

CHAPTER V

DISCUSSION AND CONCLUSION

The purposes of this study are to understand the changes in coastal erosion and accretion annually, evaluate the changes in shoreface sediments and compare the geomorphological features controlling the changes of the coast. In this chapter, the relationship between shoreface slope and the changing in shoreface style have been mentioned. This chapter also provides the sediment transportation direction and annual coastal change in each area. In addition, the factors controlling coastal changes and the benefits of this study are also remarked for further study.

1. Shoreface slopes are the one factors controlling deposition and erosion along the study areas (Slope up – erosion, slope down – deposition). Results of shoreface measurement will be able to tell us the seasonal and annual changes of beach morphology and long – term measurement is necessary to be done in case that we want to calculate the precise rate of coastal erosion or deposition.

Table 5.1 Summary of shoreface slope measurement in the study areas.

	Pranburi	Prachuap(north)	Prachuap (South)	Wanakorn
20/11/03	18 ⁰	13 ⁰	23 ⁰	23 ⁰
04/04/04	11 ⁰	26 ⁰	25 ⁰	18 ⁰
22/11/04	16 ⁰	16 ⁰	8 ⁰	11 ⁰

2. Based on coastal morphology. We can estimate direction of sediment transportation using depositional landforms of coastal sediments that have formed since the mid Holocene till the present. This estimation tells us a lot about the history of shoreline changes in each individual area that will be very important key to understand the previous transportation cycles and trend. From the study, the conclusion of sediment transportation direction in each area is made in Table 5.2;

Table 5.2 Summary of sediment transportation direction in the study areas.

Area	Morphology (Mid Holocene - Present)	Transportation direction
Pranburi	3 steps of beach ridge → sand spit (inner / mid / outer)	south to north
Phachuap KhiriKhan	barrier → lagoon → tidal channel tombolo	south to north & north to south
Wanakorn	granite washed cliff → inner barrier lagoon → present barrier	south to north

3. Annual coastal changes in shoreface (vertical sediment deposition & erosion)

Results from shoreface measurement show the seasonal changes varied in shoreface configuration. However, from this study, it is found that both beaches, Pranburi and Wanakorn beaches, the accretion of beach appears more than erosion which is different from previous study. For the Prachuap Khiri Khan bay, the author found that the erosion in the north of the bay is more than accretion which is also different from the previous study. It can be explained that the measurement time for this research is limited to

only one year cycle, whereas, the previous studies by Sinsakul (2002) and Vongvisessomjai (1992) used long - term measurement from aerial photographs. Therefore, it is clear that the difference in time-scale used in measuring shoreface will provide different net results and will probably be the same if long-term measurement is carried out.

Table 5.3 Summary of shoreface seasonal changes calculation from the study area.

	Nov 2003	Apr 2004	Nov 2004	Annual Net
Pranburi	+32.12	-16.95		+15.17
Prachuap (North)	-26.03	+14.60		-11.43
Prachuap (South)	-0.60	+24.91		+24.31
Wanakorn	+0.55	+2.69		+3.24

4. Possible factors controlling coastal changes in the study area

Sea level rise has been identified as the principal forcing function in shoreline retreat along sandy coasts worldwide (Bird, 1976). As sea level rises, a number of complex and related phenomena come into play. Rising sea levels (transgression) are accompanied by a general retreat of the shoreline. This is produced by erosion or inundation. Erosion is the physical removal of beach and cliff material, while inundation is the submergence of the otherwise unaltered shoreline. While sea level rise would result in some modifications in bay



shape and beach configuration, these effects are too small to result in a significant change in storm surge modeling (Leatherman, 1983).

There are numerous factors that control the rates and variability of coastal changes both in regional and local scales, including sea level change, storms, wave chronology, and human influences. Though these factors all play important roles, sea level change and storms are thought to be the most pertinent controls of coastal changes in Prachuap Khiri Khan area.

In regional scale, sea level change causes the most drastic alteration of the coast. Sea-level rise during the Holocene affects all shorelines and is perhaps the dominant process that determines the long-term rate of shoreline movement and position. An accelerated rate of sea-level rise would result in increased rates of inland shoreline retreat and losses of beaches, particularly relict truncated barrier at Pranburi area.

Storm surges, the anomalously high tides produced by coastal storms, are responsible for much of the damage in coastal areas as well as for extensive modification of the shoreline. The amount of damage to inland buildings during storm conditions, Pranburi resort area, for example, largely depends upon surge elevation and penetration

Concluding remarks

1. The understanding in evolution of coastal landforms from individual coastal area is important key to see the trend of deposition or erosion in the past. Particular features are truncated beach ridges is one example.
2. The way to calculate precise rate of beach accretion and erosion need to be initiated from small-scale study in the changes of shoreface configuration (i.e., season or annual changes), and then expands to large-scale or the long-term measurement. In order to calculate sediment volume, small sectors and much more ground shoreface surveys are necessary.
3. Calculation of spatial changes only from remote sensing data is still questionable in term of methodology and outcome of calculation. Many errors can occur, therefore, other methods can be applied.