



Fig. 2. Map of the MENEZ GWEN vent field (“EM 12” bathymetric survey — FLORES cruise). The small (young) volcano is growing on the bottom of the axial graben, which split an 800-m tall circular volcano situated at the centre of the volcanic segment adjacent to LUCKY STRIKE segment.

At the PP 32/33 markers, the faunal characteristics were similar to the above. Mussel populations were very important and covered virtually all-available rock surfaces. In contrast with previously studied sites, the size of mussels in this population was heterogeneous. Some mussels carried the commensal *Branchiopolynoe seepensis*. Numerous gastropods were present on the mussels. Geryonid population around and inside the site was important. A single fish of the genus *Gaidropsarus* was observed inside a crevice amongst mussels.

LUCKY STRIKE is one of the largest known active fields in the modern ocean. The hydrothermal fluid, with a temperature ranging between 170 and 324°C, has fluid characteristics (temperature, chlorinity and gas concentration) varying from site to site within the field (Charlou et al., 2000a,b). The hydrothermal vent sites of this field are distributed around a lava lake (Fig. 3), in particular in the southeastern and northwestern zones. Well-defined active chimneys such as Eiffel Tower, Y3 or Elizabeth, belching out very hot fluids and zones where hydrothermal activity is more diffuse can both be found at LUCKY STRIKE. For practical reasons, an equivalence of vent site names given during French and American cruises corresponding to passive markers is proposed (Table 2).

The fauna is described from the biggest and most studied site EIFFEL TOWER considered as example of the Lucky Strike field. In fact, no noticeable difference was observed in the dominant species composition or microdistribution except at the Y3 site. Except for the flaky anhydrite- and barite-clad steep slopes, which were inhabited by more or less extensive populations of *M. fortunata*, the edifice walls of EIFFEL TOWER were covered by *Bathymodiolus azoricus*. The Polynoidae