

Coral Reef Fish Biodiversity

In order to calculate the biodiversity of a coral reef 3 photos were taken at random points in time.



An objective measure of biodiversity can be made by calculating a Simpson's Index (S) using the formula below:

$$S = 1 - \frac{\sum n(n - 1)}{N(N - 1)}$$

Count up the number of individuals of each species (use the ID chart).

Reef A			
Species number	Number of individuals (n)	Number of individuals -1 (n-1)	n(n - 1)
1			
2			
3			
4			
5			
6			
7			
	Total (N)= N-1= N(N-1)=		$\sum n(n - 1) =$
$D = 1 - \frac{\sum n(n-1)}{N(N-1)}$ <div>D=</div>			

Reef B			
Species number	Number of individuals (n)	Number of individuals -1 (n-1)	n(n - 1)
1			
2			
3			
4			
5			
6			
7			
	Total (N)= N-1= N(N-1)=		$\Sigma n(n - 1) =$
$D = 1 - \frac{\Sigma n(n-1)}{N(N-1)}$			

Reef C			
Species number	Number of individuals (n)	Number of individuals -1 (n-1)	n(n - 1)
1			
2			
3			
4			
5			
6			
7			
	Total (N)= N-1= N(N-1)=		$\Sigma n(n - 1) =$
$D = 1 - \frac{\Sigma n(n-1)}{N(N-1)}$			

Which photo shows the most diversity?

Which photo shows the least diversity?

Calculate the Simpsons Diversity Index for the area (using all three photos)