

12. MESOZOIC FORAMINIFERA, LEG 15, DEEP SEA DRILLING PROJECT

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This report lists foraminifers identified in Leg 15 samples and gives a biostratigraphic determination where possible. Only samples with biostratigraphically significant microfossils are listed. Significant radiolarians are also included.

15-146-18-1(37-40 cm)

Globotruncanella havanensis (Voorwijk)
Globotruncana stuartiformis Dalbiez
G. rosetta (Carsey)
G. elevata (Brotzen)
G. nothi (Bronnimann and Brown)
G. plummerae Gandolfi
G. stephensoni Pessagno
Globigerinelloides prairiehillensis Pessagno
Pseudoguembelina costulata (Cushman)
Heterohelix globulosa (Ehrenberg)
H. striata (Ehrenberg)

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone to *R. subcircumnodifer* Subzone; late Campanian-early Maestrichtian.

15-146-18-3(36-39 cm)

Heterohelix globulosa (Ehrenberg)
Pseudoguembelina costulata (Cushman)

Biostratigraphic determination: Late Campanian-Maestrichtian.

15-146-18-4(133-137 cm)

Globotruncana arca (Cushman)

Biostratigraphic determination: Campanian-Maestrichtian.

15-146-18-5(146-150 cm)

Globotruncanella havanensis (Voorwijk)
Globotruncana stuartiformis Dalbiez
G. rosetta (Carsey)
G. plummerae Gandolfi
G. elevata (Brotzen)
G. ventricosa White
G. hilli Pessagno
G. fornicata Plummer
G. lapparenti Brotzen
G. bulloides Vogler
Globigerinelloides volutus (White)
Schackoina sp. aff. *S. multispinata* (Cushman and Wickenden)
Pseudoguembelina costulata (Cushman)
Heterohelix striata (Ehrenberg)
H. globulosa (Ehrenberg)
H. punctulata (Cushman)

Radiolaria: *Pseudoaulophacus lenticulatus* (White), *Dictyomitra multicostata* Zittel group.

Biostratigraphic determination: *G. fornicata-stuartiformis* Zone, *G. elevata* Subzone, *G. calcarata* Zonule; late Campanian.

15-146-19-1(137-140 cm)

Globotruncana elevata (Brotzen)
G. stuartiformis Dalbiez
G. arca (Cushman)
Pseudotextularia elegans (Rzehak)

Biostratigraphic determination: late Campanian-Maestrichtian.

15-146-19-2(113-116 cm)

Globotruncana elevata (Brotzen)
G. fornicata Plummer
G. linneiana (d'Orbigny)
G. lapparenti Brotzen
G. plummerae Gandolfi
G. stuartiformis Dalbiez
G. rosetta (Carsey)
G. stephensoni Pessagno
G. ventricosa White
G. arca (Cushman)
G. hilli Pessagno ?
G. nothi (Bronnimann and Brown)

Globotruncanella sp.
Pseudoguembelina costulata (Cushman)

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule; late Campanian.

15-146-19-3(120-124 cm)

Globotruncana arca (Cushman)

Biostratigraphic determination: Campanian-Maestrichtian.

15-146-20-2(113-118 cm)

Globotruncanella sp.
Heterohelix globulosa (Ehrenberg)
H. pulchra Brotzen

15-146-20-3(108-113 cm)

Globotruncana fornicata Plummer
G. stephensoni Pessagno
G. stuartiformis Dalbiez
G. elevata Brotzen
Pseudoguembelina costulata (Cushman)

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone to *R. subcircumnodifer* Subzone; late Campanian-early Maestrichtian.

15-146-22-2(110-113 cm)

Globotruncana calcarata Cushman

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule; late Campanian.

15-146-23-1(65-70 cm)

Globotruncana lapparenti (Brotzen)
G. linneiana (d'Orbigny)
G. elevata (Brotzen)

Biostratigraphic determination: Late Campanian-early Maestrichtian.

15-146-24-1(127-130 cm)

Radiolaria: *Dictyomitra multicostata* Zittel group.

Biostratigraphic determination: Turonian-Maestrichtian.

15-146-26-2(127-130 cm)

Radiolaria: *Pseudoaulophacus parqueraensis* Pessagno, *Alievium murphyi* Pessagno, *A. gallowayi* (White) ?, *Dictyomitra multicostata* Zittel group.

Biostratigraphic determination: Coniacian-late Campanian.

15-146-27-1(19-23 cm)

Radiolaria: *Dictyomitra multicostata* Zittel group, *Pseudoaulophacus lenticulatus* (White).

Biostratigraphic determination: Coniacian-late Campanian.

15-146-28-2(85-87 cm)

Radiolaria: *Alievium gallowayi* (White) ?, *A. murphyi* Pessagno, *Pseudoaulophacus parqueraensis* Pessagno, *P. lenticulatus* (White).

Biostratigraphic determination: Coniacian/Santonian-Campanian.

15-146-30-1(130-132 cm)

Radiolaria: *Archaeospongoprimum bipartitum* Pessagno, n. sp., *Patulibracchium teslaensis* Pessagno, *Dictyomitra multicostata* Zittel group, *Alievium murphyi* Pessagno, *A. gallowayi* (White), *Pseudoaulophacus lenticulatus* (White), *P. parqueraensis* Pessagno, *P. venadoensis* Pessagno, *P. praefloresensis* Pessagno, *P. floresensis* Pessagno, *Crucella espartoensis* Pessagno, *Conocaryomma lentis* Lipman.

Biostratigraphic determination: Santonian (probably late Santonian).

15-146-32-1(130-134 cm)

Same radiolarian assemblage as 15-146-30-1.

15-150-9-1(87-89 cm)

Marginotruncana concavata (Brotzen)

Biostratigraphic determination: *G. bulloides* Assemblage Zone, *M. concavata* Subzone; early Santonian.

15-151-12-1(104-106 cm)

Globigerinelloides ehrenbergi Barr

Heterohelix striata (Ehrenberg)

Archaeoglobigerina sp. cf. *A. blowi* Pessagno

A. cretacea (d'Orbigny)

Globotruncana lapparenti Brotzen

G. fornicata Plummer

Marginotruncana marginata (Reuss)

M. pseudolinneiana Pessagno

Biostratigraphic determination: *G. bulloides* Assemblage Zone, *M. concavata* Subzone (upper part); early Santonian.

15-151-12-3(73-75 cm)

Marginotruncana concavata (Brotzen)

M. n. sp.

Archaeoglobigerina cretacea (d'Orbigny)

Heterohelix striata (Ehrenberg)

Globotruncana fornicata Plummer

G. lapparenti Brotzen

Biostratigraphic determination: *G. bulloides* Assemblage Zone, *M. concavata* Subzone (upper part); early Santonian.

15-152-14-1(100-102 cm)

Globotruncana gansseri Bolli

G. contusa (Cushman) group

G. trinidadensis Gandolfi

G. aegyptiaca Nakkady

G. elevata (Brotzen)

Rugoglobigerina rugosa Plummer

R. rotundata Bronnimann

Pseudoguembelina costulata (Cushman)

P. excolata (Cushman)

P. kempensis Esker

Biostratigraphic determination: *G. contusa-stuartiformis* Assemblage Zone, *G. gansseri* Subzone (probably upper part); middle Maestrichtian.

15-152-16-1(146-149 cm)

Globotruncana fornicata Plummer

G. lapparenti ss. Brotzen

G. stuartiformis Dalbiez

G. n. sp. aff. G. ventricosa White

G. plummerae Gandolfi

G. ventricosa White

Rugoglobigerina rugosa Plummer

Heterohelix punctulata (Cushman)

Pseudoguembelina costulata (Cushman)

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone (undifferentiated); late Campanian.

15-152-16-2(91-94 cm)

Globotruncana fornicata Plummer

G. plummerae Gandolfi

G. rosetta (Carsey)

G. lapparenti Brotzen

G. stuartiformis Dalbiez

G. elevata (Brotzen)

G. stephensoni Pessagno

G. bulloides Vogler

G. n. sp. aff. G. ventricosa White

Rugotruncana subcircumnodifer (Gandolfi)

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone (undifferentiated); late Campanian.

15-152-16-2(91-94 cm)

Globotruncana fornicata Plummer

G. plummerae Gandolfi

G. rosetta (Carsey)

G. lapparenti Brotzen

G. stuartiformis Dalbiez

G. elevata (Brotzen)

G. stephensoni Pessagno

G. bulloides Vogler

G. n. sp. aff. G. ventricosa White

Rugotruncana subcircumnodifer (Gandolfi)

Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule (via superposition); latest Campanian.

15-152-17-1(80-85 cm)

Globotruncana elevata Brotzen

G. stuartiformis Dalbiez

G. arca (Cushman)

G. lapparenti Brotzen

G. stephensoni Pessagno

- G. fornicata* Plummer
G. n. sp. aff. G. ventricosa White
Rugotruncana subcircumnodifer (Gandolfi)
Heterohelix striata (Ehrenberg)
G. punctulata (Cushman)
Pseudoguembelina costulata (Cushman)
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule (via superposition); latest Campanian.
- 15-152-18-1(68-70 cm)**
Globotruncana elevata Brotzen
G. ventricosa White
G. fornicata Plummer
G. stuartiformis Dalbiez
G. rosetta (Carsey)
G. linneiana (d'Orbigny)
Pseudoguembelina costulata (Cushman)
Rugoglobigerina sp.
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone (undifferentiated); late Campanian.
- 15-152-18-2(141-144 cm)**
Globotruncana subspinosa Pessagno
G. ventricosa White
G. fornicata Plummer
G. stuartiformis Dalbiez
G. plummerae Gandolfi
G. stephensoni Pessagno
G. sp. aff. G. ventricosa White
Rugoglobigerina rugosa (Plummer)
Pseudoguembelina costulata (Cushman)
Heterohelix punctulata (Cushman)
Globigerinelloides sp. aff. G. yaucoensis (Pessagno)
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone; late Campanian.
- 15-152-19-1(103-106 cm)**
Globotruncana calcarata Cushman
G. n. sp. aff. G. ventricosa White
G. fornicata Plummer
G. elevata (Brotzen)
G. subspinosa Pessagno
G. hilli Pessagno
G. lapparenti Brotzen
Archaeoglobigerina cretacea (d'Orbigny)
Rugoglobigerina rugosa (Plummer)
Globigerinelloides yaucoensis (Pessagno)
G. prairiehillensis Pessagno
Pseudoguembelina costulata (Cushman)
Heterohelix striata (Ehrenberg)
H. globulosa (Ehrenberg)
H. sp.
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule; latest Campanian.
- 15-152-21-1(108-114 cm)**
 Same assemblage as 15-152-19-1(103-106 cm) with *Globotruncana calcarata* (Cushman). Biostratigraphic determination: latest Campanian.
- 15-153-12-2(75-78 cm)**
Globotruncana bulloides Vogler
G. elevata Brotzen
Pseudoguembelina excolata (Cushman)
Pseudotextularia elegans Rzehak
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *R. subcircumnodifer* Subzone; early Maestrichtian.
- 15-153-12-3**
Globotruncana fornicata Plummer
G. plummerae Gandolfi
Pseudotextularia elegans Rzehak
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone (undifferentiated); Campanian-early Maestrichtian.
- 15-153-13-2(28-30 cm)**
Globotruncana lapparenti s.s. Brotzen
G. linneiana (d'Orbigny)
G. fornicata Plummer
G. rosetta (Carsey)
G. hilli Pessagno
G. stuartiformis Dalbiez
G. elevata Brotzen
Rugoglobigerina rugosa Plummer
Globigerinelloides yaucoensis (Pessagno)
G. prairiehillensis Pessagno
Pseudoguembelina costulata (Cushman)
Heterohelix punctulata (Cushman)
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule to *R. subcircumnodifer* Subzone, *G. lapparenti* Zonule; late Campanian-early Maestrichtian.
- 15-153-13-4(58-60 cm)**
Globotruncanella havanensis (Voorwijk)
Globotruncana arca (Cushman)
G. stephensoni (Pessagno)
G. stuartiformis Dalbiez
G. rosetta (Carsey)
G. fornicata Plummer
Pseudoguembelina costulata (Cushman)
Heterohelix striata (Ehrenberg)
Rugoglobigerina rugosa (Plummer)
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone to *R. subcircumnodifer* Subzone; late Campanian-early Maestrichtian.
- 15-153-14-1(97-100 cm)**
Globotruncana fornicata Plummer
G. arca (Cushman)
G. linneiana (d'Orbigny)
G. elevata (Brotzen)
G. stuartiformis Dalbiez
G. stephensoni Pessagno
G. bulloides (Vogler)
Rugoglobigerina rugosa Plummer
Globigerinelloides yaucoensis (Pessagno)
G. volutus (White)
Heterohelix striata (Ehrenberg)
Pseudoguembelina costulata (Cushman)
 Biostratigraphic determination: *G. fornicata-stuartiformis* Assemblage Zone, *G. elevata* Subzone, *G. calcarata* Zonule to *R. subcircumnodifer* Subzone (undifferentiated); late Campanian-early Maestrichtian.

15-153-16-2(70-72 cm)

Marginotruncana concavata (Brotzen)

M. angusticarenata (Gandolfi)

M. coronata (Bolli)

M. indica (Jacob and Sastry)

M. marginata (Reuss)

Globoatruncana fornicata Plummer

Whiteinella archeocretacea Pessagno

Loeblichella sp.

Heterohelix reussi (Cushman)

Biostratigraphic determination: *G. bulloides* Assemblage Zone, *M. concavata* Subzone (upper part); early Santonian.