

$\delta^{15}\text{N}$   $\delta^{13}\text{C}$

$\delta^{15}\text{N}$   $\delta^{13}\text{C}$

3  
 3000 m

2016 5 14 -20 155°E 37°15'N 44°00'N  
 6 0-150 m

2017 10 19 -11 7  
 (29°00'N-42°40'N, 145°45'E-149°40'E)

5 63  $\mu\text{m}$  VMPS 0-3000 12  
 8 100  $\mu\text{m}$

NORPAC 0-200 m VMPS

NORPAC 925  $\mu\text{m}$  407  $\mu\text{m}$  112  $\mu\text{m}$  3  
 -20 CTD

2:1

$\delta^{13}\text{C}$  ( $^{13}\text{C}: ^{12}\text{C}$ ) (%)  $\delta^{15}\text{N}$  ( $^{15}\text{N}: ^{14}\text{N}$ ) ( $\delta^{15}\text{N}$ )

$\delta^{15}\text{N}$  ( $\delta^{13}\text{C}$ )

(ANCOVA)

T-S 155°E 3

3

$\delta^{15}\text{N}$   $\delta^{13}\text{C}$   $r^2=0.65-0.76, p<0.0001$

$\delta^{15}\text{N}$   $\delta^{13}\text{C}$  ANCOVA  
 $\times\delta^{13}\text{C}$   $p<0.0001$   
 5 3000 m  
 $\delta^{13}\text{C}$   
 $\delta^{15}\text{N}$   
 3 29°, 31° 33°N  
 $\delta^{15}\text{N}$  29°N:  $r^2=0.698$ ,  
 $p<0.0001$  3 33°N:  $r^2=0.495$ ,  $p<0.05$   
 31°N:  $r^2=0.668$ ,  $p<0.01$  37°N 41°N  
 $\delta^{15}\text{N}$  41°N 3000 m  
 $\delta^{15}\text{N}$  3 ANCOVA  
 $p<0.05$   $\times$   
 $\delta^{15}\text{N}$   
 8 0-200 m  
 3  $\delta^{13}\text{C}$   $\delta^{15}\text{N}$   
 $\delta^{15}\text{N}$  3  $\delta^{13}\text{C}$  3  
 $\delta^{15}\text{N}$  3  $\delta^{15}\text{N}$   
 $r^2=0.787-0.826$ ,  $p<0.001$   
 3 112  $\mu\text{m}$   $\delta^{15}\text{N}$   
 925  $\mu\text{m}$   $\delta^{15}\text{N}$   
 407  $\mu\text{m}$  3  
 $\delta^{15}\text{N}$  ANCOVA  $\times$   
 3  
 $\delta^{15}\text{N}$   $\delta^{13}\text{C}$   
 $\delta^{15}\text{N}$   $\delta^{15}\text{N}$

*Neocalanus*