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## Range extensions of the seaweeds *Codium taylorii* and *Caulerpa prolifera* into the lower Laguna Madre, Texas

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RANGE EXTENSIONS OF THE SEAWEEDS  
*CODIUM TAYLORII* AND *CAULERPA PROLIFERA* INTO  
THE LOWER LAGUNA MADRE, TEXAS

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Between January 1999 and April 2000 two chlorophyte algae, *Codium taylorii* Silva and *Caulerpa prolifera* F. *obovata* (Forsskal) Lamouroux were found in the lower Laguna Madre (LLM). Both are coenocytic algae and are members of the chlorophyte class Bryopsidophyceae (van den Hoek et al. 1995). The species descriptions in Taylor (1960) were used in the identification of the specimens. Herbarium specimens have been deposited at the University of Texas—Pan American Coastal Studies Laboratory (accession numbers C010 - *C. prolifera*, C011 - *C. taylorii*), University of California at Berkeley (UC1753606 - *C. taylorii*), University of Michigan and the University of Texas Marine Science Institute.

Thalli of *Codium taylorii* were initially obtained from shrimp trawls taken in the Brazos-Santiago Pass in January 1999 and consisted of incomplete specimens. In July 2000, approximately a dozen attached specimens were found growing on rocks at the base of the seawall of the U.S. Coast Guard station (26° 4.4'N, 97° 10.0'W) at the tip of South Padre Island in water about 1 m deep. Except under extreme low tides, these plants would not be exposed to air. No other *Codium* specimens have been previously reported for the Laguna Madre.

In April 2000, *Caulerpa prolifera* F. *obovata* was found during a student seining exercise in the Laguna Madre at the southern tip of South Padre Island. These specimens were collected in water about 0.5 m deep along with blades of *Thalassia testudinum*. In July 2000, significant numbers of shoots (>50) were found growing attached to a silty-sand bottom near the middle of the bay (26° 07.35' N, 97° 13.82' W) in water about 1.5 m deep and since that time specimens have been found at other locations in the LLM. Shoots were found growing on unconsolidated sediment and among shoots of *Thalassia testudinum* and *Syringodium filiforme*.



Three other *Caulerpa* species have been reported for south Texas: *C. crassifolia*, *C. mexicana* and *C. sertularoides* (Humm & Hildebrand 1962; Baca et al. 1979). *C. crassifolia* has been considered conspecific with *C. mexicana* as proposed by Papenfuss (1956) (M. Wynne pers. comm.). This study and that of Strenth (2001) represent the first records of *C. prolifera* for the Texas Coast.

Both of these species are found eastward and southward of south Texas in the Gulf of Mexico. *Codium taylorii* occurs in Veracruz, Mexico (Lehman & Tunnel 1992; Taylor 1960) and has also been found at the East Flower Garden Coral Bank in the northwestern Gulf of Mexico (27° 54.5'N, 93°35.82'W) (Eiseman & Blair 1982). *Caulerpa prolifera* has been collected from the Chandeleur Islands, Louisiana (Humm & Darnell 1959) and it also occurs in Florida (White & Snodgrass 1990) as well as the eastern coast of Mexico (Taylor 1960).

Interestingly, *Halimeda incrassata*, another coenocytic green alga, was reported recently from the southern end of the LLM (Kaldy 1996). This alga has also been recorded from Florida and Mexico (Taylor 1960). All three algae are relatively small and could have been overlooked for years but it seems doubtful. More likely, all three are relatively recent introductions that have established themselves in the LLM.

The occurrence of all three species in the LLM may be related to the fact that no severe cold spells have occurred in south Texas for at least the last five winters. Water temperatures during the past five winters (1995-96 through 1999-00) at the South Padre Island Coast Guard Station and nearby Port Isabel have not dropped below 5°C and periods below 10°C have lasted only a few days (TCOON 2000). Kaldy (1996) reported that from January 1995 to January 1996 temperatures about 4 nautical miles north of the Coast Guard Station did not drop below 14°C. It is unknown to what degree salinity changes could influence the survival of these species. Sorensen (1970) reported the extirpation of *Penicillus capitatus* from the LLM following an extended period of low salinity. A study of the thermal and salinity tolerance of these new introductions seems in order to determine if they can be considered permanent residents of south Texas or ephemeral species that are living on the edge of their distributions.

*Caulerpa prolifera* may be a significant introduction to south Texas waters as it grows in the same habitat as the seagrasses *Thalassia*



*testudinum* and *Syringodium filiforme*. It is unknown if *C. prolifera* will be a significant space competitor with the seagrasses. Furthermore, it should be noted that *C. prolifera* was found growing on loose unconsolidated dredge material in the LLM. It appears to be a pioneer species and so may be able to stabilize dredge material.

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