

**Estimated H<sub>2</sub>S concentrations of saltmarsh sediments -  
Is there enough to create odor over Manahattan?**

min. human detection - 1 ppm	45 $\mu\text{m m}^{-3}$
(2 orders of mag. greater than Amooore and Hautala, 1983)	
volume of 'trapped' air (6km X 12km x 100m)	7.20E+09 $\text{m}^3$
absolute amt. of H <sub>2</sub> S needed for box	<b>324000</b> moles
source marsh area (10% of JB ~ 3 km <sup>2</sup> )	9000000 $\text{m}^2$
contribution of each m <sup>2</sup> of marsh	<b>0.036</b> moles $\text{m}^{-2}$
time sediments exposed to air	4 hrs.
average efflux rate	<b>0.009</b> moles $\text{m}^{-2} \text{hr}^{-1}$
gas transfer coefficient (K)	0.02 $\text{m hr}^{-1}$
<b>est. sed. water conc. of H<sub>2</sub>S</b>	<b>450 <math>\mu\text{moles L}^{-1}</math></b>
(F/K) = delta part. P * sol.	

**\*\* NOTE that this is within measured H<sub>2</sub>S \*\***  
**\*\* concentrations of saltmarsh sediments \*\***

Cross check with ppm calculation:

solubility of H <sub>2</sub> S (5 deg. C, low salt; Suleimenov and Krupp, 1994)	0.00288 moles/(kg atm)
estimated air-water H <sub>2</sub> S gradient	156.03 ppm