

Amazon River water in the northeastern Caribbean Sea and its effect on larval reef fish assemblages during April 2009

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A North Brazil Current Ring separated from the North Brazil Current retroflexion and, carrying a plume of relatively fresh, highly productive Amazon River water, impinged upon the Caribbean Sea in early spring 2009. A plankton bloom subsequently intensified and dispersed to the north and west, eventually covering much of the northeastern Caribbean. The plume of turbid “green water” was unusual for this area and received much attention. “Traveling” eddies such as this North Brazil Current Ring can have far-reaching effects on the regional larval fish assemblages due both to retention in the ring and the ring’s transit over long distances. A research cruise in the area surveyed the plume with a variety of sampling techniques, including larval fish net tows. The plume was found to be relatively warm, fresh, and higher in chlorophyll than the surrounding waters of the Caribbean and Atlantic. Three surface water types were identified based on surface salinity: Atlantic, Caribbean, and plume. The larval fish assemblages were statistically distinct between the three water masses identified. The plume water contained more mesopelagic and pelagic species than normally found in the area.

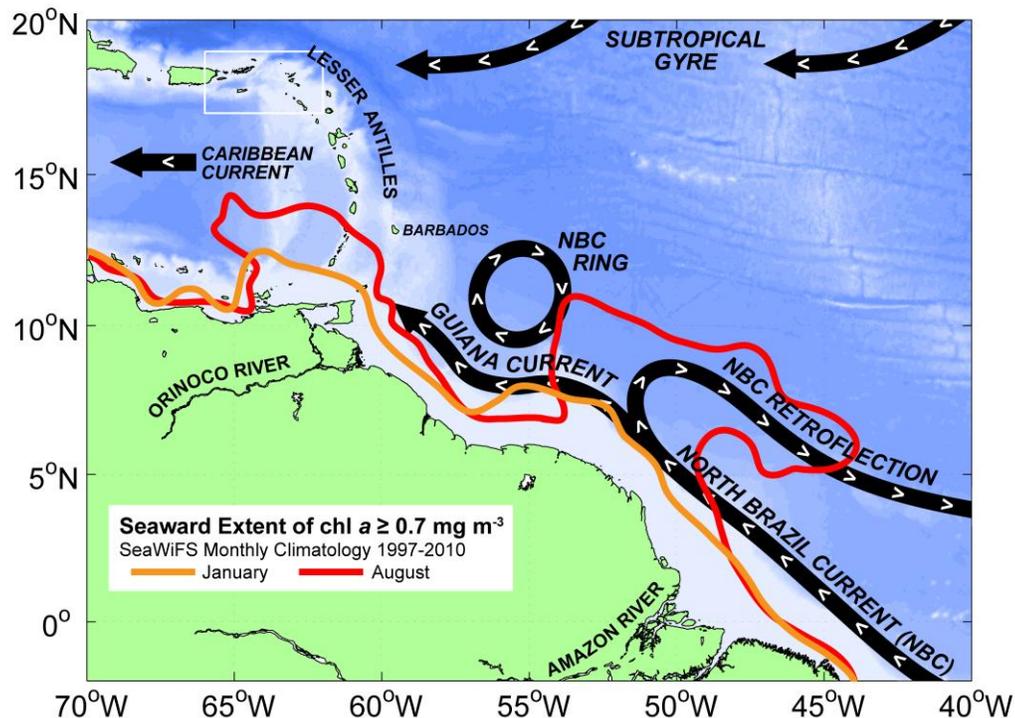


Figure: Schematic diagram of the upper layer circulation in the western tropical and subtropical Atlantic Ocean and Caribbean Sea. The seasonality of the circulation pattern is reflected in the seasonal chlorophyll climatology.