



Electrochemical Ocean Iron Delivery System

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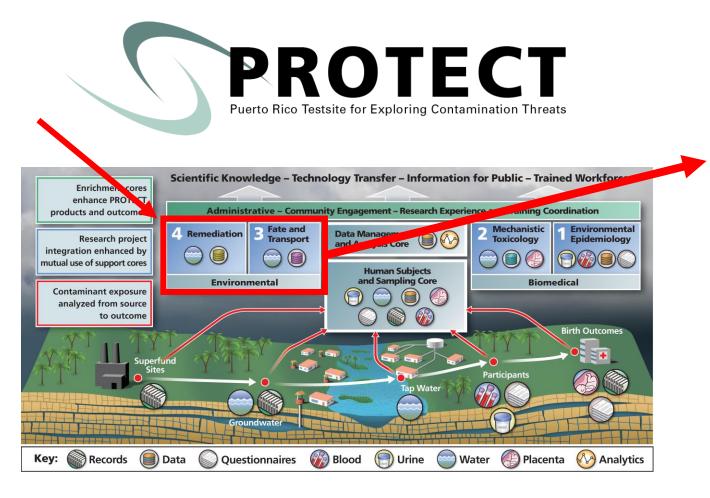
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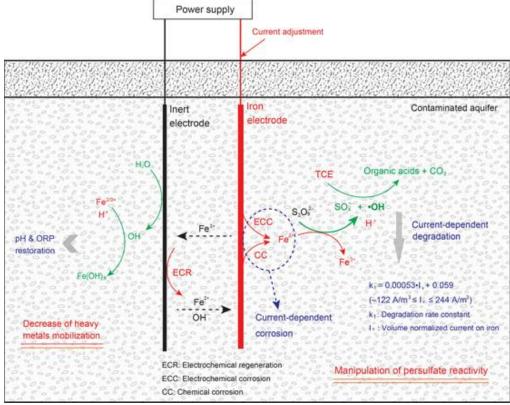
Introduction



We work on water remediation, fate and transport as part of PROTECT center.

Over the years, our group developed electrochemical techniques for environmental applications.





$$S_2O_8^{2-} + Fe^{2+} \rightarrow SO_4^{--} + SO_4^{2-} + Fe^{3+}$$

 $Fe - 2e^- \rightarrow Fe^{2+}$

$$Fe^{3+} + e^{-} \rightarrow Fe^{2+}$$

$$2H_2O + 2e^- \rightarrow H_2 + 2OH^-$$

Can we design a similar concept to OIF?

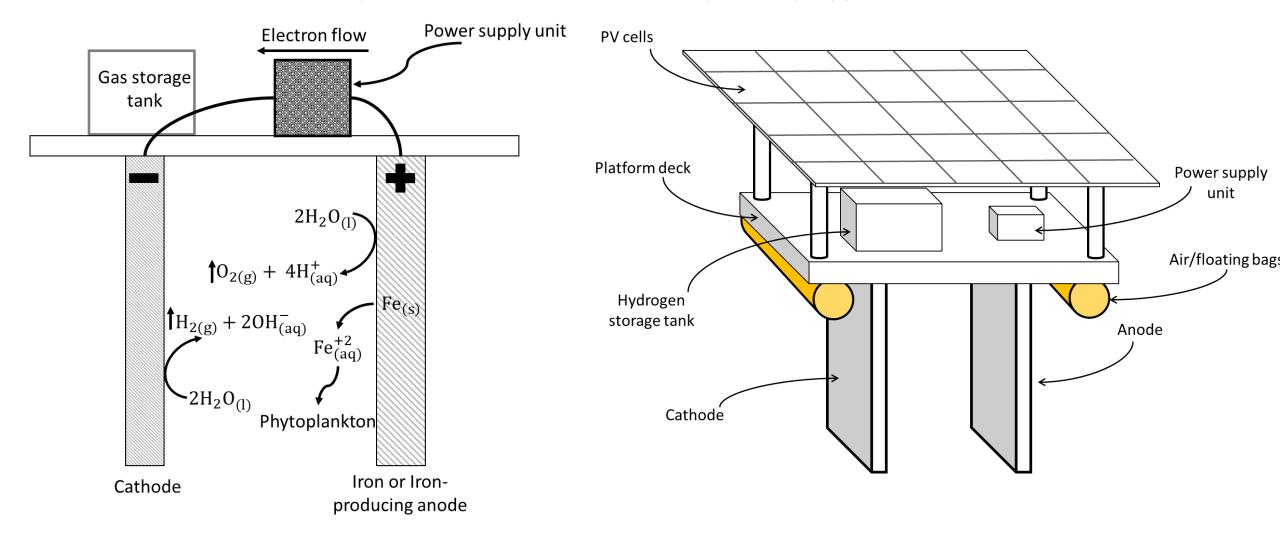
Songhu Yuan ey al., Environ. Sci. Technol. 2014, 48, 1, 656-663

Electrochemical Delivery System





We need a cost-effective, easy to control, and environmentally friendly approach.



$$2H_2O + 2e^- \rightarrow H_{2(g)} + 2OH_{(aq)}^ Fe_{(s)} \rightarrow Fe_{(aq)}^{+2} + 2e^ 2H_2O_{(l)} \rightarrow O_{2(g)} + 4H_{(aq)}^+ + 4e^-$$

Simple design with powered by renewable energy!

Thank you!