

***Transitional and Marine
Sedimentary environments***

الشواطئ هي البيئات الانتقالية الأكثر تميزاً. شكل الشواطئ يتكون عندما تغسل طاقة الأمواج، الطمي / السيلت والطين وتقلهم بعيداً، تاركة جزيئات رملية كبيرة خلفها. ويمكن بعد ذلك أن يترسب السيلت والطين في شروط بيئية انتقالية أخرى كبيئات مثل المد والجزر أو السبخات ، أو في البيئات البحرية العميقة.

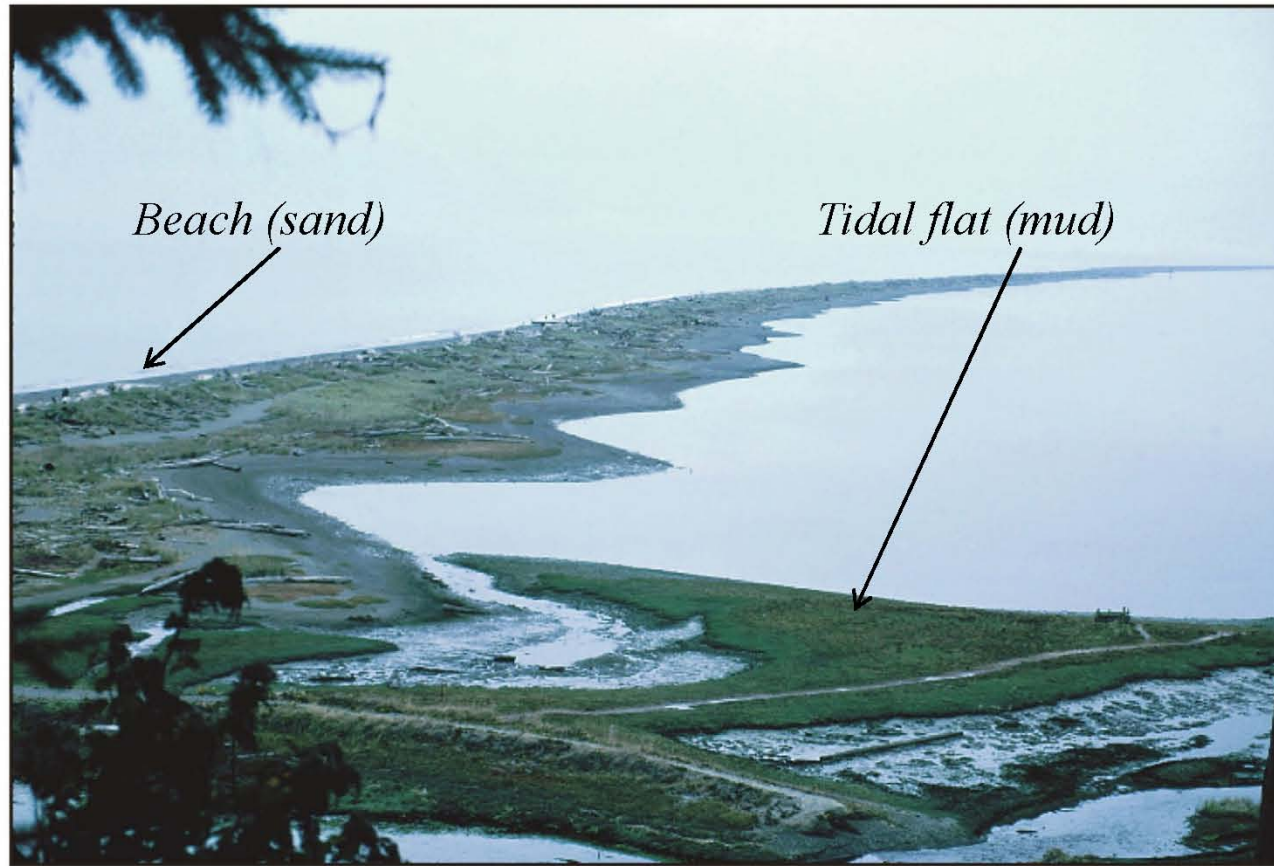
Beaches are the most recognizable transitional environments. Beaches form where wave energy washes silt and clay away, leaving larger sand particles behind. Silt and clay may then be deposited in other low energy transitional environments such as tidal flats or sabkhas, or in deep marine environments.



Beach

وراء منطقة الشاطئ من هذا الزبد الرملي تكمن بيئة انتقالية أخرى ،
تتمثل بمسطحات المد والجزر.

Behind the beach area of this sand spit lies another transitional environment, a tidal flat.



Spit



السيخات

Sabkhas are another transitional environment that, although rare today, are important to the geologic past of Utah.

Sabkhas only occur in, hot, arid climates where sea water can evaporate rapidly.

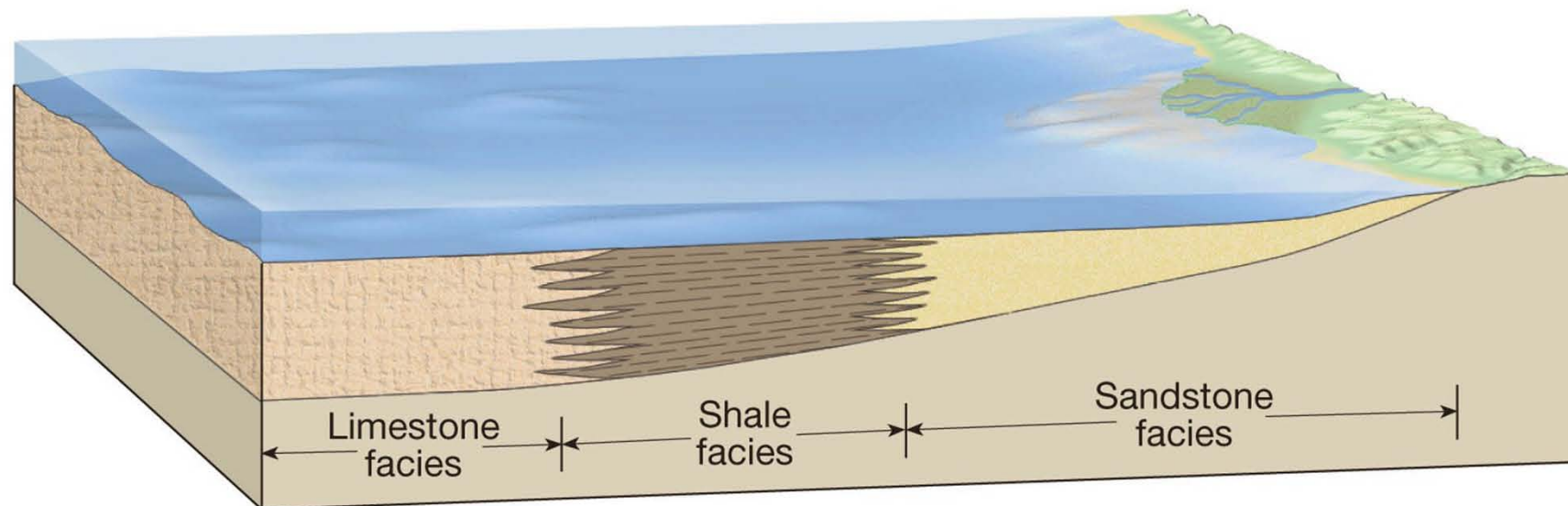
Sabkhas can be thought of as tidal flats or pools that are periodically inundated with water. The water evaporated leaving behind deposits of evaporate minerals like halite (salt) or gypsum. These satellite photos show a tidal pool in Tunisia in a filled state (1987) and after the water evaporated (1999) The white material in the 1999 photo is halite and gypsum.



Interbedded gypsum and red silt/clay in the Moenkopi Formation, Utah



*Sedimentary facies:
In a shallow marine setting, the different facies
represent different depositional environments*



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Notch Peak, Millard Co., Utah:

يوم واضح مشمس غير عادي. الطبقات المختلفة
تتكون من الحجر الكلسي والسجيل الزيتي المترسبة في البيئات البحرية الضحلة

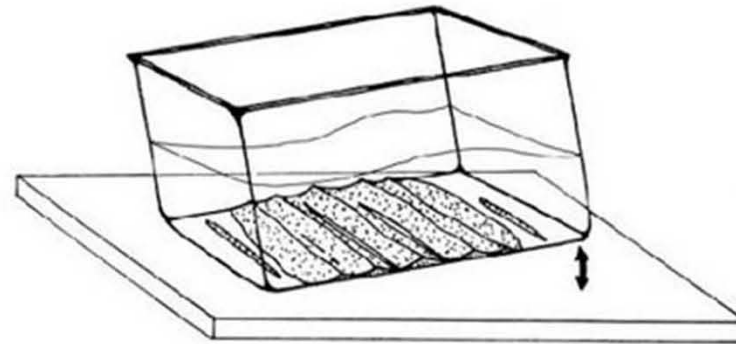


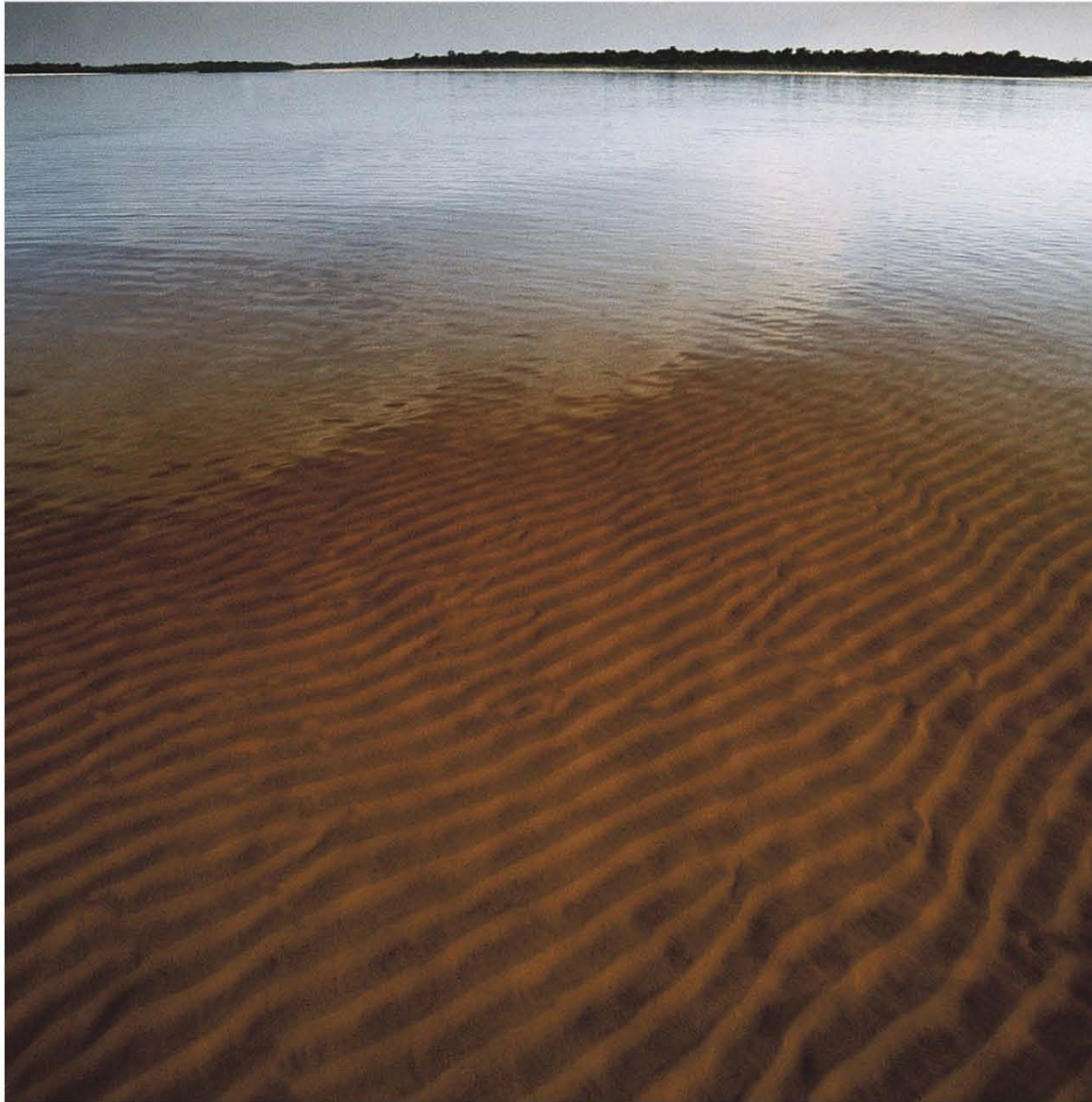
Sedimentary layering or strata or a primary sedimentary structure; Structures formed during deposition



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Symmetric ripple marks form when currents flow back and forth, as in a tidal regime, These can be produced in an aquarium as water is made to slosh back and forth.





Symmetric
ripple marks
in a modern
setting

B.



Asymmetric
ripple marks
form where water
flows in
one direction,
and indicated
by the arrow

A.

More asymmetric ripple marks, arrow indicated direction of flow.



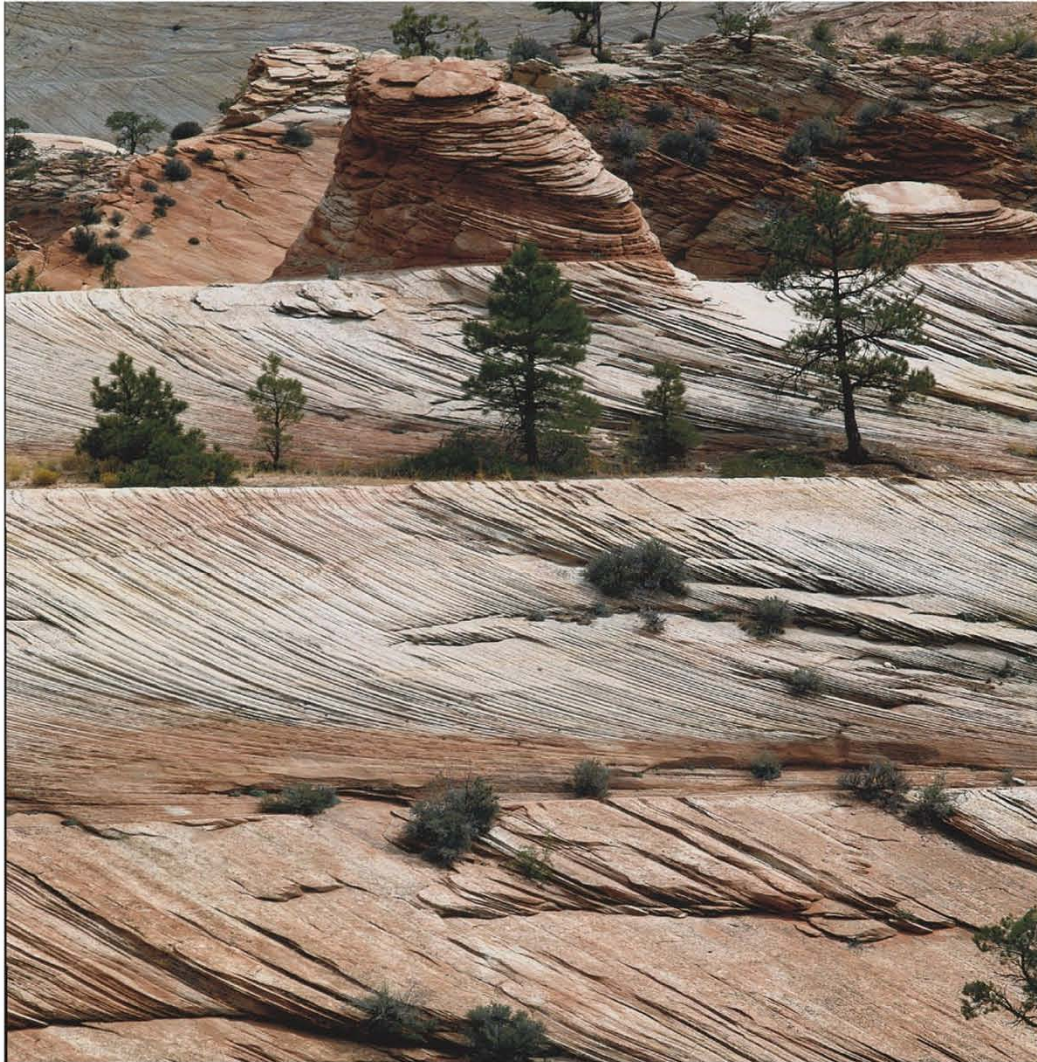
Cross beds from a river (fluvial) deposit



Cross beds from a modern beach sand dune



A.



Aeolian cross beds in the Navajo Sandstone, Zion National Park

B.



Modern
mud cracks
caused by
drying and
shrinkage of
mud



Mudcracks
preserved in
rock