

Black Band Disease | Enfermedad de Banda Negra

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Black band disease (BBD), first recorded in Puerto Rico in 1972, was the first biotic coral disease identified in the Caribbean.^{1,2} It is characterized by the presence of a black band about 0.5 - 3 cm in width that kills coral tissue as it moves across a colony exposing bare coral skeleton.³⁻⁵ BBD is a highly virulent disease that affects 25 species of hard and soft corals.⁶ It is caused by a consortium of a cyanobacteria that includes a sulfide-oxidizing bacteria and a sulfide-reducing bacteria, among others.^{3,4,7-11} Research has identified *Roseofilum reptotaenium* as the dominant pathogen,¹² although numerous additional bacteria have been found in association with the BBD bacterial consortium.^{3,9,12-16} Research has also identified that microcystin and sulfide produced by the bacterial consortium facilitate the lethality of this disease, possibly impacting the coral's symbiotic algae.^{10,11,13,16} BBD is transmitted through water and direct contact, with corallivores possibly acting as additional vectors.^{3,17-21} BBD kills coral tissues at a rate of around 0.3-1 cm per day, and multiple studies have found disease prevalence or progression to increase with higher water temperatures, increased light, and nutrient enrichment from land-based pollution sources.^{3,5,29,18,22-28} Researchers have had success halting disease progression by shading diseased corals, as well as by aspirating and then placing clay or epoxy putty over the black band.³⁰ Experiments have also found that re-introducing the herbivorous sea urchin *Diadema antillarum* can reduce black band disease progression by controlling competitive algae populations that could otherwise compromise coral health.³¹

La enfermedad de la banda negra (BBD, por sus siglas en inglés) se registró por primera vez en Puerto Rico en 1972 y fue la primera enfermedad biótico identificada en el Caribe.^{1,2} Se caracteriza por la presencia de una banda negra de aproximadamente 0.5 - 3 cm de ancho que avanza por la colonia del coral y mata sus tejidos, dejando el esqueleto del coral desnudo.³⁻⁵ BBD esta virulenta y afecta 25 especies de corales duros y blandos.⁶ Es causada por un consorcio de cianobacterias que incluye una bacteria oxidante de sulfuro y una bacteria reductora de sulfuro, entre otras.^{3,4,7-11} Investigaciones han identificado que *Roseofilum reptotaenium* es el patógeno dominante,¹² aunque se han encontrado numerosas bacterias adicionales en asociación con el consorcio bacteriano BBD.^{3,9,12-16} Investigaciones han identificado que la microcistina y el sulfuro producidos por el consorcio bacteriano facilitan la letalidad de esta enfermedad, posiblemente impactando las algas simbióticas del coral.^{10,11,13,16} La BBD se transmite a través del agua, el contacto directo y los coralívoros son posiblemente vectores adicionales.^{3,17-21} La BBD mata los tejidos de coral a una velocidad de 0.3 – 1 cm por día, y múltiples estudios han encontrado un aumento en la prevalencia o progresión de esta enfermedad con el aumento de las temperaturas del agua, con el aumento de la luz y con el enriquecimiento de nutrientes de las fuentes de contaminación terrestres.^{3,5,29,18,22-28} Los investigadores han tenido éxito en detener la progresión de la enfermedad por cubriendo los corales con sombra, así como por aspirando y luego poniendo la arcilla o la masilla epoxi sobre la banda negra.³⁰ Los experimentos también han encontrado que la reintroducción del erizo de mar herbívoro *Diadema antillarum* puede reducir la progresión de la enfermedad de la banda negra al controlar las poblaciones de algas competitivas que de otro modo podrían comprometer la salud de los corales.³¹

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