Carbonate Slope Deposit of Bengalun River, East Kalimantan

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The Bengalon River is located in East Kalimantan, close to the northeastern margin of the Kutei Basin (Fig. 1). A thick Paleogene and Neogene sedimentary package occur in this area, ranging from deep marine to fluviomarine depositional environments. This short note discusses the Early Miocene deep marine carbonates, particularly the calci-turbidite deposits.

Dark gray, massive calcareous shales intercalated with bioclastic limestones dominate the calci-turbidite sequence in this area (Fig. 2). These limestones range from mudstones to grainstones and packstones. They are white to gray in color, generally massive, and locally show grading and reverse grading with reworked large foraminiferal, algal and coral fragments. Beds are generally 0.5-5 cm in thickness and are lenticular or nodular in places. Subunits C, D, and E of the Bouma Sequence, which indicates distal turbidites, are common within bioclastic limestone beds.

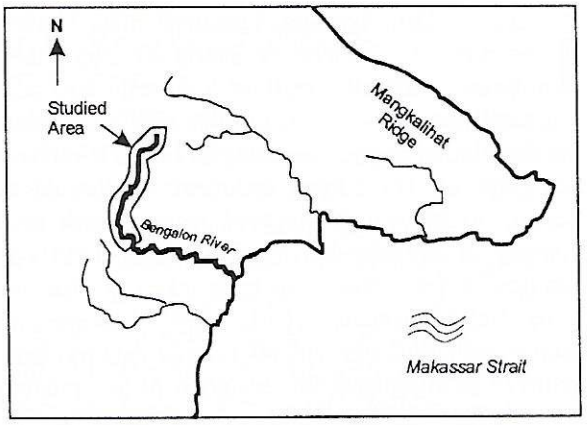


Fig. 1. Location Map

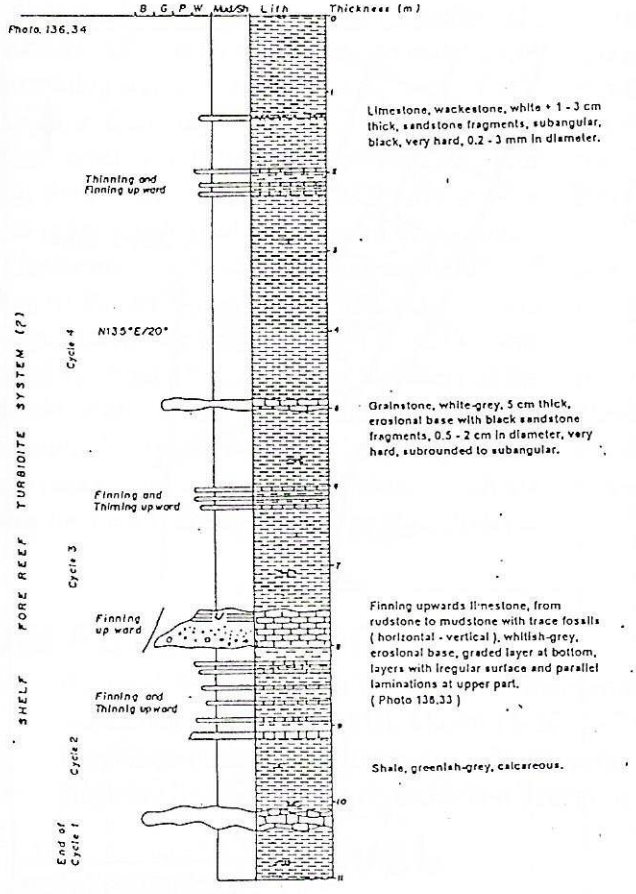


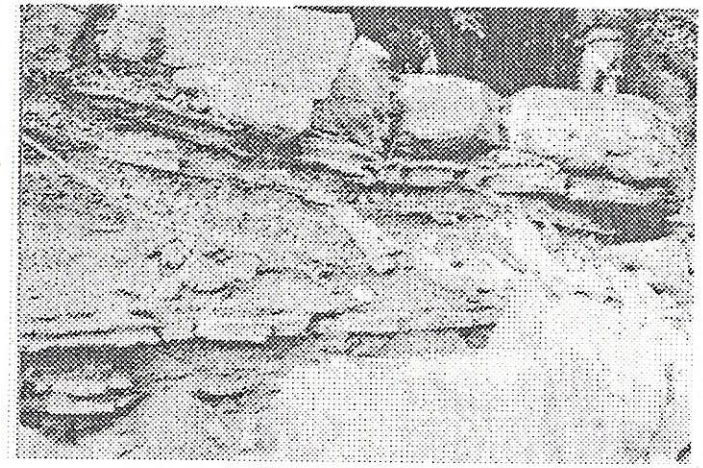
Fig. 2. Dark grey, massive calcaresous shales with bioclastic limestone intercalations

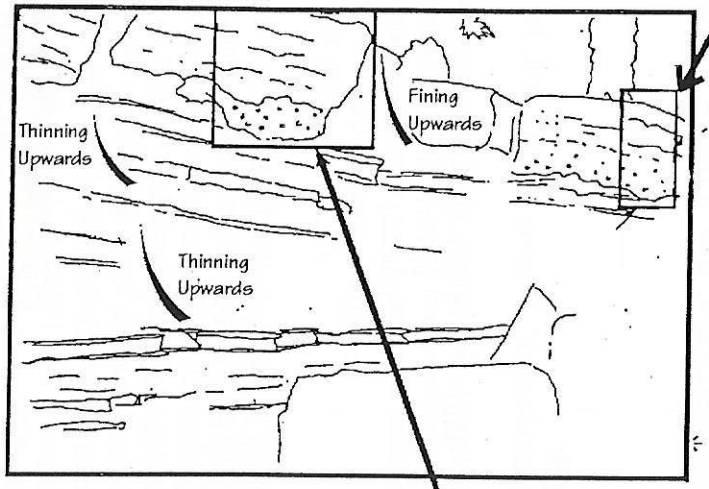
Thinning and fining upward sequences of bioclastic limestones occur in some part within the calci-trubidite unit (Fig. 3). They begin with 40-70 cm thick rudstone to grainstone interbeds and generally end with 5-10 cm mudstone to packstone interbeds. The thicker interbeds commonly begin with Bouma's subunit A with graded bedding, and change upward to Bouma's B and C subunits with parallel laminated and wavy laminated beds. This package indicates mid-fan channels or lobe shifting facies.

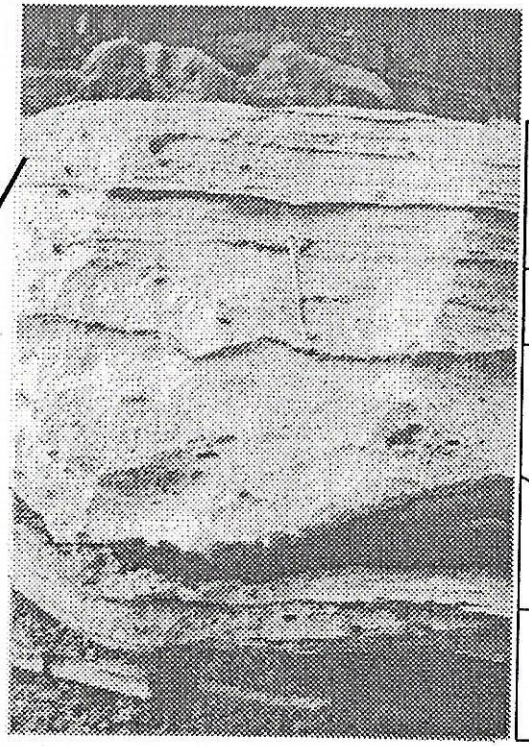
Disorganized rudstone to boundstone conglomerates, corresponding to disorganized beds of Walker's resedimented conglomerate model (Figure 4; 1975), were also recognized as sub-facies within the calci-turbidite sequence. This polymictic debris is rudstone to boundstone debris flow deposit, with limestone, calcareous sandstone, and calcareous shale fragments. The largest fragment found was approximately two meters in diameter and was coralline limestone. No internal structures are visible within this unit.

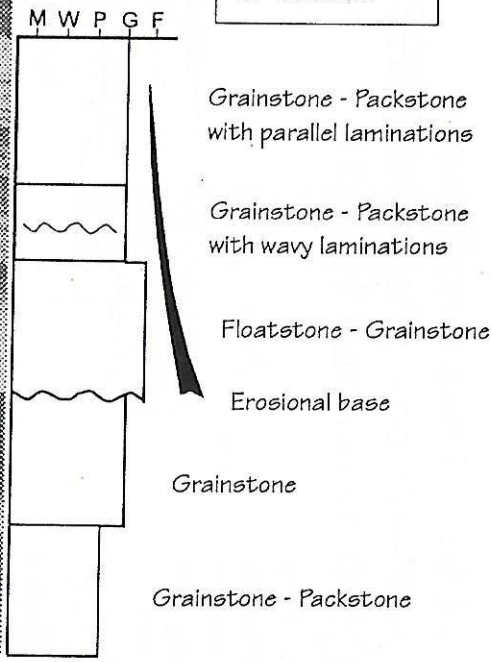
In the submarine fan depositional model, the

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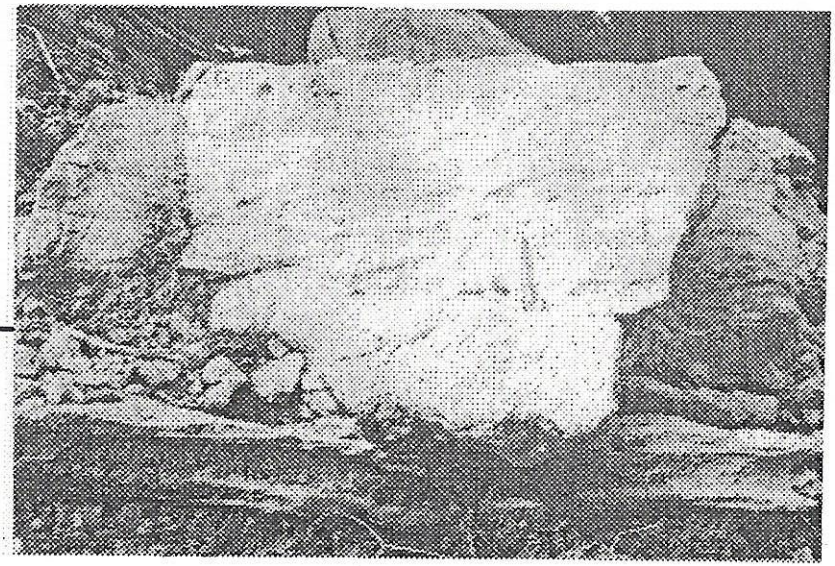


Fig. 3. Two thinning upwards sequences, each cut by an erosional surface of the next cycle. Each cycle begins with the coarse grained bioclastic limestone with graded sedimentary structure. This interval is interpreted as chanelized distal turbidite (mid-fan).

thick bedded rudstones interpreted as a debris flow correspond to upper-fan slope deposit. The rudstone to mudstone interbedded in shale subfacies may have come from either within lobes of a lower fan or within a upper to mid fan position. Paleontological analyses indicate an Early Miocene N4 age in a bathyal marine environment. The presence of carbonate sediments strongly suggests that an active carbonate-producing shelf existed somewhere landward at the same time.

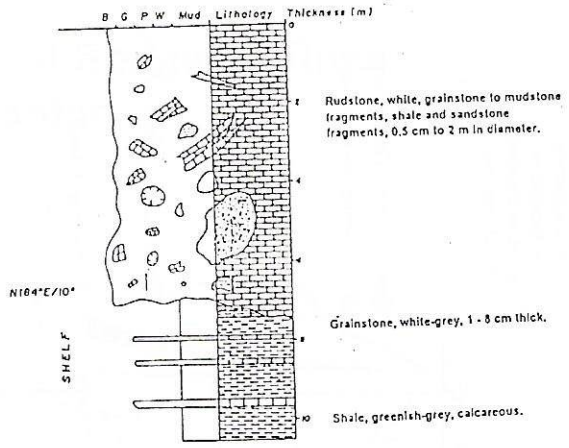


Fig. 4. Disorganized rudstone to boundstone conglomerates, corresponding to disorganized beds of Walker's resedimented conglomerate model

Reference
Walker, R. G., 1975, Generalized facies models for resedimented conglomerates of turbidite association: Geological Society of America, Bulletin, v. 86, p. 737-748.

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What is in next publication?

The main theme for next "Berita Sedimentologi" will be CLAY and tentative articles will be:
- The effect of clay minerals on hydrocarbon reservoir properties (Herman Darman)
- Clay chemical composition and mineralogy (Yahdi Zaim & Herman Darman)
- Short note on clay study from Kutei Basin, East Kalimantan (F. Hasan Sidi)
- Short note on clay study from South Sulawesi (Ngakan Alit Ascaria)
- Clay petrophysical properties

Contritubutors are welcome to submit their articles to the editors.

Evening Talk

FOSI is going to start bi-monthly Evening Talk program. The first talk will be:

How North Sea Hydrocarbon Rate Beats Indonesian?
by Herman Darman (Shell Indonesia)
Thursday ,4 February 1999 : 17.30 - 19.00
Smuggler Restaurant, Cilandak Comercial Estate (CCE),
Jl. Cilandak KKO, Jakarta Selatan;

Registration fee is Rp.15.000 (member) / Rp.25.000 (non-member)/ person including snacks and coffee/tea.
In his presentation, Herman Darman, will show comparisons of petroleum exploration and production activities between North Sea and Indonesia, covering production rates, G & G technology applications, size of giant fields discovered, etc. This presentation will give an overview on North Sea geology and the histroy of technology development applied. It will show clearly how technology play an important role in giving a better geological concept, resulted in hydrocarbon discoveries.

Sponsoring this meeting: Robertson