

Table S1. Nearby buoys and years for water temperature data of sampling locations, obtained from the National Buoy Data Center (<http://www.ndbc.noaa.gov>) for US Caribbean regions and from Hidrografia da Marinha (<https://www.marinha.mil.br/chm/dados-do-goosbrasil/pnboia-mapa>) for Brazilian locations.

Location	buoys	Year
Westport River, MA	NWPR1	2018
Long Island, NY	MTKN6	2018
Delaware Bay, DE	LWSD1	2017
Albemarle Sound, NC	HCGN7	2019
Jacksonville, FL	MYPF1	2017
Ormond Beach, FL	TRDF1	2017
Florida Keys, FL	LONF1	2018
Cedar Key, FL	42036	2017
Apalachicola Bay, FL	APCF1	2017
Port Aransas, TX	RTAT2	2017/18
Celestún, Yucatan, Mexico	42055	2017
Dominican Republic	MISP4	2018
Canal Suárez, PR	SJNP4	2019
St Kitts & Nevis	BARA9	2018/19
St Lucia	BARA9	2017
Trinidad & Tobago	42059	2017
Sergipe, BR	Recife	2019
Paraná, BR	Itajaí	2018
Rio Grande do Sul, BR	Rio Grande	2015

Table S2. Nearby buoys and years for water temperature data of overwintering crabs sampling locations in mid-Atlantic, obtained from the National Buoy Data Center (<http://www.ndbc.noaa.gov>).

Location	buoys	Year
Upper Chesapeake Bay, MD	LWSD1	2015
Potomac River, MD	44042	2019
Lower Chesapeake Bay, VA	NCDV2	2018
Delaware Bay, DE	44072	2019
Albemarle Sound, NC	8654467	2019

Table S3. CsRV1 genome copy number (mg-1) in infected active *C. sapidus* from different locations.

Location	Median Viral Load	Peak Viral Load
Westport River, MA	9.8×10^3	$> 10^9$
Long Island, NY	3.6×10^4	$> 10^9$
Delaware Bay, DE	2.9×10^7	$> 10^9$
Albemarle Sound, NC	2.3×10^6	$> 10^9$
Jacksonville, FL	7.3×10^6	1.4×10^8
Cedar Key, FL	2.0×10^3	2.0×10^3
Port Aransas, TX	1.0×10^3	7.0×10^4
Florida Keys, FL	1.3×10^4	1.2×10^6
South Dominican Republic	1.5×10^4	1.5×10^4
St Kitts & Nevis	1.1×10^4	1.1×10^4
Trinidad & Tobago	7.0×10^4	3.6×10^6
Rio Grande do Sul, BR	1.5×10^5	6.2×10^7
Castillos Lagoon, Uruguay	2.0×10^6	$> 10^9$

Table S4. CsRV1 copy number (mg-1) in infected overwintering *C. sapidus* from mid-Atlantic coasts.

Location	Median Viral load	Peak Viral load
Delaware Bay, DE	1.1×10^3	1.1×10^3
Upper Chesapeake Bay, MD	2.1×10^3	2.1×10^3
Lower Chesapeake Bay, VA	1.3×10^3	1.8×10^8
Albemarle Sound, NC	6.5×10^6	5.1×10^7