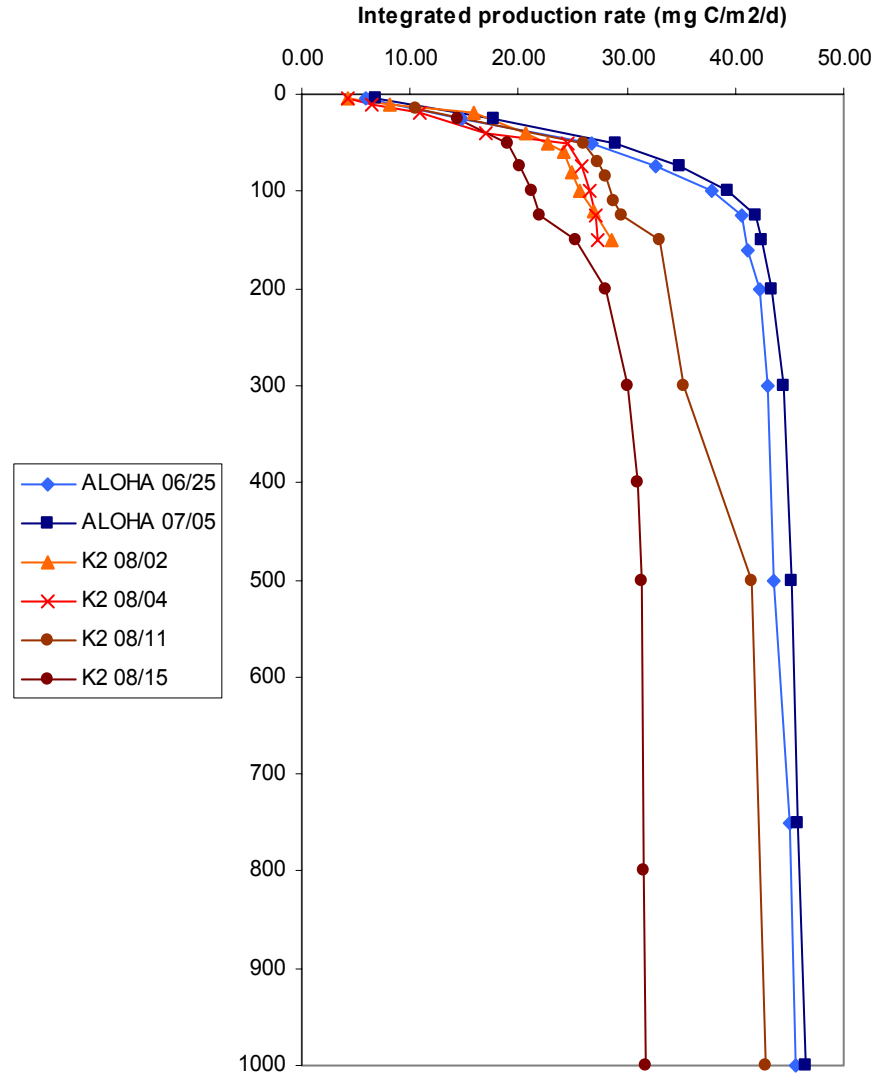
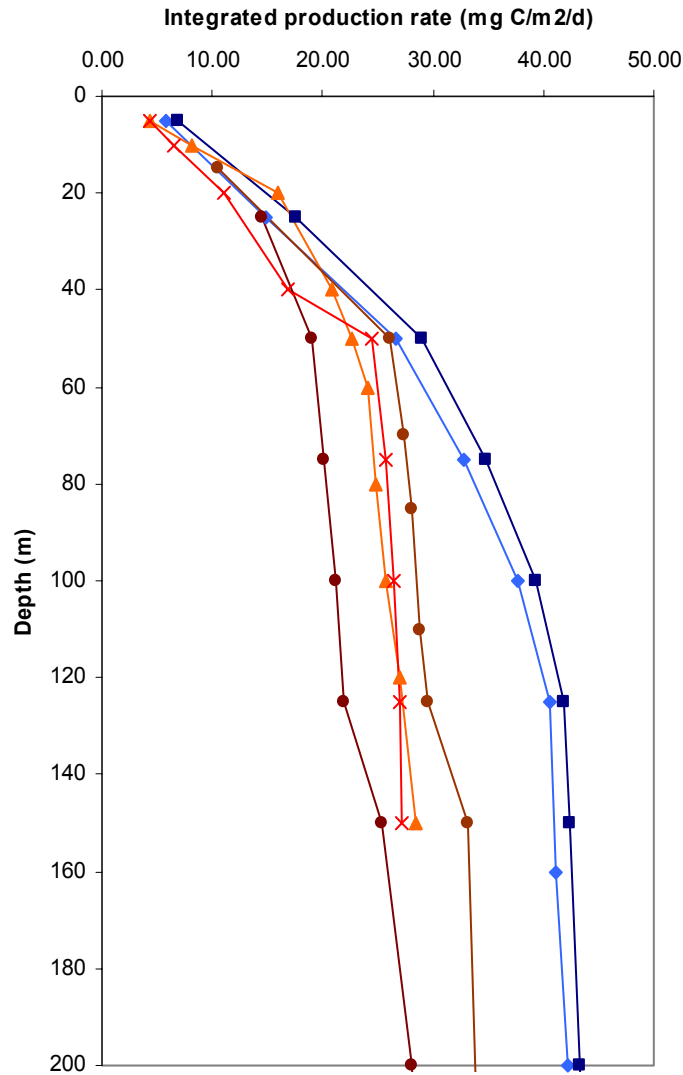
**Estimated conversion factors**

$$\textit{Thymidine Incorporation Rate} \times \frac{\text{cell}}{\text{thymidine}} \times \frac{\text{g carbon}}{\text{cell}} = \textit{Carbon Incorporation Rate}$$

**± 30%**

Disclaimer: thymidine and leucine incorporation rates may underestimate bacterial production rates, particularly in gyres.

# Heterotrophic bacterial production rates



## Heterotrophic bacterial production rates

$\text{mg C l}^{-1} \text{ d}^{-1}$	<b>BP</b> <sub>50m</sub> ( $\text{mg C m}^{-2} \text{ d}^{-1}$ )	<b>PP</b> <sub>50m</sub> ( $\text{mg C m}^{-2} \text{ d}^{-1}$ )	<b>BP:PP</b>
<b>ALOHA</b>	$28 \pm 9$	$197 \pm 29$	$0.14 \pm 0.05$
<b>K2</b>	$23 \pm 10$	$467 \pm 123$	$0.05 \pm 0.03$